

Hanford Cultural Resources Laboratory Annual Report For Fiscal Year 1992

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Executive Summary

The Hanford Cultural Resources Laboratory (HCRL) was established by the U. S. Department of Energy, Richland Field Office (RL) in 1987 as part of Pacific Northwest Laboratory (PNL). The HCRL provides support for managing the archaeological, historical, and cultural resources of the Hanford Site located in southcentral Washington, in a manner consistent with the National Historic Preservation Act Amended 1992 (NHPA), the Archaeological Resources Protection Act of 1979 (ARPA), the Native American Grave Protection and Repatriation Act of 1990 (NAGPRA), and the American Indian Religious Freedom Act of 1978 (AIRFA). The HCRL responsibilities have been set forth in the Hanford Cultural Resources Management Plan as a prioritized list of tasks to be undertaken to keep the RL in compliance with federal statutes, regulations, and guidelines. For FY 1992, these tasks were to 1) ensure compliance with NHPA Section 106, 2) monitor the condition of known archaeological sites, 3) evaluate cultural resources for potential nomination to the National Register of Historic Places, 4) educate the public about cultural resources, and 5) conduct a sample archaeological survey of Hanford lands. Research was also conducted as a spin-off of these tasks and is also reported here.

NHPA Section 106 compliance reviews are conducted prior to each proposed ground disturbance or building alteration/demolition project on the Hanford Site. During FY 1992, Hanford contractors requested 247 Section 106 reviews, 29 of which required archaeological surveys; 3 of these survey requests were carried over from FY 1991. The surveys covered a total of 2539.8 ha, more than three times the area covered in FY 1991, and resulted in the discovery of 12 prehistoric archaeological sites, 42 historic archaeological sites, 3 archaeological sites with both historic and prehistoric components, and 3 sites with undetermined cultural affiliation. Projects were relocated when necessary to avoid any potential impact to sites considered eligible for listing on the National Register of Historic Places. One project, 92-300-007, involved a site (45BN163) where impact could not be avoided; mitigation and data recovery of cultural materials at this site will be completed during FY 1993. One sample plot covering 0.004 ha was surveyed for NHPA Section 110 compliance and no archaeological sites were recorded.

The archaeological site monitoring program is designed to determine whether RL's cultural resource management and protection policies are effective. Results of monitoring are used in planning for cultural resource site management and protection. Forty sites, including 11 cemetery sites, were monitored during this fiscal year.

Public education activities about cultural resources included lectures to groups of all ages. Eighteen lectures were presented to a variety of interest groups, including school classes, professional organizations, and Hanford workers. Additionally, the first of four display panels planned for site-wide distribution neared the final production phase this year. A Native American display at the Hanford Science Center was present throughout November in recognition of "Native American Month." HCRL staff also participated in two media events and numerous small TV, radio, and newspaper spots.

Research activities in FY 1992 focused on archaeology and paleoenvironments. The archaeological focus was on prehistoric Native Americans and their resource exploitation activities, and the archaeological evidence of Depression-era activities. Research on paleoenvironments focused on paleohydrology and salmon exploitation. In these areas, the research emphasized the development of methods to gain information about past environments using archaeological remains to understand the complex interactions between human populations and climate.

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1.0 Introduction

The Hanford Cultural Resources Laboratory (HCRL) was established by the U.S. Department of Energy, Richland Field Office (RL) in 1987 as part of Pacific Northwest Laboratory (PNL). The HCRL provides support for managing the archaeological, historical, and cultural resources of the Hanford Site located in southcentral Washington, in a manner consistent with the National Historic Preservation Act, amended 1992 (NHPA), the Archaeological Resources Protection Act of 1979 (ARPA), the American Indian Religious Freedom Act of 1978, and the Native American Grave Protection and Repatriation Act of 1990 (NAGPRA). In addition, the HCRL conducts research into the human past and climate change using archaeological data from the Hanford Site and elsewhere.

The HCRL's activities are governed by the Hanford Cultural Resources Management Plan (HCRMP) (Chatters 1989), which established policies and procedures for compliance with federal statutes and regulations. The HCRMP includes a prioritized list of tasks that guides cultural resource management activities each year. Tasks performed during FY 1992 were, in order of priority, to conduct NHPA Section 106 reviews; monitor the condition of known historic properties; educate the public about the values of cultural resources and the laws written to protect them; and conduct surveys of the Hanford Site pursuant to Section 110 of the NHPA. In addition to performing these prioritized tasks, HCRL staff researched regional prehistory, history, and climate change using data from the Hanford Site and environs.

This report includes a chapter for each task, in order of priority. Each chapter explains the task, the tactics used to perform it, and summarizes the results. Supporting details are provided in Appendices A-D.

2.0 Section 106 Compliance Reviews

As required by Section 106 of the NHPA, the RL reviews each proposed ground disturbance or building alteration/demolition project to determine if it may impact any cultural property that is listed on or eligible for the National Register of Historic Places. This is accomplished through the cultural resources review process (Chatters 1989: Section 3.1.1). For efficiency, cultural resource reviews are classified according to four criteria: 1) whether the project entails maintenance, demolition, or new construction; 2) the existence of previous disturbance in the area to be reviewed; 3) the cultural resource sensitivity of the area in which the activity is planned; and 4) whether or not the project involves any existing structure or building. Projects may fall into any one, or a combination of two or more, of six project classes: Class I, maintenance in a disturbed, low-sensitivity area; Class II, maintenance in a disturbed, high sensitivity area; Class III, new construction in a disturbed low sensitivity area; Class IV, new construction in a disturbed, high sensitivity area; Class V, all projects involving undisturbed ground; and Class VI, projects involving demolition or remodeling of existing structures. Each class requires a different response, as specified in Section 3.0 of the Hanford Cultural Resources Management Plan (Chatters 1989).

2.1 Reviews Conducted

During FY 1992, Hanford contractors requested 247 cultural resources reviews. Most cases initiated this year were Class I (119) and Class III reviews (75), followed by Class V (17), mixed Class III/V (14), Class VI (9), Class IV (7), mixed Class III/IV (2), mixed Class IV/V (2), Class III/VI (1), and one mixed Class III/IV/V. Six Class I reviews involved written responses and 113 were given verbal clearances only. When a verbal clearance was granted, an excavation permit signature was provided to the client per telephone conversation.

The majority of the written reviews were requested for the 300 and 100 Areas (41 and 35, respectively), followed by the 600 and 200 Areas (32 and 16, respectively). The remainder were fairly equally divided between the 700, 1100, and 3000 Areas, and DOE-administered lands outside of the Hanford Site boundaries (Appendix A). Most of the verbal clearances were given for projects in the 200 Areas (65%), followed by the 100 Area reactor zones (13%). Verbal clearances were also given for the 300, 400, 600, 700, and 1100 Areas.

Twenty-nine Class V cases requiring surveys (Table 2.1.) and seven requiring monitoring (Table 2.2) were initiated in FY 1992. There is some overlap in the number of monitoring and survey cases because monitoring was required in some cases after the survey had been completed. Three Section 106 reviews required extensive fieldwork and therefore were given project status: the McGee Ranch Project (90-600-012), LIGO Project (90-600-028), and the 100 Area CERCLA Operable Units (91-100-CERCLA). The McGee Ranch Project involved the survey of 840 ha and documentation of 22 archaeological sites and 20 isolated finds. The LIGO Project involved the survey of 883.46 ha; 1 historic site and 11 isolated finds were recorded. The 100 Area Project involved surveying a portion (518 ha) of the 100 Area CERCLA Operable Units, and subsequent evaluation of a selected portion of discovered sites. The project will be ongoing for another year, and the FY 1992 survey results will be reported elsewhere. Highlights of all three projects are outlined in Section 2.3 and Appendix B.

Table 2.1. Section 106 Reviews that Required Surveys in FY 1992

<u>Case Number</u>	<u>Project Name</u>	<u>Area (ha)</u>	<u>Cultural Resources</u>
90-600-028	LIGO	883.46	45BN480
91-300-024	DOE Preferred EMSL Location	50.00	HT-91-071 HT-91-072
91-100-CERCLA	100 Operable Unit	518.0	38 Sites 1 Isolated Find
91-600-012	McGee Ranch Vicinity	906.52	22 Sites 20 Isolated Finds
92-100-005	100 B/C Monitoring Wells	0.18	None
92-100-006	100 N Monitoring Wells N-75, N-76, N-77	0.27	None
92-100-011	100 K Soil Bores	0.15	None
92-100-012	100 K Well K-37	0.09	None
92-100-013	100 N Ground Water Monitoring Well N-80	0.09	None
92-100-014	100 N Ground Water Monitoring Well N-77	0.09	None
92-200-007	216-A-6 Crib Interim Stabilization	5.18	None
92-200-008	B Pond Interim Stabilization	32.00	1 Can
92-300-007	Relocation, 300 Area Treated Effluent Disposal Facility (TEDF)	4.00	Site 45BN163
92-600-001	100-HR-3 Boreholes 699-93-49B, 699-93-46, 699-91-43	0.03	None
92-600-002	Ground Water Monitoring Well 699-57-59, 200-BP-1	0.003	None
92-600-007	Background Soil Samples	0.09	None
92-600-010	RCRA Ground Monitoring Wells 299-E25-44 and 99-E25-45	0.01	None
92-600-012	Hazardous Materials Management and Emergency Response Training Center (HAMMER)	105.24	HT-92-008 HT-92-009
92-600-017	Ground Monitoring Well 299-W26-13	0.003	None
92-600-018	Ground Monitoring Wells A-29-92-1 and A-29-92-2	0.006	None
92-600-019	RCRA Monitoring Wells BP29-1 and BP92-2	0.006	None
92-600-021	Sodium Dichromate Drum Burial	0.23	None
92-600-022	W-017H RCRA Ground Water Monitoring Well	4.30	None
92-600-026	Integrated Voice/Data Telecommunications System (IVDTS), Phase I	92.80	None
92-600-028	North Slope Waste Sites (Project Continues Into FY 1993)	9.51	8 Sites
92-600-029	IVDTS Cable Route, Phase II	12.80	None
92-600-030	Utilities Projects/Operations and Landlord Project	16.00	None
92-1100-001	North Richland Substation	0.01	None
92-0000-002	Practical Training Area	1.00	None

Table 2.2. Section 106 Reviews that Required Monitoring in FY 1992

<u>Case Number</u>	<u>Project Name</u>	<u>Area (ha)</u>	<u>Cultural Resources</u>
92-100-005	100 B/C Monitoring Wells	None	None
92-100-011	100 K Boreholes	None	None
92-100-021	100-KR Test Pit	None	None
92-300-007	300 Area Treated Effluent Disposal Facility	Yes	Site 45BN163
92-600-003	Raptor Nesting Poles	None	None
92-600-023	Well Head Survey	None	None
92-600-034	WPPSS Sirens	None	None

Twenty-nine surveys were completed totaling 2539.8 ha, or more than three times the area surveyed in the previous year. The largest project (91-600-012) covered 804 ha. Five cases had areas greater than 50 ha, three cases covered more than 10 ha, and the smallest case covered only 0.003 ha. Most surveys covered less than 2 ha, and 16 were under 1 ha. The majority of surveys occurred in the 600 Area (16), followed in descending order by the 100 Area (7), 200 Area (2), 300 Area (2), 1100 Area (1), and one outside of normally recognized boundaries (Appendix A). Not all Class V cases required surveys; one project was initiated in areas previously surveyed and other projects required only monitoring due to the nature and scale of the impact.

2.2 Cultural Resources Identified

Seventy-nine new archaeological sites were recorded during FY 1992 (Table 2.3). Most of the sites recorded were discovered during two large survey projects; 22 sites and 20 isolated finds were recorded during the McGee Ranch Project (Gard and Poet 1992) early in the fiscal year, while 38 archaeological sites and a single isolated find were encountered during surveys for a portion of the 100 Area Operable Unit Project (91-100-CERCLA). The majority of these sites are historic, dating from the late 1800s to the early years of the Hanford Site development. They will provide new information on early Euro-American ranching and settlement activities in the Hanford area. The prehistoric sites recorded this fiscal year may provide new information on inland resource procurement from 4500 to 2500 B.P. (Gard and Poet 1992) and fishing practices along the Columbia River.

2.3 Survey of the McGee Ranch Vicinity, 100 Area Operable Unit, and Laser Interferometer Gravitational Wave Observatory Project

Three large projects were surveyed during FY 1992, the McGee Ranch, a portion of the 100 Area Operable Unit, and the Laser Interferometer Gravitational Wave Observatory Project (LIGO) (Figure 2.1). Sixty-one archaeological sites and 32 isolated finds were recorded during the survey efforts for these combined projects. Most sites are historic and represent the greatest body of early Euro-American settlement data yet compiled for the Hanford Site.

Table 2.3. Archaeological Sites Identified in FY 1992

HCRL Temp. Number	Washington Number	Category	Description
HT-92-005	45BN474	Prehistoric	Lithic Scatter
HT-92-003	45BN475	Prehistoric	Lithic Scatter
HT-92-004	45BN476	Prehistoric	Lithic Scatter
HT-91-063	3-23	Historic	5 Historic Structures with debris
HT-91-069	3-24	Historic	Domestic Scatter
HT-91-067	3-25	Historic	Domestic Scatter
HT-91-066	3-26	Historic	Domestic Scatter
HT-91-064	3-27	Historic	Structure, Cistern, Chicken Coop, Debris
HT-91-058	3-28	Historic	Domestic Scatter
HT-91-057	3-29	Historic	Domestic Scatter
HT-91-056	3-30	Historic	Large Homestead
HT-91-055	3-31	Historic	Domestic Scatter
HT-91-054	3-32	Historic	Domestic Scatter
HT-91-053	3-33	Historic	Can Scatter
HT-91-052	3-34	Historic	Can Scatter
HT-91-051	3-35	Historic	Domestic Scatter
HT-91-049	3-36	Historic	Can Scatter
HT-91-048	3-37	Historic	Can Scatter
HT-91-061	3-38	Historic	Large Homestead
HT-91-059	3-39	Historic	Domestic Scatter
HT-91-060	3-40	Historic	Historic Structure and debris
HT-91-062	3-41	Historic	Large Homestead
HT-91-065	3-42	Historic	Domestic Scatter
HT-92-001	3-45	Historic	Can Scatter
HT-91-071	3-46	Historic	Can Scatter
HT-91-072		Prehistoric	Shell, Fire-Cracked Rock, Lithics
HT-92-002		Prehistoric	Lithic Scatter
HT-92-006		Historic	Large Homestead Complex
HT-92-007		Prehistoric	Lithic Scatter
HT-92-008		Historic	Modern Trash Scatter
HT-92-009		Historic	Structural Debris
HT-92-011		Historic	Domestic Scatter
HT-92-012		Historic	Domestic Scatter
HT-92-013		Historic	3 Trash Scatters, 3 Historic Roads
HT-92-014		Prehistoric/Historic	Historic Structures, Lithics
HT-92-015		Historic	Agriculture/Domestic Scatter/Foundation
HT-92-016		Historic	Historic Tools and Machinery
HT-92-017		Historic	Domestic Scatter and Foundation
HT-92-018		Historic	Agriculture/Domestic Scatter/Foundation
HT-92-019		Historic	Depressions, Foundations, Debris Scatter
HT-92-020		Historic	Depressions, Foundations, Debris Scatter
HT-92-021		Late Historic	Foundations, Army and Domestic Debris
HT-92-022		Late Prehistoric	Storage Caches
HT-92-023		Historic	Agriculture/Domestic Scatter, Foundation
HT-92-024		Historic	Domestic/Agriculture Debris, Foundations, Depressions
HT-92-025		Historic	Fieldstone Mound, Domestic Debris
HT-92-026		Historic/Prehistoric	Domestic Scatter, 1 Projectile Point
HT-92-027		Late Historic	5 Depressions, Army Debris
HT-92-028		Historic	Foundations, Well, Depressions, Rock Alignments

Table 2.3. (contd)

HCRL Temp. Number	Washington Number	Category	Description
HT-92-029		Historic/Prehistoric	Foundations, Debris Scatter, Depressions, Boat Launch, 3 Prehistoric Flakes
HT-92-030		Historic	Domestic Scatter
HT-92-031		Historic	Domestic Scatter
HT-92-032		Historic/Prehistoric	Lithics, Historic Debris
HT-92-033		Prehistoric	Cobble Tools, Lithics, Fire-Cracked Rock
HT-92-034		Prehistoric	Large Lithic Scatter
HT-92-035		Historic	Depressions, 3 Historic Scatters
HT-92-036		Prehistoric	17 Depressions, Cobble Tools
HT-92-037		Unknown	4 Depressions
HT-92-038		Historic	Small Trash Scatter
HT-92-039		Historic	Trash Scatter
HT-92-040		Historic	Rock Piles, Trash Scatter
HT-92-041		Late Historic	4 Army Rock Arrangements, Army and Domestic Debris
HT-92-042		Historic	Trash Scatter
HT-92-043		Unknown	6 Depressions
HT-92-044		Historic	5 Trash Scatters
HT-92-045		Late Historic	Army Baseball Field
HT-92-046		Historic	Foundations, Depressions Debris Scatter
HT-92-047		Historic	Construction Debris, 2 Trenches
HT-92-048		Historic	4 Trash Scatters
HT-92-049		Historic	Foundation, Well, Structure, Army and Domestic Debris
HT-92-050	45BN480	Historic	Trash Scatter
HT-92-051		Historic	Cistern, Historic Debris
HT-92-052		Historic	Cistern, Historic Debris
HT-92-053		Historic	Cistern, Historic Debris
HT-92-054		Historic	Cistern, Historic Debris
HT-92-055		Historic	Stock Tank, Well, Fencing System
HT-92-056		Historic	2 Cisterns, Depression, 2 Trash Scatters
HT-92-057		Historic	Cistern, Trash Scatter, Fence
HT-92-058		Historic	Cistern, 2 Depressions, Trash Scatter

2.3.1 McGee Ranch Vicinity

The McGee Ranch survey, which was completed in response to proposed characterization studies of McGee Ranch soil, has been reported in a separate document (Gard and Poet 1992). During the survey, HCRL staff covered 804 ha and recorded 22 archaeological sites and 20 isolated finds. Only 2 sites and 3 isolated finds are prehistoric; the remainder are historic. The historic sites date from the turn of the century to the 1940s and represent settlement patterns throughout the Columbia Basin.

Eight of the 22 sites in the McGee Ranch Project were considered to be significant. Both prehistoric sites provide evidence of inland resource procurement sometime from 4500 to 2500 B.P., while the historic sites represent settlement activities at two time periods, the earliest Euro-American settlement of the Columbia Basin and the Depression era.

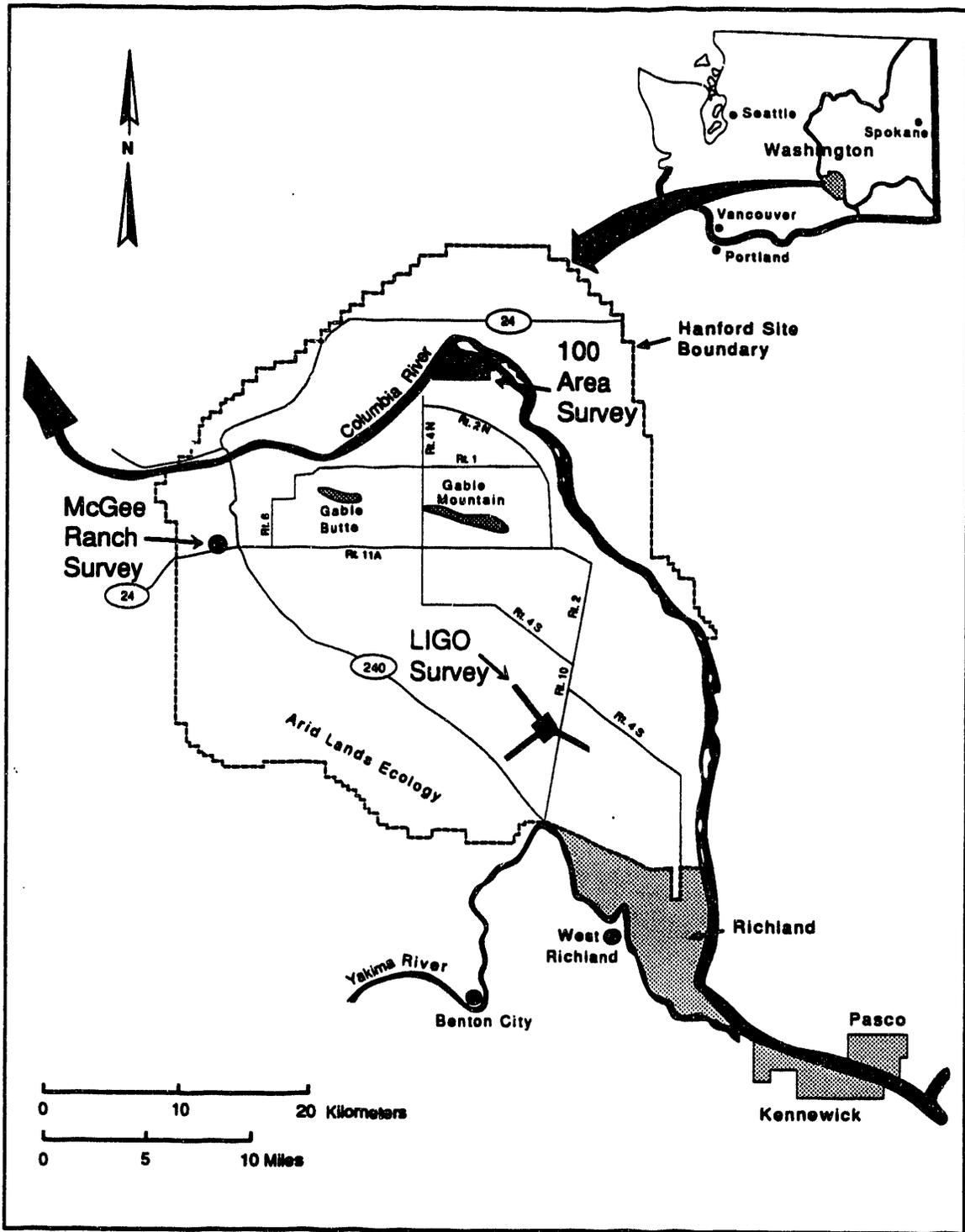


Figure 2.1. Survey Areas at the McGee Ranch Vicinity, 100 Area Operable Unit, and LIGO Project

2.3.2 100 Area Operable Unit

The 100 Area Operable Unit survey was completed during the summer of 1992 by HCRL staff who were assisted by NORCUS (Northwest Organization of Colleges and Universities for Science) students and a SRAP (Student Research Apprenticeship Program) student. Approximately 518 ha of previously unsurveyed ground was investigated between two 100 Area reactors, D&DR and H. Thirty-eight archaeological sites and one isolated find were documented during survey efforts. The majority of these sites are historic and represent three distinct time periods: early Euro-American settlement, the Depression era, and a more recent military presence on the Hanford Site. The few prehistoric sites will provide additional information about resource procurement activities along significant stretches of the Columbia River. The low density of surface evidence for prehistoric activity within this survey area suggests that most occupation areas are either overlain by eolian sand deposits or were destroyed by fluvial action during the late Pleistocene and the early Holocene epochs.

Determinations of eligibility for inclusion on the National Register of Historic Places have not been completed for the cultural resource sites located during survey of the 100 Area Operable Unit. These determinations will be completed in FY 1993 with the additional survey work necessary for all portions not yet investigated.

2.3.3 100 Area Test Excavations at Sites 45BN432, 45BN433, AND 45BN423

Between July 20 and September 15, 1992, HCRL undertook test excavations at three archaeological sites as part of 100 Area Operable Unit CERCLA characterization studies.

Sites 45BN432 and 45BN433

Archaeological sites 45BN432 and 45BN433 are situated on a Holocene terrace overlooking the Columbia River, directly across from the 100 F Area. These two sites were treated as a single study unit because field reconnaissance indicated the boundary separating the sites was artificially created by an outfall line leading from the reactor complex to the river. The total area for both sites measured 250 m east/west by 40 m north/south.

The excavation strategy consisted of imposing a standard Cartesian coordinate grid across the study area to provide horizontal controls. This allowed accurate placement of 10-cm-diameter auger sample holes at 10-m intervals across the area. Auger tests were excavated in 10-cm increments, with all soils sieved through 4-mm mesh shaker screens to ascertain the presence, type, and depth of cultural material. The results of auger data were then plotted both horizontally and vertically to create a three-dimensional map of the distribution of archaeological deposits and their correlations to soil types. Several cultural zones, or strata, ranging in depths from 20 cm to 160 cm below ground surface, were identified. Auger tests also indicated fine eolian sands overlying bedded fluvial sediments that overlay a river cobble substrate. Several pockets of redeposited Mazama ash were also found.

Using the auger tests as a guide, three 1 m x 1 m, one 1 m x 2 m, and one 2 m x 2 m excavation units were placed across the site to sample the areas of densest cultural deposits and to collect stratigraphic information on the depositional history of the sites. All but the 2 m x 2 m unit were excavated by hand in 10-cm arbitrary levels, and all soils were passed through 4-mm mesh shaker screens. The 2 m x 2 m unit was excavated partly by backhoe due to sidewall instability. Test unit depth ranged from 80 cm to 160 cm below ground surface.

Preliminary analysis indicates most of the cultural material is located within the overlying eolian sediments. The overall size and individual weights of artifacts decreased from west to east. Cultural material consisted primarily of small lithic debitage, principally bifacial thinning flakes and resharpening flakes, small fragments of mammal bone, and pieces of extremely fragmented freshwater mussel shell.

The evidence collected from auger and test units suggests that the areal expanse for most of the sites was formed through redeposition of small cultural materials by wind in an active dune environment. Analysis of the strike and dip of bedding planes exposed in unit profiles indicates the source for most of the material would lie to the southwest of current site boundaries, an area heavily impacted by reactor operations.

Site 45BN423

Archaeological site 45BN423 is located on the remains of a Holocene terrace between the Columbia River and the 100 K Area. The majority of this terrace, with the exception of the near-river edge, was removed to construct emergency overflow holding ponds for the 100 K Basins. The remaining terrace and associated archaeological site measure approximately 200 m east/west by 30 m north/south. Little cultural material is visible on the ground surface across the terrace top; however, abundant material is apparent in shell lenses exposed in a borrow pit on the terrace and in profiles made by outfall trenches.

The excavation strategy was the same employed at site 45BN432/433. Twenty-eight auger tests indicated several buried cultural strata ranging from 20 cm to over 2 m below ground surface. Due to the depth of these deposits, three 1 m x 2 m excavation units were placed across the site. Depths excavated ranged from 160 cm to 200 cm below ground surface. At least six distinct cultural strata were located during excavations. Strata were separated by culturally sterile levels, thick bands of calcium carbonate, or culturally deposited beds of freshwater mussel shell. Radiocarbon samples were collected for these strata, but results are not yet available. Relative dates are available for the two uppermost strata, based on the recovery of a Quilomene Bar-style projectile point and a Frenchman Springs-style projectile point, indicating ages from 1500 to 2500 years B.P. and 2500 to 4500 years B.P., respectively.

Aside from the stylistic differences of the two projectile points, the remainder of the cultural material is fairly uniform, consisting of a variety of hammer stones, unshaped pestles, retouched and utilized flakes, incised stones, freshwater mussel shell (*Margaritifera falcata*), remains of rabbits and ungulates, and fish vertebrae. Analysis of stone waste flakes indicates that stone tool production was limited to final finishing and maintenance of tools. Locally available cryptocrystalline silicates were the preferred materials.

In general, this site appears to have functioned as a continually reoccupied resource procurement site. The site may span as much as 6000 years. The excellent integrity of the deposits, coupled with the preservation of organic remains and distinct stratification, makes the information potential of this site exceptional. Further work is recommended. Fieldwork should be designed to refine the chronology of occupation, range of resources exploited, climatic reconstruction, and distribution of individual activity areas.

2.3.4. The Laser Interferometer Gravitational Wave Observatory Project (LIGO)

Survey work for the extensive LIGO Project was completed late in FY 1992 with assistance from archaeological technicians from the Confederated Tribes of the Umatilla Indian Reservation and the

Confederated Tribes and Bands of the Yakima Indian Nation. The project area encompassed 883.46 ha in the southcentral portion of the Hanford Site. Devoid of water sources, the area was characterized by stabilized dunes interspersed with occasional blowout areas. One historic site and 11 isolated finds, all cans, were encountered during this survey.

2.3.5 Conclusions

Of the surveys conducted and sites recorded during FY 1992, the McGee Ranch vicinity and 100 Area Operable Unit surveys proved to be the most interesting because each contained many varied yet apparently interrelated sites. These historic sites represent an entire range of historic settlement activities and provide substantial evidence of life during the early Euro-American settlement and the Depression era on the Hanford Site. In addition, test excavations conducted in the 100 Area may provide new information on prehistoric resource utilization and intra-site spatial relationships.

The McGee Ranch Project, the 100 Area CERCLA Project, and the LIGO Project are discussed in three separate reports. The McGee Ranch Project Report was published in FY 1992 (Gard and Poet 1992); reports on the 100 Area CERCLA Project and LIGO Project will be published in FY 1993.

3.0 The Monitoring Program

As manager of the Hanford Site, the U.S. Department of Energy, Richland Field Office (RL) is assigned the stewardship of all onsite archaeological resources, traditional-use areas, paleontological deposits, and historic properties. The RL, therefore, has the responsibility for determining whether its management and protection policies are effective and when they are inadequate. To determine the impact of RL policies and to safeguard cultural resources from destruction by natural processes or unauthorized excavation and collection, the Hanford Cultural Resources Laboratory (HCRL) maintains a monitoring program (Chatters 1989). The monitoring program requires the inspection of all cemetery sites at least once a year, inspection of sites listed on the National Register of Historic Places (National Register) at least every 3 years, and inspection of each site not listed on the National Register at least every 5 years. Sites found to be adversely impacted are reinspected annually. The information generated during the monitoring cycle is used in planning for cultural resource site management and protection (Chatters and Gard 1992).

The Hanford Cultural Resource Management Plan specifies the method of selection for sites included in the annual monitoring program. For the 1992 monitoring cycle, 40 prehistoric sites^(a) were chosen for inspection including 22 sites listed on the National or State Register of Historic Places. Twelve of these were cemetery sites. Three of the 40 sites are considered eligible for inclusion on the National Register, and 17 sites are unevaluated as to National Register significance. Sites chosen for inspection included all cemetery sites, sites not visited during previous monitoring cycles, and sites known to be at risk for looting by digging or surface collection. A list of the sites monitored and a summary of the findings are provided in Table 3.1.

The monitoring process began with a background search, then folders were created for each site selected for monitoring. Each folder included the original site description (when available) and any notes collected during previous monitoring activities. Site locations were plotted on topographic maps to provide a basis for comparing available original site descriptions and current conditions at each location. This was especially critical for sites that had not been monitored previously. The topographic maps were often the only means for locating or defining sites with adjacent boundaries, given the information available in original site descriptions. Site locations were also plotted on a Hanford Site map so that travel time could be arranged efficiently. HCRL staff were assisted with monitoring inspections by archaeological technicians from the Umatilla Tribe.

3.1 Cemetery Sites

Cemetery sites are monitored annually to check for any adverse impacts such as vandalism, collector digging, wind and water erosion, or inadvertent impacts from vehicle traffic. These annual monitoring visits do not include site documentation. Instead, the site location as shown on topographic maps is verified on the ground. These visits provide a continuing record of any change in site integrity, whether the change is the result of natural erosion or human activities. All cemetery sites are at risk of damage from looting. Annual visits provide baseline data that are helpful in predicting the most effective surveillance for site management and protection.

(a) 45BN129, a cemetery site, was chosen for monitoring but was not visited due to its loss by water erosion, as recorded in 1991.

Table 3.1. Summary of Sites Monitored During the FY 1992 Monitoring Cycle

<u>Site Number</u>	<u>Monitoring Group</u>	<u>Disturbance Type^(a)</u>	<u>Recommendations</u>
45BN030	Unevaluated	PR, VT, DC, SC	Rerecord Site, Limit Access, Evaluate, Increase Surveillance
45BN032	Unevaluated	WE	Rerecord Site, Revegetate Dune
45BN034	Unevaluated	VT, WE	Rerecord Site, Limit Access, Evaluate, Revegetate Dune
45BN037	Unevaluated	VT, WE	Rerecord Site, Limit Access, Evaluate, Revegetate Dune
45BN040	Unevaluated	WA	Rerecord Site, Evaluate
45BN090	Unevaluated/ Eligible	PR, VT, TR, DC, SC	Limit Access
45BN113/ 114/169	Unevaluated	WE, PR	Rerecord Site, Evaluate, Revegetate Dune Combine Sites
45BN118	National Register	No Disturbance	Rerecord Site
45BN120	Unevaluated	PR, VT, C	Rerecord Site, Evaluate
45BN123	Unevaluated	WA	Rerecord Site, Evaluate
45BN124	National Register/ Cemetery	VT	Rerecord Site
45BN125	National Register/ Cemetery	VT	Rerecord Site
45BN127	National Register	WA	Rerecord Site
45BN128	National Register/ Cemetery	No Disturbance	Rerecord Site
45BN129	National Register/ Cemetery	WA	Drop from Monitoring Schedule - Site Gone
45BN135	Unevaluated	No Disturbance	Rerecord Site, Evaluate. Revisit When Vegetation is Reduced
45BN136	Unevaluated	WA	Rerecord Site, Evaluate
45BN137	National Register	No Disturbance	Rerecord Site
45BN138	National Register	WA	Rerecord Site
45BN139/ 140	National Register/ Cemetery	WE	Rerecord Site, Revegetate Dune
45BN141	Nominated to National Register On Washington State Register	No Disturbance	Rerecord Site
45BN142	Nominated to National Register/	WE	Rerecord Site, Revegetate Dune

(a) WE = wind erosion, WA = water erosion, PR = public recreation, VT = vehicle traffic, TR = trespassing, CD = collector digging, SC = surface collecting, VD = vandalism, C = construction, D = noncollector digging.

Table 3.1. (contd)

<u>Site Number</u>	<u>Monitoring Group</u>	<u>Disturbance Type^(a)</u>	<u>Recommendations</u>
45BN143	Cemetery/On Washington State Register Nominated to National Register	WE	Rerecord Site, Revegetate Dune
45BN144	Cemetery/On Washington State Register Nominated to National Register/ On Washington State Register	WA, WE	Rerecord Site
45BN145	Nominated to National Register/ On Washington State Register	WA, WE	Rerecord Site
45BN146	Nominated to National Register/ On Washington State Register	WA, WE	Rerecord Site
45BN151	National Register/ Cemetery	No Disturbance	Rerecord Site
45BN157A	Unevaluated/ Eligible	WE	Rerecord Site, Maintain Surveillance
45BN157B	Eligible/Cemetery Unevaluated	CD, SC, VD	Rerecord Site, Obtain ARPA Conviction
45BN162	Unevaluated	No Disturbance	Rerecord Site, Evaluate
45BN166	Unevaluated	WA	Rerecord Site, Evaluate
45BN170/171	National Register	No Disturbance	Rerecord Site
45BN174	Unevaluated	WE, VT	Rerecord Site
45GR302C	National Register/ Cemetery	WE	Rerecord Site
45GR306C	Nominated to National Register/ Cemetery/On Washington State Register	WE, CD	Rerecord Site, Increase Surveillance
45GR317	National Register/ Cemetery	No Disturbance	Rerecord Site

(a) WE = wind erosion, WA = water erosion, PR = public recreation, VT = vehicle traffic, TR = trespassing, CD = collector digging, SC = surface collecting, VD = vandalism, C = construction, D = noncollector digging.

Wanapum Indian leaders have identified eight cemeteries on the Hanford Site. Five other cemeteries have been recorded as a result of archaeological evidence, fieldwork, and literature searches (Chatters et al. 1991). All 13 of these cemetery sites were monitored in FY 1992, with the exception of site 45BN129, which is reported to be lost because of water erosion. Sites 45BN139 and 45BN140, which recently were found to be contiguous, were monitored as one site. Collector digging, a violation of the Archaeological Resources Protection Act (ARPA), was encountered at two sites, 45BN157B and 45GR306C, with extensive property damage to the cyclone fence at site 45BN157B. No human remains were exposed by the digging in either case, although remains are visible on the surface at 45BN157B. Wind erosion continues to destroy site integrity at 45BN139/140, 45BN142, 45BN143, and 45GR302C. Three sites, 45BN128, 45BN151, and 45BN317, were in excellent condition with no visible change since the last inspection in 1991 (Tables 3.1 and 3.2).

Table 3.2. Recommendations for Mitigation of Adverse Impacts to Cultural Resources Monitored During the FY 1992 Monitoring Cycle

<u>Recommendation</u>	<u>Site Number</u>	<u>Monitoring Group</u>
A. Increase Surveillance at Sites Known to be Frequented by Recreationalists and Collectors	45BN030	Unevaluated
	45BN090	Unevaluated/Eligible
	45BN113/ 114/169	Unevaluated
	45BN120	Unevaluated
	45BN157B	Unevaluated FY 1992/Eligible
B. Seek an ARPA Conviction	45BN157B	Unevaluated FY 1992/Eligible
C. Initiate a Program to Revegetate Dune Blowouts When Cultural Resource Sites are Present	45BN032	Unevaluated
	45BN034	Unevaluated
	45BN037	Unevaluated
	45BN113/ 114/169	Unevaluated
	45BN139/140	National Register/Cemetery
	45BN142	Nominated to National Register/Cemetery On Washington State Register
	45BN143	Nominated to National Register/Cemetery On Washington State Register
	45BN146	Nominated to National Register/On Washington State Register
	45BN157A	Unevaluated FY 1992/Eligible
45BN174 45GR306C	Unevaluated Nominated to National Register/Cemetery On Washington State Register	
D. Initiate a Program to Stabilize River Shoreline Sites Where Endangered	45BN040	Unevaluated
	45BN123	Unevaluated
	45BN127	National Register
	45BN129	National Register/Cemetery
	45BN138	National Register
	45BN145	Nominated to National Register/On Washington State Register
	45BN146	Nominated
	45BN166	Unevaluated

Table 3.2. (contd)

Recommendation	Site Number	Monitoring Group
E. Limit Vehicle Access and/or Stabilize Existing Roadways	45BN030	Unevaluated
	45BN034	Unevaluated
	45BN037	Unevaluated
	45BN090	Unevaluated FY 1992/Eligible
	45BN124	National Register/Cemetery
	45BN125	National Register/Cemetery
	45BN174	Unevaluated
F. Update Site Forms	45BN030	Unevaluated
	45BN032	Unevaluated
	45BN034	Unevaluated
	45BN037	Unevaluated
	45BN040	Unevaluated
	45BN113/ 114/169	Unevaluated
	45BN118	National Register
	45BN120	Unevaluated
	45BN123	Unevaluated
	45BN124	National Register/Cemetery
	45BN127	National Register
	45BN128	National Register/Cemetery
	45BN129	National Register/Cemetery
	45BN135	Unevaluated
	45BN136	Unevaluated
	45BN137	National Register
	45BN138	National Register
	45BN139	National Register/Cemetery
	45BN140	
	45BN141	Nominated to National Register/On Washington State Register
	45BN142	Nominated on National Register/Cemetery On Washington State Register
	45BN143	Nominated to National Register/Cemetery On Washington State Register
	45BN144	Nominated to National Register On Washington State Register
	45BN145	Nominated to National Register On Washington State Register
	45BN146	Nominated to National Register On Washington State Register
	45BN151	National Register/Cemetery
	45BN157A	Unevaluated FY 1992/Eligible
	45BN157B	Unevaluated FY 1992/Eligible/Cemetery
	45BN162	Unevaluated
	45BN166	Unevaluated
	45BN170	National Register
45BN171		
45GR302C	National Register/Cemetery	
45GR306C	Nominated to National Register/Cemetery On Washington State Register	
45GR317	National Register/Cemetery	

3.2 Sites Listed on the National or State Register of Historic Places

Ten of the monitored sites, other than cemeteries, are listed on the National or State Register of Historic Places. Registered sites are managed so that characteristics making them eligible for listing on the National or State Register are not adversely effected (36 CFR 800.9). Sites in this category were inspected for evidence of vandalism and the appropriateness of original site descriptions and locations. In all cases, the original site descriptions were found to be inadequate documentations of the sites inspected. Lacking were site maps, complete descriptions of features, photographs, and legal locations. Each site in this category requires an updated site form and photographs so that a baseline can be established for future monitoring visits and site management needs.

Four of the sites had not been inspected since their initial recording in 1968: 45BN127, 45BN137, 45BN138, and 45BN141. All of these sites were found in good condition with minimal disturbance from natural erosion. Three sites visited this year that were last inspected in 1989, 45BN144, 45BN145, and 45BN146 showed some evidence of natural erosion. Two sites last inspected in 1991 and revisited this year, 45BN170/171 at Rattlesnake Springs and 45BN118 were found to be in excellent condition. The remaining sites had minor impacts from natural erosional processes (Table 3.1).

3.3 Sites Not Listed on the National Register of Historic Places

Seventeen sites selected for the FY 1992 monitoring cycle fell into this category (Table 3.1). Sites were chosen for inspection if they had not been visited during previous monitoring cycles. Accordingly, 17 sites received their first monitoring inspection this year. Each was inspected for natural erosion and vandalism, and for compatibility between the original site form descriptions and site condition based on field data. In all cases, updated site forms are required.

Two sites, 45BN090 and 45BN157A, were previously determined to be eligible for inclusion on the National Register of Historic Places. When inspected this year, 45BN090 had been adversely impacted by construction of a fireline that passed through the site on a north/south axis. It is likely that ARPA violations are also occurring at 45BN090 because lithic debris is highly visible to recreationalists in the Vernita Bridge area. At 45BN157A, inspections revealed no vandalism, which was a change from the collecting activities noted during previous monitoring visits. Three sites, 45BN113, 45BN114, and 45BN169, were found to be one extensive, contiguous site. Of particular interest at this large site are three blow-out areas that have exposed mortar bases, anvil stones, lithic artifacts, and concentrations of lithic debris. Tracks from a small four-wheel, off-road vehicle and a child's squirt gun were found on the site. Such evidence highlights the need for continuous surveillance of this location. The site is also at risk from natural erosion processes, which are exasperated by the presence of an ungraveled, infrequently used road.

3.4 Conclusions and Recommendations

In many cases, monitoring visits to unevaluated sites in FY 1992 added to current knowledge about these sites. For example, when site 45BN174 at West Lake was inspected, it was found to be larger than originally recorded. Specifically, over 30 secondary and tertiary cryptocrystalline flakes were found widely scattered throughout the *Artemisia tridentata* plant community south and west of site boundaries.

Recommendations regarding the eligibility of 17 currently unevaluated sites cannot be made on the basis of existing information. Fourteen of these sites were found to be minimally impacted by natural erosion; one site, 45BN030, has sustained severe damage from recreational use at an unimproved boat launch and from downcutting in the numerous roadbeds that are present. Historic debris and features at site 45BN030 also suggest the presence of former structures. In spite of the damage noted at this site, a portion of the site may contain intact stratigraphic cultural deposits. Two shell lenses are visible in cutbanks, a single projectile point was recovered from a roadbed, and numerous cobble tools were noted on the shoreline. All sites included in this category must be evaluated to determine eligibility for inclusion on the National Register of Historic Places. Because the site forms for most sites date to the late 1960s, this evaluation will include updating these forms.

Adverse impacts including natural erosion, collector digging, vandalism, and surface collection have been recorded at cultural resource sites since the HCRL has been in operation (Chatters 1989, Chatters et al. 1990, Chatters et al. 1991, Chatters and Gard 1992). Natural and human impacts can result in the irreversible loss of archaeological data. Erosional forces can be controlled through revegetation of dunes and stabilization of river cutbanks, while impacts from human activities can be reduced by imposing limits on vehicle access and monitoring recreational activities at site locations. Collector digging and surface collection can be managed by increased surveillance and seeking convictions under the Archaeological Resources Protection Act. Increased surveillance of sites at risk for continued degradation by collectors is a critical component of cultural resource management. Of the 22 National and State Register sites, 12 of which are cemeteries, 10 had been adversely impacted by wind erosion or water action and 3 had sustained impacts from human activities. Ten sites were in excellent condition without any visible impacts (Table 3.1). One site, 45BN090, had been impacted by the construction of a fireline which traversed the entire width of the site. Flakes and broken artifacts were found throughout the fireline where it crossed the site near the Vernita Bridge area.

The data gathered during this year's monitoring cycle duplicate the findings of earlier monitoring inspections. Cultural resource sites do sustain damage from a variety of sources. Collector activities are particularly destructive. Sites with evidence of vandalism, either past or present, are on an annual monitoring cycle. Monitoring has been an effective means of tracking damage but has not been an effective deterrent. Increased surveillance is required by HCRL staff and the appropriate security personnel. Natural erosion and deflation of many sites also continues where sand dunes are unvegetated, or along shoreline cutbanks where slumping occurs. Vehicle travel, whether off-road or on-road, also contributes to erosional processes. In addition to the erosional controls and methods to reduce human impacts discussed above, all proposed projects should include a National Historic Preservation Act Section 106 compliance review so that inadvertent impacts, such as those found at site 45BN090, can be avoided.

4.0 The Curation Program

Along with all other federal agencies, DOE is required by ARPA and pursuant regulations to provide for the management, storage, and conservation of artifacts and records from lands that it manages, and to make them available for scientific research. This process is called curation. The standards and guidelines for curation are spelled out in 36 CFR Part 79 "Curation of Federally Owned and Administered Archaeological Collections." A plan for curation at the Hanford site was devised in April 1990, but funding constraints and potential conflicts with NAGPRA have slowed implementation.

During FY 1992, the HCRL took the first step to meeting the standards and guidelines outlined in 36 CFR Part 79 by identifying space and obtaining a cost estimate for shelving. A vendor approved by the General Services Administration, Space Saver, Inc., provided a cost estimate for two kinds of interlocking storage systems, one with drawers and filing cabinets built in, the other with simple shelving. A request for capital expenditure to purchase the simpler system has not yet been approved.

5.0 The Public Education Program

Education of the public and non-Hanford professionals is a key part of the Cultural Resources Project. The ARPA specifies that the results of archaeological studies on public lands must be disseminated for use in scientific research by other professionals, and mandates dissemination of information about archaeology to instill in the public the importance of archaeological resources to a scientific understanding of the past. Successful enforcement of the laws protecting archeological resources requires that violators be aware of the illegality of their actions.

To fulfill its legal responsibilities and contribute to DOE's educational programs, the HCRL conducts educational activities on three fronts: 1) public presentation to organizations, schools, and the media, 2) involvement of student interns and postdoctoral associates, and 3) publication and presentation of scientific findings to fellow professionals.

5.1 Public Education

Public education activities in FY 1992 consisted of lecturing to schools and organizations, giving interviews to regional news media, participating in the development of informational videos, and designing displays. Target populations were both the Hanford work force and the general public.

5.1.1 Public Lectures

Staff members made 13 presentations to lay organizations and schools (Appendix D). Topics ranged from paleoecology and the scientific advances made by studying ancient human remains, to the archaeology of the Columbia Basin and Hanford's cultural resources. A day-long series of talks entitled "The Science of Archaeology" was presented to middle school students under the DOE Options in Science Program. Students were given basic reasoning tools, then provided with a simple hands-on research problem to solve collectively. The most comprehensive presentations were made to medical personnel on the anthropological and medical applications of knowledge acquired from studying ancient human remains. Most presentations were given by request from the recipient organizations; the most popular topic was the prehistory of Eastern Washington.

Four presentations were made to Hanford Site staff. Three of these were part of a Hanford Technical Exchange symposium attended by over 200 people. The fourth presentation, which stressed cultural values of the Hanford Site, was given to a cultural diversity committee charged with increasing the number of Native Americans employed at PNL.

5.1.2 Media Exposure

News media became involved with the HCRL twice this year, once during the Hanford Technical Exchange and again during a tour of the Hanford Reach arranged by Westinghouse Hanford Company. Reporters asked questions on a variety of topics, and were most interested in Depression-era structures found in the McGee Ranch area of the Hanford Site, and ancient and modern Native American uses of the Columbia River. Numerous newspaper articles, television stories, and radio spots were produced. The media were largely from the Tri-Cities and Yakima, Washington; stories were also carried on the Associated Press wire service and appeared throughout the Northwest.

5.1.3 Informational Videos

Staff members took part in developing the scripts and footage for two videos. The Office of Hanford Environment is preparing one documentary video on the cultural resources of the Hanford Site, to be broadcast on public television and used in public schools as part of the DOE public relations program. Two key issues stressed in this presentation are the importance of respecting Native American cultural interests and protecting archaeological resources. The second video is being prepared by an independent contractor for Westinghouse Hanford Company.

5.1.4 Displays

During Native American Awareness Month (November 1991), HCRL devised a display about the importance of leaving artifacts where one finds them, featuring the Tsulim Bison Kill site. A second set of panel displays was prepared in draft form for educating the Hanford work force about cultural resources. The set includes four stand-alone displays that combine text and pictures with three-dimensional objects. The first display covers prehistory, introduces the HCRL, emphasizes the ARPA, and requests help in protecting archaeological resources. The second display describes Native American life in the nineteenth and early twentieth centuries, and emphasizes the importance of sacred places and traditional-use areas. The third display addresses Pre-Hanford Euro-American history and emphasizes the NHPA. The final display highlights the Manhattan Project. These displays are scheduled to be built in FY 1993. When completed, the displays will be moved throughout the Hanford Site.

5.2 Interns and Associates

DOE funds a variety of programs for providing direct student and professional involvement in research at the Hanford Site. In FY 1992, the HCRL participated in the Student Research Apprenticeship Program (SRAP), the Teacher Research Associate Program, and the Northwest Colleges and Universities for Science (NORCUS) Program. Our SRAP participant was Elizabeth O. Vela, a high school senior who assisted with archaeological fieldwork. Keith Olive, a middle school teacher joined HCRL through the Teacher Research Associate Program and was involved in research into past stream conditions using archaeological shell samples. Three NORCUS students were also involved in field and laboratory work: Joy Woodruff, Central Washington University; Jason Hare, Washington State University; and Kirsten Glass, Dartmouth College.

The postdoctoral associate was Dr. Virginia L. Butler, who participated in HCRL studies of ancient fisheries. Dr. Butler measured densities of bones from Chinook salmon (*Oncorhynchus tshawytscha*) and large-scale sucker (*Catostomus columbianus*), and analyzed fish collections from archaeological sites on the Hanford Site and other parts of the Columbia River system. More details about her research are provided in Section 7.0, Research Activities.

5.3 Publications and Presentations to Professional Societies

In FY 1992, HCRL staff presented five papers at professional conferences, and published four technical reports and four journal articles (Appendix D).

Three staff members attended the Northwest Anthropological Conference, and one each attended the Society for American Archaeology Annual Meeting, the International Meeting of the Society for Range Management, and the International Union for Quaternary Research Symposium on Continental Paleohydrology. Staff presentations addressed historic and prehistoric archaeology on the Hanford Site and environs, paleopathologies found in a human skeleton that was discovered on the Hanford Site and reburied in 1987, and methods for using mollusk remains from archaeological sites to reconstruct ancient stream environments.

Technical reports written by HCRL staff in FY 1992 described the large-scale archaeological surveys of the 100 Areas and the McGee Ranch, and described HCRL activities in FY 1990 and FY 1991 (Chatters and Cadoret 1990, Chatters et al. 1992).

Articles were published in three regional journals, *Northwest Anthropological Research Notes* (Chatters 1992); *The Northwest Environmental Journal* (Neitzel et al. 1991); *Archaeology in Washington* (Gard 1992), and one international journal, *Quaternary Research* (Chatters and Hoover 1992). Chatters (1992) described the cultural resources management programs at the Hanford Site from their inception. Neitzel et al. (1991) estimated the impact that climatic conditions, such as those that generated streams 6000 to 7000 years ago, might have on salmon and steelhead production in the Columbia River system. Gard (1992) described a method for using fish behavior to predict where prehistoric fishing stations might be found along the Hanford Reach of the Columbia River. Chatters and Hoover (1992) addressed the Holocene (last 10,000 years) history of the Columbia River and its response to climatic changes.

6.0 Section 110 Survey

The Hanford Cultural Resources Management Plan specifies that the HCRL will conduct a 10% survey of the Hanford Site lands, which will be used to devise a predictive model of archaeological site locations. This is an acceptable means of satisfying the requirement in Section 110 of the National Historic Preservation Act Amended 1992, which directs federal agencies to inventory the historic properties on their land holdings. This work was originally to be conducted over a period of 6 years, beginning in FY 1989, but this is a low-priority effort; 784.04 ha (0.578%) has been surveyed in 4 years.

A stratified random sampling strategy has been used to select 10% (143 sq km) of Hanford Site lands for survey. Stratification was based on topography, surface hydrology, soils, and known distributions of archaeological resources; the strata are referred to as environmental zones. Once these zones were defined, the entire site was divided into sample units of 16 ha (1/16 sq mi), which were then numbered and sampled randomly for each environmental zone.

In FY 1992, one plot of .04 ha (.028%) of the entire Hanford Site was surveyed. This plot is located in the Iowa Flats Quadrant, the NW 1/4 of the NW 1/4 of the NW 1/4 of Section T12N R26E. Goose Egg Hill is located 35 km east of its northern boundary. The survey area is a playa surrounded by sediments and bordered by slopes with southern aspects. Vegetation (*Bromus tectorum*, *Poa sandbergii*, *Artemisia tridentata*, and *Atriplex spinosa*) limited ground visibility to 50%. Surface sediments were made up of fine eolian sands overlying unsorted fluvial sediments.

No archaeological sites were recorded during this survey. The survey area contained bivouac debris left behind by the Army's occupation at the Hanford Site.

7.0 Research Activities

As a part of PNL, HCRL uses information from archaeological studies on the Hanford Site to advance scientific knowledge. During FY 1992, HCRL staff and research associates continued or initiated research in the areas of archaeology and climatic change.

7.1 Archaeology

Archaeological research on the Hanford Site focuses on three general areas: 1) interaction between prehistoric Native Americans and their plant and animal resources, 2) development of the livestock industry, and 3) archaeological manifestations of people's response to the economic exigencies of the Depression era. The cultural interface between Native Americans and settlers is an emerging interest we hope to pursue in the future.

7.1.1 Human/Resource Interaction

Because the Hanford Site is less developed than most of the surrounding Columbia Basin, it contains a large number of sites and isolated artifacts associated with the procurement and processing of animal and plant resources. This provides an unequalled opportunity to investigate hunting and fishing strategies, fish and meat processing strategies, plant processing techniques and tools, the regional distribution of activities relating to procurement and processing of all sorts of living resources, and the evolution of resource exploitation strategies as they relate to settlement patterns, societal development, population densities, and climatic change. This year, our efforts were directed at three issues within this broader set of research interests: evidence for salmon procurement, salmon bone preservation and its importance to understanding fish exploitation strategies, and the role of bison (*Bison bison*) in shaping regional Native American cultures.

For the past two years, H. A. Gard has been attempting to model the location of archaeological fishing sites using the migration behavior of salmon and the shape of the Columbia River channel. In 1991, Gard observed that fishing sites should, and did, occur adjacent to the deepest, swiftest parts of the channel, and also noted that village sites occurred adjacent to fall chinook salmon (*Oncorhynchus tshawytscha*) spawning areas (Gard 1992). During FY 1992, an effort was made to identify and record additional fishing sites and to assemble more detailed data on the distribution of spawning beds in relation to villages.

Also in FY 1992, V. L. Butler and J. C. Chatters began a study of the Holocene history of the Columbia River fishery, with emphasis on methods for discerning the development of storage technology. Butler focused on analyzing the relationship of skeletal element density to bone survivorship and its role in structuring archaeological bone assemblages. Using a densitometer at the University of Washington, Butler measured the density of selected elements from Chinook salmon and large-scale sucker (*Catostomus macrocheilus*), identified fish bone from archaeological sites along the Columbia and Fraser Rivers, and considered the role of density in element survival as it related to the processing of fish for storage. Chatters emphasized bone survivorship in relation to its depositional environment and the temporal distribution of fish taxa in relation to changing human adaptations in the Columbia River Basin. Both studies include collections from the Hanford Site.

Discovery and analysis of the Tsulim Bison Kill Site in 1989 and 1990 stimulated Chatters to investigate the occurrence of bison in other sites in the Columbia River Basin. The records showed, and other archaeologists have noted, that bison appeared in numbers only between about 2500 and 1800 B.P. It was at this same time that Native Americans became less active along the rivers and more active in drier uplands. Considering these two events in the context of coinciding climatic and hydrological changes led to the conclusion that the change in human activity was caused by the simultaneous increase in game production (particularly bison) and a decline in salmon productivity. Chatters presented a paper on this finding at the Northwest Anthropological Conference.

7.1.2 Livestock Industry

The first use of the Hanford Site by settlers was for cattle and horse pasturage, which continued until the Site was designated in 1943. Therefore, much of the archaeological record of the Hanford Site consists of small herder's camps, ranches, and cisterns used by the cattle ranchers. Archaeological sites relating to this era were recorded in FY 1992 in the North Slope portion of the Hanford Site and the LIGO project area. On the North Slope, numerous cisterns, some of them dating to the late nineteenth century, were recorded by HCRL staff. The direction of research related to this material is still in the formulation stage.

7.1.3 Adaptation to Economic Collapse

In the late 1920s and early 1930s, the U.S. economy collapsed into the Great Depression, leaving many people homeless. Because the Hanford Site was designated less than a decade after the Depression ended, much of the historic archaeological material represents that time period. During surveys of the 100 Area HR-3 Operable Unit and the McGee Ranch, HCRL staff discovered numerous structures and dumps, in fact entire cultural landscapes, from this time. At the McGee Ranch, two groups of makeshift dwellings were discovered, the study of which could provide insights into the material manifestation of the Depression. R. Poet and H. A. Gard researched the history of these dwelling clusters and presented a paper on their findings to the Northwest Anthropological Conference.

7.2 Climatic Change

Archaeology works with geologic deposits and assemblages of animal and plant material, whose ages are typically established with at least moderate precision. Because these materials are products of natural processes, they are a source of data on past environmental conditions that are largely determined by climate. One of HCRL's research directions is to develop methods for extracting information about past environments from archaeological materials, and to use these methods to understand the impact of climate on the resources and human populations of the region. In FY 1992, the emphasis has been on paleohydrology and what it reveals about the impact of climate on fish resources of the Columbia River system. The three interrelated parts of this work are paleohydrological method, reconstruction of past stream conditions, and impacts of climate change on salmon fisheries.

7.2.1 Paleohydrological Methods and Reconstructing Stream Conditions

New methods for reconstructing stream conditions are being devised using the remains of aquatic organisms. Because they inhabit the medium of research concern, aquatic invertebrates and cold-blooded aquatic vertebrates respond directly to changes in that medium. The taxonomic composition of fish and

mollusk faunas vary with the speed, turbidity, temperature, and bed conditions of streams. Taxonomy, growth rate, and the month of death of archaeological specimens can be used to reconstruct stream conditions. Reconstructions based on the taxonomic and month-of-death methods have been reported (Chatters and Hoover 1992). J. C. Chatters and K. Olive studied the relationship between growth rate and water temperature in mollusks common in Hanford archaeological sites. Chatters presented papers on all three methods to the Czechoslovakia Geological Survey (Prague) and the International Union for Quaternary Research Symposium on Continental Paleohydrology (Krakow, Poland).

7.2.2 Impact of Climate on Salmon Fisheries

Research on paleohydrology and prehistoric fish exploitation directly relates to a major study on the potential impacts of future climatic warming on salmonid resources that involves economists, a fisheries expert, and HCRL staff. This effort uses methods described above to reconstruct stream conditions, then alters fish survival parameters based on those conditions and models the population of returning adult salmon under that parameter state. Finally, the model's output is validated using identified assemblages of fish bone from archaeological sites. Preliminary estimates of climatic impact have been published (Neitzel et al. 1991).

8.0 Objectives for FY 1993

Significant progress is anticipated for FY 1993 in the areas of Section 106 compliance, Section 110 compliance, data management, curation, education, and research.

8.1 Section 106 Compliance

The levels of activity will likely be similar to those in FY 1992. Four large subtasks will dominate the effort. Work on evaluating sites in the 100 Area Operable Units will continue. A 10-sq km (4-sq mi) area designated for the Central Waste Facility requires a cultural resources survey. Approximately 30 historic sites on the North Slope must be inventoried and findings of effect and adverse effect must be written for the significant sites. Finally, the 300 Area Treated Effluent Disposal Facility will impact site 45BN163, requiring a determination of eligibility for inclusion on the National Register of Historic Places, findings of effect, and development and implementation of a mitigation plan.

8.2 Section 110 Compliance

This effort will focus on surveying in the Arid Lands Ecology Reserve (ALE), particularly Rattlesnake Mountain, and reporting the results of past test excavations. Plans for downsizing the Hanford Site include divestiture of ALE, an area for which we have little information about cultural resources. Therefore, sample surveys will focus on key environments of ALE to obtain data on plant, ungulate, and tool stone exploitation patterns in that area. In addition, findings from 1989 through 1991 test excavations at sites 45GR306, 45BN90, 45BN412, and 45BN447 will be reported to make them available to other researchers and the public.

8.3 Data Management

We will assemble all archaeological site data and begin entering it into a Geographic Information System (GIS) database. Data will be entered in a nested system of maps. The system will interface cultural, ecological, climatic, and wildlife data, to be usable both as a management tool and as a research base.

8.4 Curation

Re-acquisition of artifacts obtained by pre-1987 archaeological studies will begin, starting with collections from the Vernita Site. An inventory will be initiated during FY 1993 in response to the Native American Grave Protection and Repatriation Act of 1990. We will also continue efforts to obtain, or gain access to, a facility that meets the criteria of 36 CFR Part 79.

8.5 Archaeological Protection

With the changes in Hanford Site security, archaeological site protection plans drafted in 1989 need revision. We will collaborate with RL Safeguards and Security staff to devise a workable plan that complies fully with ARPA regulations.

8.6 Education

The key element in this task for FY 1993 is completion of one or more of the traveling displays designed to educate the Hanford work force about cultural resources management. Presentations to schools and lay and professional organizations will continue, as will publication of research findings.

8.7 Research

Research efforts in FY 1993 will address fish exploitation, ground stone technology, Depression era life, the role of bison in the development of regional cultures, and paleohydrology. Fishery studies will concentrate on the role of bone density in forming bone assemblages, and the impact this may have on our ability to interpret past human use of salmon. This information, and taxonomic studies of bone assemblages, will be used to test a model of fish productivity based on mid-Holocene stream reconstructions.

9.0 References

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Appendix A

Section 106 Reviews Conducted in FY 1992

Appendix A

Section 106 Reviews Conducted in FY 1992

This Appendix presents a table listing the Section 106 cultural resource reviews that were requested by Hanford Site contractors and the RL during FY 1992.

Table A.1. Cultural Resource Reviews Requested of HCRL in FY 1992

Case Number	Name	Class	Date Received	Survey	Monitoring	Date Completed	Requesting Organization	Cultural Resources
91-100-026	100 N Diesel Oil Tank 4 Spill Cleanup	III	10/10/91	N/A ^(a)	N/A	10/11/92	WHC ^(b)	none
91-100-027	100 N Fire Systems Deactivation, Bldg. 184N	III	10/15/91	N/A	N/A	10/15/92	WHC	none
91-100-028	116-K-1 Crib Corrective Action Backfill	III	12/6/91	N/A	N/A	12/6/92	WHC	none
91-300-024	DOE-Preferred EMSL Location	IV/V	11/12/91	11/26/91-12/3/91	Yes	12/3/92	PNL	HT-91-071 HT-91-072
91-300-025	300 Area Well Remediations	III/IV	11/22/91	N/A	Yes	11/25/91	WHC	River-400 m
91-300-026	Process Sewer Test Holes	III	12/6/91	N/A	N/A	12/6/91	WHC	None
91-300-027	300 Area Wastewater Outfall	III/V	10/15/91	N/A	Yes	Ongoing	WHC	45BN163
91-600-022	RCRA Closure Cover, Central Landfill	III	11/1/91	N/A	N/A	11/19/91	WHC	none
91-3000-002	W-249 USST Ground Water Monitoring Wells	III	11/1/91	N/A	N/A	11/4/91	WHC	none
92-100-001	100 N P.I. Valve 2	III	1/20/92	N/A	N/A	1/20/92	WHC	none
92-100-002	100 D Sodium Dichromate Tanks	III	1/3/92	N/A	N/A	1/3/92	WHC	none
92-100-003	100 N HLAN Installation	III	1/13/92	N/A	N/A	1/13/92	WHC	none
92-100-004	100 B Asbestos Removal	VI	1/22/92	N/A	N/A	5/13/92	WHC	100B Reactor
92-100-005	100 B/C Monitoring Wells	III/IV	1/23/92	2/6/92	1/24/92	3/5/92	WHC	none
92-100-006	100 N Monitoring Wells N-75, N-76, N-77	III	1/30/92	2/5/92	N/A	4/21/92	WHC	none
92-100-007	100 B Wells 116B2, 116B3, 116B5, 116B1	IV	2/7/93	N/A	N/A	3/9/92	WHC	100B Reactor
92-100-008	100 B Hydrant B7 Removal	III	2/26/92	N/A	N/A	4/21/92	WHC	100B Reactor
92-100-009	100 D Source Sampling	III	3/9/92	N/A	N/A	3/9/92	WHC	none
92-100-010	100 B Retention Basin Sampling	III	3/17/92	N/A	N/A	3/20/92	WHC	North
92-100-011	100 K Soil Bores	IV	3/27/92	3/24/92	Yes	3/27/92	WHC	none
92-100-012	100 K Ground Water Monitoring Well	III	3/27/92	4/2/92	N/A	4/13/92	WHC	none
92-100-013	100 N Ground Water Monitoring Well N-80	III	5/21/92	2/5/92	N/A	5/28/92	WHC	none

(a) Not Applicable

(b) Westinghouse Hanford Company

(c) Advanced Sciences, Inc.

(d) John E. Chance and Associates, Inc.

Table A.1. Cultural Resource Reviews Requested of HCRL in FY 1992

Case Number	Name	Class	Date		Monitoring	Survey	Date Completed	Requesting Organization	Cultural Resources
			Received	Completed					
92-100-014	100 N Ground Water Monitoring Well N-77	III	5/27/92	2/5/92	N/A	N/A	5/28/92	WHC	none
92-100-015	100 Area Mobile Screening Laboratory	III	6/29/92	N/A	N/A	N/A	6/29/92	WHC	none
92-100-016	100 D Evap. Basins Sampling	III	5/29/92	N/A	N/A	N/A	6/1/92	WHC	none
92-100-017	100 F Character Wells F5-42, F5-43A, F5-43B	IV	6/15/92	N/A	8/3/92	N/A	9/9/92	WHC	45BN433 45BN434
92-100-018	132-F1 Animal Barn	III	6/19/92	N/A	N/A	N/A	6/22/92	WHC	none
92-100-019	KW Chiller Units	III	6/24/92	N/A	N/A	N/A	6/23/92	WHC	none
92-100-020	KE Basin Heat	III	6/24/92	N/A	N/A	N/A	6/26/92	WHC	none
92-100-021	100-KR-Test Pit	IV	7/27/92	N/A	Yes	N/A	8/3/92	WHC	45BN423 45BN434
92-100-022	Riverland Munitions Cache Cleanup	IV/V	7/27/92	N/A	N/A	N/A	9/21/92	WHC	none
92-100-023	100-NR-1 Soil Gas Survey	III	8/7/92	N/A	N/A	N/A	9/21/92	WHC	none
92-100-024	100-DR Soil Characterization Study	III	9/2/92	N/A	N/A	N/A	10/9/92	WHC	none
92-100-025	100-KR-1 Op Unit	III	9/15/92	N/A	N/A	N/A	10/14/92	WHC	none
92-200-001	Infrastructure Support Systems in 200W	IV	2/12/92	N/A	N/A	N/A	Ongoing	WHC	White Bluffs Road
92-200-002	200W Plutonium Finishing Plant Decontam.	VI	3/11/92	N/A	N/A	N/A	N/A	ASI ^(c)	none
92-200-003	Decommissioning of the 233-S and 233-A Bldgs.	III/VI	3/18/92	N/A	N/A	N/A	N/A	ASI	none
92-200-004	200 Area Treated Effluent Disposal Facility	III/V	3/18/92	N/A	N/A	N/A	3/26/92	WHC	none
92-200-005	200W Radioactive Mixed Waste Storage Facility	III	3/25/92	N/A	N/A	N/A	3/26/92	WHC	none
92-200-006	Initial Pretreatment Module	III/V	3/25/92	N/A	N/A	N/A	3/26/92	WHC	none
92-200-007	216-A-6 Crib Interim Stabilization	III/V	3/24/92	3/31/92	N/A	N/A	4/7/92	WHC	none
92-200-008	B-Pond Interim Stabilization	V	3/24/92	5/20-21/92	N/A	N/A	5/27/92	WHC	Isolate
92-200-009	Weather Cover Repairs/Ax Pit Covers	III	6/11/92	N/A	N/A	N/A	6/17/92	WHC	none
92-200-010	200 Area Mobile Screening Laboratory	III	6/29/92	N/A	N/A	N/A	6/29/92	WHC	none
92-300-001	Calibration and Standards Facility	III	1/3/92	N/A	N/A	N/A	1/6/92	WHC	none
92-300-002	300 Area Railroad Crossing Repair	III	2/11/92	N/A	N/A	N/A	2/11/92	WHC	none
92-300-003	300A TEDF Process Sewer Effluent Reduction	III	2/12/92	N/A	N/A	N/A	2/12/92	WHC	none
92-300-004	300 to 700 Area Optic Fiber Link	III	2/19/92	N/A	N/A	N/A	2/20/92	WHC	none
92-300-005	300/600 Well Remediations	III	2/20/92	N/A	N/A	N/A	2/24/92	WHC	none

Table A.1. Cultural Resource Reviews Requested of HCRL in FY 1992

Case Number	Name	Class	Date Received	Survey	Monitoring	Date Completed	Requesting Organization	Cultural Resources
92-300-006	300 Area Sanitary Sewer Upgrade	III/V	2/21/92	N/A	N/A	2/24/92	WHC	none
92-300-007	Relocation, 300 Area TEDF	V	2/11/92	1/29/92	Ongoing	Ongoing	WHC	45BN163
92-300-008	300 Area IVDTs Building	III	2/26/92	N/A	N/A	2/27/92	WHC	none
92-300-009	328 Building Water Flow Reduction	III	3/25/92	N/A	N/A	3/26/92	WHC	none
92-300-010	Nonradionuclide Liquid Effluent Monitor, D-408	III	3/31/92	N/A	N/A	4/2/92	PNL	none
92-300-011	Nonradionuclide Liquid Effluent Monitor, D-412	III	3/31/92	N/A	N/A	4/2/92	PNL	none
92-300-012	Radionuclide Exhaust Air Sampling, D-414	III	3/31/92	N/A	N/A	4/2/92	PNL	none
92-300-013	300 Area Radiological Sign	III	4/17/92	N/A	N/A	4/22/92	WHC	none
92-300-014	324 Building Stairway Addition, D-407	III	4/23/92	N/A	N/A	4/24/92	PNL	none
92-300-015	325 Building Electrical Modifications	III	5/6/92	N/A	N/A	5/7/92	PNL	none
92-300-016	3717 Building Guard Post Installation	III	5/6/92	N/A	N/A	5/7/92	WHC	none
92-300-017	300FF5 Well Remediations	III	5/1/92	N/A	N/A	5/7/92	WHC	none
92-300-018	Fire Hydrant 16 Buffalo Valve Repair	I	5/19/92	N/A	N/A	5/20/92	WHC	none
92-300-019	Process Sewerline Exposure	III	5/19/92	N/A	N/A	5/20/92	WHC	none
92-300-020	315 Water Treatment Plant Chlorine Storage Facility	III	6/5/92	N/A	N/A	6/9/92	WHC	none
92-300-021	300 Area Corps of Engineers Mobile Office	III	6/10/92	N/A	N/A	6/11/92	WHC	none
92-300-022	300 Area Hazardous Waste Treatment Facility	III	6/11/92	N/A	N/A	6/12/92	PNL	none
92-300-023	300 Area Mobile Screening Laboratory	III	6/29/92	N/A	N/A	6/29/92	WHC	none
92-300-024	MO-046 Paving/Fencing Installation	III	6/29/92	N/A	N/A	6/30/92	WHC	none
92-300-025	Asphalt Paving for the 338 Building	III	6/29/92	N/A	N/A	6/30/92	WHC	none
92-300-026	300 Area Capping Waterline	I	7/8/92	N/A	N/A	7/13/92	WHC	none
92-300-027	337 Waterline Repair	IV	7/17/92	N/A	N/A	7/20/92	WHC	none
92-300-028	300 Area IVDTs Cable Route	III/V	7/1/92	N/A	N/A	8/3/92	WHC	none
92-300-029	S-3621-D Water Valve Repacking	I	8/4/92	N/A	N/A	8/11/92	WHC	none
92-300-030	300 Area Airline Installation	III	6/29/92	N/A	N/A	8/4/92	WHC	none
92-300-031	313 Building, Potential Historic Structure	VI	8/28/92	N/A	N/A	Ongoing	WHC	313 Bldg
92-300-032	337 Building, Steam Line Repair	III	9/17/92	N/A	N/A	9/23/92	WHC	none
92-300-033	305B Building, Paved Truck Access	III	9/18/92	N/A	N/A	9/23/92	PNL	none
92-300-034	350 Building Addition, Project D-436	VI	9/18/92	N/A	N/A	9/25/92	PNL	none
92-300-035	331 Building, Laboratory Modifications	VI	9/18/92	N/A	N/A	9/25/92	PNL	none

Table A.1. Cultural Resource Reviews Requested of HCRL in FY 1992

Case Number	Name	Class	Date Received	Survey	Monitoring	Date Completed	Requesting Organization	Cultural Resources
92-300-036	329 Building, Exhaust Stack Construction	VI	9/28/92	N/A	N/A	10/8/92	PNL	none
92-300-037	318, 324, 3730 Buildings-Concrete Pad Install.	VI	9/28/92	Yes	Yes	10/5/92	PNL	River -400 m
92-300-038	Telephone Service Between 350-B and 350-D	III	9/28/92	N/A	N/A	10/5/92	PNL	none
92-300-039	325 Building Air Conditioning Upgrade	III	9/25/92	N/A	Yes	10/5/92	PNL	325 Bldg River - 400 m
92-400-001	400 Area HLAN Extension	III	1/6/92	N/A	N/A	2/26/92	WHC	none
92-400-002	400 Area Pesticide Storage	III	1/2/92	N/A	N/A	4/8/92	WHC	none
92-600-001	10-HR-3 Boreholes 49B, 46, 43	V	1/14/92	1/6/92	N/A	1/7/92	WHC	none
92-600-002	200-BP-1 Monitoring Well 90E-GFW-121	V	1/14/92	2/12/92	No	2/13/92	WHC	none
92-600-003	Raptor Nesting Poles	V	1/21/92	N/A	2/5/92	2/5/92	WHC	none
92-600-004	300-FF-5, Geologic Characterization Borehole	III	1/31/92	N/A	N/A	2/6/92	WHC	none
92-600-005	300-FF-5, Aquifer Test Boreholes	III	1/31/92	N/A	N/A	2/6/92	WHC	none
92-600-006	Temp. Con., Rt 4S to Old Guardhouse Rd.	III	2/19/92	1988	N/A	2/19/92	WHC	none
92-600-007	Background Soil Samples	III/V	2/24/92	2/20/92	2/27/92	2/25/92	WHC	none
92-600-008	Archaeological Testing of BN146	V	2/21/92	Project Canceled				
92-600-009	609 Fire Station Hydrant Repair	I	2/25/92	N/A	N/A	2/6/92	WHC	none
92-600-010	Grout Facility RCRA Wells	III/V	2/24/92	3/5/92	N/A	3/5/92	WHC	none
92-600-011	200 Area Fire Station Doublewide	III	3/31/92	N/A	N/A	4/22/92	WHC	none
92-600-012	HAMMER	V	2/27/92	3/4/92	N/A	3/20/92	WHC	92-008 92-009
92-600-013	200 BP-1 Monitoring Well Remediations	III	3/5/92	N/A	N/A	3/5/92	WHC	none
92-600-014	Patrol Training Academy Conex Boxes	III	3/17/92	N/A	N/A	3/20/92	WHC	none
92-600-015	Grout Facility Piping	III	3/10/92	N/A	N/A	3/20/92	WHC	none
92-600-016	Central Landfill Fence Repair	III	4/2/92	N/A	N/A	4/22/92	WHC	none
92-600-017	RCRA Well 299-W26-13	V	5/6/92	5/7/92	N/A	5/8/92	WHC	none
92-600-018	RCRA Wells BP92-1 and 2	V	5/6/92	5/7/92	N/A	5/8/92	WHC	none
92-600-019	RCRA Wells BP92-1 and BP92-2	V	5/6/92	5/7/92	N/A	5/8/92	WHC	none
92-600-020	200 Area Bypass Highway	V	5/1/92	Project Extended Through 1993				
92-600-021	Sod. Dichro. Drum Burial Waste Site 100-IV-4	V	5/1/92	5/15/92	N/A	5/15/92	WHC	none

Table A.1. Cultural Resource Reviews Requested of HCRL in FY 1992

Case Number	Name	Class	Date Received	Survey	Monitoring	Date Completed	Requesting Organization	Cultural Resources
92-600-022	W-017H RCRA Ground Water Monitoring Well	III/V	5/27/92	6/4/92	N/A	5/15/92	WHC	none
92-600-023	Well Head Survey	III/ IV/V	5/27/92	N/A	11/30/92	11/30/92	Chance ⁽⁴⁾	none
92-600-024	Interim Subsurface Confinement Barrier	IV	5/28/92	N/A	N/A	5/29/92	WHC	Gable Mtn
92-600-025	Academy IVDTS Node	III	6/2/92	N/A	N/A	6/5/92	WHC	none
92-600-026	IVDTS Project Phase I	III/V	6/10/92	6/92	N/A	6/5/92	WHC	none
92-600-027	McGee Ranch Revegetation Test Plot	V	6/10/92	1988	N/A	6/12/92	WHC	Yes
92-600-028	North Slope Waste Sites	III/V	6/15/92	Yes	Yes	Ongoing	WHC	Yes
92-600-029	IVDTS Project Phase II and III	III/V	6/24/92	7/8/92 (Ph II)	N/A	No Survey (Ph III)	WHC	none
92-600-030	IVDTS Project Phase IV and V	III/V	6/24/92	9/8/92 (Ph IV)	N/A	No Survey (Ph V)	WHC	none
92-600-031	UST Intgr'd Demo/Subs. Barriers, WPN 1	III	6/29/92	N/A	N/A	7/9/92	WHC	none
92-600-032	Temporary Sample Storage Trailer	I	7/7&9/92	N/A	N/A	7/9/92	WHC	none
92-600-033	Route 4/Route 3 Intersection	V	7/8/92	N/A	N/A	7/13/92	WHC	none
92-600-034	WPPSS Sirens	V	7/2/92	N/A	Yes	7/20/92	WHC	none
92-600-035	Hanford Patrol Academy Roadway Upgrade	III	8/5/92	N/A	N/A	8/31/92	WHC	none
92-600-036	HWVP Transmission Line Boreholes	V	8/17/92	N/A	N/A	8/20/92	WHC	none
92-600-037	Ground Water Well Remediation	I	8/18/92	N/A	N/A	8/24/92	WHC	none
92-600-038	White Bluffs Pickling Acid Crib Expedited Resp	III	8/10/92	N/A	N/A	8/24/92	WHC	none
92-600-039	600 Area Pipe Yard RMA	III	9/15/92	N/A	N/A	9/15/92	WHC	none
92-700-001	700 Area Switching Station	III	3/16/92	N/A	N/A	2/24/92	WHC	none
92-700-002	700 Area IVDTS Station	III	3/16/92	N/A	N/A	3/24/92	WHC	none
92-1100-001	North Richland Substation	V	5/11/92	5/18/92	N/A	5/18/92	WHC	none
92-1100-002	UST Integrated Demo/Subsurface Barriers	III	6/16/92	N/A	N/A	6/16/92	WHC	none
92-1100-003	1166 Building Demolition/Sewer Disconnect	VI	7/27/92	N/A	N/A	2/24/92	WHC	none
92-1100-004	1166 Building Demolition/Barrier Fencing	III	7/27/92	N/A	N/A	8/10/92	WHC	none
92-3000-001	3000 Area IVDTS Building	III	2/26/92	N/A	N/A	2/27/92	WHC	none
92-3000-002	3000 Area Switching Building	III	3/16/92	N/A	N/A	3/24/92	WHC	none
92-3000-003	1212 Building Demolition	VI	9/18/92	N/A	N/A	10/5/92	WHC	none
92-0000-002	Practical Training Area	III/V	8/15/92	N/A	N/A	10/22/92	WHC	none

Appendix B

Class V Section 106 Reviews

Appendix B

Class V Section 106 Reviews

The Class V Section 106 reviews conducted by HCRL staff during FY 1992 are compiled in numerical order. For each case, descriptions are provided for the project, the surveyed area, the techniques used in the survey, and the survey findings. Project maps are included where appropriate.

As specified in the Hanford Cultural Resources Management Plan (Chatters 1989), Class V projects include all proposed projects that occur on undisturbed ground. Several of the Class V projects for FY 1992 have also been classified as Class III or Class IV. Class III projects are those conducted on disturbed ground where cultural sensitivity and/or archaeological or paleontological potential is low. Class IV projects are those conducted on disturbed ground where cultural sensitivity and/or archaeological or paleontological potential is high.

HCRC 90-600-028

Laser Interferometer Gravitational Wave Observatory (LIGO)

Requester: E. T. Trost
Operations Support Services
Westinghouse Hanford Company
Richland, Washington 99352

Project Description: This project entailed construction of a facility dedicated to the detection of cosmic gravitation waves. Intrusive work activities included detailed geotechnical surveys, a topographic survey, ambient ground noise measurements, and site preparation work.

Our literature and records review showed that no cultural properties were known to be located within the project area. Aerial photographs revealed that the project area is in an undisturbed area of the Hanford Site. From August 17 through September 2, 1992, HCRL staff and members of the Yakima and Umatilla Tribes surveyed the proposed project area (Figure B.1).

Cultural Resources: Site 45BN480 and isolated finds HI-92-007 through HI-92-017 were recorded and collected to avoid destruction from construction activities.

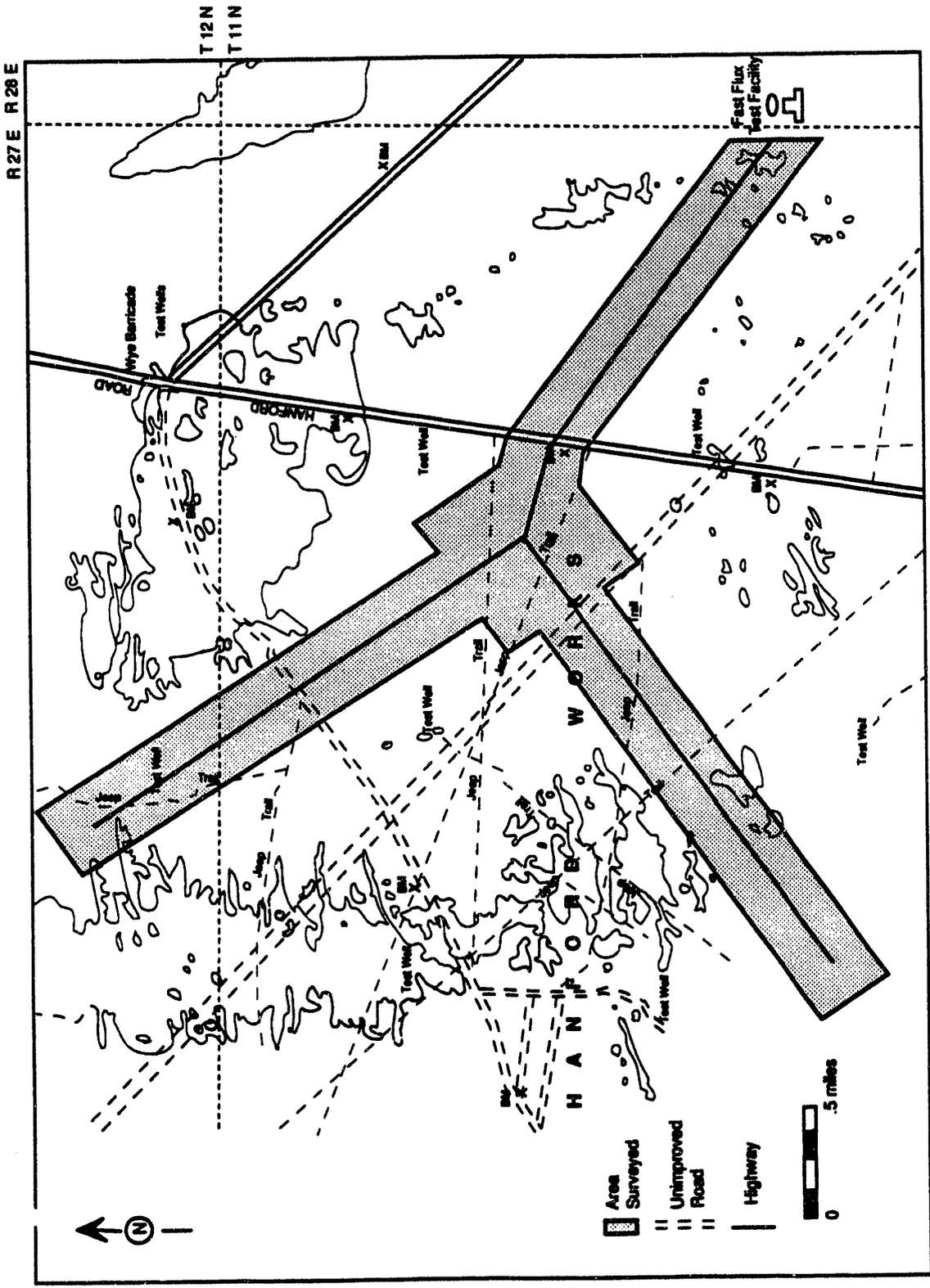


Figure B.1. Surveyed Area at the Proposed LIGO Project, HCRC 90-600-028.

HCRC 91-100-CERCLA

Archaeological Survey of the 100 Area, Hanford Site, Washington

Requester: J. W. Roberts
Westinghouse Hanford Company
Richland, Washington 99352

Project Description: HCRL conducted an archaeological survey of the 100 Area from June through August 1992 (Figure B.2). This survey was conducted as part of a comprehensive cultural resources review of the 100 Area Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Operable Units in support of CERCLA characterization activities. A crew of six, consisting of two archaeologists, three NORCUS students, and one SRAP student completed the fieldwork. A total of 518.01 ha was surveyed, and 38 new sites were recorded. No excavations were done; however, a limited number of diagnostic artifacts were collected. Photographs were taken of the sites and are on file at HCRL.

Cultural Resources: Of the 38 sites recorded, 28 were historic, 4 were prehistoric, 4 were historic with prehistoric components, and 2 were of undetermined cultural affiliation. HCRL staff created site forms during November and December 1992.

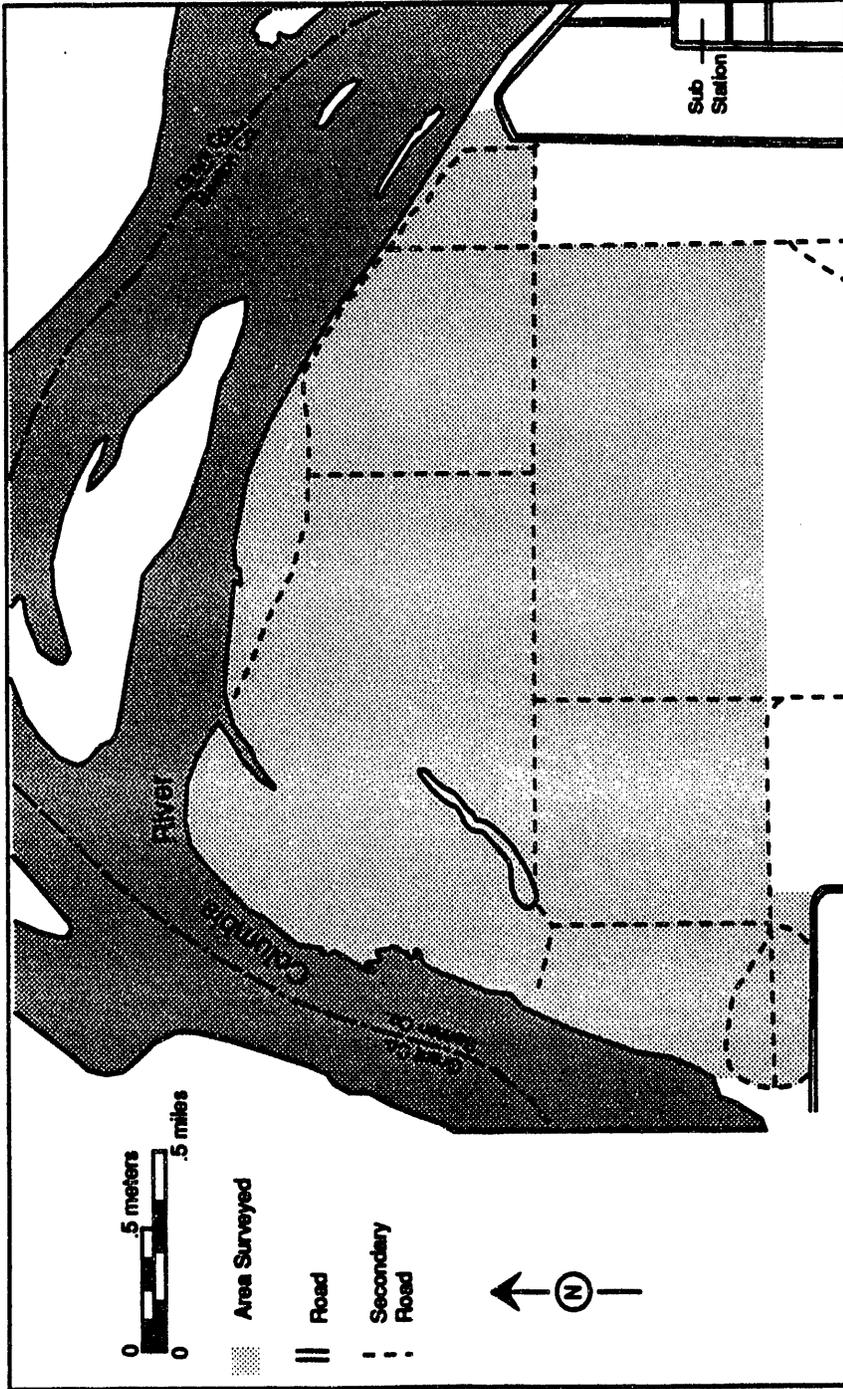


Figure B.2. Surveyed Area at the 100 Area Operable Unit Project, HCRC 91-100-CERCLA.

HCRC 91-300-024

DOE-Preferred EMSL Location

Requester: J. K. McClusky
Facilities & Operations
Pacific Northwest Laboratory
Richland, Washington 99352

Project Description: This project entailed a site characterization study of Site 2 for the location of the Environmental and Molecular Sciences Laboratory (EMSL). Site 2 is bounded on the north by the 300 Area pasture fence, on the west by the George Washington Way extension and Submarine Road, on the east by the Columbia River, and on the south by the Horn Rapids Extension. The project area measured approximately 1 km north/south and 0.5 km east/west.

Our literature and records review showed that no cultural properties were known to be located at the project site. Because of the site's close proximity to the Columbia River, the probability of encountering buried cultural material was high. A survey was conducted between November 26 and December 3, 1991.

Cultural Resources: Two sites were located during the survey. Site HT-91-071, a low-density historic can scatter dating from 1917 to 1929, did not meet the criteria for nomination to the National Register of Historic Places. Scatters of this kind are very common on the Hanford Site. Site HT-92-072, a prehistoric Native American campsite stretching along the Columbia River, consisted of flakes, mussel shell, and fire-cracked rock. Most of the site was buried. In addition to the two archaeological sites, several Euro-American features of unknown age were also located, including three identical circular cement foundations and two irrigation ditches. An HCRL archaeologist was onsite during earth leveling and excavation for utility placement phases of the construction. This is a Class IV/V case.

HCRC 91-300-027

300 Area Wastewater Outfall

Requester: S. W. Seiler
Site Support, Operations Support Services
Westinghouse Hanford Company
Richland, Washington 99352

Project Description: This project entailed placement of a buried pipeline from the Treated Effluent Disposal Facility (TEDF) located at Site B to the Columbia River (HCRC #92-300-007). This project represented a change from the original pipeline location identified in 1987 (HCRC #87-300-001). HCRL completed a cultural resources review of the project area, located north of the 300 Area of the Hanford Site, and monitored test pit excavations at stations 06+00 and 21+00 on August 24, 1992.

Our literature and records review showed that a prehistoric site, 45BN163, was known to be located in the proposed project area. All direct impacts to the site were mitigated through data recovery. To avoid indirect impacts to the site, access to the riverbank east of the road was restricted. Excavations conducted for the pipeline were monitored by a HCRL archaeologist.

Cultural Resources: Because Site 45BN163 was within the proposed project boundaries, monitoring of excavations by an archaeologist was required. HCRL prepared a finding of no adverse effect for the wastewater outfall project and developed a mitigation plan for review by federal, state, and tribal officials. A data recovery plan with Washington State Historic Preservation Office concurrence will be completed before construction begins. This project is a Class III/V case.

HCRC 91-600-012

Characterization of McGee Ranch Soil

Requester: N. R. Wing
Geotechnical Engineering Unit
Waste Management Systems Eng.
Westinghouse Hanford Company
Richland, Washington 99352

Project Description: This project entailed completing a cultural resources review of the McGee Ranch located in the northwest portion of the Hanford Site in the 600 Area. HCRL staff conducted an archaeological survey covering 804.0 ha.

Our literature and records review revealed that no previous surveys had been conducted in the project area, although portions of the area adjacent to the project boundaries had been surveyed in 1988 and 1990. During those surveys, historic and prehistoric cultural resources were observed, increasing the possibility that similar land use had taken place within the current project boundaries. Aerial photographs showed homesteads and linear features, such as roads and irrigation ditches, that were not apparent from ground level.

Cultural Resources: Forty-two cultural resources were recorded, consisting of 22 sites and 20 isolated finds. Only 2 sites and 3 isolated finds were attributed to prehistoric Native American occupation. The historic sites date from the turn of the century to the 1940s and are representative of the settlement patterns that occurred throughout the Columbia Basin (Gard and Poet 1992). Of the 22 sites recorded, 8 were recommended as potentially significant. Both prehistoric sites are significant, providing evidence of rarely reported inland exploitation of resources between 4500 and 2500 B.P.

HCRC 92-100-022

Riverland Munitions Cache Cleanup

Requester: P. J. Valcich
Environmental Restoration Engineering
Westinghouse Hanford Company
Richland, Washington 99352

Project Description: This project entailed the investigation and removal/minimization of potential physical hazards associated with six locations in the 100 - IV-1 Operable Unit of the Hanford Site (Figure B.3). Characterization was undertaken at seven locations:

1. The riverland railroad maintenance shop service was surveyed for radiation. The pits were decontaminated in 1963. A 12,000-gal underground diesel fuel tank next to the maintenance shop was located and sampled.
2. Soil in the munitions cache site near the McGee Well was sampled.
3. Insecticide cans near an old homestead site were collected.
4. An antiaircraft artillery site was cleaned up. (This cleanup did not include dismantling of features.)
5. The Triple-A Site was sampled using Ground Penetrating Radar (GPR).
6. Batteries were removed from two locations.
7. The Fish Farm was cleaned up and restored to original land form contours.

Cultural Resources: No cultural resources were effected by the cleanup of hazardous materials from the ground surface, or by removal of samples from suspected waste locations. This project is a Class IV/V case.

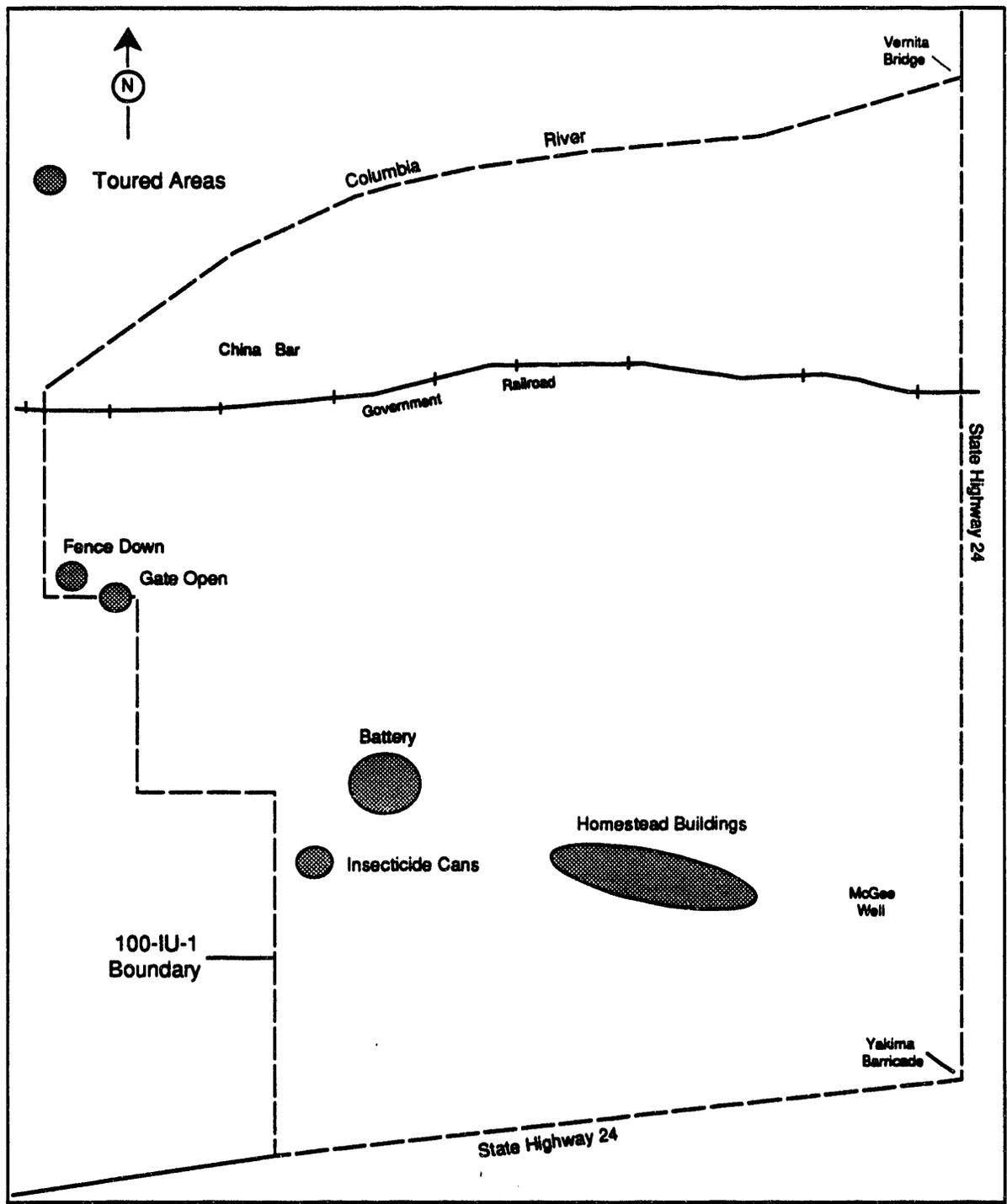


Figure B.3. Toured Areas at the Riverland Munitions Cache Cleanup Project, HCRC 92-100-022.

HCRC 92-200-004

The 200 Area Treated Effluent Disposal Facility

Requester: M. C. Carrigan
Evaporator and Effluent Projects
Westinghouse Hanford Company
Richland, Washington 99352

Project Description: This project entailed the construction and installation of all systems, components, facility modifications, and buildings required to collect and transport 200 Area effluents. The project was located in both the 200 and 600 Areas; most of the impacts were within the 200 East and West Areas. A 14-km, (8.5-mile) pipeline connects a new 2-ha (5-acre) disposal pond to the 200 East Area. Excavations will reach a maximum depth of 3 m (10 feet).

Our literature and records review showed that all construction areas were either previously surveyed for cultural resources (Chatters and Cadoret 1990) or were situated in disturbed areas where the chances of encountering intact cultural deposits were unlikely. A new survey of the project area was not done.

Cultural Resources: No historic properties were located in the project area. This project is a Class III/V case.

HCRC 92-200-006

200 Area Initial Pretreatment Module (Ipm)

Requester: D. Jordan
Site Planning
Westinghouse Hanford Company
Richland, Washington 99352

Project Description: This project entailed site selection for a waste pretreatment facility. Approximately 28 ha (70 acres) are required to support this project. Five possible sites have been selected; two are within the 200 Area.

Our literature and records review showed that sites B, D, and E had been surveyed previously for cultural resources (HCRC #91-600-006) and no cultural resources were found during the survey. Sites A and C were not surveyed.

Cultural Resources: No cultural resources were located within sites B, D, and E. Sites A and C need to be inspected by a HCRL archaeologist. This is a Class III/V case.

The project was canceled; no further action will be taken.

HCRC 92-200-007

The 216-A-6 Crib Interim Stabilization

Requester: D. L. Smith
Hanford Restorations Operations
Westinghouse Hanford Company
Richland, Washington 99352

Project Description: This project was located on the 200 Area Plateau and entailed excavating sediments from the proposed borrow area for use in the interim stabilization of the 216-A-6 Crib. The borrow area measured approximately 0.4 ha (1 acre) and the expected excavation depth was .61 m (2 ft).

Our literature and records review showed no known existing cultural properties in the project area, which included both disturbed and undisturbed ground. On March 31, 1992, HCRL staff conducted a pedestrian survey of the undisturbed portion of the project area (Figure B.4.).

Cultural Resources: No historic properties were encountered during the survey, and monitoring of the project was not required. This project is a Class III/V case.

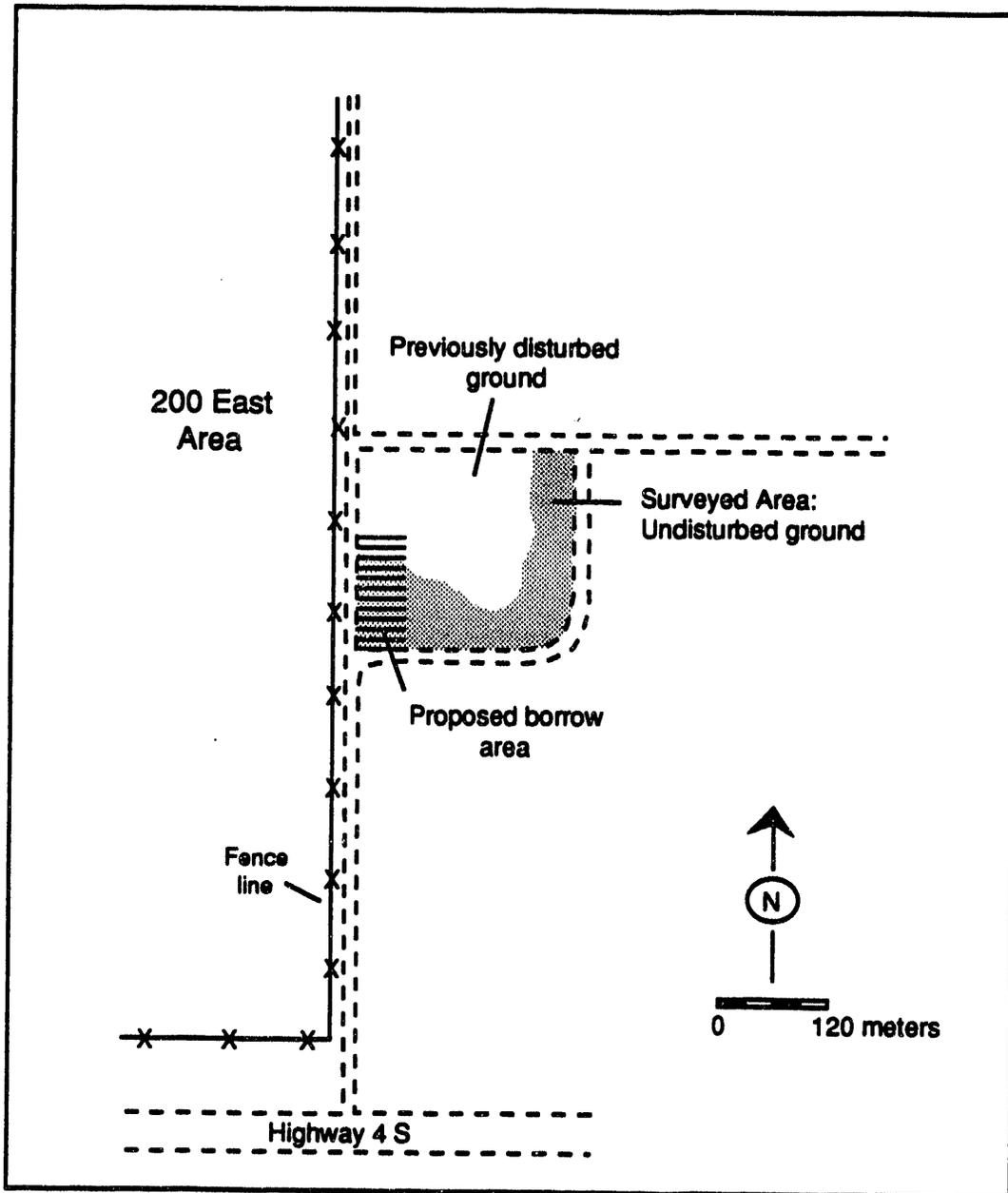


Figure B.4. Surveyed Area at the Proposed 216-A-6 Crib Interim Stabilization Project, HCRC 92-200-007.

HCRC 92-200-008

B Pond Interim Stabilization

Requester: D. L. Smith
Restoration Operations
Westinghouse Hanford Company
Richland, Washington 99352

Project Description: This project was located in the 200 and 600 Areas and entailed site selection of a borrow area to obtain soil for use in stabilizing the B-Pond and the B-3-3 ditch. Two potential borrow sources were identified, one due south of B Pond and the other southeast. Each borrow site covered approximately 16 ha (40 acres).

Our literature and records review showed that no cultural properties were known to be located at the project site, and no previous cultural resource surveys had been performed within the project boundaries. Aerial photographs revealed that the areas in question were undisturbed; therefore, a ground survey of the project site by a HCRL archaeologist was required. The two proposed borrow areas south of B-Pond were surveyed on May 20 and 21, 1992 (Figure B.5.). Approximately 32 ha (80 acres) were inspected using survey techniques as outlined in the Hanford Cultural Resources Management Plan (Chatters 1989).

Cultural Resources: One isolated artifact (a can dating from circa 1870) was located during this survey.

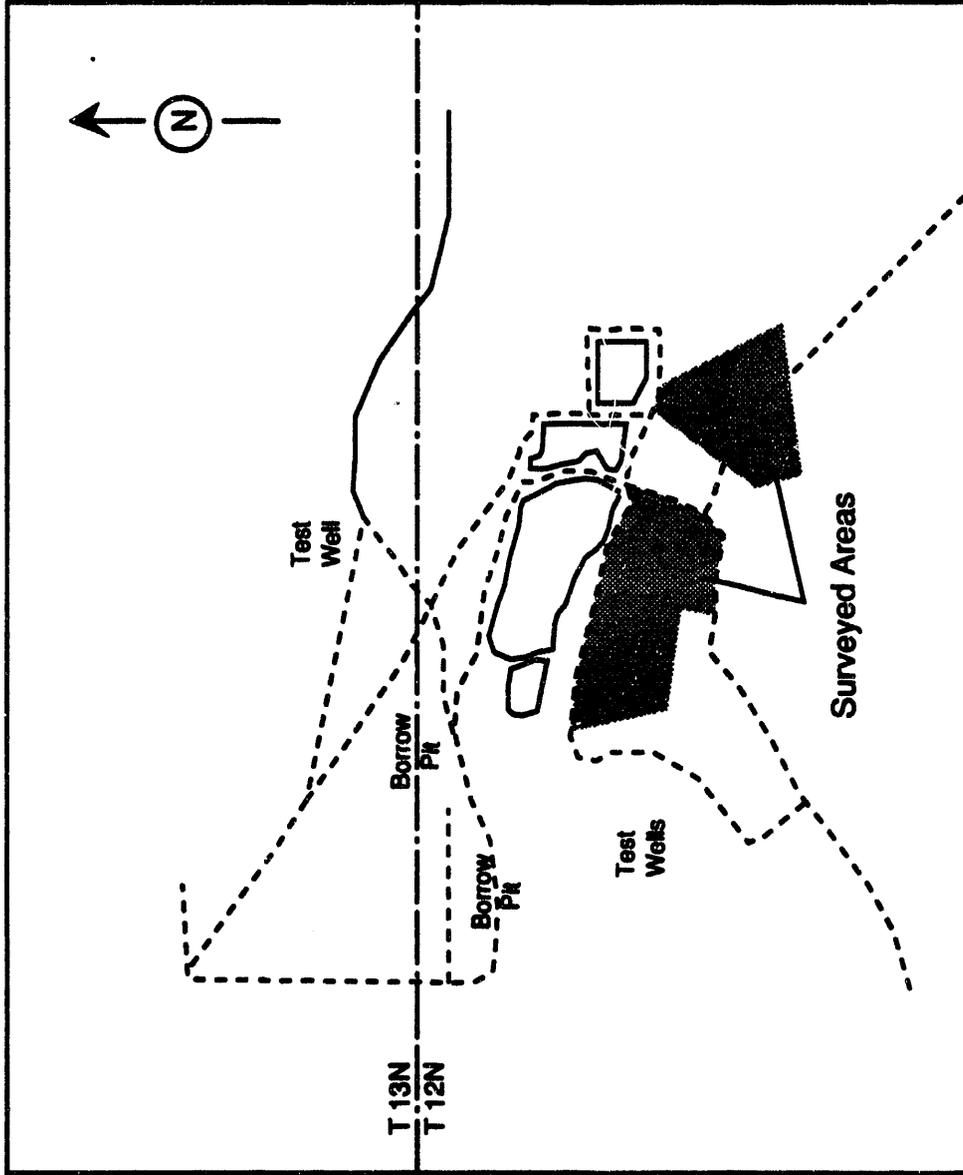


Figure B.5. Surveyed Areas at the Proposed B-Pond Interim Stabilization Areas, HCRC 92-200-008.

HCRC 92-300-006

The 300 Area Sanitary Sewer Upgrade

Requester: J. Diebel
Site Planning
Westinghouse Hanford Company
Richland, Washington 99352

Project Description: This project entailed installation of a new sanitary sewer line from the 300 Area to the City of Richland. The project consisted of

1. Construction of a new lift station at the north end of the 300 Area
2. Installation of 655 m (2150 feet) of 15-cm (6-in.)-dia forced main from the lift station to the intersection of Cypress Street and the George Washington Way Extension
3. Installation of 1164 m (3820 ft.) of 30-cm (12-in.)-dia gravity line from the 15-cm (6-in.) line at the intersection of Cypress Street and the George Washington Way Extension to a new lift station near the intersection of the Submarine Compartment Road and the George Washington Way Extension
4. Installation of 914 m (3000 feet) of 20-cm (8-in.)-dia gravity line from the new lift station near the intersection of the Submarine Compartment Road and the George Washington Way Extension to the City of Richland collection point near 10th Street
5. Installation of flow monitoring, sampling, and alarm equipment.

Our literature and records review showed that the undisturbed area south of the 300 Area had been surveyed previously for cultural resources and none were found. The project area within the 300 Area had been largely disturbed by past construction; therefore, the chances of finding undisturbed cultural resources in that area were considered to be low.

Cultural Resources: Survey or monitoring of the excavations by an archaeologist was not required. This is a Class III/V case.

HCRC 92-300-007

300 Area Treated Effluent Disposal Facility (TEDF), Site B

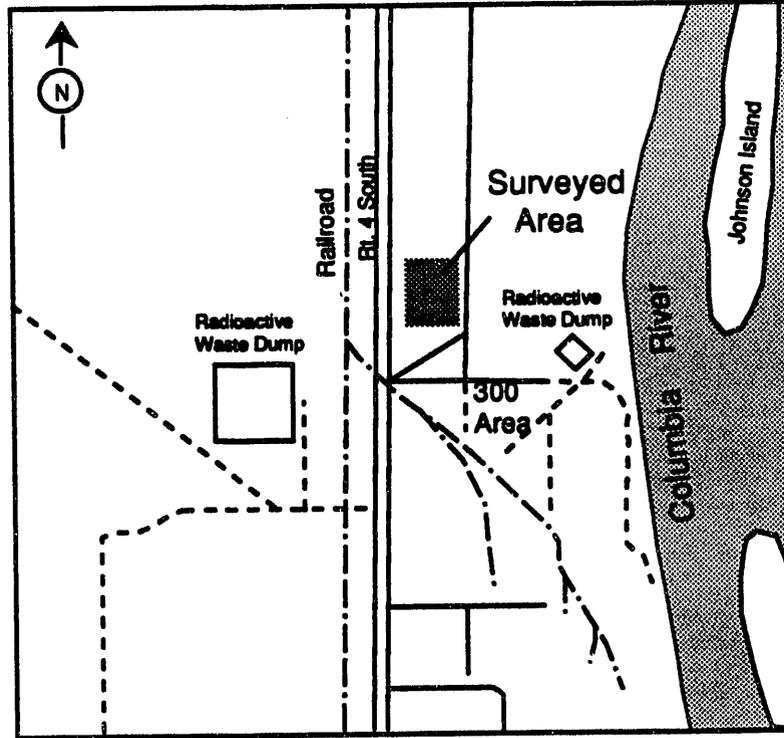
Requester: P. V. Meuwsen
Engineered Applications
Westinghouse Hanford Company
Richland, Washington 99352

Project Description: This project entailed placement of a buried pipeline from the Treated Effluent Disposal Facility (TEDF) at Site B to the Columbia River (Figure B.6). This project represented a change from the original pipeline location that was identified in 1987 (HCRC #87-300-001).

Our literature and records review showed that cultural properties were located in the proposed project area (Site 45BN163) and possibly would be impacted by project activities. HCRL staff completed 17 auger holes, one 1 m² test pit, and monitored one test pit and trench excavated by Westinghouse Hanford Company personnel.

Cultural Resources: Cultural properties are present in the project area and further investigation is needed prior to completion of the project.

Area Map



Sketch Map

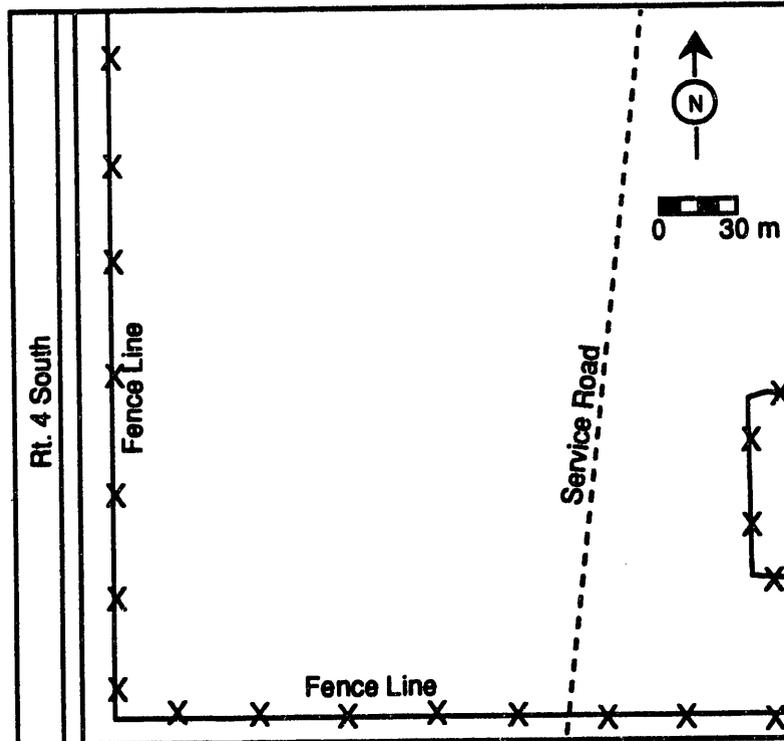


Figure B.6. Surveyed Area for the Relocation of the Proposed 300 Area Treated Effluent Disposal Facility, HCRC 92-300-007.

HCRC 92-600-001

100-HR-3 Boreholes 699-93-49b, 699-93-46, And 699-91-43

Requester: B. A. Gilkeson
Environmental Projects
Westinghouse Hanford Company
Richland, Washington 99352

Project Description: This project entailed drilling two new boreholes, 699-93-49B and 699-93-46, and extending the existing well, 699-91-43, in the 600 Area CERCLA Operable Unit 100-HR-3. The two new wells were dug to a depth of 18 m (60 ft) and the existing well was extended 9 m (30 ft).

Our literature and records review showed that no known cultural properties were located in the project area, although no previous cultural resource surveys had been performed within the project boundaries. Aerial photographs revealed that the area had been only moderately disturbed by past farming practices, and therefore a pedestrian survey was necessary. A 100 m²-area around the marking stakes for all three wells and the area within the flagged access routes were surveyed on January 6, 1992 (Figure B.7).

Cultural Resources: No historic properties were encountered during the survey. Monitoring of project excavations was not required.

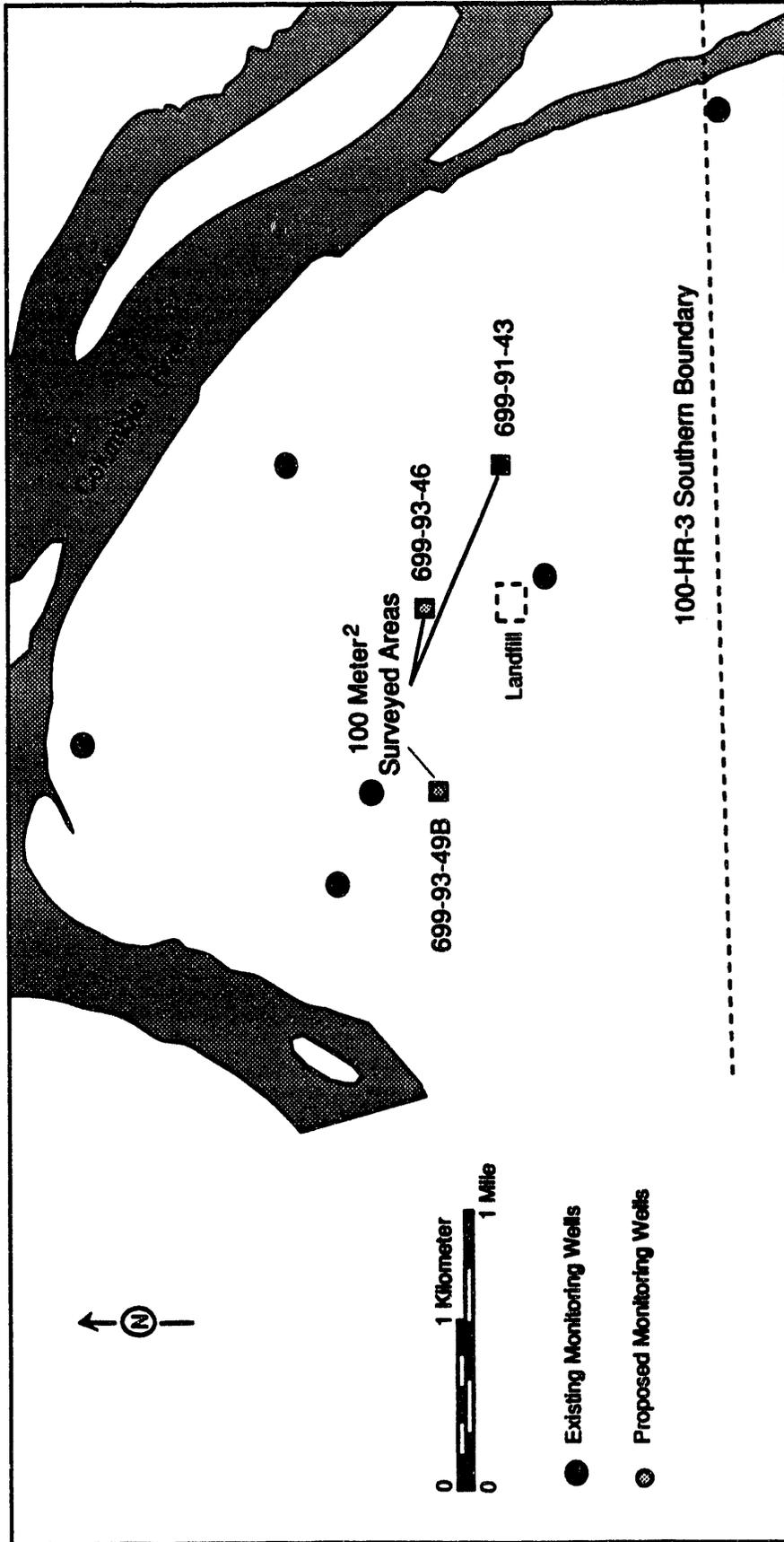


Figure B.7. Surveyed Areas at Proposed 100-HR-3 Boreholes 699-93-49B and 699-93-46, and at Existing Borehole 699-91-43, HCRC 92-600-001.

HCRC 92-600-002

Ground Water Monitoring Well 699-57-59, 200-BP-1

Requester: B. A. Gilkeson
Environmental Projects
Westinghouse Hanford Company
Richland, Washington 99352

Project Description: This project entailed construction of a ground water monitoring well northeast of the 200 East Area. The well pad consisted of a 30 m x 30 m (100 ft x 100 ft) area with minimal removal of top soil.

Our literature and records review showed that no known cultural properties were located at the project site, although no previous cultural resource surveys had been performed within the project boundaries. Aerial photographs revealed that the area in question was undisturbed; therefore, an archaeological survey was required prior to the commencement of construction activities.

The proposed location of the ground water monitoring well #699-57-59 was inspected on February 12, 1992 (Figure B.8). A 30-m² area was inspected in 10-m-spaced transects centered around the stake marking the well location.

Cultural Resources: No cultural resources were located within the proposed well location.

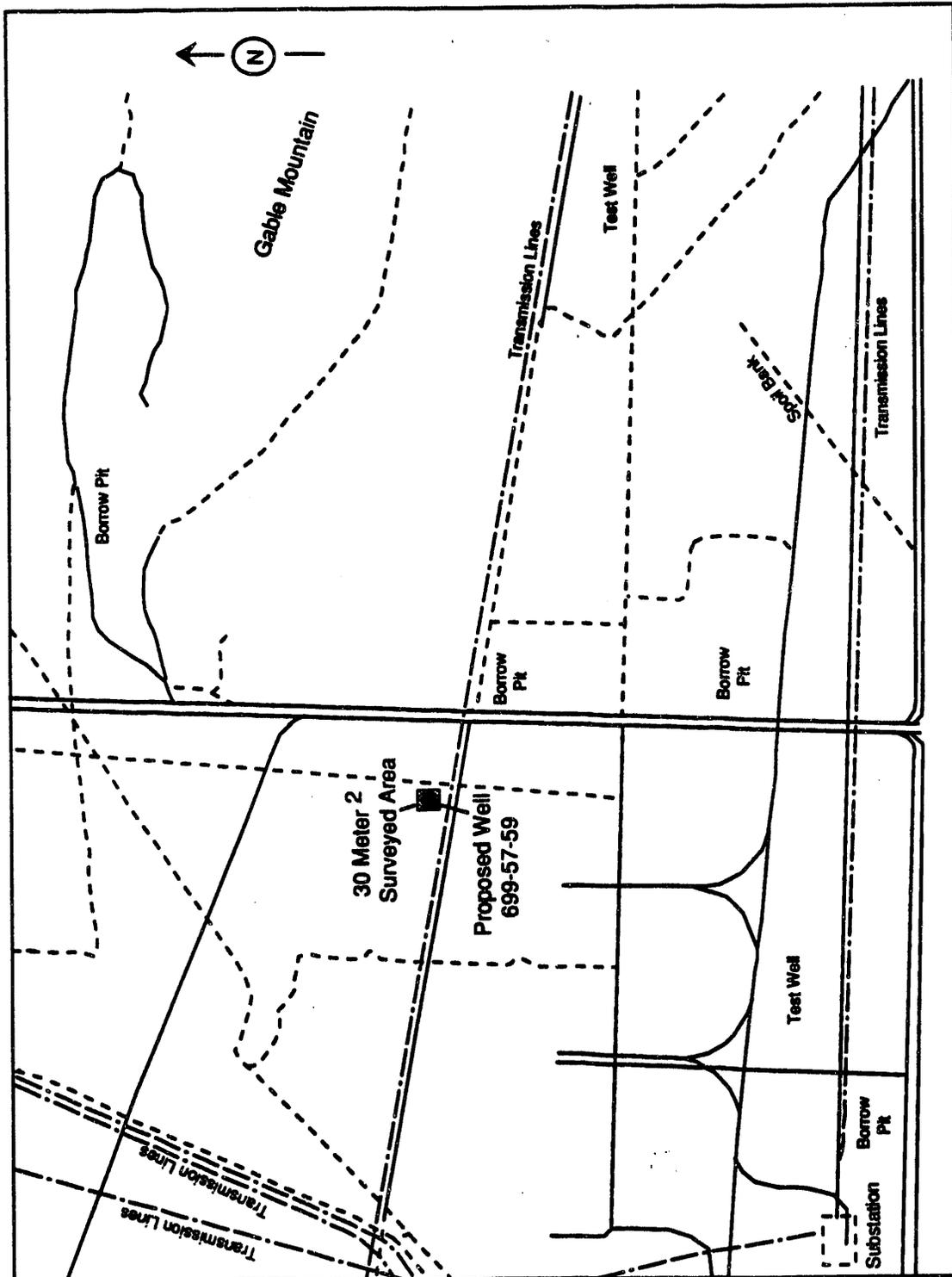


Figure B.8. Surveyed Area at Proposed Well 699-57-59, HCRC 92-600-002.

HCRC 92-600-003

Replacement Raptor Nesting Posts

Requester: D. L. Smith
Restoration and Remediation
Environmental Division
Westinghouse Hanford Company
Richland, Washington 99352

Project Description: This project was located in the 600 Area and entailed installation of four replacement raptor nesting posts east of the 200 East Area. Power poles were used to support the nest boxes; each pole required a hole .09 m² (1 ft²) by .91 (3 ft) deep.

Our literature and records review showed that cultural properties were known to be located in the vicinity of the project sites; however, given the limited area of disturbance caused by installation of the posts, and the degree of flexibility possible for their placement, any archaeological site could be avoided. Because cultural or historic properties were known to be in the vicinity of the proposed project area, monitoring of the post installations by an HCRL archaeologist was required to ensure that buried cultural deposits would not be impacted.

Cultural Resources: Buried cultural resources were not encountered during excavation activities.

HCRC 92-600-007

Site-Wide Background Soil Sampling

Requester: T. Legore
Environmental Division
RCRA Closure Activities Section
Westinghouse Hanford Company
Richland, Washington 99352

Project Description: This project entailed the collection of soil samples from eight widely separated locations across the Hanford Site to ascertain the contribution of various organic compounds into the soil by different plant communities. Each sample consisted of approximately 1 L of soil collected from the top 15 cm of the soil column.

Our literature and records review showed that of the eight site locations, sites 3, 7, and 8 had been cleared by previous archaeological surveys. Sites 1 and 2 were in an undisturbed and unsurveyed area. On February 20, 1992, HCRL staff surveyed sites 4, 5, and 6 and directed the project away from cultural resources (Figure B.9). The remaining sites, 1 and 2, were monitored during excavation activities February 27, 1992 to ensure that subsurface cultural deposits were not impacted.

Cultural Resources: No cultural resources were located during either survey or monitoring. This is a Class III/V case.

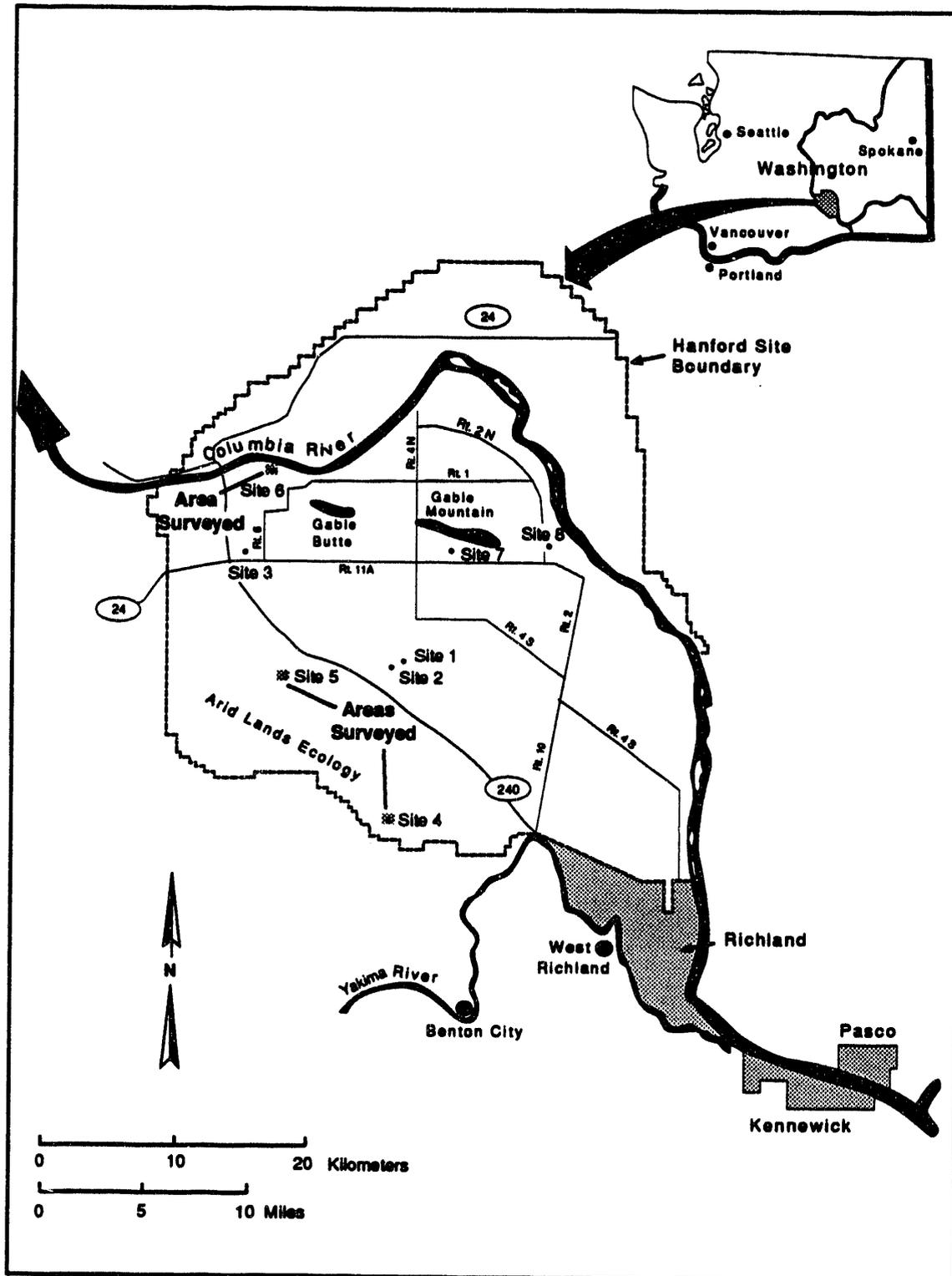


Figure B.9. Surveyed Areas at the Proposed Site-Wide Background Soil Sampling Project, HCRC 92-600-007.

HCRC 92-600-008

Archaeological Testing: 45BN146

Requester: V. L. Butler
Terrestrial Sciences
Pacific Northwest Laboratory
Richland, Washington 99523

Project Description: This project was to involve mapping, augering, and test excavation of site 45BN146, located on the south bank of the Columbia River at about River Mile 385 in the 600 Area of the Hanford Site. This site contained numerous salmonoid remains, basalt flakes, and fire-cracked rock exposed on the surface.

Test excavations were to be conducted to obtain sufficient cultural materials to identify site age, function, areal extent, and a better understanding of prehistoric salmon resource use and processing behaviors. Approximately five units, each 1 m², were to be excavated to depths from 0.5 to 1.0 meter.

Cultural Resources: This project was canceled.

HCRC 92-600-010

RCRA Ground Water Monitoring Wells 299-E25-44 And 299-E25-45

Requester: B. A. Gilkeson
Environmental Projects
Westinghouse Hanford Company
Richland, Washington 99352

Project Description: This project entailed the construction of two ground water monitoring wells south of the Grout Treatment Facility. The well pads measured 9 m² (100 ft²) with minimal removal of top soil, and the wells were dug to depths of 85 m (280 ft) and 87 m (285 ft).

Our literature and records review showed that no known cultural properties were located in the project area, although no previous cultural resource surveys had been performed within the project boundaries. Well 299-E25-44 was situated in a construction laydown yard that was too disturbed to warrant a survey. Well 299-E25-45 was situated on undisturbed ground. A 100-m² area around the marking stake of Well 299-E25-45 was surveyed on March 5, 1992 (Figure B.10).

Cultural Resources: No historic properties were encountered during the survey, and monitoring of excavation activities was not required. This project is a Class III/V case.

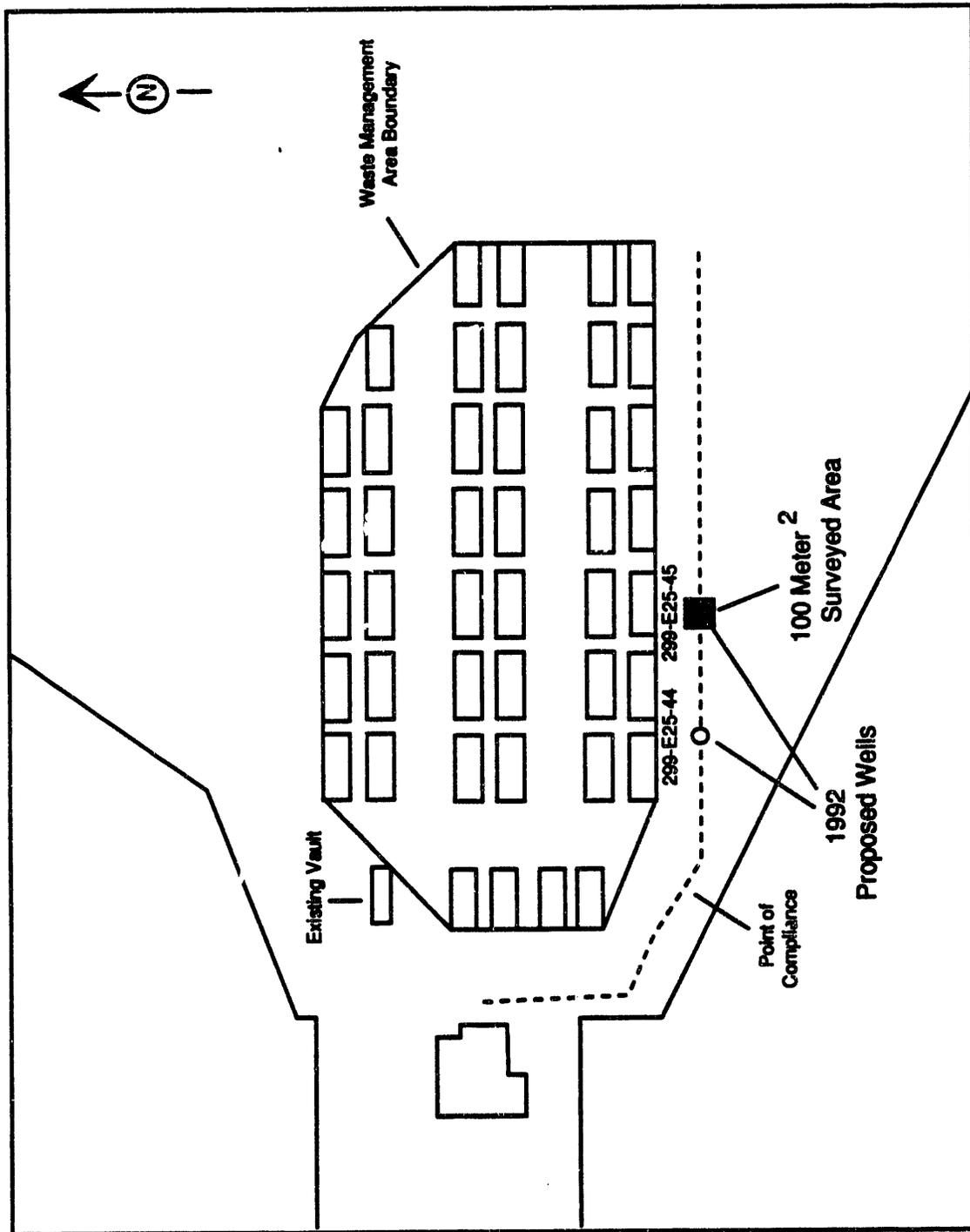


Figure B.10. Surveyed Area at Proposed Well 299-E25-45, HCRC 92-600-010.

HCRC 92-600-012

Hazardous Materials Management And Emergency Response Training Center (Hammer)

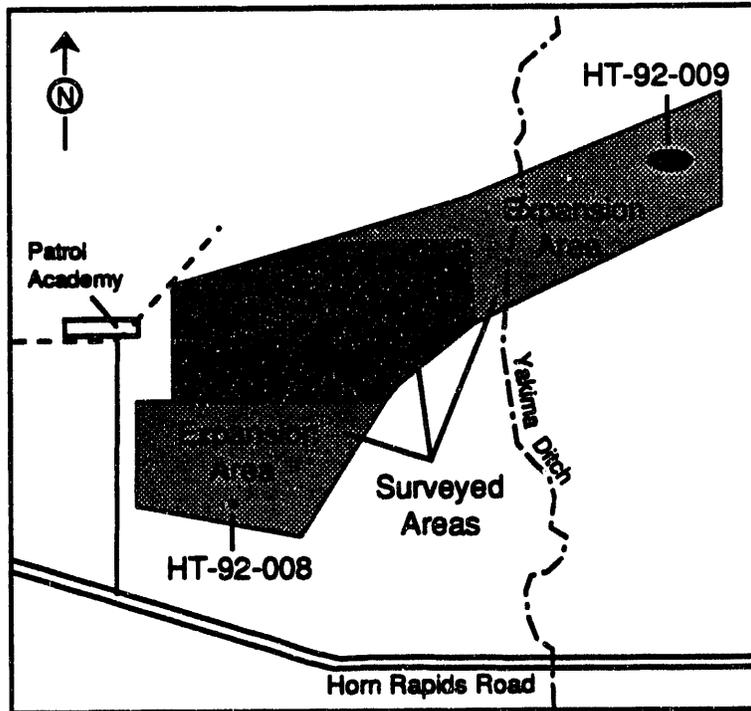
Requester: E. T. Trost
Site Planning Group
Westinghouse Hanford Company
Richland, Washington 99352

Project Description: This project entailed site selection for the location and construction of the HAM-MER facility. An area due east of the Hanford Patrol Training Academy had been selected for facility construction and installation of utilities, parking areas, and road access. The project dimensions were approximately 40 ha (100 acres) plus an expansion, for a total of 120 ha (300 acres).

Our literature and records review showed that the area was largely undisturbed and had not been surveyed previously for cultural resources; therefore, survey by an HCRL archaeologist was required before clearance for the project could be given. This survey was completed on March 3, 4, and 11, 1992 (Figure B.11). Site "A" was surveyed with 48 north/south transects spaced at 20 m and a length of 500 m. The south expansion was surveyed with 35 transects spaced at 20 m with a length of 400 m. The north expansion was surveyed with 40 transects spaced at 20 m with a length of 300 m.

Cultural Resources: Two historic sites were located during the survey, HT-92-008 and HT-92-009. Site HT-92-008 was not considered to be significant. Site HT-92-009, located near the northeast corner of the original north expansion area, was a historic scatter containing pre-1922 artifacts. Structural debris present at this site verified that it was one of the older, intact historic homesteads recorded in the Hanford Site boundaries. It was recommended that the project boundaries of the north expansion area be adjusted to allow a buffer zone between this site and future expansion.

Area Map



Sketch Map of HT-92-009

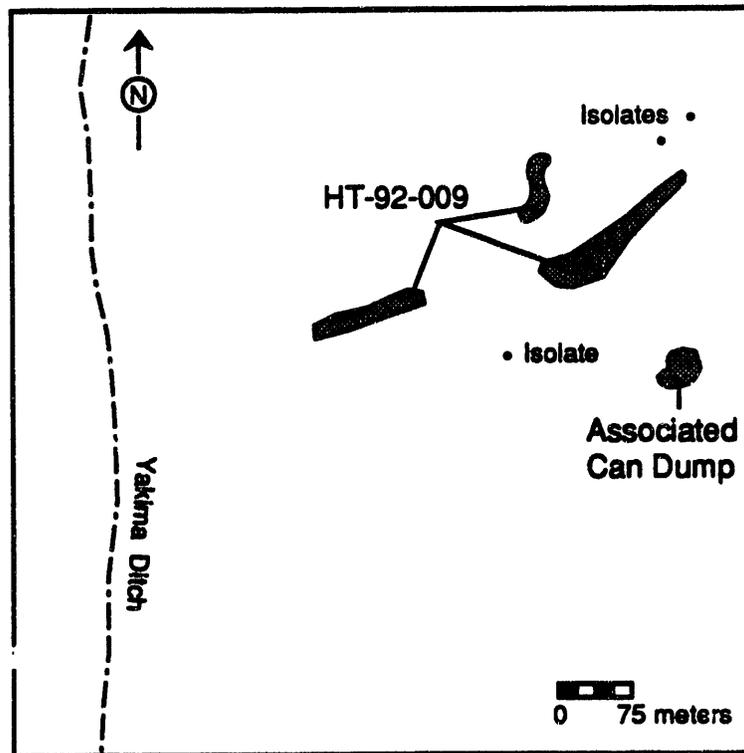


Figure B.11. Surveyed Areas at the Proposed HAMMER Site and Expansion Areas, HCRC 92-600-012.

HCRC # 92-600-017

Ground Water Monitoring Well 299-W26-13

Requester: B. A. Gilkeson
Environmental Projects
Westinghouse Hanford Company
Richland, Washington 99352

Project Description: This project entailed the construction of a ground water monitoring well south of the 200 West Area. The well was located immediately east of the northern end of Crib 216-S-10. The well pad measured 9 m² (100 ft²), with minimal removal of top soil. The well was dug to a depth of 140 m (460 ft.)

Our literature and records review showed that no known cultural properties were located in the project area, although no previous cultural resource surveys had been performed within the project boundaries. Aerial photographs revealed that the area was largely undisturbed, and therefore a pedestrian survey was warranted. On May 7, 1992, HCRL staff surveyed a 30-m² area around the well location by walking in 10-m transects (Figure B.12).

Cultural Resources: No historic properties were encountered during the survey, and monitoring of the project was not required.

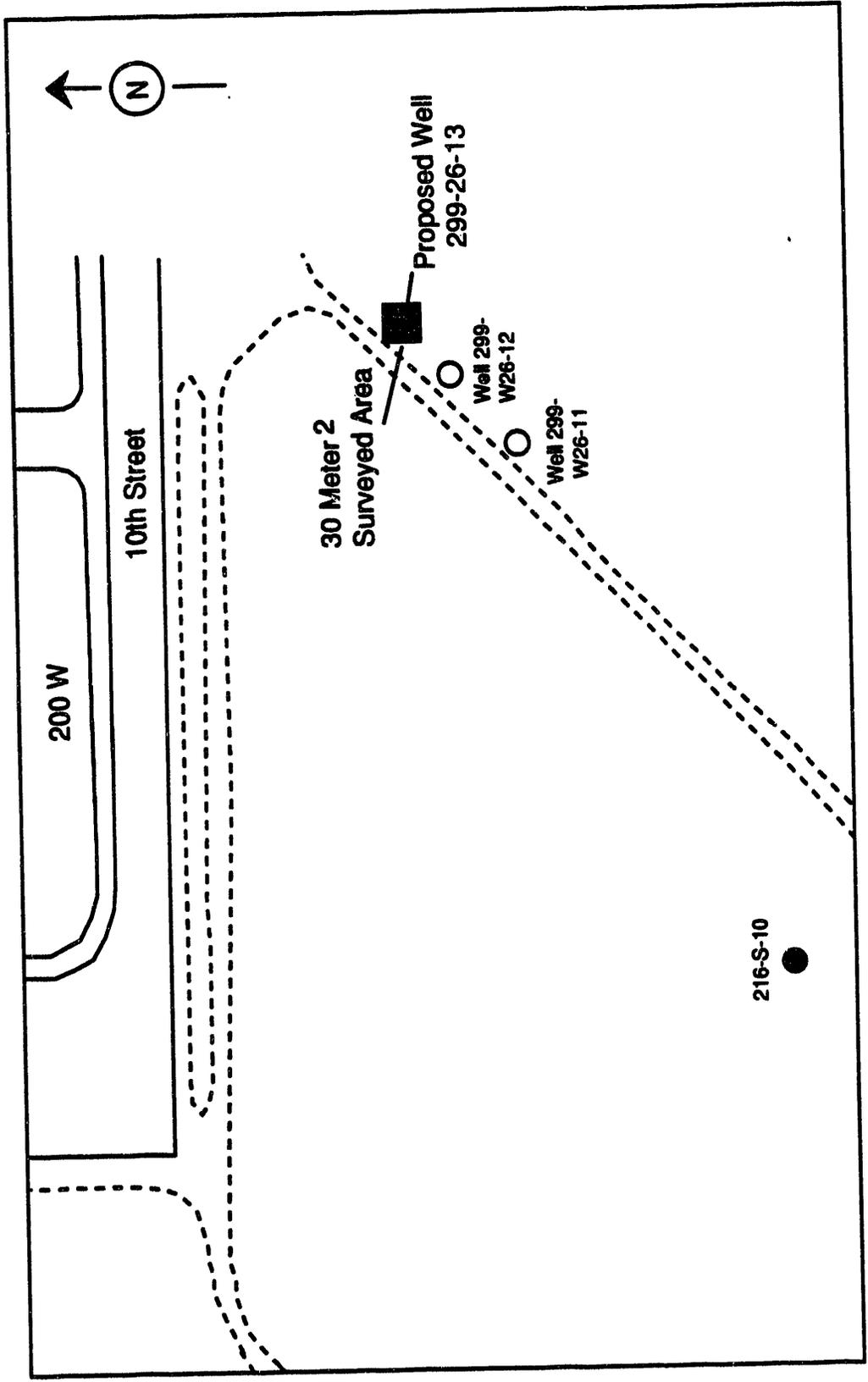


Figure B.12. Surveyed Area at Proposed Well 299-W26-13, HCRC 92-600-017.

HCRC 92-600-018

Ground Water Monitoring Wells A-29-92-1 And A-29-92-2

Requester: B. A. Gilkeson
Environmental Projects
Westinghouse Hanford Company
Richland, Washington 99352

Project Description: This project entailed the construction of two ground water monitoring wells west of the Grout Treatment Facility. The wells were located approximately 200 m apart, and situated between cribs 216-A-8 and 216-A-37-1. The well pads measured 9 m² (100 ft²) with minimal removal of top soil. The wells will be dug to depths of 90 m (294 ft) and 87 m (285 ft).

Our literature and records review showed that no known cultural properties were located in the project area, although no previous cultural resource surveys had been performed within the project boundaries. Aerial photographs showed that the project area was largely undisturbed, and a pedestrian survey of the area was deemed necessary. On May 7, 1992, HCRL staff surveyed a 30-m² area around each well by walking 10-m spaced transects (Figure B.13).

Cultural Resources: No historic properties were encountered during the survey, and monitoring of the project was not required.

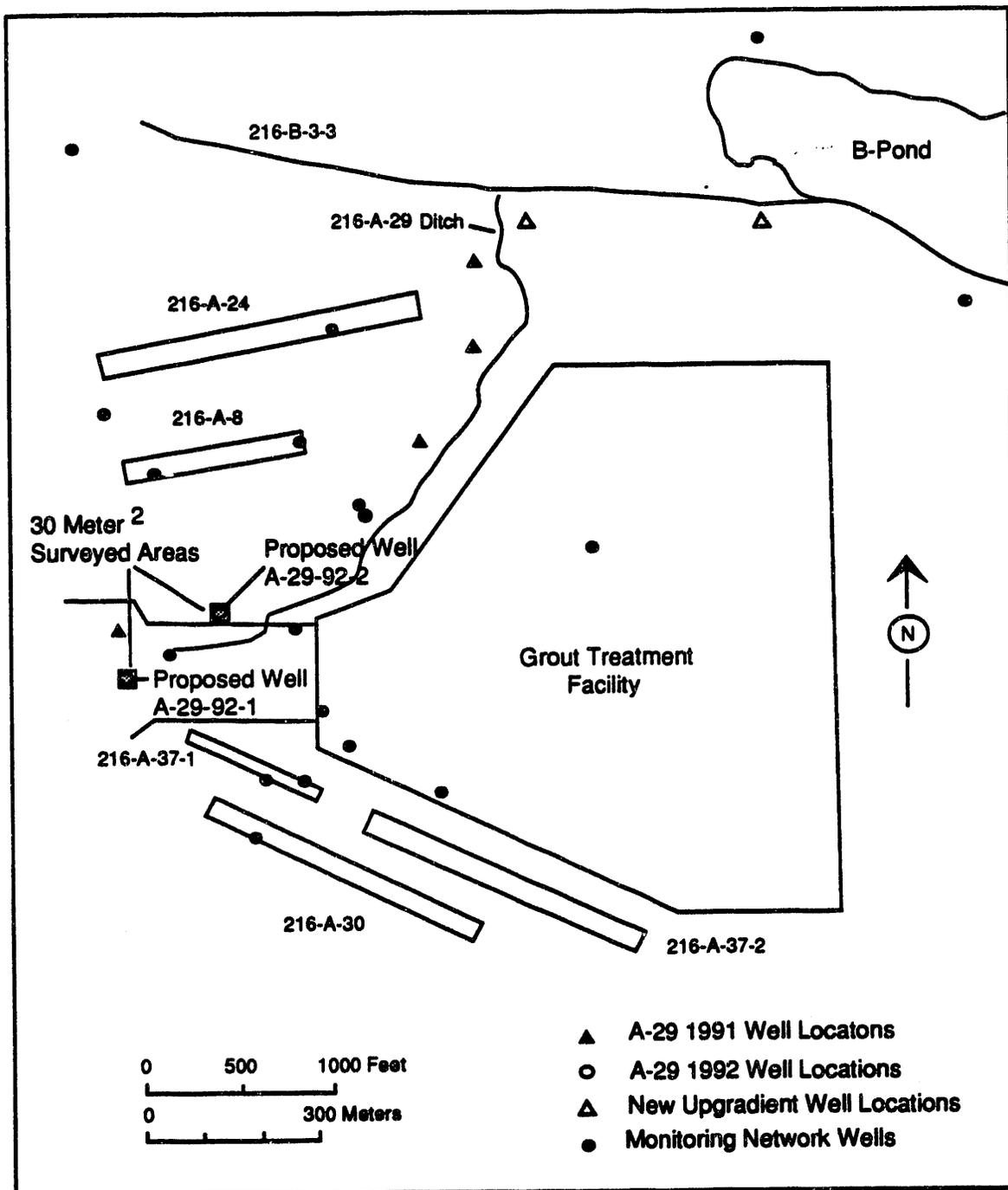


Figure B.13. Surveyed Areas at Proposed Wells A-29-92-1 and A-29-92-2, HCRC 92-600-018.

HCRC 92-600-019

RCRA Monitoring Wells BP92-1

Requester: B. A. Gilkeson
Environmental Projects
Westinghouse Hanford Company
Richland, Washington 99352

Project Description: This project entailed construction of two ground water monitoring wells northeast of the 200 East Area. Well BP92-1 was located 400 m west of 3C Pond and well BP92-2 was located 900 m east of B Pond. The well pads measured 30 m x 30 m (100 ft x 100 ft) with minimal removal of top soil. The wells were dug to 111 m (365 ft) and 52 m (170 ft).

Our literature and records review showed that no cultural properties were known to be located at the project sites, although no previous cultural resource surveys had been performed within the project boundaries. Aerial photographs revealed that the project areas were undisturbed, therefore, an archaeological survey was required prior to the commencement of construction activities. On May 7, 1992, HCRL staff surveyed the proposed location of the ground water monitoring wells (Figure B.14). A 30-m² area was inspected in 10-m spaced transects around the well location.

Cultural Resources: No cultural resources were found within the proposed well locations.

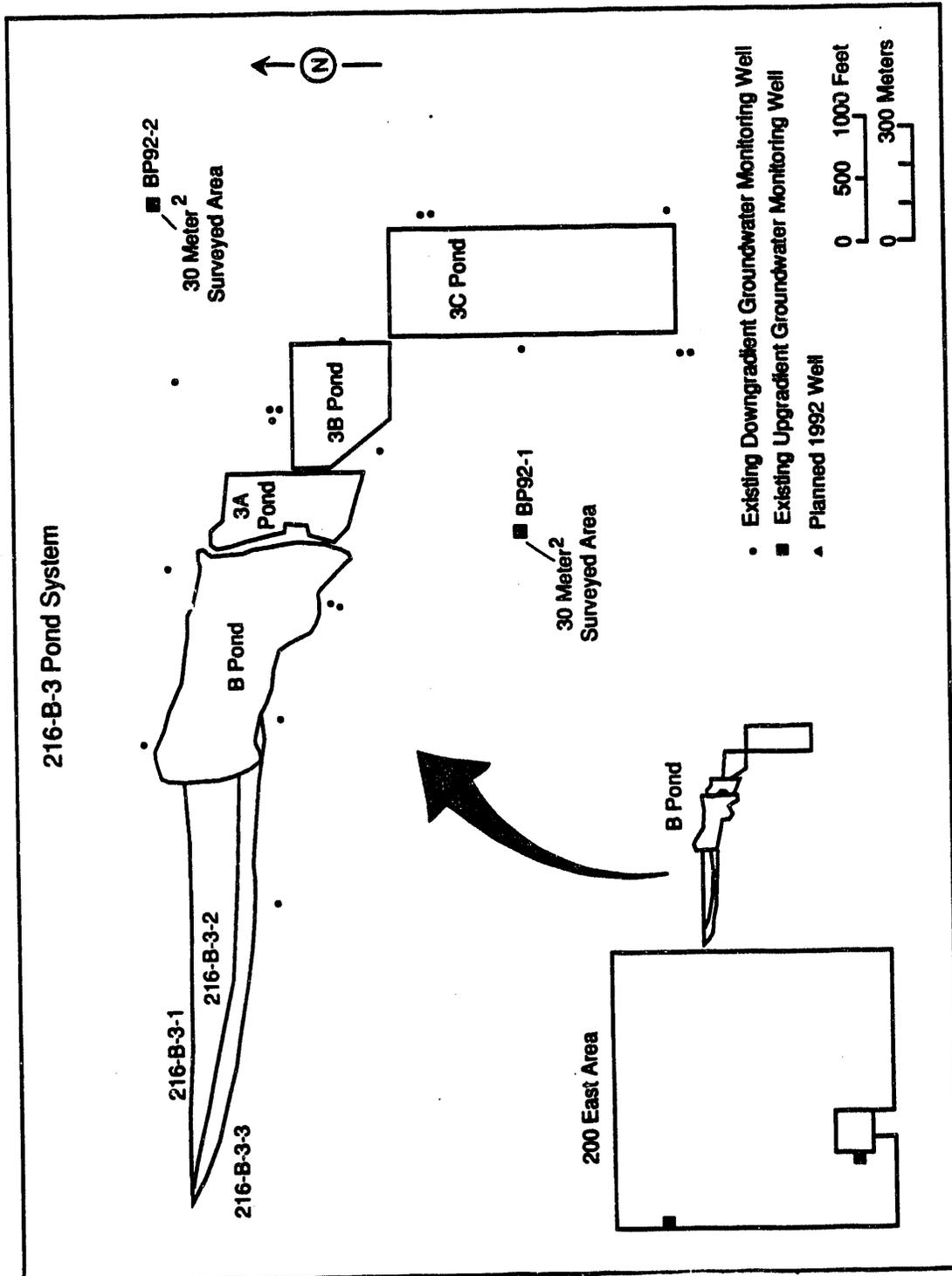


Figure B.14. Surveyed Areas at Proposed Monitoring Wells BP92-1 and BP92-2, HCRC 92-600-019.

HCRC 92-600-020

200 Areas Bypass Highway

Requester: E. T. Trost
Site Planning Group
Westinghouse Hanford Company
Richland, Washington 99352

Project Description: This project entailed construction of a new highway east of the 200 East area to connect to Route 4S and Route 11A. A 61-m (200-ft) right-of-way was anticipated for most of the route, with additional space required for the interchanges.

Our literature and records review showed that the right-of-way was undisturbed and portions of the area had been surveyed previously for cultural resources.

Cultural resources: Because the entire area had not been inspected for the presence of cultural materials, a survey by a HCRL archaeologist was required prior to the commencement of construction activities.

The 200 Areas Bypass Highway project has been postponed until 1993.

HCRC 92-600-021

The Sodium Dichromate Drum Burial Waste Site (100-IU-4)

Requester: P. J. Valcich
Restoration and Remediation
Westinghouse Hanford Company
Richland, Washington 99352

Project Description: This project entailed the characterization and cleanup of the Sodium Dichromate Drum Burial Waste Site, which is part of the 100-HR-3 CERCLA unit.

Our literature and records review showed that no known cultural properties were located in the project area, although no previous cultural resource surveys had been performed. Aerial photographs revealed that the project site lies in an area that has been only slightly disturbed by past construction, and therefore a pedestrian survey of the area was deemed necessary. HCRL staff surveyed the cleanup site on May 15, 1992, by walking along the perimeter of the project area (Figure B.15).

Cultural Resources: No historic properties were encountered during the survey, and monitoring of the project was not required.

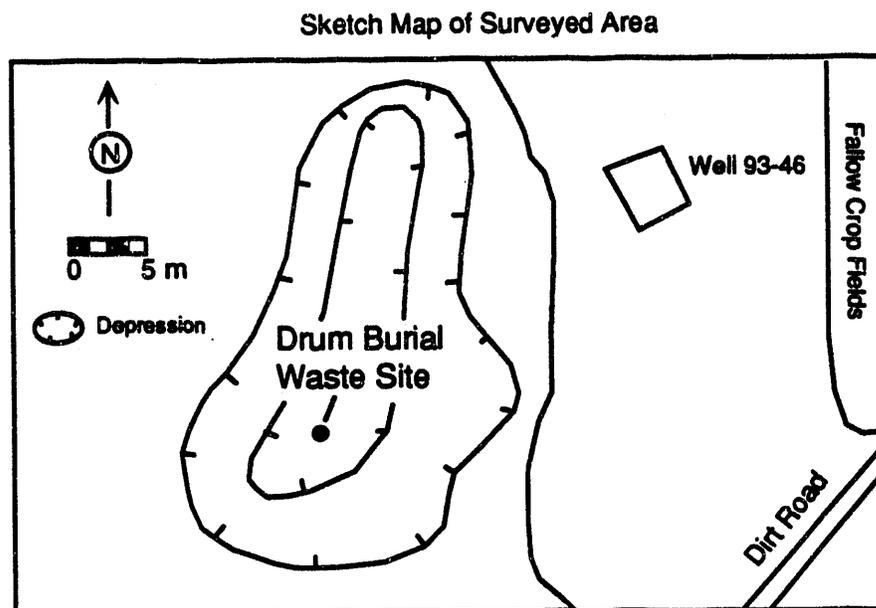
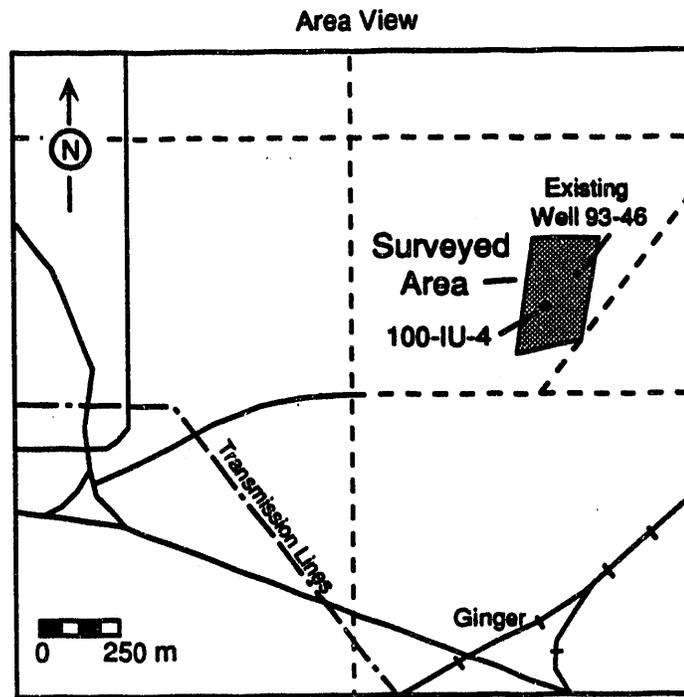


Figure B.15. Surveyed Area at the Proposed Sodium Dichromate Drum Burial Waste Site (100-IU-4), HCRC 92-600-021.

HCRC 92-600-022

W-017H RCRA Ground Water Monitoring Wells

Requester: B. A. Gilkeson
Environmental Projects
Westinghouse Hanford Company
Richland, Washington 99352

Project Description: This project entailed construction of two ground water monitoring wells along the west and east sides of the Nonradioactive Dangerous Waste Landfill located southeast of the 200 Area. Both well sites were proposed for an area approximately 9 m² (100 ft²).

Our literature and records review showed that no cultural properties were known to be located at the project site. A cultural resources survey was performed on June 2 and 4, 1992 by HCRL staff (Figure B.16).

Proposed Well Site 1 was surveyed on June 2, 1992. The exact location of the well had not been flagged on the ground; therefore, 45,600 m² were surveyed west of the fence to ensure that all areas of possible impact were surveyed. This survey was performed in 16 20-m transects by walking in an east/west direction from the western fence line of the landfill. Transects began 60 m south/southeast of the interior fence line and were walked in a north/northwest direction. Each transect was 120 m long. Previous disturbance of surfaces at Well Site 1 was minimal with the exception of a dirt track that followed the western fence line.

Proposed Well Site 2 was surveyed on June 4, 1992. This survey was done in two transects by walking parallel to the eastern fence line from the gate to the end of the fence. The initial transect was 5 m from the fence, with the returning transect 20 m from the first. Well Site 2 had been impacted by road construction activities for the Army Loop Road.

Cultural Resources: No cultural resources were located within this project area. The chance of encountering subsurface cultural material was considered unlikely. This is a Class III/V case.

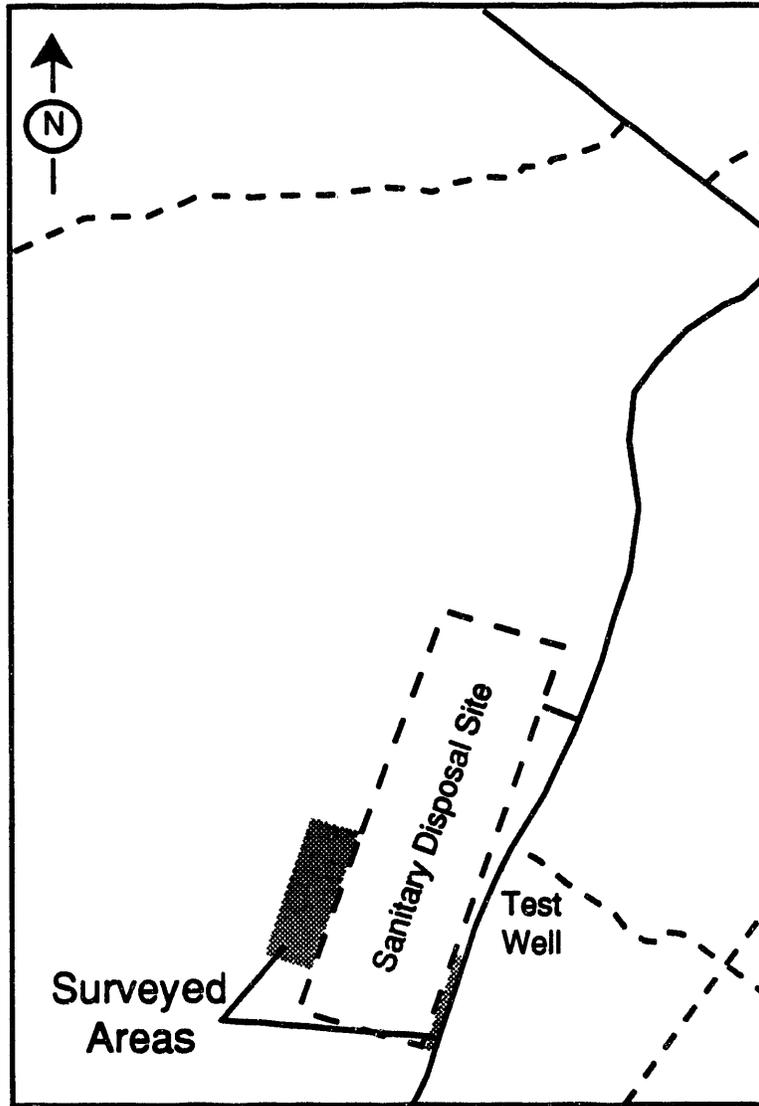


Figure B.16. Surveyed Areas of the Proposed RCRA Ground Water Monitoring Wells, HCRC 92-600-022.

HCRC 92-600-023

Well Head Survey

Requester: M. Remington
Safety Officer
Department of the Army
U.S. Army Corps of Engineers - Walla Walla District
Walla Walla, Washington 99362

Project Description: This project entailed determining accurate coordinates for existing RCRA and CERCLA ground water monitoring wells using the global positioning satellite system. In support of this work, several new survey monument markers may need to be erected, requiring excavations of up to 0.91 m (3 ft). All new monument markers will be placed within existing roadways, utility right-of ways, or easements.

Our literature and records review showed that no cultural properties were known to be located at the project locations. However, many of the survey routes had not been surveyed for the presence of cultural resources. On June 23, 1992, HCRL staff monitored the proposed locations of the ground water monitoring wells.

Cultural Resources: No cultural resources were found while monitoring the proposed locations of the ground water monitoring wells. This is a Class III/IV case.

HCRC 92-600-026

The Integrated Voice/Data Telecommunications System, Phase I

Requester: D. Pursley
Utility Projects/Operations Landlord Projects
Westinghouse Hanford Company
Richland, Washington 99352

Project Description: This project entailed installing a new communication system across the Hanford Site. The project was conducted in five phases. Phase I involved installing a trunk line from the 100 North Area to the 300 Area, including a corner of the 200 East Area extending approximately 47 km (29 miles). The cable line was installed with a cable plow, and manholes were installed when necessary to maintain the cable route, such as at the beginning and at railroad and highway crossings. Excavation depth was from 61 to 107 cm (24 to 42 in.) for the fiber optic cable and up to a maximum of 3 m (11 ft) for the manholes. Where the cable crossed paved roadways and railroad tracks, a conduit was pushed or bored underneath the roadbed and the cable was pulled through the conduit. The depth of the conduit was from 0.91 m to 2 m (3 to 5 ft).

Our literature and records review showed that no known cultural properties were located in the project area, although no previous cultural resource surveys had been performed within the project boundaries. While portions of the route existed on previously disturbed ground, most of the route was undisturbed; therefore, a pedestrian survey of the entire route was deemed necessary. Between June 18, 1992 and June 30, 1992, HCRL staff surveyed the route (Figure B.17), beginning at the 100 North Area and walking south to the 300 Area. One transect was walked on the west side of Route 4, approximately 3 m (10 ft) west of the existing cable route.

Cultural Resources: No historic properties were encountered during the survey, and monitoring of the project was not required. This project is a Class III/ V case.

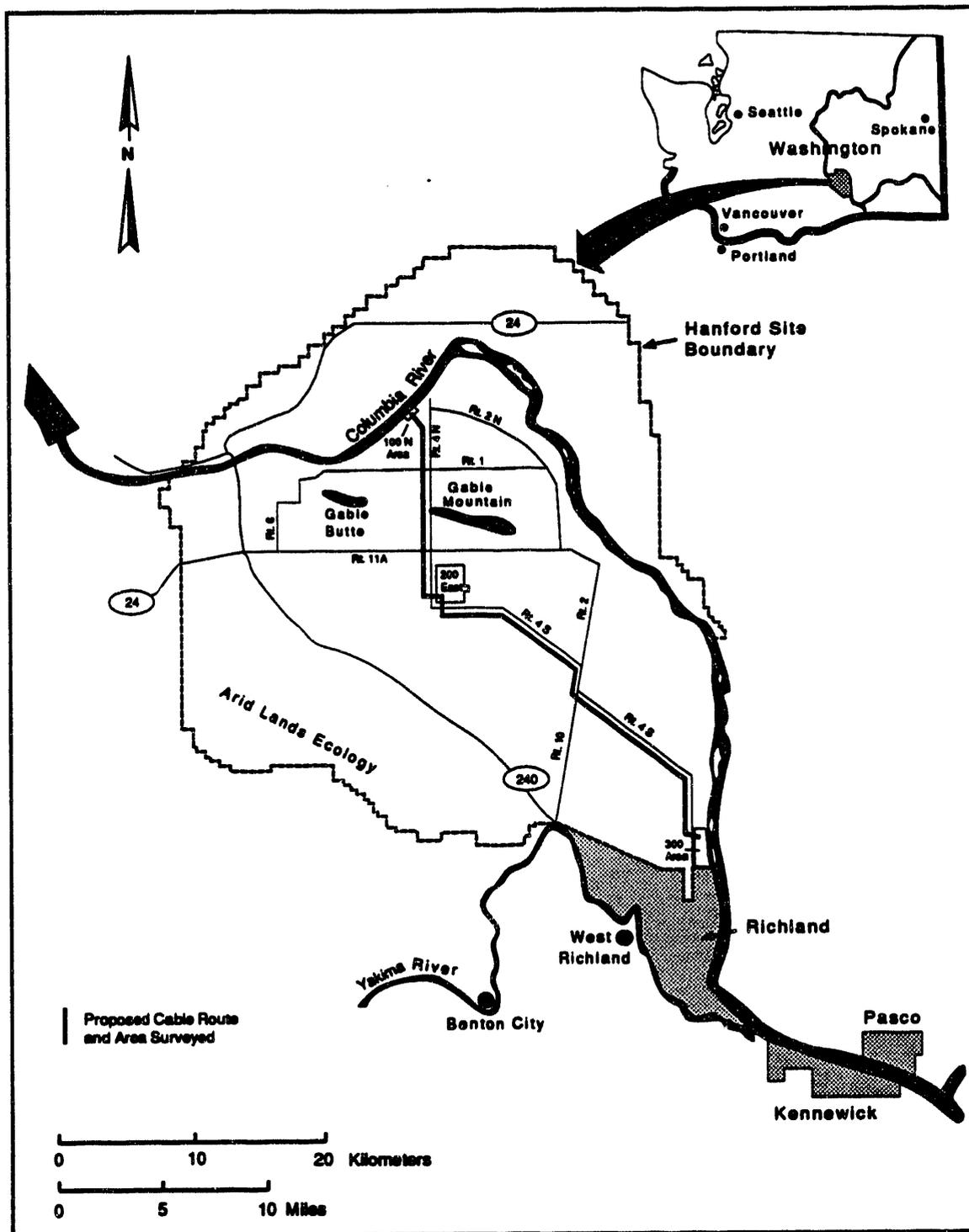


Figure B.17. Surveyed Areas at the Proposed Integrated Voice/Data Telecommunications System Cable Installation Project, Phase I, HCRC 92-600-026.

HCRC 92-600-027

Mcgee Ranch Vegetation Test Plot

Requester: C. J. Kemp
Engineered Applications, Characterization, and Waste Minimization
Westinghouse Hanford Company
Richland, Washington 99352

Project Description: This project entailed preparation of a test plot for fine soil revegetation and soil edaphic studies due west of the McGee Ranch Admix study plots. An area measuring 64 x 64 m (210 ft x 210 ft) was disked to a depth of 20 cm (8 in.).

Our literature and records review showed that no known cultural properties were located at the project site. The area was inspected by HCRL staff in 1988 (HCRC #88-600-001), and the test plot area was cleared of cultural resource concerns. Therefore a survey by an archaeologist was not required.

Cultural Resources: No cultural resources were located within the proposed project area.

HCRC 92-600-028

Cultural Resources Review Of North Slope Waste Sites

Requester: F. Gustafson
Environmental Remedial Action
Westinghouse Hanford Company
Richland, Washington 99352

Project Description: The original project entailed investigation and removal/minimization of potential physical hazards associated with 39 military and homestead sites located across the North Slope in the 600 Area of the Hanford Site (Figure B.18). Cultural resource clearance could not be given to this project as a whole because cultural resource surveys had not been completed, and proposed cleanup activities involved historic properties that were potentially eligible for inclusion on the National Register.

Many of the sites proposed for cleanup were visited July 24, 1992 by HCRL staff, and decisions were made at that time to consider the impacts of the proposed removal/minimization activities on a project-by-project basis. Initially, three bunkers were to be dismantled at PSN 04, a cement vehicle rack was to be removed at PSN 90, and cisterns were to be sampled, then filled, at Cow Camp Cistern, Clay Pit Cistern, and 12-3 Cistern sites. Before any action could be taken, each project had to be inspected by an HCRL archaeologist.

Cultural Resources: Surveys were conducted involving eight cisterns: Clay Pit, Cow Camp, Wasteway, Homestead, Stock Tank, Overlook, 12-3, and Wagon Road. Sites were recorded and photographed. No excavations or collection was done.

Further work on the North Slope will be completed by HCRL in 1993.

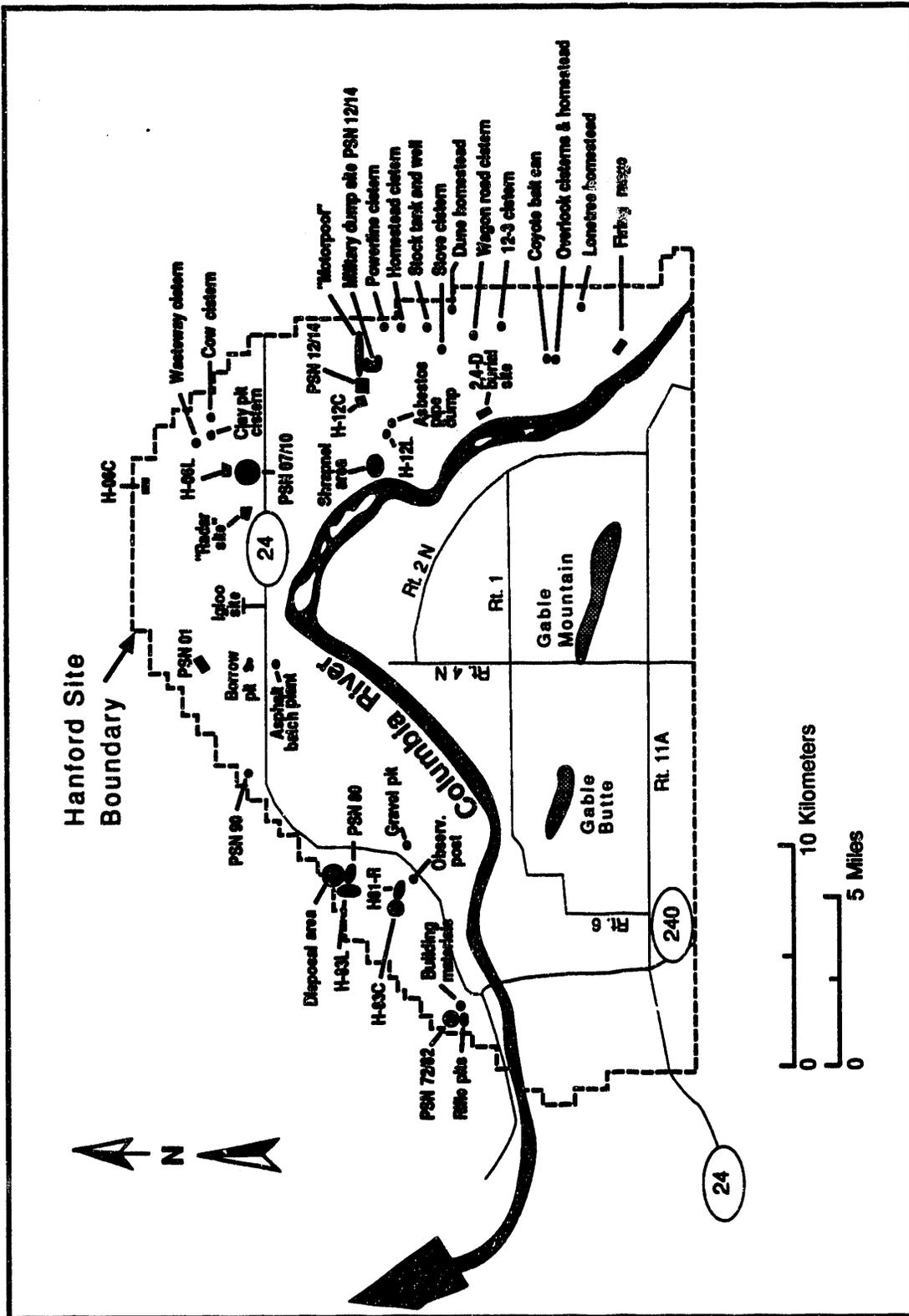


Figure B.18. Proposed North Slope Project Sites, HCRC 92-600-028.

HCRC 92-600-029

The Integrated Voice/Data Telecommunications System, Phases II And III

Requester: D. Pursley
Utility Projects/Operations Landlord Projects
Westinghouse Hanford Company
Richland, Washington 99352

Project Description: This project entailed installing a new communication system across the Hanford Site. The project was conducted in five phases. During Phase II (see page B.44 for description of phase I), a fiber optic cable was installed from the 300 Area south to Swift Boulevard in Richland, continuing through Richland to the 700 Area (the Federal Building). The total distance for this phase was approximately 13 km (8 miles). Phase III provided cable connections to the WPPSS, 400 Area, 200 Area West, and Gable Mountain areas through four branches off of the main trunk line, approximately 21 km (13 miles). For both phase II and III, the cable lines were installed with a cable plow and manholes were installed when necessary to maintain the cable route, such as at the beginning and at railroad and highway crossings. Excavation depth was from 61 to 107 cm (24 to 42 in.) for the fiber optic cable and up to a maximum of 3 m (11 ft) for the manholes. Where the cable crossed paved roadways and railroad tracks, a conduit was pushed or bored underneath the roadbed and the cable was pulled through the conduit. Depth of the conduit was from 0.91 m to 2 m (3 to 5 ft).

Our literature and records review showed that no known cultural properties were located in the project area, although no previous cultural resource surveys had been performed within the project boundaries. While portions of the routes existed on previously disturbed ground, the majority was undisturbed, and therefore a pedestrian survey of both routes was deemed necessary. On July 8, 1992, HCRL staff surveyed the Phase II route by walking one transect approximately 3 m (10 ft) west of the existing cable route (Figure B.19). This strategy kept the survey team within the boundaries of the paved roads (Stevens Drive and the Bypass Highway) and the railroad tracks. Phase III cable was completed without a cultural resources survey.

Cultural Resources: No historic properties were encountered during the Phase II survey, and monitoring of that phase was not required. This project is a Class III/V case.

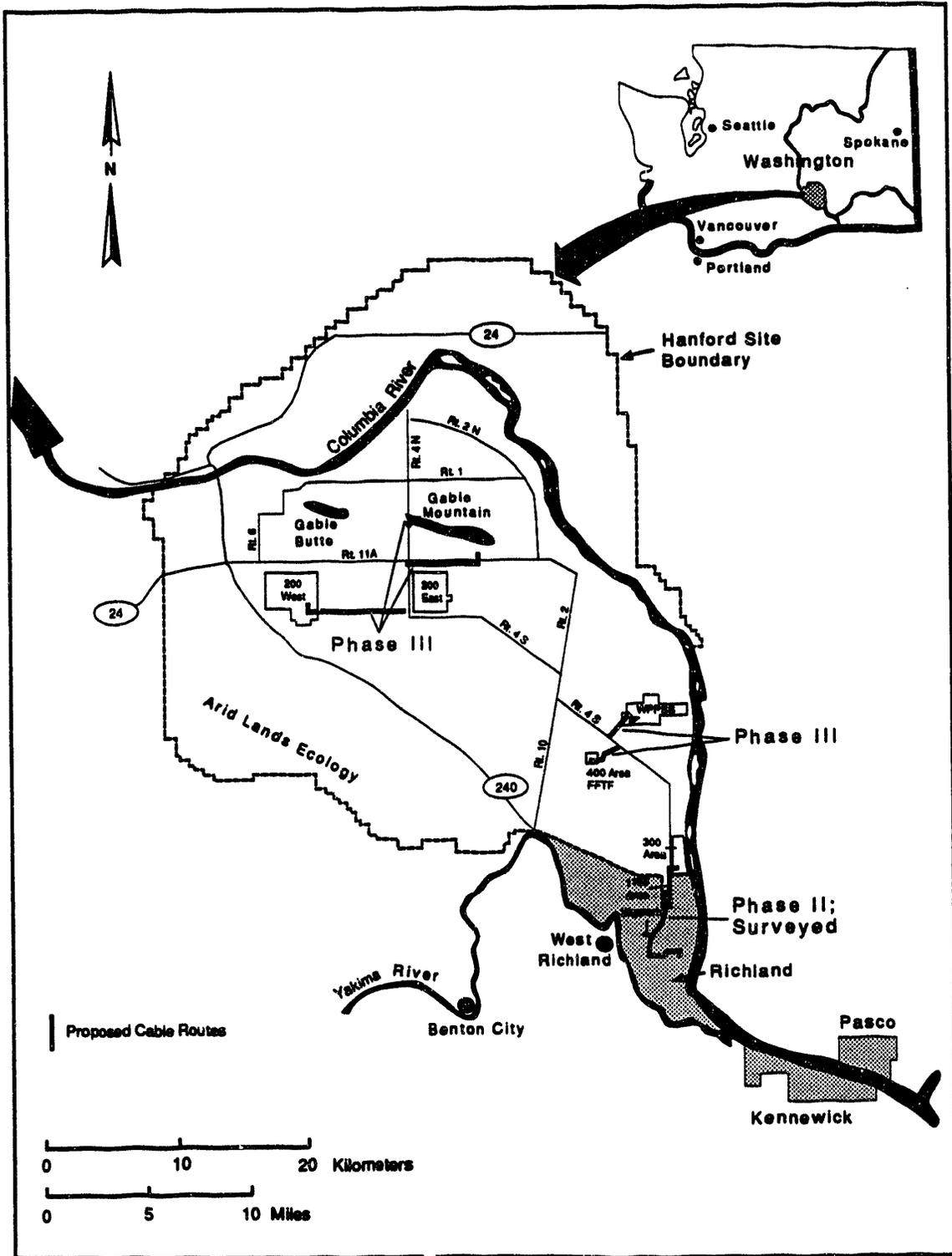


Figure B.19. Surveyed Area at the Proposed Integrated Voice/Data Telecommunications System Cable Installation Project, Phases II and III, HCRC 92-600-029.

HCRC 92-600-030

The Integrated Voice/Data Telecommunications System, Phases IV and V

Requester: D. Pursley
Utility Projects/Operations Landlord Projects
Westinghouse Hanford Company
Richland, Washington 99352

Project Description: This project entailed installing a new communication system across the Hanford Site. The project was conducted in five phases (see pp. B.44 and B.49 for Phase I, II, and III descriptions). During Phase IV, a fiber optic cable was installed from the Phase II trunk cable to the Hanford Patrol Training Academy and on to Rattlesnake Mountain. A short run of cable extended to the Richland Skypark area. The total distance for this phase was approximately 23 km (14 miles). Phase V involved approximately 3 km (2 miles) of branch cable from the Phase I trunk cable to the 100 K Area. For both Phases IV and V, the cable lines were installed with a cable plow, and manholes were installed when necessary to maintain the cable route, such as at the beginning and at railroad and highway crossings. Excavation depth was from 61 to 107 cm (24 to 42 in.) for the fiber optic cable and up to a maximum of 3 m (11 ft) for the manholes. Where the cable crossed paved roadways and railroad tracks, a conduit was pushed or bored underneath the roadbed and the cable was pulled through the conduit. The depth of the conduit was from 0.91 to 2 m (3 to 5 ft).

Our literature and records review showed that no known cultural properties were located in the project area, although no previous cultural resource surveys had been performed within the project boundaries. While portions of the routes existed on previously disturbed ground, the majority was undisturbed, and therefore a pedestrian survey of both routes was considered necessary. On September 8, 1992, HCRL staff surveyed a portion of Phase IV from the Arid Lands Ecology Reserve to Benton City Highway by walking one transect approximately 3 m (10 ft) west of the existing cable route (Figure B.20). The Phase V route was completed without a cultural resources survey.

Cultural Resources: Several modern cultural resources were found on the Phase IV survey that were not recorded as sites or isolated finds. Due to their recent origins, they were not considered important historic properties and monitoring of that section of the route was not required. This project is a Class III/V case.

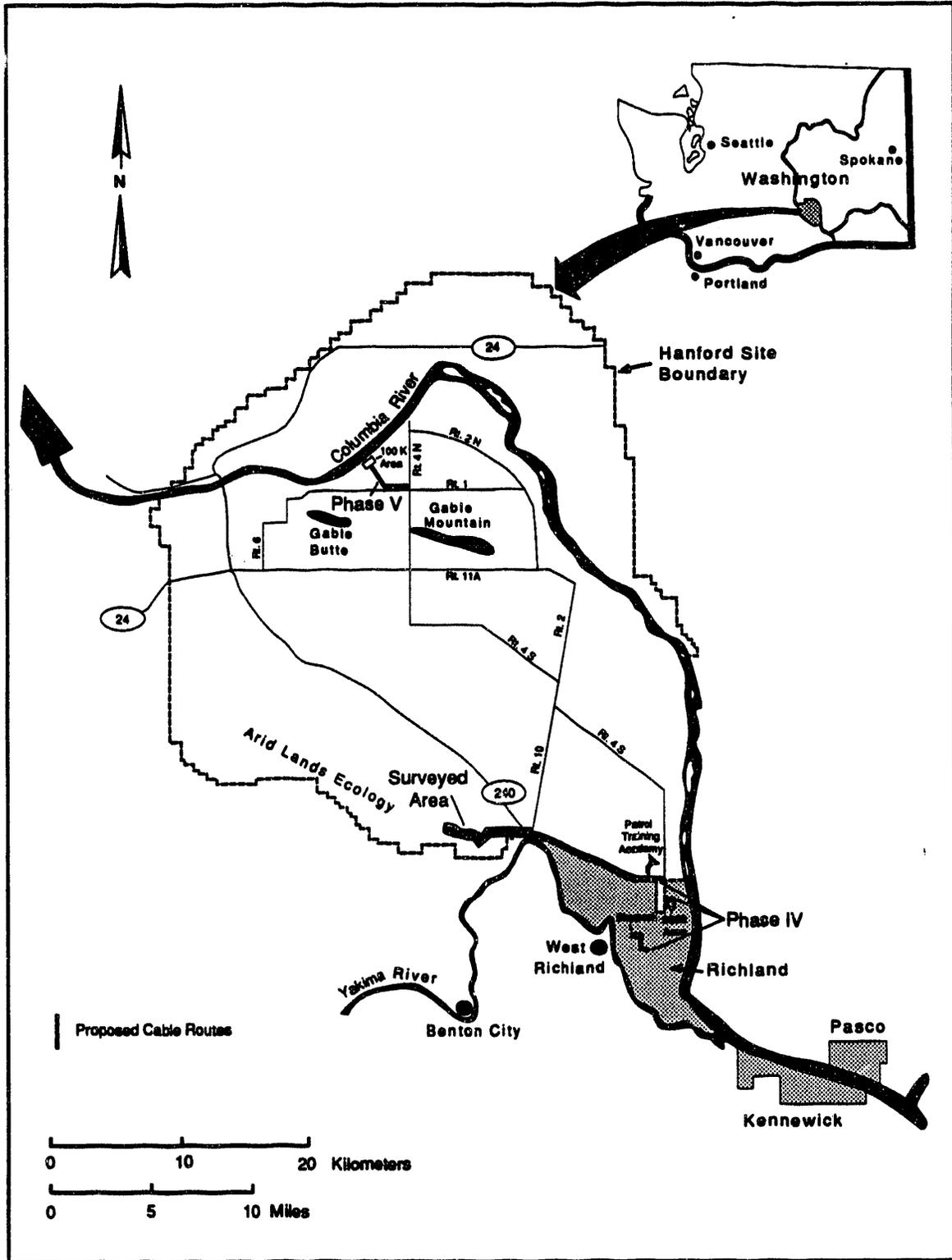


Figure B.20. Surveyed Area at the Proposed Integrated Voice/Data Telecommunications System Cable Installation Project, Phases IV and V, HCRC 92-600-030.

HCRC 92-600-033

/Route 4S/Route 3 Intersection

Requester: E. T. Trost
Site Planning
Westinghouse Hanford Company
Richland, Washington 99352

Project Description: This project entailed clearance of a 100-ha (250-acre) area centered around the intersection of Route 4S and Route 3 in the 600 Area. The proposed projects within this area were the Tank Waste Remediation System (TWRS) Pretreatment Complex (TP), TPC expansion areas, highway reconstruction/relocation, new steam plant, construction laydown and coal storage yard, aggregate processing area, and use of the existing gravel pit and surrounding area.

Our literature and records review showed that no known cultural properties were located in this project site. The area had been inspected previously by HCRL staff during several projects (HCRC#'s 89-200-023, 89-600-010, 90-600-023, and 91-600-006).

Cultural Resources: Because no cultural or historic properties were located in the site area, monitoring of the excavations by an archaeologist was not required.

HCRC 92-600-034

WPPSS Permanent Siren Locations D1, D2, and D7

Requester: B. K. Flynn
Telecommunications Services
Washington Public Power Supply System
3000 George Washington Way
Richland, Washington 99352

Project Description: This project entailed the installation of three new permanent siren locations. Each siren consisted of a tower and associated instrumentation vault.

Our literature and records review showed that no known cultural properties were located at the project sites. On July 20, 1992, HCRL staff inspected the area and no surface indications of archaeological deposits were noted. Due to the close proximity of the siren sites to the Columbia River, there was a high probability of encountering and impacting buried cultural deposits. Excavation activities were therefore monitored at all three siren locations on September 16, 1992.

Cultural Resources: No cultural materials were disturbed during monitoring of installation activities.

HCRC 92-600-036

HWVP Transmission Line Boreholes

Requester: C. A. Augustine
Hanford Waste Vitrification Project
Westinghouse Hanford Company
Richland, Washington 99352

Project Description: This project entailed the digging of five boreholes located along the export water-line extending from the 200 East Area down the west side of Route 4 to a point directly across Route 11A. Each of these boreholes reached a depth of 17 m (55 ft), to be used for soil characterization supporting construction of steel power transmission line towers.

Our literature and records review showed that no known cultural properties were located at the borehole sites. The areas had been inspected previously by HCRL staff during several projects (HCRC#'s 89-200-023, 89-600-010, 90-600-023, and 91-600-006).

Cultural Resources: No cultural resources were located in the site areas; therefore, monitoring of excavations by an archaeologist was not required.

HCRC 92-1100-001

The North Richland Substation

Requester: E. T. Trost
Site Planning Group
Westinghouse Hanford Company
Richland, Washington 99352

Project Description: This project entailed the construction of a new City of Richland electrical substation, located at the southwest corner of Horn Rapids Road and Stevens Drive intersection in the 1100 Area. The project covered approximately 120 m² and included access roads, a transformer, and a single-story control house.

Our literature and records review showed that no known cultural properties were located in the project area, although no previous cultural resource surveys had been performed within the project boundaries. Aerial photographs revealed that the area had been only slightly disturbed by past construction, and therefore a pedestrian survey was deemed necessary. On May 18, 1992, HCRL staff surveyed the project area (Figure B.21).

Cultural Resources: No historic properties were encountered during the survey, and monitoring of the project was not required.

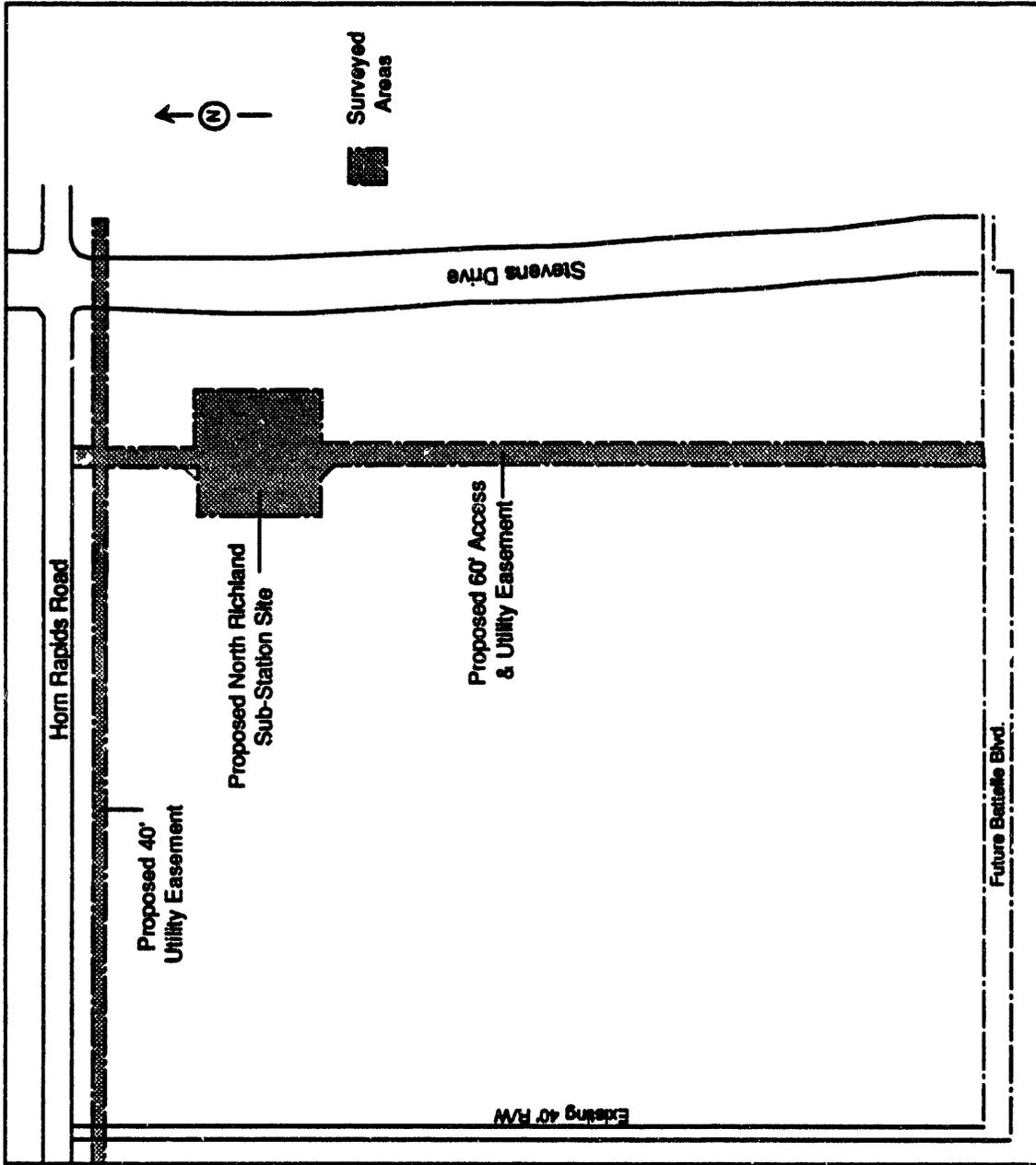


Figure B.21. Surveyed Areas at the Proposed North Richland Substation Site, HCRC 92-1100-001.

HCRC 92-0000-002

Practical Training Area

Requester: S.G. Mattair
Facilities Management, South Area
Westinghouse Hanford Company
Richland, Washington 99352

Project Description: This project entailed the development of an Environmental Safety and Health Practical Training Area (PTA) to simulate real field conditions for Hanford Site remediation activities. The proposed project involved a leased facility arranged to suit tenant needs and occupying 1 ha (2.49 acres).

Our literature and records review showed that no known cultural properties were located at the project site, although no previous cultural resource surveys had been performed within the project boundaries; therefore, an archaeological survey was required prior to the commencement of construction activities. On October 22, 1992, HCRL staff inspected the proposed site location of the Practical Training Area (Figure B.22). A total of 1 ha (2.49 acres) was investigated for cultural resources.

Cultural Resources: No cultural resources were located within the proposed practical training area. This is a Class III/V Case.

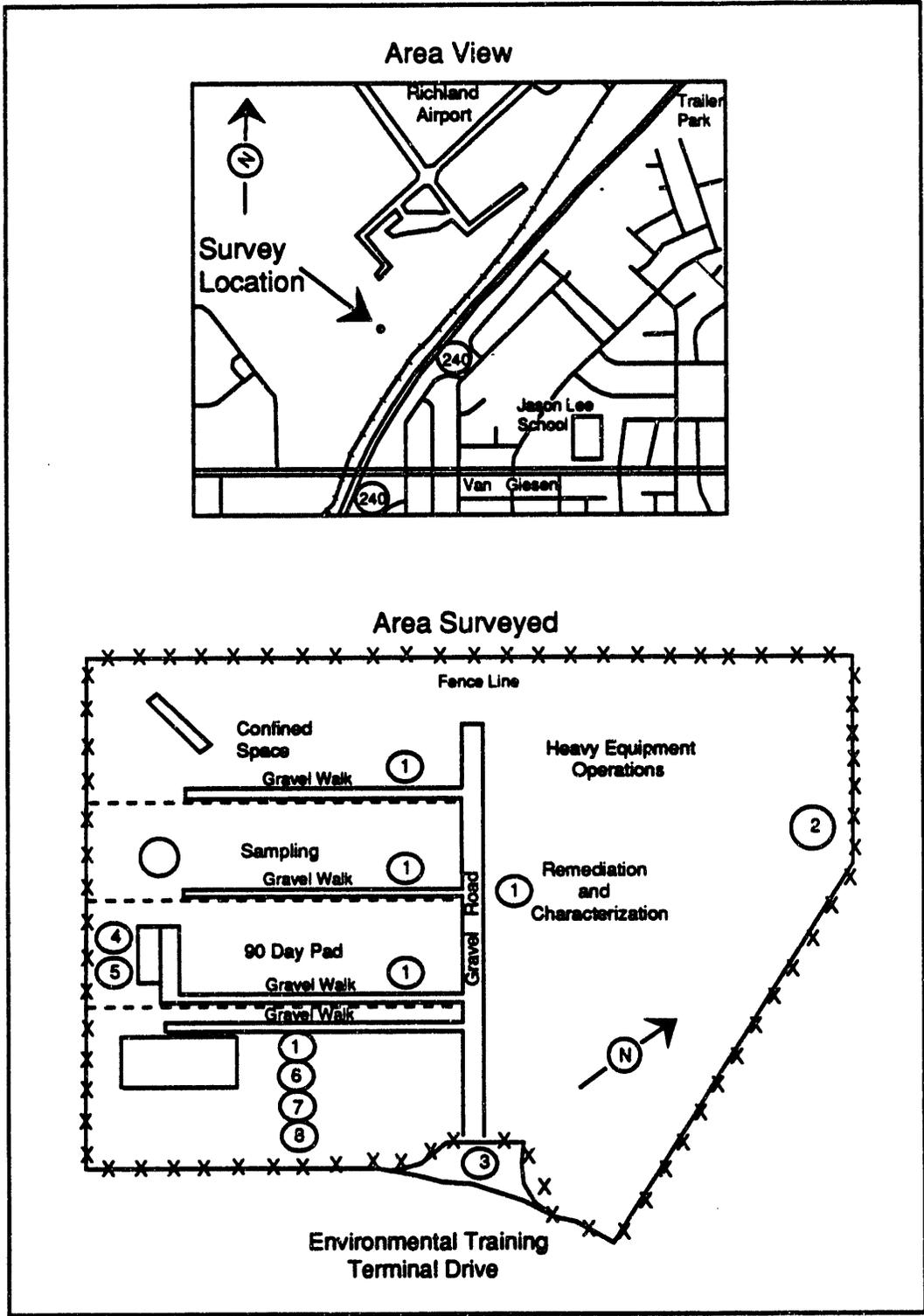


Figure B.22. Surveyed Area at the Proposed Environmental Safety and Health Practical Training Area in Richland, HCRC 92-0000-002.

References

Chatters, J. C., (editor). 1989. *Hanford Cultural Resources Management Plan*. PNL-6942, Pacific Northwest Laboratory, Richland, Washington.

Chatters, J. C., and N. A. Cadoret. 1990. *Archaeological Survey of the 200 East and 200 West Areas, Hanford Site, Washington*. PNL-7264, Pacific Northwest Laboratory, Richland, Washington.

Gard, H. A., and R. M. Poet. 1992. *Archeological Survey of the McGee Ranch Vicinity, Hanford Site, Washington*. PNL-8186, Pacific Northwest Laboratory, Richland, Washington.

Appendix C

Sites Monitored During FY 1992

Appendix C

Sites Monitored During FY 1992

45BN030

National Register Status: Unevaluated.

This site has received impacts from numerous roads, from use at an unimproved boat launch, and from past building construction. A single leaf-shaped projectile point was recovered from a roadbed and two shell lenses were noted in the cutbanks of the roads. The site may contain intact stratigraphic deposits in spite of the extensive damage observed.

Recommendation: Update site form and evaluate site significance.

45BN032

National Register Status: Unevaluated.

Very little has changed since this site was first recorded in 1948. Large net weights and modified cobbles were noted along the river shoreline. Artifacts were observed on the second terrace where blowouts in the stabilized dune had exposed fire-cracked rock, cryptocrystalline flakes, unidentified bone, and cores. Wind erosion is exposing the site on the second terrace.

Recommendation: Update site form and evaluate site significance.

45BN034

National Register Status: Unevaluated.

This site is exposed in an old roadbed that parallels the Columbia River. Cryptocrystalline flakes, modified cobbles, shell, and historic debris including milled lumber and a brown apothecary bottle were noted on the second river terrace. Numerous cobble tools, cobble spalls, and net weights were encountered along the river shoreline.

Recommendation: Update site form and evaluate site significance.

45BN037

National Register Status: Unevaluated.

This site was found along the river shoreline where numerous cobble tools were encountered. The site is exposed in blowout areas where a light scatter of cobbles, cobble tools, cryptocrystalline flakes, a corner-notched projectile point fragment, and a biface fragment were found. A road bisects the site and adds to the wind erosion problems noted here. The site may extend from the shoreline and dune area to a small flat and grove of trees north of the blowout area, although no indication of such was encountered when inspected on September 23, 1992.

Recommendation: Update site form and evaluate site significance.

45BN40

National Register Status: Unevaluated.

This site is located on the southern end of Wooded Island. When monitored on September 18, 1992, there was no disturbance other than natural erosional processes.

Recommendation: Update site form.

45BN090

National Register Status: Eligible.

When inspected on September 25, 1992, this site had been impacted by the construction of a fireline

that cut through the site in a north/south direction. Many flakes and broken artifacts were found in the fireline. Several flakes, amethyst glass, a tobacco tin, and a side-notch projectile point fragment were found on the surface in an undisturbed context. Modified cobbles are present near the river shoreline. Lithic density approaches 6 - 10 items per m².
Recommendation: Update site form.

45BN113/114/169

National Register Status: Unevaluated.

All of these sites are located in the same area. When inspected on September 24, 1992, there was no apparent separation between sites. A light but continuous scatter of cobbles, spalls, cores, and large net weights were noted along the river shoreline. Three blowout areas on the upper terrace contained mortar bases, fire-cracked rock, flakes, modified cobbles, and anvil stones. Approximately 30 m north of the last blowout area a small concentration of 19 flakes was exposed on the surface.
Recommendation: Update site form, evaluate site significance.

45BN118

National Register Status: Listed.

Several unrecorded shoreline features were mapped at this site. There was no evidence of recent disturbance on the high terrace above the river.
Recommendation: Update site form and evaluate site significance.

45BN120

National Register Status: Unevaluated.

This is a fairly consistent scatter of shell, cobble spalls, and fire-cracked rock found to extend for 1.3 km along the upper river terrace in the old Hanford townsite. Although evidence of historic disturbance is prevalent, the prehistoric site does not appear to be completely destroyed as described in the original site form (Rice 1968). Some portion of the site may retain stratigraphic integrity.
Recommendation: Test, evaluate site significance, and update site form.

45BN123

National Register Status: Unevaluated.

This site is approximately 150 m x 200 m and stretches from the head of a dry inlet to the river shoreline. The original site description indicated the presence of fire-cracked rock, cobble tools, and notched pebble sinkers. These items were relocated as were several shoreline features directly east of the dry inlet area. Also noted here were a variety of historic artifacts including amethyst glass, zinc canning jar lids, porcelain fragments, green and brown glass fragments, ironstone fragments, and fragments of milk glass liners for canning jar lids. The site appears to be much larger than originally estimated.
Recommendation: Update site form and evaluate site significance.

45BN124

National Register Status: Listed/Cemetery.

Although originally recorded as a cemetery, no evidence of human burials has been noted recently. The site is in good condition with no evidence of vandalism.
Recommendation: Update site form.

45BN125

National Register Status: Listed/Cemetery.

When this site was last visited in 1989, the housepits and cairn burials discussed in the original site

description (Rice 1968) were not found. The site was in good condition with no visible disturbance when inspected this year.

Recommendation: Update site form.

45BN127

National Register Status: Listed.

A dense scatter of cobble tools and fire-cracked rock lies on the beach at this location. Cutbanks were exposed but were not thoroughly inspected because of dense vegetation and piles of dry tumbleweeds. The site is in excellent condition with little, if any, water erosion due to its location on the southern tip of an unnamed island.

Recommendation: Update site form.

45BN128

National Register Status: Listed/Cemetery.

This burial site contains an unknown number of graves and a variety of historic and prehistoric artifacts. Some wind erosion was noted during the 1992 site inspection; there was no other visible disturbance to the site.

45BN129

National Register Status: Listed/Cemetery.

This site is located on the shore of an unnamed island. The site was not visited because it has been destroyed by water erosion.

45BN135

National Register Status: Unevaluated.

When this site was visited on September 22, 1992, dense vegetation covered all areas. The only surface visible to archaeologists was in the bed of an unimproved road that parallels the Columbia River.

Recommendation: Update site form and evaluate the site when less vegetation is present.

45BN136

National Register Status: Unevaluated.

Fire-cracked rock, historic debris, and modified cobbles were encountered as described in the original site form. Land forms may have been modified by construction for the White Bluffs townsite.

Recommendation: Update site form and evaluate site significance.

45BN137

National Register Status: Listed.

A scatter of modified cobbles and cobble tools were encountered on the southern tip of the island as described in the original site form. There was no evidence of any disturbance at this site.

Recommendation: Update site form.

45BN138

National Register Status: Listed.

When this site was visited on September 17, 1992, there was no indication of any disturbance.

Recommendation: Update site form.

45BN139/140

National Register Status: Listed/Cemetery.

When inspected on September 17, 1992, this site had received few impacts, other than minor wind erosion, since it was last inspected a year ago.

Recommendation: Update site form.

45BN141

National Register Status: Nominated/On Washington State Register.

This site was inspected in conjunction with surveys conducted in the 100 Area during the 1992 summer field season. This was the first recorded visit since the site was originally described (Rice 1968). There was no evidence of recent disturbance at this site.

Recommendation: Update site form.

45BN142

National Register Status: Nominated/Cemetery/On Washington State Register.

The site had no evidence of looting and remains in good condition with some minor deflation occurring as a result of wind erosion.

Recommendation: Update site form.

45BN143

National Register Status: Nominated/Cemetery/On Washington State Register.

The site had no evidence of looting and remains in good condition with some minor deflation occurring as a result of wind erosion.

Recommendation: Update site form.

45BN144

National Register Status: Nominated/On Washington State Register.

There was no evidence of damage at this site.

Recommendation: Update site form.

45BN145

National Register Status: Nominated/On Washington State Register.

This site was visited in August 1992. None of the tools described in 1968 (Rice 1968) were found.

Recommendation: Update site form.

45BN146

National Register Status: Nominated/On Washington State Register.

There was no evidence of damage at this site.

Recommendation: Update site form.

45BN151

National Register Status: Listed/Cemetery.

This site is marked with cement posts, but it was not located during the monitoring cycle. The site had been visited earlier in the year by HCRL staff and was found to be in good condition with no evidence of vandalism or disturbance.

Recommendation: Update site form.

45BN157A

National Register Status: Eligible.

This site has been vandalized in the past. The site was visited by HCRL staff and found to be in good condition early in the summer

Recommendation: Update site form and maintain surveillance.

45BN157B

National Register Status: Eligible/Cemetery.

This site has been vandalized and looted. Specifically, tunneling had occurred under the cyclone fence and the fence had been broken into when this site was inspected earlier this year.

Recommendation: Seek an ARPA conviction, increase surveillance and post signs regarding the Archaeological Resources Protection Act, update site form, and evaluate site significance.

45BN162

National Register Status: Unevaluated.

This site lies within a controlled access area south of the 300 Area. The site was not thoroughly inspected because of the possibility of exposure to chemical and/or radiation hazards.

Recommendation: Update site form, if possible, and evaluate site significance.

45BN166

National Register Status: Unevaluated.

The site is visible in cutbanks along the river and is in stable condition. Numerous cobble tools and cobble spalls were noted on the river shoreline.

Recommendation: Update site form and evaluate site significance.

45BN170/171

National Register Status: Listed.

This site was visited in the spring of this year. There was no disturbance evident.

Recommendation: Update site form.

45BN174

National Register Status: Unevaluated.

This site was found to be larger than initially recorded, with a light lithic scatter extending south and west from the cobble feature in the blowout area.

Recommendation: Update site form and evaluate site significance.

45BN302C

National Register Status: Listed/Cemetery.

Evidence of gold mining was noted during the site inspection; there was no other evidence of looting or disturbance.

Recommendation: Update site form and evaluate site significance.

45GR306C

National Register Status: Nominated/Cemetery/On Washington State Register.

When this site was visited on September 17, 1992, wind erosion was occurring. Cobblestone tools, anvil stones, pestles, hammerstones, cryptocrystalline flaking debris, and mortar bases were encountered in

blowout areas. There were no human remains noted during this inspection. Two shovel pits were found and photographed on the edge of the upper terrace.

Recommendation: Update site form and increase surveillance.

45GR317

National Register Status: Listed/Cemetery.

This site was inspected on August 23, 1992 by HCRL staff. The site was undisturbed. Increased vegetation obscured the fire-cracked rock and mussel shell that is present.

Recommendation: Update site form.

References

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Appendix D

Presentations and Publications

Presentations And Publications

Presentations to Lay Organizations and Schools

- J. C. Chatters. "Prehistory of Central Washington." October 1991. American Society of Heating, Refrigerating and Air Conditioning Engineers. Kennewick, Washington.
- J. C. Chatters. "The Science of Archaeology." November 1991. Options in Science Program. McLaughlin Middle School, Pasco, Washington.
- J. C. Chatters. "Prehistory of Central Washington." January 8, 1992. Hanford Technical Exchange: Archaeological and Historical Research at Hanford. Richland, Washington.
- J. C. Chatters. "Columbia Basin Archaeology." January 22, 1992. Mid-Columbia Audubon Society. Kennewick, Washington.
- J. C. Chatters. "Paleoecology." March 12, 1992. Biology Class. WSU-Tri-Cities, Richland, Washington.
- J. C. Chatters. "Scientific Uses of Ancient Human Remains." April 24, 1992. Benton-Franklin County Medical Society. Richland, Washington.
- J. C. Chatters. "Hanford's Cultural Resources Program and the ALE Reserve." May 6, 1992. Senior Class of Helix High School. ALE facility, Richland, Washington.
- J. C. Chatters. "Bison, Salmon Productivity, and Settlement of the Southern Plateau Uplands." May 30, 1992. Great Rivers of the West Conference, sponsored by the Washington State Historical Society. North Central Washington Museum, Wenatchee, Washington.
- J. C. Chatters. "Scientific Uses of Ancient Human Remains." June 11, 1992. Society of Medical Technologists. Seattle, Washington.
- J. C. Chatters. "Hanford's Cultural Resources Program." August 6, 1992. Native American Staff Diversity Enhancement Committee, Pacific Northwest Laboratory and Westinghouse Hanford Company. Hanford Site, Washington.
- H. A. Gard. "Using Salmon Behavior to Identify Archaeological Fishing Sites." January 8, 1992. Hanford Technical Exchange: Archaeological and Historical Research at Hanford. Richland, Washington.
- R. M. Poet. "Depression Era Dugouts: An Example of Hanford's Historic Resources." January 8, 1992. Hanford Technical Exchange: Archaeological and Historical Research at Hanford. Richland, Washington.
- M.K. Wright. "Hanford's Cultural Resources Program." November 1992. Highlands Middle School. Kennewick, Washington.

Presentations to Professional Societies

J. C. Chatters. "Climate, Steppe, and River: Contrasting Influences on the Prehistoric Cultures of the Columbia Basin." February 13, 1992. International Meeting, Society for Range Management. Spokane, Washington.

J. C. Chatters. "Bison, Salmon Productivity, and Settlement of the Southern Plateau Uplands." April 16, 1992. Annual Meeting, Northwest Anthropological Conference. Vancouver, B. C., Canada.

J. C. Chatters. "Climatic Reconstruction by Means of Mollusks." September 4, 1992. Czechoslovakia Geological Survey. Prague, Czechoslovakia.

J. C. Chatters. "Freshwater Biota as Proxy Indicators for Temperature and Flow Characteristics of Ancient Fluvial Systems." September 10, 1992. Presented at the International Union for Quaternary Research Symposium on Continental Paleohydrology. Krakow, Poland.

J. C. Chatters, and C. A. Pasternak. "A Possible Case of Prehistoric Brucellosis from Northwestern North America." April 3, 1992. Annual Meeting, American Association of Physical Anthropologists. Las Vegas, Nevada. Abstract published in *American Journal of Physical Anthropology*.

H. A. Gard, and R. M. Poet. "Depression Era Dugouts: Economic or Regional Adaptation." April 16, 1992. Annual Meeting, Northwest Anthropological Conference. Vancouver, B. C., Canada.

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J. C. Chatters, H. A. Gard, and P. E. Minthorn. 1991. *Hanford Cultural Resources Laboratory Annual Report for Fiscal Year 1990*. PNL-7853, Pacific Northwest Laboratory, Richland, Washington.

J. C. Chatters, H. A. Gard, and P. E. Minthorn. 1992. *Fiscal Year 1991 Report on Archaeological Surveys of the 100 Areas, Hanford Site, Washington*. PNL-8143, Pacific Northwest Laboratory, Richland, Washington.

J. C. Chatters, H. A. Gard, and P. E. Minthorn. 1992. *Hanford Cultural Resources Laboratory Annual Report for Fiscal Year 1991*. PNL-8101, Pacific Northwest Laboratory, Richland, Washington.

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