APPENDIX B
ASSOCIATED PERMITS

Please Note:

The following draft permits are provided for information only:

- USACE Nationwide Permit #38 Application
- Clark County DES -- Habitat Permit
- Clark County DES -- Wetlands Permit
- Clark County DES -- Grading Permit

Details may change as they are finalized.

AGENCY USE ONLY	
Agency Reference #:	Date Received:
Circulated by:	(local govt. or agency)

JOINT AQUATIC RESOURCES PERMIT APPLICATION FORM (JARPA)

(for use in Washington State)

PRE-CONSTRUCTION NOTIFICATION FOR NATIONWIDE PERMIT #38

☐ Application for a Fish Habitat Enhancement Project per requirements of RCW 77.55.290. You must submit a copy of this completed JARPA application form and the (Fish Habitat Enhancement JARPA Addition) to your local Government Planning Department and Washington Department of Fish & Wildlife Area Habitat Biologist on the same day.

NOTE: LOCAL GOVERNMENTS – You must submit any comments on these projects to WDFW within 15 working days.

Based on the instructions provided, I am sending copies of this application to the following: *(check all that apply)*

☐ Local Government for shoreline: ☐ Substantial Development ☐ Conditional Use ☐ Variance ☐ Exemption ☐ Revision ☐ Floodplain Management ☐ Critical Areas Ordinance

☐ Washington Department of Fish and Wildlife for HPA (Submit 3 copies to WDFW Region)

☐ Washington Department of Ecology for 401 Water Quality Certification (to Regional Office-Federal Permit Unit)

☐ Washington Department of Natural Resources for Aquatic Resources Use Authorization Notification

☒ Corps of Engineers for: ☒ Section 404 ☐ Section 10 permit

☐ Coast Guard for: ☐ General Bridge Act Permit ☐ **P**rivate **A**ids **t**o **N**avigation (for non-bridge projects)

☐ For Department of Transportation projects only: This project will be designed to meet conditions of the most current Ecology/Department of Transportation Water Quality Implementing Agreement

SECTION A - Use for all permits covered by this application. Be sure to ALSO complete Section C (Signature Block) for all permit applications.

1. APPLICANT
Clark County Public Works Department – ATTN: Jerry Barnett

MAILING ADDRESS
PO Box 9810, Vancouver, WA 98666

WORK PHONE	E-MAIL ADDRESS	HOME PHONE	FAX #
360-397-6118 x4969	Jerry.Barnett@clark.wa.gov	—	360-397-6051

If an agent is acting for the applicant during the permit process, complete #2. Be sure agent signs Section C (Signature Block) for all permit applications

2. AUTHORIZED AGENT
PBS Engineering and Environmental, ATTN: Christy McDonough

MAILING ADDRESS
1310 Main Street, Vancouver, WA 98660

WORK PHONE	E-MAIL ADDRESS	HOME PHONE	FAX #
360-213-0444	christy_mcdonough@pbsenv.com	—	360-696-9064

3. Relationship of applicant to property: ☐ OWNER ☐ PURCHASER ☐ LESSEE ☒ Other

4. Name, address and phone number of property owner(s) if other than applicant: Mike Gage, Bonneville Conservation, Restoration and Renewal Team (BCRRT), 23201 NE Pluss Road, Vancouver WA 98682, 505-699-1214

5. Location (street address, including city, county and zip code, where proposed activity exists or will occur)
23201 NE Pluss Road, Vancouver, Clark County, Washington, 98682
Local government with jurisdiction (city or county) Clark County

Waterbody you are working in Lacamas Creek
Is this waterbody on the 303(d) List** YES ☒ NO ☐
If **YES**, what parameter(s)? pH, DO, Temperature
**For 303d List, http://www.ecy.wa.gov/programs/wq/303d/index.html

Tributary of	WRIA #
Lacamas Creek	28

Shoreline designation N/A

Zoning designation Forest Tier I-80

¼ Section	Section	Township	Range	Government Lot
NE	10, 3	2N	3E	
NW	2	2N	3E	
SW	35	3N	3E	

DNR stream type if known F

Latitude and Longitude: N45.69° W122.42°

Tax Parcel Number 170186-000, 168044-000, 167940-000, 208417-000

6. Describe the current use of the property, and structures existing on the property. Have you completed any portion of the proposed activity on this property? ☐ YES ☒ NO
For any portion of the proposed activity already completed on this property, indicate month and year of completion.

The Department of the Army used Camp Bonneville for live fire of small arms, assault weapons, and field and air defense artillery between 1910 and 1995. Investigations to characterize and cleanup areas of contamination have been ongoing at Camp Bonneville. Camp Bonneville itself is comprised of two small cantonment areas (Bonneville Cantonment and Killpack Cantonment) that together cover about 30 acres. A few of the barracks at the Killpack Cantonment are being used as temporary offices by project team members. The remainder of the installation area includes 18 training areas, 28 firing ranges, and a 1,500-foot long helicopter landing area. There are also some forest management areas onsite. Adjacent, surrounding land use is predominantly agricultural, rural residential, and forest.

Is the property agricultural land? ☐ YES ☒ NO Are you a USDA program participant? ☐ YES ☒ NO

7a. Describe the proposed work that needs aquatic permits: Complete plans and specifications should be provided for all work waterward of the ordinary high water mark or line, including types of equipment to be used. If applying for a shoreline permit, describe all work within and beyond 200 feet of the ordinary high water mark. If you have provided attached materials to describe your project, you still must summarize the proposed work here. Attach a separate sheet if additional space is needed.

The proposed work is for remedial actions nine firing ranges located on the site. Berms at the firing ranges were used as a safety feature behind the targets and served as the impact areas for lead bullets. The fire support areas are in the vicinity of the firing lines where brass casings and/or residuals from live loads may have accumulated. The earthen berms and some support areas soils are expected to contain elevated levels of lead. Proposed activities include excavating, screening, and sorting soil from berms and fire support areas, and grading of the former firing ranges to match surrounding topography after clean up is complete.

Eleven (11) wetland areas are within the identified work areas. Two of these are likely isolated wetlands; the other nine are hydrologically connected to Lacamas Creek or one of its tributaries (see enclosed Wetland Delineation Report).

Excavation will occur based on one, or a combination of, four scenarios: 1) Earthen Berm Excavation; 2) Pop-Up Target Excavation; 3) Hillside Berm Excavation; or 4) Impact Zone Excavation.

SCENARIO 1 – EARTHEN BERMS

Rifle Ranges 1 & 2; Field Fire Ranges 1 & 2; Field Ranges 1 & 2; 25-meter Machine Gun Range; Undocumented Pistol Range

Removal action will involve excavation of any identified “hot spot” areas and approximately the front 2 feet of each berm face and top, and a six-inch lift off of the back. Soil samples will be taken to determine the necessity of removing an additional 1-foot lift from the berm face. All excavated soil will be screened to remove bullets, brass casings, other metal, organic material, and rock. The screening equipment will have multiple screen sizes to remove various size materials. The last screen will have ¼” opening size to capture bullet-sized metal. Screened soils will be stockpiled based on their contamination level. Appropriate disposal/recycling options will be selected based on the measured lead concentrations from each of the stockpiles. Metal collected during screening operations will be recycled and/or disposed of appropriately off-site.

Berm Face Excavation – An X-ray fluorescence spectrometer (XRF) will be used to determine lead concentrations in the remaining berm face after hot spot areas have been removed. The berm will be divided into 15-foot sections and two samples for XRF analysis will be collected in the center of each section. The XRF results will be used to segregate the soils into lead concentration groups. The berm soils will be excavated, screened, and stockpiled based on the concentrations of lead in each berm section.

After the 2-foot soil lift is removed from each berm, the surface and near-surface soils will be visually inspected for bullets. If no bullets are observed, soil samples will be collected from each section, sieved with a 2 mm screen, and analyzed for lead using the XRF. Samples below cleanup levels will be submitted for confirmation laboratory analysis. A berm section is considered “clean” if both XRF sample results for lead concentration are below 50 mg/Kg. Excavation of the sections along the berm face will continue until no bullets are encountered and the XRF analysis determines remaining soils are below the cleanup level.

Fire Support Areas - A 6-inch soil lift will be removed from fire support areas (e.g., range floors). The soil removal will occur across an area 20 feet wide by the length of the firing line. The 20-foot section will extend from 5 feet in front of the firing line to 15 feet behind the firing line. Excavated soils will be screened and stockpiled separate from the berm soils. Excavation outside of the identified 20-foot wide section identified above will be based on the results of confirmatory sampling. If elevated levels of lead are identified an additional adjoining area will be excavated. This will continue until sample results for lead concentration are below 50 mg/Kg.

Sample Grid Areas - During soil sampling at the site a number of samples displayed elevated levels of lead. Grids identified during the soil sampling will be excavated as follows:

- A 6-inch soil lift will be excavated from the entire 58x58-foot grid when average lead soil concentrations exceed 250 mg/Kg (4 of 307 grids)

- A 6-inch soil lift will be excavated from a 29x29-foot area around the sample point when the average soil lead concentrations are greater than 50 mg/kg but less than 118 mg/kg with no individual sample contains greater than 250mg/kg. Or where the average lead concentration per grid is >118 mg/Kg but less than 250 mg/Kg. (24 of 307 grids) Confirmatory sampling will occur at each edge of the hot spot excavation area and from the center point.

  If necessary, an additional 6-inch soil lift will be removed from a 14.5x 29-foot section.
  - No excavation will occur in areas where samples displayed lead levels below 50 mg/Kg, or where lead concentrations average less than 50 mg/Kg and where no single sample from a grid exceeds 118mg/kg. (139 of 307 grids)

Grading – When laboratory results confirm the lead concentration in the berm soils are below 50 mg/Kg, the remaining berm will be graded to match surrounding contours. Organic material and rocks stockpiled during sieving will be combined with clean soils and remain on site. All graded sites will be reseeded.

Exceptions - Berm 1 at the 25-meter Machine Gun Range will be completely removed because it was likely reworked over the years and is, thus, potentially contaminated deeper than the 2 feet proposed for removal on all other berms. Additionally, the top 6 inches of soil in the area behind the main range berm will be removed. Lead bullets are visible on the ground surface and it appears as though the hillside may have been used as the target prior to construction of the berm

SCENARIO 2 – POP-UP TARGET BERMS

Rifle Ranges 1 & 2; Field Fire Ranges 1 & 2; Combat Pistol Range

The pop-up target berms will be completely removed. In addition, a 6-inch (0.5-ft) soil lift will be removed from an approximate 15-foot radius from the center of the concrete target. The area within the 15-foot radius will be surface cleared using Shoenstedt's hand-held magnetometers. If nothing is discovered in the area behind the target, soil within that area will not be removed. The soil will be processed and the area graded as described above under Scenario 1.

SCENARIO 3 – HILLSIDE BERMS

25-meter M60/Pistol Range; 25-meter Record Firing/Field Firing Range; Combat Pistol Range; 1,000-inch Rifle Range/Machine Gun Range

The target berm located in front of the hillside will be completely removed. In addition, the front of the hillside will be excavated, processed, and the area graded as described above under Scenario 1.

SCENARIO 4 – IMPACT ZONE

Rifle Ranges 1 & 2

At this range, additional pop-up targets were placed on a target berm across the pop-up area pond. The identified impact area behind the target berm will be excavated until clean material is left. The impact zone is the area behind the target berm where the trajectory of the bullet would land assuming it missed the target berm. The impact zone will be excavated, processed, and the area graded as described above under Scenario 1.

PREPARATION OF DRAWINGS: See sample drawings and guidance for completing the drawings. ***ONE SET OF ORIGINAL OR GOOD QUALITY REPRODUCIBLE DRAWINGS MUST BE ATTACHED.*** NOTE: Applicants are encouraged to submit photographs of the project site, but these DO NOT substitute for drawings. ***THE CORPS OF ENGINEERS AND COAST GUARD REQUIRE DRAWINGS ON 8-1/2 X 11 INCH SHEETS. LARGER DRAWINGS MAY BE REQUIRED BY OTHER AGENCIES.***

7b. Describe the purpose of the proposed work and why you want or need to perform it at the site. Please explain any specific needs that have influenced the design.

All proposed grading activities are associated with remedial actions undertaken to improve the environmental and soil quality of the site. Firing range berms and fire support areas will be excavated to remove contaminated soils. All soils will be excavated, screened and stockpiled based on the concentrations of lead they contain. Soils with concentrations below the clean up screening level (50 mg/Kg) for lead will be reused to grade the site consistent with the surrounding topography.

7c. Describe the potential impacts to characteristic uses of the water body. These uses may include fish and aquatic life, water quality, water supply, recreation, and aesthetics. Identify proposed actions to avoid, minimize, and mitigate detrimental impacts and provide proper protection of fish and aquatic life. Identify which guidance documents you have used. Attach a separate sheet if additional space is needed.

Impacts to wetlands will be temporary in nature. The area will be excavated and graded as necessary for the remediation of lead contamination within the identified firing ranges. The area will then be re-graded to match the contours of immediately adjacent wetland areas and seeded with native wetland species.

7d. For in water construction work, will your project be in compliance with the State of Washington water quality standards for turbidity WAC 173.201A-110? ☐ YES ☐ NO (See USEFUL DEFINITIONS AND INSTRUCTIONS)

8. Will the project be constructed in stages? YES ☐ NO ☒

Proposed starting date: August 2007

Estimated duration of activity: October 2007

9. Check if any temporary or permanent structures will be placed:

☐ Waterward of the ordinary high water mark or line for fresh or tidal waters AND/OR

☐ Waterward of the mean higher high water for tidal waters?

10. Will fill material (rock, fill, bulkhead, or other material) be placed:

☐ Waterward of the ordinary high water mark or line for fresh waters?

If **YES**, VOLUME (cubic yards) / AREA (acres)

☐ Waterward of the mean higher high water for tidal waters?

If **YES**, VOLUME (cubic yards) / AREA (acres)

11. Will material be placed in wetlands? ☒ YES ☐ NO

If **YES**:

A. Impacted area in acres: exact area unknown, will be less than 7.7 acres

B. Has a delineation been completed? **If YES**, please submit with application. ☒ YES ☐ NO

C. Has a wetland report been prepared? **If YES**, please submit with application ☒ YES ☐ NO

D. Type and composition of fill material (e.g., sand, etc.) clean on-site material

E. Material source: work area

F. List all soil series (type of soil) located at the project site, and indicate if they are on the county's list of hydric soils. Soils information can be obtained from the natural Resources Conservation Service (NRCS).

- Hesson Clay Loam, 0 to 8 percent slopes (HcB)
- McBee Silty Clay Loam, 0 to 3 percent slopes (MeA)
- Olympic Stony Clay Loam, 3 to 30 percent slopes (OmE)
- Olympic Stony Clay Loam, 30 to 60 percent slopes (OmF)

None of the soils are classified as hydric, however, the Hesson and McBee units have inclusions of hydric soils (NRCS 2001). Most of the study areas are within the McBee unit.

G. WILL PROPOSED ACTIVITY CAUSE FLOODING OR DRAINING OF WETLANDS? ☐ YES ☒ NO

If **YES**, IMPACTED AREA IS _____ ACRES OF DRAINED WETLANDS.

NOTE: If your project will impact greater than ½ of an acre of wetland, submit a mitigation plan to the Corps and Ecology for approval along with the JARPA form.

NOTE: A 401 water quality certification will be required from Ecology in addition to an approved mitigation plan if your project impacts wetlands that are: a) greater than ½ acre in size, or b) tidal wetlands or wetlands adjacent to tidal water. Please submit the JARPA form and mitigation plan to Ecology for an individual 401 certification if a) or b) applies.

12. Stormwater Compliance for Nationwide Permits Only: This project is (or will be) designed to meet ecology's most current stormwater manual, or an Ecology approved local stormwater manual. ☒ YES ☐ NO

If **YES** – Which manual will your project be designed to meet? 2005 Stormwater Management Manual for Western Washington

If **NO** – For clean water act Section 401 and 404 permits only – Please submit to Ecology for approval, along with this JARPA application, documentation that demonstrates the stormwater runoff from your project or activity will comply with the water quality standards, WAC 173.201(A)

13. Will excavation or dredging be required in water or wetlands? ☒ YES ☐ NO

If **YES**:

A. Volume: unknown (cubic yards) /area _____ (acre)

B. Composition of material to be removed: lead contaminated soil

C. Disposal site for excavated material: off-site hazardous waste site

D. Method of dredging: excavators

14. Has the State Environmental Policy Act (SEPA) been completed ☒ YES ☐ NO

SEPA Lead Agency: Clark County

SEPA Decision: DNS, MDNS, EIS, Adoption, Exemption DNS Decision Date (end of comment period) July 20, 2007

SUBMIT A **COPY OF YOUR SEPA DECISION LETTER** TO WDFW AS REQUIRED FOR A COMPLETE APPLICATION

15. List other Applications, approvals or certifications from other federal, state or local agencies for any structures, construction discharges or other activities described in the application (i.e. preliminary plat approval, health district approval, building permit, SEPA review, federal energy regulatory commission license (FERC), Forest practices application, etc.). Also, indicate whether work has been completed and indicate all existing work on drawings. NOTE: For use with Corps Nationwide Permits, identify whether your project has or will need an NPDES permit for discharging wastewater and/or stormwater.

TYPE OF APPROVAL	ISSUING AGENCY	IDENTIFICATION NO.	DATE OF APPLICATION	DATE APPROVED	COMPLETED?
Wetland Permit	Clark County				
Habitat Permit	Clark County				
Grading Permit	Clark County				
SEPA	Clark County	SEP2007-00088	06/13/07	07/20/17	

16. Has any agency denied approval for the activity you're applying for or for any activity directly related to the activity described herein?

☐ YES ☒ NO

If **YES**, explain:

SECTION B - Use for Shoreline and Corps of Engineers permits only:

17a. Total cost of project. This means the fair market value of the project, including materials, labor, machine rentals, etc.

17b. If a project or any portion of a project receives funding from a federal agency, that agency is responsible for ESA consultation. Please indicate if you will receive federal funds and what federal agency is providing those funds. See instructions for information on ESA.*

FEDERAL FUNDING [x] YES [ ] NO If **YES**, please list the federal agency. U.S. Army

18. Local government with jurisdiction: Clark County

19. For Corps, Coast Guard and DNR permits, provide names, addresses and telephone numbers of adjoining property owners, lessees, etc. - ***Please note:*** *Shoreline Management Compliance may require additional notice – consult your local government.*

NAME	ADDRESS	PHONE NUMBER

SECTION C - This section MUST be completed for any permit covered by this application

20. Application is hereby made for a permit or permits to authorize the activities described herein. I certify that I am familiar with the information contained in this application, and that to the best of my knowledge and belief, such information is true, complete, and accurate. I further certify that I possess the authority to undertake the proposed activities. I hereby grant to the agencies to which this application is made, the right to enter the above-described location to inspect the proposed, in-progress or completed work. I agree to start work **ONLY** after all necessary permits have been received.

SIGNATURE OF APPLICANT	DATE
SIGNATURE OF AUTHORIZED AGENT	DATE

I HEREBY DESIGNATE PBS Engineering and Environmental TO ACT AS MY AGENT IN MATTERS RELATED TO THIS APPLICATION FOR PERMIT(S). I UNDERSTAND THAT IF A FEDERAL PERMIT IS ISSUED, I MUST SIGN THE PERMIT.

SIGNATURE OF APPLICANT DATE

SIGNATURE OF LANDOWNER (EXCEPT PUBLIC ENTITY LANDOWNERS, E.G. DNR)

THIS APPLICATION MUST BE SIGNED BY THE APPLICANT AND THE AGENT, IF AN AUTHORIZED AGENT IS DESIGNATED.

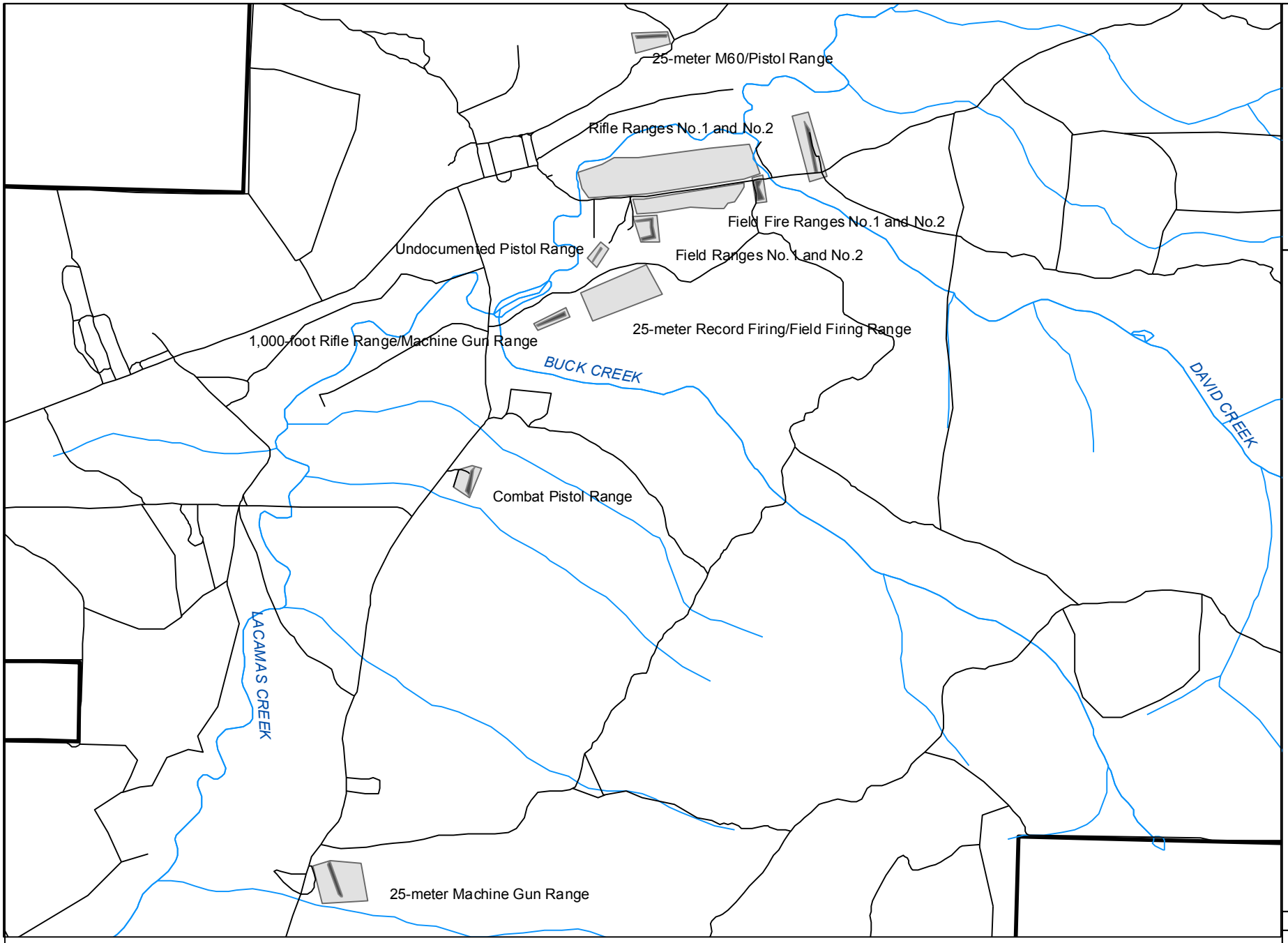
18 U.S.C §1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly falsifies, conceals, or covers up by any trick, scheme, or device a material fact or makes any false, fictitious, or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious, or fraudulent statement or entry, shall be fined not more than $10,000 or imprisoned not more than 5 years or both.

COMPLETED BY LOCAL OFFICIAL

A. Nature of the existing shoreline. (Describe type of shoreline, such as marine, stream, lake, lagoon, marsh, bog, swamp, flood plain, floodway, delta; type of beach, such as accretion, erosion, high bank, low bank, or dike; material such as sand, gravel, mud, clay, rock, riprap; and extent and type of bulkheading, if any)

B. In the event that any of the proposed buildings or structures will exceed a height of thirty-five feet above the average grade level, indicate the approximate location of and number of residential units, existing and potential, that will have an obstructed view:

C. If the application involves a conditional use or variance, set forth in full that portion of the master program which provides that the proposed use may be a conditional use, or, in the case of a variance, from which the variance is being sought:



BCRRT
BONNEVILLE CONSERVATION, RESTORATION & RENEWAL TEAM, LLC

CAMP BONNEVILLE

23201 NE PLUSS ROAD
CLARK COUNTY, WASHINGTON

FIRING RANGE
LOCATION MAP

PROJECT: 70489.000

DATE: SEPTEMBER 2007

FIGURE:
1

PBS

PORTLAND
SEATTLE
VANCOUVER
EUGENE
BEND
TRI-CITIES
BANDON

CAMP BONNEVILLE

CLARK COUNTY, WASHINGTON

SEPTEMBER 2007

HABITAT PERMIT APPLICATION

Location: 23201 NE Pluss Road, Vancouver, WA 98682
Sections 34 and 35 Township 3 North, Range 3 East and Sections 1,2,3 and 10 Township 2 North, Range 3 East

Request: The earthen berms and some support areas soils are expected to contain elevated levels of lead. Proposed activities include the excavation, screening, and sorting of soil from berms and fire support areas, and the grading of the former firing ranges to match surrounding topography after clean up is complete.

Applicant: Clark County Department of Public Works
Attn: Jerry Barnett
1300 Franklin Street, 4th Floor
Vancouver, WA 98660
(360) 397-6118 x4969; (360) 759-6330 Fax
Jerry.Barnett@clark.wa.gov

Consultant: PBS Engineering and Environmental
Attn: Christy McDonough
1310 Main Street
Vancouver, WA 98660
(360) 213-0444; (360) 696-9064 Fax
christy_mcdonough@pbsenv.com

TABLE OF CONTENTS

SECTION 1
APPLICATION FORM

DEVELOPMENT REVIEW APPLICATION FORM

(Form DS1000-Revised 4/14/06)

PROJECT NAME: Camp Bonneville – Grading at Small Range Berms and Fire Support Areas		
TYPE(S) OF APPLICATION (See Reverse Side): **Wetland, Habitat**		
DESCRIPTION OF PROPOSAL: The earthen berms and some support areas soils are expected to contain elevated levels of lead. Proposed activities include the excavation, screening, and sorting of soil from berms and fire support areas, and the grading of the former firing ranges to match surrounding topography after clean up is complete.		
APPLICANT NAME: Clark County Public Works c/o Jerry Barnett	Mailing Address: PO Box 9810 Vancouver, WA 98666	
E-mail Address: Jerry.Barnett@clark.wa.gov	Phone and Fax: 360.397.6118 ext 4969; 360-397-6051 (fax)	
PROPERTY OWNER NAME (list multiple owners on a separate sheet)**:** Bonneville Conservation, Restoration and Renewal Team Attn: Mike Gage	Address: 23201 NE Pluss Road Vancouver, WA 98682	
E-mail Address: mike.gage@bcrrt.org	Phone and Fax: 505-699-1214	
CONTACT PERSON NAME (list if not same as APPLICANT)**:** Applicant or Owner	Address: Same as above	
E-mail Address: Same as above	Phone and Fax: Same as above	
PROJECT SITE INFORMATION: Site Address: 23201 NE Pluss Road Vancouver, WA 98682	Comp Plan Designation: Forest Tier I	
Cross Street: NE 88th Street	Zoning: Forest Tier I-80	Serial #'s of Parcels: See attached
Overlay Zones: See attached.	Legal: See attached.	Acreage of Original Parcels: Total: 3,840 See attached.
Township: See attached.	Range: See attached.	¼ of Section: See attached.

AUTHORIZATION

The undersigned hereby certifies that this application has been made with the consent of the lawful property owner(s) and that all information submitted with this application is complete and correct. False statements, errors, and/or omissions may be sufficient cause for denial of the request. This application gives consent to the County to enter the properties listed above.

Authorized Signature Date

For Staff Only:

CASE NUMBER:	
WORK ORDER NUMBER:	

Camp Bonneville
Application Form Attachment

Serial # of Parcels	Legal	Acreage	Township	Range	¼ of Section	Overlay Districts
167837-000	ALL SEC 1 T2NR3EWM 640A	640	2N	3E	NE, NW, SE, SW of Section 1	
167940-000	#1 SEC 2 T2NR3EWM 640.94A	640.94	2N	3E	NE, NW, SE, SW of Section 2	
168044-000	#5 SEC 3 T2NR3EWM 619.12A	619.12	2N	3E	NE, NW, SE, SW of Section 3	Comprehensive Plan: Mining Zoning: Mining Combining District
170186-000	#15 SEC 10 T2NR3EWM 320A	320	2N	3E	NE, NW of Section 10	Comprehensive Plan: Mining Zoning: Mining Combining District
170393-000	#4 SEC 11 T2NR3EWM 120A	120	2N	3E	NW of Section 11	
170394-000	#5 SEC 11 T2NR3EWM 40A	40	2N	3E	NE of Section 11	
170398-000	#9 SEC 11 T2NR3EWM 40A	40	2N	3E	NW of Section 11	
208215-000	#7 OF SEC 34 T3NR3EWM 160A	160	3N	3E	SE of Section 34	Comprehensive Plan: Mining Zoning: Mining Combining District
208417-000	#1 OF SEC 35 T3NR3EWM 640A TARGET RANGE	640	3N	3E	NE, NW, SE, SW of Section 35	
208619-000	#1 OF SEC 36 T3NR3EWM 640A	640	3N	3E	NE, NW, SE, SW of Section 36	

SECTION 2
PERMIT NARRATIVE

HABITAT IMPACT SUMMARY

Vegetation will be removed, where necessary, to allow for remediation of lead contaminated soils at firing range berms, range floors and fire support areas. Only portions of these activities will impact riparian habitat areas. The exact area of impact depends on the extent of necessary removal. The table below shows the maximum area of riparian habitat impact. It is likely the actual impact area will be smaller.

FIRING RANGE	STUDY AREA	RIPARIAN HABITAT		Habitat Description
		SQ. FT	ACRES	
25-meter Machine Gun Range	—	12,934	0.30	A coniferous dominated riparian forest exists along the south range boundary. The area within the range boundary has a mix of native and non-native grasses and forbs.
Combat Pistol Range	—	2,769	0.06	A mixed coniferous and deciduous riparian forest surrounds the range to the north, south, and east. Within in the range boundaries there is a mix of native and non-native shrubs, grasses, and forbs.
1,000-inch Rifle Range/Machine Gun Range	C	3,019	0.07	Wetland C1 occurs along northern edge of Study Area C, but not within it. Study area C runs along the edge of Douglas-fir forest and contains a few red alder along its perimeter.
Undocumented Pistol Range	H	13,464	0.31	The majority of Wetland H1extends into the riparian buffer for Lacamas Creek. The wetland is drier to the north with the boundary not far beyond the edge of the study area. It gets wetter to the south where the study area adjoins a spiraea thicket. The south edge is dominated by small trees and shrubs including red alder, cascara, Oregon ash, creek dogwood, cluster rose, and Douglas' spiraea with slough sedge sparse in the understory. The open area contains scattered patches of cluster rose and a mix of herbaceous species including slough sedge, sweet vernal grass, common velvet grass, self heal, and English plantain.
Rifle Ranges No.1 and No.2	E	192,024	4.41	This area is along at the southern corner of study area E, within the riparian buffer for David Creek, a tributary to Lacamas Creek. Area is dominated by red alder, Douglas fir, trailing blackberry, tufted hairgrass, orchardgrass, bracken fern and ox-eye daisy. A small area (361 SF) of the wetland extends from the northern corner of the study area into the buffer of Lacamas Creek. The northern portion of the study area adjoins an extensive area of wetland forest and scrub-shrub thicket.
	A			Northeast corner – This area includes the northern portion of Wetland A1 and borders both Lacamas and David Creek. Dominant vegetation in this area includes: spotted cat's-ear, creeping bentgrass, sweet vernal grass, red alder, Virginia strawberry, tall fescue, and Scotch broom. Northwest corner – This area contains wetlands A3 and portions of A2. Wetland A3 borders Lacamas Creek. The vegetation is strongly dominated by creek dogwood with cascara and vine maple scattered along the edge. There is a large red alder near the center on the bank of the creek along with several saplings. Dominant vegetation in this area includes: tall fescue, red fescue, orchardgrass, common velvetgrass, Canada thistle, trailing blackberry, slough sedge, Queen Anne's lace, creek dogwood, and tall oatgrass.
Field Fire Ranges No.1 and No.2	F	19,383	0.44	Within the riparian habitat buffer for David Creek. Dominant species include red alder, Himalayan blackberry, bracken fern, swordfern, Douglas fir, and Canada thistle.
TOTAL		**243,593**	**5.59**	

PROPOSED MITIGATION

Mitigation for temporary riparian habitat impacts will be through restoring each impact area by regrading the affected areas to match the contours of immediately adjacent areas and seeding with native vegetation. Additionally, invasive and noxious weed species will be removed from those areas.

Species seeded in the impacted areas will include native trees, shrubs, grasses, and herbaceous species observed growing on and adjacent to the affected area.

SECTION 3
PROJECT DESCRIPTION

CAMP BONNEVILLE
Small Range Berms and Fire Support Areas

BACKGROUND

The Department of the Army used Camp Bonneville for live fire of small arms, assault weapons, and field and air defense artillery between 1910 and 1995. Investigations to characterize and cleanup areas of contamination have been ongoing at Camp Bonneville. Berms at the firing ranges were used as a safety feature behind the targets and served as the impact areas for lead bullets. The fire support areas are in the vicinity of the firing lines where brass casings and/or residuals from live loads may have accumulated. The earthen berms and some support areas soils are expected to contain elevated levels of lead. Proposed activities include the excavation, screening, and sorting of soil from berms and fire support areas, and the grading of the former firing ranges to match surrounding topography after clean up is complete.

PROJECT DESCRIPTION

Excavation will occur based on one, or a combination of, four scenarios: 1) Earthen Berm Excavation; 2) Pop-Up Target Excavation; 3) Hillside Berm Excavation; or 4) Impact Zone Excavation.

SCENARIO 1 – EARTHEN BERMS
(Rifle Ranges 1 & 2; Field Fire Ranges 1 & 2; Field Ranges 1 & 2; 25-meter Machine Gun Range; Undocumented Pistol Range (Figure 1))

Removal action will involve excavation of any identified “hot spot” areas and approximately the front 2 feet of each berm face and top, and a six-inch lift off of the back. Soil samples will be taken to determine the necessity of removing an additional 1-foot lift from the berm face.

All excavated soil will be screened to remove bullets, brass casings, other metal, organic material, and rock. The screening equipment will have multiple screen sizes to remove various size materials. The last screen will have ¼” opening size to capture bullet-sized metal. Screened soils will be stockpiled into one of six different piles, as follows:

- Rocks, Gravel, Vegetation
- Hot Spot Soils
- < 50 mg/Kg Soil
- 50 ≤ 250 mg/Kg Soil
- 250 ≤ 1000 mg/Kg Soil
- 1000+ mg/Kg Soil

Appropriate disposal/recycling options will be selected based on the measured lead concentrations from each of the stockpiles. Metal collected during screening operations will be recycled and/or disposed of appropriately off-site. Based on laboratory analysis the soil samples of the above stockpiles, the soils will be characterized into one of three following categories:

- Category 1 – soils with Toxic Characteristics Leaching Procedure (TCLP) lead concentrations greater than 5 mg/L. These soils will be transported to a licensed landfill for stabilization and disposal.
- Category 2 – soils with maximum lead concentrations greater than 50 mg/Kg and TCLP lead concentrations less than 5 mg/L. These soils will be recycled or disposed of at an appropriate landfill.
- Category 3 – soils with maximum lead concentrations less than 50 mg/Kg and TCLP lead concentrations less than 5 mg/L. These soils will remain on site and be used for contour grading purposes.

Berm Face Excavation – An X-ray fluorescence spectrometer (XRF) will be used to determine lead concentrations in the remaining berm face after hot spot areas have been removed. The berm will be divided into 15-foot sections and two samples for XRF analysis will be collected in the center of each section. The XRF results will be used to segregate the soils into four lead concentration groups (<50 mg/Kg; 50 ≤ 250 mg/Kg; 250 ≤ 1000 mg/Kg; 1000+ mg/Kg). The berm soils will be excavated, screened, and stockpiled based on the concentrations of lead in each berm section.

After the 2-foot soil lift is removed from each berm, the surface and near-surface soils will be visually inspected for bullets. If no bullets are observed, soil samples will be collected from each section, sieved with a 2 mm screen, and analyzed for lead using the XRF. Samples below cleanup levels will be submitted for confirmation laboratory analysis. A berm section is considered "clean" if both XRF sample results for lead concentration are below 50 mg/Kg. Excavation of the sections along the berm face will continue until no bullets are encountered and the XRF analysis determines remaining soils are below the cleanup level.

Fire Support Areas - A 6-inch soil lift will be removed from fire support areas (e.g. range floors). The soil removal will occur across an area 20 feet wide by the length of the firing line. The 20-foot section will extend from 5 feet in front of the firing line to 15 feet behind the firing line. Excavated soils will be screened and stockpiled separate from the berm soils.

Excavation outside of the identified 20-foot wide section identified above will be based on the results of confirmatory sampling. If elevated levels of lead are identified an additional adjoining area will be excavated. This will continue until sample results for lead concentration are below 50 mg/Kg.

Sample Grid Areas - During soil sampling at the site a number of samples displayed elevated levels of lead. Grids identified during the soil sampling will be excavated as follows:

- A six-inch soil lift will be excavated from the entire 58x58 foot grid when average lead soil concentrations exceed 250 mg/Kg (4 of 307 grids)
- A six-inch soil lift will be excavated from a 29x29 foot area around the sample point when the average soil lead concentrations are greater than 50 mg/kg but less than 118 mg/kg with no indivudal sample contains greater than 250mg/kg. Or where the average lead concentration per grid is >118 mg/Kg but less than 250 mg/Kg. (24 of 307 grids) Confirmatory sampling will occur at each edge of the hot spot excavation area and from the center point.

  If necessary, an additional 6-inch soil lift will be removed from a 14.5x 29 foot section.
  - No excavation will occur in areas where samples displayed lead levels below 50 mg/Kg, or where lead concentrations average less than 50 mg/Kg and where no single sample from a grid exceeds 118mg/kg. (139 of 307 grids)

Grading – When laboratory results confirm the lead concentration in the berm soils are below 50 mg/Kg, the remaining berm will be graded to match surrounding contours. Organic material and rocks stockpiled during sieving will be combined with clean soils and remain on site. All graded sites will be reseeded.

Exceptions - Berm 1 at the 25-meter Machine Gun Range will be completely removed because it was likely reworked over the years and is, thus, potentially contaminated deeper than the 2-feet proposed for removal on all other berms. Additionally, the top 6 inches of soil in the area behind the main range berm will be removed. Lead bullets are visible on the ground surface and it appears as though the hillside may have been used as the target prior to construction of the berm

SCENARIO 2 – POP-UP TARGET BERMS
(Rifle Ranges 1 & 2; Field Fire Ranges 1 & 2; Combat Pistol Range (Figure 1))

The pop-up target berms will be completely removed. In addition, a 6-inch (0.5-ft) soil lift will be removed from an approximate 15-foot radius from the center of the concrete target. The area within the 15-foot

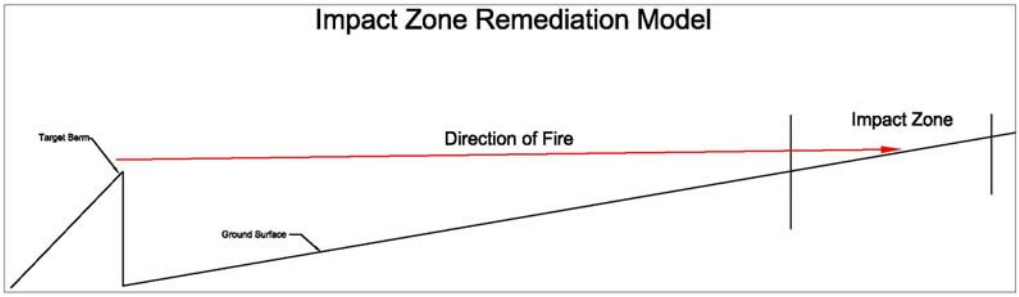
radius will be surface cleared using Shoenstedt's hand-held magnetometers. If nothing is discovered in the area behind the target, soil within that area will not be removed. The soil will be processed and the area graded as described above under Scenario 1.

SCENARIO 3 – HILLSIDE BERMS
(25-meter M60/Pistol Range; 25-meter Record Firing/Field Firing Range; Combat Pistol Range; 1,000-inch Rifle Range/Machine Gun Range (Figure 1))

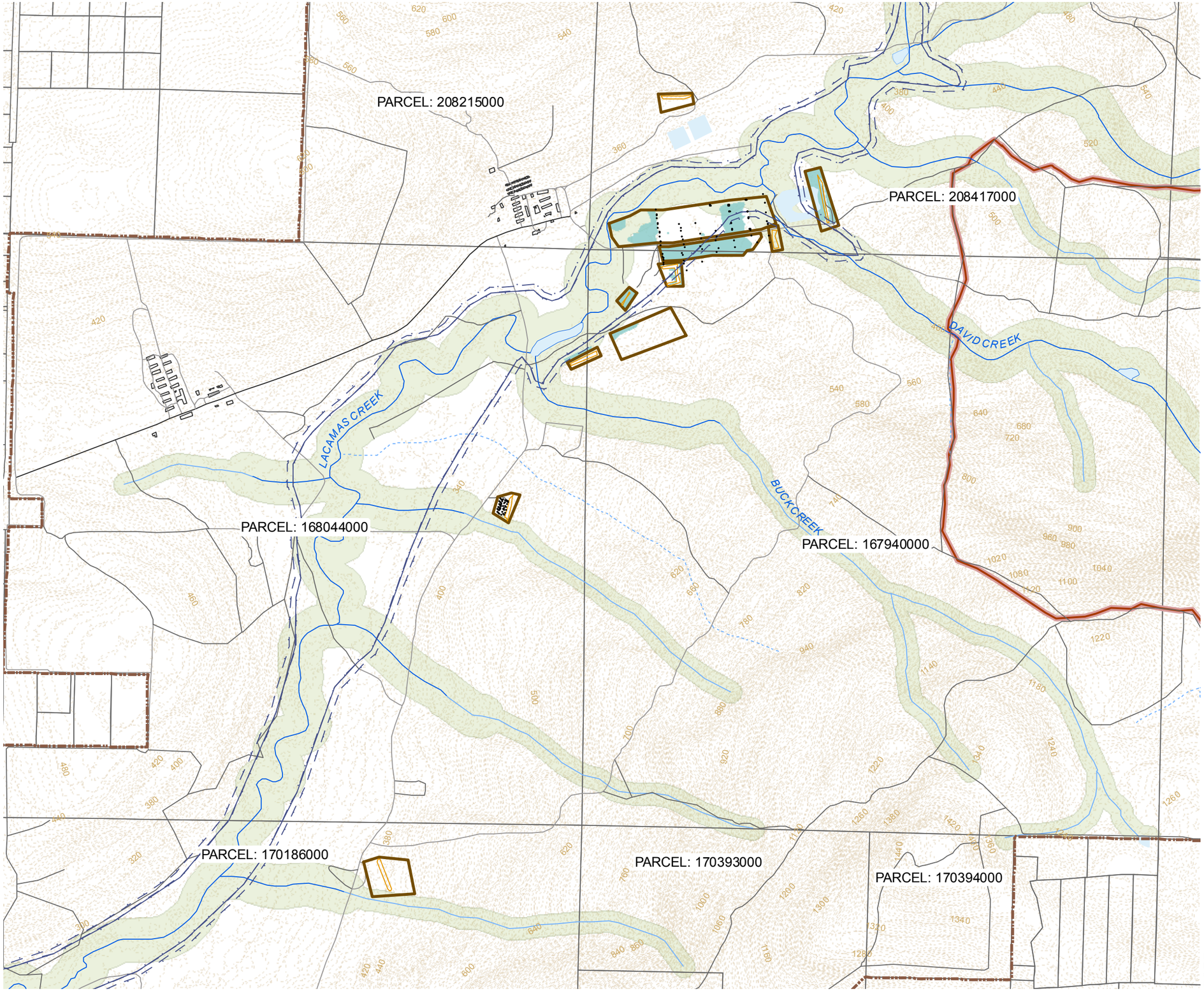
The target berm located in front of the hillside will be completely removed. In addition, the front of the hillside will be excavated, processed, and the area graded as described above under Scenario 1.

SCENARIO 4 – IMPACT ZONE
(Rifle Ranges 1 & 2 (Figure 1))

At this range, additional pop up targets were placed on a target berm across the pop up pond. The identified impact area behind the target berm will be excavated until clean material is left. The impact zone is the area behind the target berm where the trajectory of the bullet would land assuming it missed the target berm. The impact zone will be excavated, processed, and the area graded as described above under Scenario 1.



SECTION 4
EXISTING CONDITIONS MAP



Legend

- Camp Bonneville
- Central Impact Target Area
- Firing Ranges
- Berms
- Pop-up Berms
- Riparian Habitat Buffer
- Flood Transition Area
- Floodway Fringe
- Tax Lots
- Contours

Roads & Trails

- Paved
- Dirt
- Gravel
- Dirt Trail

Streams

- Fish
- Non-Fish
- Unknown
- Water Bodies and Ponds
- Wetlands

N

0 450 900 Feet

Data Sources: Clark County GIS (August 2006); Wetland boundaries marked in the field using a Trimble Geo XT GPS. Camp Bonneville layers provided by Michael Baker Jr., Inc. and MKM Engineers, Inc.

PBS

BCRRT

BONNEVILLE CONSERVATION, RESTORATION & RENEWAL TEAM, LLC

CAMP BONNEVILLE

23201 NE PLUSS ROAD
CLARK COUNTY, WASHINGTON

EXISTING CONDITIONS MAP

PROJECT: 70489.000

JULY 2007

FIGURE: 1

PBS

PORTLAND
SEATTLE
VANCOUVER
EUGENE
BEND
TRI-CITIES
BANDON

CAMP BONNEVILLE

CLARK COUNTY, WASHINGTON

SEPTEMBER 2007

WETLAND PERMIT APPLICATION

Location: 23201 NE Pluss Road, Vancouver, WA 98682
Sections 34 and 35 Township 3 North, Range 3 East and Sections 1,2,3 and 10 Township 2 North, Range 3 East

Request: The earthen berms and some support areas soils are expected to contain elevated levels of lead. Proposed activities include the excavation, screening, and sorting of soil from berms and fire support areas, and the grading of the former firing ranges to match surrounding topography after clean up is complete.

Applicant: Clark County Department of Public Works
Attn: Jerry Barnett
1300 Franklin Street, 4th Floor
Vancouver, WA 98660
(360) 397-6118 x4969; (360) 759-6330 Fax
Jerry.Barnett@clark.wa.gov

Consultant: PBS Engineering and Environmental
Attn: Christy McDonough
1310 Main Street
Vancouver, WA 98660
(360) 213-0444; (360) 696-9064 Fax
christy_mcdonough@pbsenv.com

TABLE OF CONTENTS

SECTION 1

APPLICATION FORM

SUPPLEMENTAL WETLAND REVIEW APPLICATION FORM

DEVELOPMENT REVIEW APPLICATION FORM

(Form DS1000-Revised 4/14/06)

PROJECT NAME: Camp Bonneville – Grading at Small Range Berms and Fire Support Areas		
TYPE(S) OF APPLICATION (See Reverse Side): **Wetland, Habitat**		
DESCRIPTION OF PROPOSAL: The earthen berms and some support areas soils are expected to contain elevated levels of lead. Proposed activities include the excavation, screening, and sorting of soil from berms and fire support areas, and the grading of the former firing ranges to match surrounding topography after clean up is complete.		
APPLICANT NAME: Clark County Public Works c/o Jerry Barnett	Mailing Address: PO Box 9810 Vancouver, WA 98666	
E-mail Address: Jerry.Barnett@clark.wa.gov	Phone and Fax: 360.397.6118 ext 4969; 360-397-6051 (fax)	
PROPERTY OWNER NAME (list multiple owners on a separate sheet)**:** Bonneville Conservation, Restoration and Renewal Team Attn: Mike Gage	Address: 23201 NE Pluss Road Vancouver, WA 98682	
E-mail Address: mike.gage@bcrrt.org	Phone and Fax: 505-699-1214	
CONTACT PERSON NAME (list if not same as APPLICANT)**:** Applicant or Owner	Address: Same as above	
E-mail Address: Same as above	Phone and Fax: Same as above	
PROJECT SITE INFORMATION: Site Address: 23201 NE Pluss Road Vancouver, WA 98682	Comp Plan Designation: Forest Tier I	
Cross Street: NE 88th Street	Zoning: Forest Tier I-80	Serial #'s of Parcels: See attached
Overlay Zones: See attached.	Legal: See attached.	Acreage of Original Parcels: Total: 3,840 See attached.
Township: See attached.	Range: See attached.	¼ of Section: See attached.

AUTHORIZATION

The undersigned hereby certifies that this application has been made with the consent of the lawful property owner(s) and that all information submitted with this application is complete and correct. False statements, errors, and/or omissions may be sufficient cause for denial of the request. This application gives consent to the County to enter the properties listed above.

Authorized Signature Date

For Staff Only:

CASE NUMBER:	
WORK ORDER NUMBER:	

Camp Bonneville
Application Form Attachment

Serial # of Parcels	Legal	Acreage	Township	Range	¼ of Section	Overlay Districts
167837-000	ALL SEC 1 T2NR3EWM 640A	640	2N	3E	NE, NW, SE, SW of Section 1	
167940-000	#1 SEC 2 T2NR3EWM 640.94A	640.94	2N	3E	NE, NW, SE, SW of Section 2	
168044-000	#5 SEC 3 T2NR3EWM 619.12A	619.12	2N	3E	NE, NW, SE, SW of Section 3	Comprehensive Plan: Mining Zoning: Mining Combining District
170186-000	#15 SEC 10 T2NR3EWM 320A	320	2N	3E	NE, NW of Section 10	Comprehensive Plan: Mining Zoning: Mining Combining District
170393-000	#4 SEC 11 T2NR3EWM 120A	120	2N	3E	NW of Section 11	
170394-000	#5 SEC 11 T2NR3EWM 40A	40	2N	3E	NE of Section 11	
170398-000	#9 SEC 11 T2NR3EWM 40A	40	2N	3E	NW of Section 11	
208215-000	#7 OF SEC 34 T3NR3EWM 160A	160	3N	3E	SE of Section 34	Comprehensive Plan: Mining Zoning: Mining Combining District
208417-000	#1 OF SEC 35 T3NR3EWM 640A TARGET RANGE	640	3N	3E	NE, NW, SE, SW of Section 35	
208619-000	#1 OF SEC 36 T3NR3EWM 640A	640	3N	3E	NE, NW, SE, SW of Section 36	

WETLAND REVIEW
SUPPLEMENTAL APPLICATION FORM

(Form DS1594-Revised 8/30/06)

If an activity or project that is not explicitly exempt under CCC 40.450.010(C) affects wetlands or wetland buffers, a wetland review will be required. Use this for to identify the type of wetland review that is needed and the associated fee. The handouts referenced in the right hand column will list the specific submittal requirements.

Check applicable box(es) below	Review Type	Fee	Handout
Wetland Pre-determination			
A wetland pre-determination is a request to have County wetland staff conduct an on-site review of up to 40 acres. This is an **optional** application that should only be submitted in advance of a development application for the site or project.			
☐ Wetland Pre-determination	Type I	$443	35B
Single Family Residence Projects			
Wetland permits associated with residential building permits and home business permits are Type I reviews. The reasonable use exception is for cases where the requirements of the ordinance would prevent the construction of a home and/or normal accessory structures on existing legal lots.			
☐ Single family residence	Type I	$700	35C
☐ Home business	Type I	$700	35C
☐ Reasonable use exception (single family)	Type I	$700	35C
Development and Grading Projects			
Permit typing and submittal requirements for development permits is based on the extent of impact proposed. The reasonable use exception is for cases where the requirements of the ordinance would otherwise render the property unbuildable or would result in denial of a linear project (roads and utilities) deemed to be in the public interest.			
☐ Buffer modification only (no direct wetland impact)	Type I	$700	35D
☐ Less than 0.1 acre of direct wetland impact	Type I	$700	35E
☒ 0.1 acre of direct wetland Impact or more	Type II	$1580	35E
☐ Reasonable use exception	Type III	$7500	35F
☐ Reauthorization of an approved permit	Type I	$700	35G
Programmatic Permits			
Programmatic permits are intended to be used for ongoing operations or repetitive activities at multiple sites where impacts and mitigation requirements can be applied without specific County review of each individual impact.			
☐ Programmatic permit – SEPA exempt	Type I	$1400	35H
☐ Programmatic permit – SEPA required	Type I	$2800	35H
☐ Reauthorization of an approved programmatic permit	Type I	$700	35I
☐ *Combined wetland and habitat programmatic permit (check the type of programmatic permit above)*	*10% fee reduction*		

This form is required for a Counter Complete wetland permit application

SECTION 2
NARRATIVE
PROJECT DESCRIPTION

WETLAND IMPACT SUMMARY

A wetland delineation completed by PBS Engineering and Environmental in 2007 identified twelve wetlands within the project area. Of these, eleven have the potential to be temporarily impacted by the proposed construction. The table below shows the maximum area of wetland impact. The actual impact area will be smaller. The grading areas are outlined in the project description and will fall under one or more of the four scenarios described.

FIRING RANGE	WETLAND	WETLANDS	
		SQUARE FEET	ACRES
1,000-inch Rifle Range/Machine Gun Range	C1	OUTSIDE OF STUDY AREA	
25-meter Record Firing/Field Firing Range	D1	9,463	0.22
Undocumented Pistol Range	H1	18,209	0.42
Field Ranges No1. and No.2	G1	251	0.01
	G2	13,641	0.31
Rifle Ranges No.1 and No.2	A1	56,136	1.29
	A2	43,593	1.00
	A3	11,406	0.26
	Isolated 1	313	0.01
	Isolated 2	113	—
Field Fire Ranges No.1 and No.2	B1	116,536	2.68
TOTAL		**269,661**	**6.2**

MITIGATION SUMMARY

Mitigation for temporary wetland impacts will be through restoring each impact area by regrading the affected wetland areas to match the contours of immediately adjacent areas and seeding with native wetland vegetation. Additionally, invasive and noxious weed species will be removed from those areas.

Species seeded in the wetland area will include native trees, shrubs, grasses, and herbaceous species observed growing on and adjacent to the impact areas.

CAMP BONNEVILLE
Small Range Berms and Fire Support Areas

BACKGROUND

The Department of the Army used Camp Bonneville for live fire of small arms, assault weapons, and field and air defense artillery between 1910 and 1995. Investigations to characterize and cleanup areas of contamination have been ongoing at Camp Bonneville. Berms at the firing ranges were used as a safety feature behind the targets and served as the impact areas for lead bullets. The fire support areas are in the vicinity of the firing lines where brass casings and/or residuals from live loads may have accumulated. The earthen berms and some support areas soils are expected to contain elevated levels of lead. Proposed activities include the excavation, screening, and sorting of soil from berms and fire support areas, and the grading of the former firing ranges to match surrounding topography after clean up is complete.

PROJECT DESCRIPTION

Excavation will occur based on one, or a combination of, four scenarios: 1) Earthen Berm Excavation; 2) Pop-Up Target Excavation; 3) Hillside Berm Excavation; or 4) Impact Zone Excavation.

SCENARIO 1 – EARTHEN BERMS
(Rifle Ranges 1 & 2; Field Fire Ranges 1 & 2; Field Ranges 1 & 2; 25-meter Machine Gun Range; Undocumented Pistol Range (Figure 1))

Removal action will involve excavation of any identified “hot spot” areas and approximately the front 2 feet of each berm face and top, and a six-inch lift off of the back. Soil samples will be taken to determine the necessity of removing an additional 1-foot lift from the berm face.

All excavated soil will be screened to remove bullets, brass casings, other metal, organic material, and rock. The screening equipment will have multiple screen sizes to remove various size materials. The last screen will have ¼” opening size to capture bullet-sized metal. Screened soils will be stockpiled into one of six different piles, as follows:

- Rocks, Gravel, Vegetation
- Hot Spot Soils
- < 50 mg/Kg Soil
- 50 ≤ 250 mg/Kg Soil
- 250 ≤ 1000 mg/Kg Soil
- 1000+ mg/Kg Soil

Appropriate disposal/recycling options will be selected based on the measured lead concentrations from each of the stockpiles. Metal collected during screening operations will be recycled and/or disposed of appropriately off-site. Based on laboratory analysis the soil samples of the above stockpiles, the soils will be characterized into one of three following categories:

- Category 1 – soils with Toxic Characteristics Leaching Procedure (TCLP) lead concentrations greater than 5 mg/L. These soils will be transported to a licensed landfill for stabilization and disposal.
- Category 2 – soils with maximum lead concentrations greater than 50 mg/Kg and TCLP lead concentrations less than 5 mg/L. These soils will be recycled or disposed of at an appropriate landfill.
- Category 3 – soils with maximum lead concentrations less than 50 mg/Kg and TCLP lead concentrations less than 5 mg/L. These soils will remain on site and be used for contour grading purposes.

Berm Face Excavation – An X-ray fluorescence spectrometer (XRF) will be used to determine lead concentrations in the remaining berm face after hot spot areas have been removed. The berm will be divided into 15-foot sections and two samples for XRF analysis will be collected in the center of each section. The XRF results will be used to segregate the soils into four lead concentration groups (<50 mg/Kg; 50 ≤ 250 mg/Kg; 250 ≤ 1000 mg/Kg; 1000+ mg/Kg). The berm soils will be excavated, screened, and stockpiled based on the concentrations of lead in each berm section.

After the 2-foot soil lift is removed from each berm, the surface and near-surface soils will be visually inspected for bullets. If no bullets are observed, soil samples will be collected from each section, sieved with a 2 mm screen, and analyzed for lead using the XRF. Samples below cleanup levels will be submitted for confirmation laboratory analysis. A berm section is considered "clean" if both XRF sample results for lead concentration are below 50 mg/Kg. Excavation of the sections along the berm face will continue until no bullets are encountered and the XRF analysis determines remaining soils are below the cleanup level.

Fire Support Areas - A 6-inch soil lift will be removed from fire support areas (e.g. range floors). The soil removal will occur across an area 20 feet wide by the length of the firing line. The 20-foot section will extend from 5 feet in front of the firing line to 15 feet behind the firing line. Excavated soils will be screened and stockpiled separate from the berm soils.

Excavation outside of the identified 20-foot wide section identified above will be based on the results of confirmatory sampling. If elevated levels of lead are identified an additional adjoining area will be excavated. This will continue until sample results for lead concentration are below 50 mg/Kg.

Sample Grid Areas - During soil sampling at the site a number of samples displayed elevated levels of lead. Grids identified during the soil sampling will be excavated as follows:

- A six-inch soil lift will be excavated from the entire 58x58 foot grid when average lead soil concentrations exceed 250 mg/Kg (4 of 307 grids)
- A six-inch soil lift will be excavated from a 29x29 foot area around the sample point when the average soil lead concentrations are greater than 50 mg/kg but less than 118 mg/kg with no indivudal sample contains greater than 250mg/kg. Or where the average lead concentration per grid is >118 mg/Kg but less than 250 mg/Kg. (24 of 307 grids) Confirmatory sampling will occur at each edge of the hot spot excavation area and from the center point.

  If necessary, an additional 6-inch soil lift will be removed from a 14.5x 29 foot section.
  - No excavation will occur in areas where samples displayed lead levels below 50 mg/Kg, or where lead concentrations average less than 50 mg/Kg and where no single sample from a grid exceeds 118mg/kg. (139 of 307 grids)

Grading – When laboratory results confirm the lead concentration in the berm soils are below 50 mg/Kg, the remaining berm will be graded to match surrounding contours. Organic material and rocks stockpiled during sieving will be combined with clean soils and remain on site. All graded sites will be reseeded.

Exceptions - Berm 1 at the 25-meter Machine Gun Range will be completely removed because it was likely reworked over the years and is, thus, potentially contaminated deeper than the 2-feet proposed for removal on all other berms. Additionally, the top 6 inches of soil in the area behind the main range berm will be removed. Lead bullets are visible on the ground surface and it appears as though the hillside may have been used as the target prior to construction of the berm

SCENARIO 2 – POP-UP TARGET BERMS
(Rifle Ranges 1 & 2; Field Fire Ranges 1 & 2; Combat Pistol Range (Figure 1))

The pop-up target berms will be completely removed. In addition, a 6-inch (0.5-ft) soil lift will be removed from an approximate 15-foot radius from the center of the concrete target. The area within the 15-foot

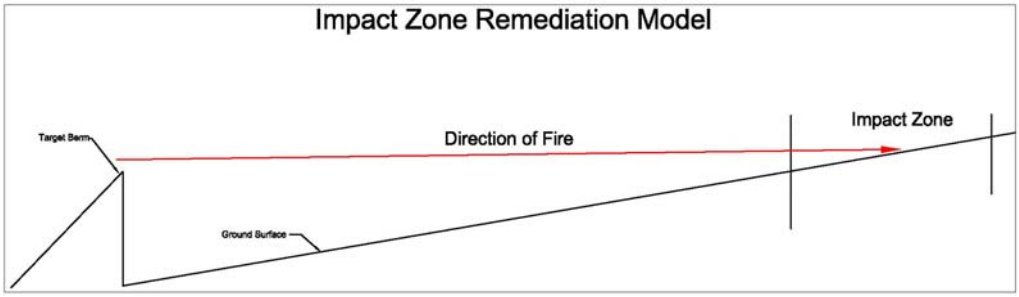
radius will be surface cleared using Shoenstedt's hand-held magnetometers. If nothing is discovered in the area behind the target, soil within that area will not be removed. The soil will be processed and the area graded as described above under Scenario 1.

SCENARIO 3 – HILLSIDE BERMS
(25-meter M60/Pistol Range; 25-meter Record Firing/Field Firing Range; Combat Pistol Range; 1,000-inch Rifle Range/Machine Gun Range (Figure 1))

The target berm located in front of the hillside will be completely removed. In addition, the front of the hillside will be excavated, processed, and the area graded as described above under Scenario 1.

SCENARIO 4 – IMPACT ZONE
(Rifle Ranges 1 & 2 (Figure 1))

At this range, additional pop up targets were placed on a target berm across the pop up pond. The identified impact area behind the target berm will be excavated until clean material is left. The impact zone is the area behind the target berm where the trajectory of the bullet would land assuming it missed the target berm. The impact zone will be excavated, processed, and the area graded as described above under Scenario 1.

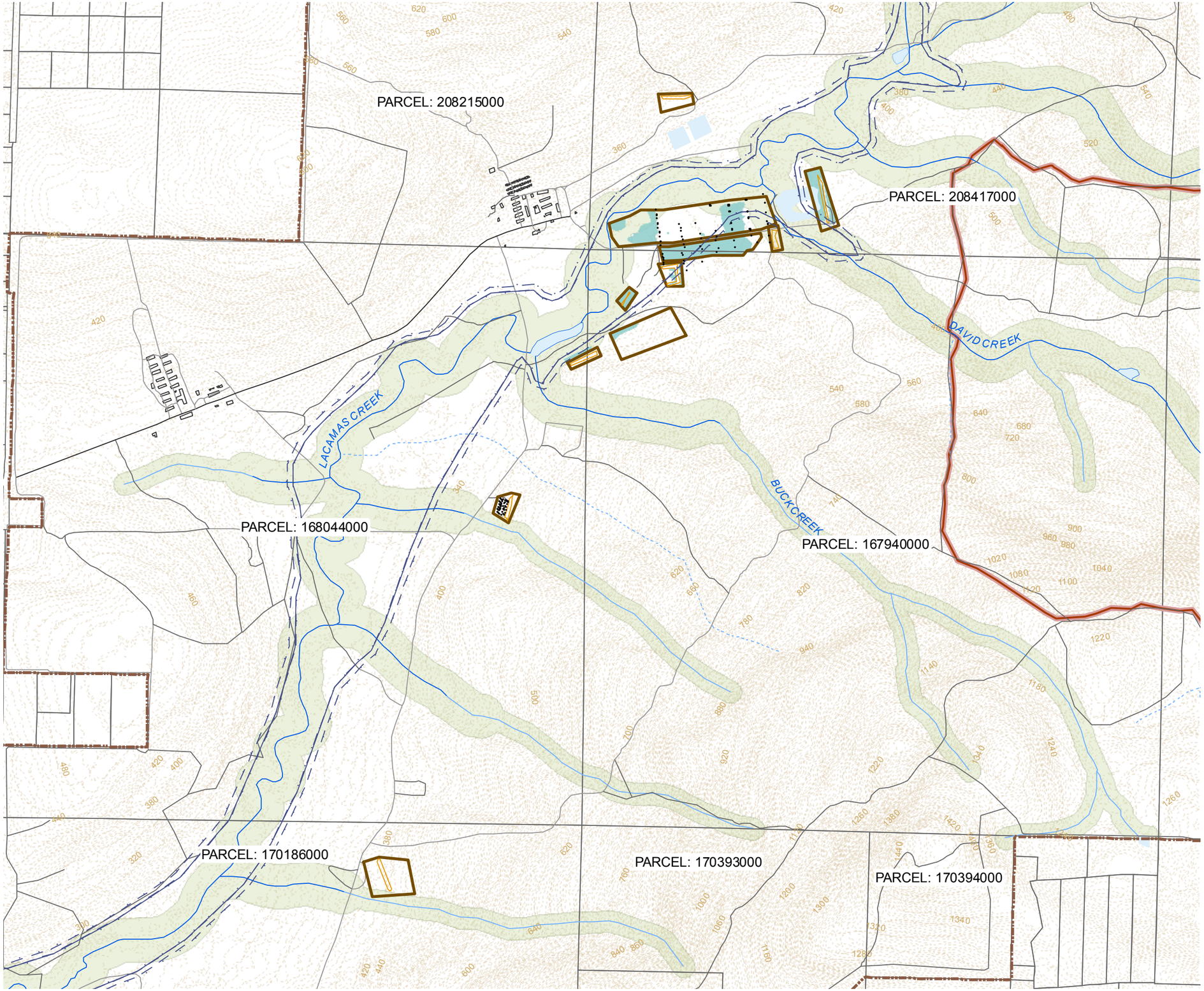


SECTION 3

WETLAND DELINEATION REPORT

WETLAND RATING FORM (APPENDIX D OF DELINEATION REPORT)

SECTION 4
EXISTING CONDITIONS MAP



Legend

- Camp Bonneville
- Central Impact Target Area
- Firing Ranges
- Berms
- Pop-up Berms
- Riparian Habitat Buffer
- Flood Transition Area
- Floodway Fringe
- Tax Lots
- Contours

Roads & Trails

- Paved
- Dirt
- Gravel
- Dirt Trail

Streams

- Fish
- Non-Fish
- Unknown
- Water Bodies and Ponds
- Wetlands

N

0 450 900 Feet

Data Sources: Clark County GIS (August 2006); Wetland boundaries marked in the field using a Trimble Geo XT GPS. Camp Bonneville layers provided by Michael Baker Jr., Inc. and MKM Engineers, Inc.

PBS

BCRRT

BONNEVILLE CONSERVATION, RESTORATION & RENEWAL TEAM, LLC

CAMP BONNEVILLE

23201 NE PLUSS ROAD
CLARK COUNTY, WASHINGTON

EXISTING CONDITIONS MAP

PROJECT: 70489.000

JULY 2007

FIGURE: 1

PBS

Wetland Delineation Report

Camp Bonneville, Small Arms Firing Ranges
Clark County, Washington

Prepared for:
Michael Baker Jr., Inc.
Crown Point, Indiana

July 2007
Project No.: 70489.000, Task 520K

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WETLAND DELINEATION REPORT

Camp Bonneville – Small Arms Firing Ranges
TPN: 168044-000, 167940-000, and 208417-000
Clark County, Washington

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PBS Project No.: 70489.000, Task 520K

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1.0 INTRODUCTION

PBS Engineering and Environmental (PBS) was contracted by Michael Baker Jr., Inc. (Baker) to delineate wetlands within specific areas of the 3,840-acre Camp Bonneville property in Clark County, Washington. The Bonneville Conservation, Restoration & Renewal Team (BCRRT) currently owns the property. BCRRT is working to characterize and cleanup areas of contamination at the former military site. PBS biologists, Jason Clark and Caroline Stimson, conducted the fieldwork on June 26 - 29, 2007.

The delineation was conducted using a modified version of the Comprehensive Determinations procedures in the Washington State Wetlands Identification and Delineation Manual (Ecology 1997). Wetland boundaries were determined based solely on the composition of the plant communities and visually observable surface hydrology indicators due to the hazards associated with digging holes on the site.

The wetland boundaries described in this report are PBS's best professional opinion based on the circumstances and site conditions encountered at the time of this study. The final determination of the wetland boundary, classification, and required setback and buffer will be made by local, state, and federal jurisdictions.

2.0 SITE DESCRIPTION

2.1 Location

Camp Bonneville is located on the western slopes of the Cascade Mountains in the Lacamas Creek Valley in Clark County, Washington, approximately 15 miles northeast of Portland, Oregon and approximately 10 miles northeast of Vancouver, Washington. The entrance to Camp Bonneville is located at 23201 NE Pluss Road. The site occupies approximately 3,840 acres in sections 34 and 35, Township 3 North, Range 3 East, and sections 1, 2, 3 and 10, Township 2 North, Range 3 East, Willamette Meridian (Figure 1).

The study areas are within identified small arms firing ranges at the site. This area consists of tax parcels 168044-000, 167940-000, and 208417-000 (Figure 2).

2.2 Site Description

Most of the site is currently undeveloped. Camp Bonneville itself is comprised of two small cantonment areas (Bonneville Cantonment and Killpack Cantonment) that together cover about 30 acres. The remainder of the installation includes 18 training areas, 28 firing ranges, and a 1,500-foot long helicopter landing area. Some portions of the site consist of managed forest. Adjacent, surrounding land use is predominantly agricultural, rural residential, and forest.

The western edge of the installation is within the Fifth Plain area, which is generally flat. Elevations at the installation range from approximately 300 feet above sea level (along Lacamas Creek) to about 1,640 feet in the southeastern corner of the installation.

2.3 Hydrology

The major sources of water in the project area are precipitation, ground water, and Lackamas Creek with its associated tributaries and sloughs. Some of the project area is within the mapped floodway fringe of Lacamas Creek.

Clark County has a predominantly temperate marine climate typical of much of the west coast. Summers are warm and relatively dry, and winters tend to be mild, but rather wet. The coastal mountains protect the county from the intense winter storms common on the coast. Mean high temperatures for Vancouver, Washington, range from 46°F in December to 79°F in August. Mean low temperatures range from 32°F in January to 50°F in August. Precipitation was below the normal range for June 2007. Precipitation levels are considered normal when they fall between figures for which there is a 30% chance of more than that amount and a 30% chance of less than that amount (Table 1). For the month of June 2007, the area received less rainfall than average and total precipitation was lower than the normal range. In June 2007, rainfall was 0.66 inches below the average of 1.74 inches (Table 1). Daily precipitation totals for the two weeks prior to the day of fieldwork are listed in Table 2.

Table 1: Monthly precipitation data for Vancouver, Washington.
(WETS data for Vancouver 4 NNE, NRCS 2007
and NOAA National Weather Service Forecast Office 2007)

	Precipitation (inches)			
		1971-2000		
		30% chance will have		
Month	Recorded Totals	Less than	More than	Average
July-06	0.47	0.31	0.99	0.80
August-06	0.10	0.39	1.29	1.06
September-06	0.86	0.71	2.20	1.76
October-06	1.40	1.93	3.99	3.28
November-06	11.92	4.23	7.52	6.29
December-06	5.85	4.44	7.50	6.32
January-07	2.72	3.83	6.97	5.81
February-07	3.47	3.45	5.72	4.84
March-07	3.20	3.32	4.84	4.21
April-07	2.01	2.23	3.62	3.07
May-07	1.45	1.69	3.18	2.64
June-07	1.08	1.14	2.09	1.74

Table 2: Daily precipitation totals for Vancouver one week prior to and during fieldwork.
(NOAA National Weather Service Forecast Office 2007.)

June-07	18-Jun	19-Jun	20-Jun	21-Jun	22-Jun	23-Jun	24-Jun	25-Jun	26-Jun	27-Jun	28-Jun	29-Jun
Precipitation (in.)	0.00	0.00	0.00	0.00	trace	trace	0.16	0.00	0.00	0.00	0.07	0.03

2.4 Mapped Soils

The Clark County Soil Survey shows four soil map units in the study area identified for this project (Figure 4).

- Hesson Clay Loam, 0 to 8 percent slopes (HcB)
- McBee Silty Clay Loam, 0 to 3 percent slopes (MeA)
- Olympic Stony Clay Loam, 3 to 30 percent slopes (OmE)
- Olympic Stony Clay Loam, 30 to 60 percent slopes (OmF)

None of the soils are classified as hydric, however, the Hesson and McBee units have inclusions of hydric soils (NRCS 2001). Most of the study areas are within the McBee unit.

The Hesson Series consists of deep, well drained soils, mostly level to gently rolling with some areas that are hilly and very steep. The parent material is deeply weathered, mixed old alluvium containing varying amounts of gravel. The surface layer is about 8 inches thick and consists of a dark reddish-brown (5YR 2.5/2) clay loam. It is underlain by about 4 inches of a dark reddish-brown (5YR 3/2) clay loam. The next 10 inches consists of a friable, dark reddish-brown (5YR 3/3) clay loam. The substratum is a reddish-brown (5YR 4/4) clay.

The McBee Series consists of deep, somewhat poorly drained and moderately well drained, nearly level to gently sloping soils. These soils formed in alluvium derived from quartzite and basalt and are found in back-bottom positions along streams and rivers. The surface layer is silty clay loam about 11 inches thick. It is very dark brown (10YR 2/2) in the uppermost part and dark brown (10YR 3/3) in the lower part. The next layer is about 41 inches thick and consists of (top down): very dark reddish-brown (5YR 3/2) silty clay loam; dark brown (7.5YR 4/4) silty clay loam; and grayish-brown (10YR 5/1) and dark yellowish-brown (10YR 4/4) silty clay loam. The underlying material (to 65 inches) is gray (10YR 6/1) and brown (7.5YR 4/4) clay.

The Olympic Series consists of well drained, gently sloping to very steep soils underlain by basalt bedrock. These soils formed on mountainous foot slopes in weathered igneous lava flows. The surface layer is about 13 inches thick and consists of dark reddish-brown (5YR 3/2) clay loam. The subsurface layer is 46 inches thick and consists of, in sequence from the top, a friable, dark reddish-brown (5YR 3/2) clay loam (7 inches); reddish-brown (5YR 4/4) heavy silty clay loam (12 inches); firm, reddish-brown (5YR 3/2) heavy clay loam (12 inches); and the lower 15 inches is very firm, dark brown (7.5YR 4/4) gravelly clay loam. The underlying material is weathered basalt bedrock (McGee 1972).

2.5 Plant Communities

The plant communities in the study area have been affected by a history of disturbance and regular mowing that ceased when the area was vacated by the military in 1997. The vegetation includes wetland and upland herbaceous communities, wetland forest, wetland scrub-shrub, and upland coniferous forest. Upland areas were primarily dominated by non-native grasses and forbs including sweet vernal grass (*Anthoxanthum odoratum*), spreading bentgrass (*Agrostis stolonifera*), ox-eye daisy (*Leucanthemum vulgare*), wild carrot (*Daucus carota*), and spotted cat's-ear (*Hypochaeris radicata*). Some upland areas had significant cover of trailing

blackberry (*Rubus ursinus*) and some had Douglas-fir (*Pseudotsuga menziesii*) saplings and poles. Upland portions of Study Areas C and D contain Douglas-fir dominated forest. Wetland plant communities ranged from emergent communities dominated by sedges (*Carex spp.*), rushes (*Juncus spp.*), and various grass species to areas with young saplings and shrubs that have emerged since the cessation of mowing on the site. These include red alder (*Alnus rubra*), Oregon ash (*Fraxinus latifolia*), Douglas's spirea (*Spiraea douglasii*), and clustered rose (*Rosa pisocarpa*).

3.0 METHODS

The delineation was conducted using a modified version of the Comprehensive Determinations procedures in the Washington State Wetlands Identification and Delineation Manual (Ecology 1997). Wetland boundaries were determined based solely on the composition of the plant communities and visually observable surface hydrology indicators. No holes to examine soils and subsurface hydrology indicators were dug because the ranges have not been cleared of munitions and explosives of concern (MEC) and there are hazards associated with digging holes on the site. Transects were spaced 75 to 100 feet apart and sample plots were placed every 75 feet along the transects. Vegetation was examined and recorded at each sample point. The vegetation was examined in three strata: herbaceous ground cover, shrubs, and trees. Visual estimates of percent cover of each species occurring within a sample plot were made for each stratum. Cover for trees, saplings, and shrubs (where present) was estimated within a 10-meter radius of each sample point. Cover for herbs was estimated within a 1-meter square plot placed immediately southwest of the sample point. Raw cover of each species was converted to relative cover for each stratum in the field or during data processing.

Dominance was determined using the 50/20 rule. Dominant plant species for each stratum are those that cumulatively make up the most abundant 50 percent (relative cover), plus any additional species with 20 percent or more cover. In most cases, a 15% raw cover threshold was used as a criterion for dominance in addition to the 50/20 rule. The wetland indicator status for each dominant plant species was used to determine the presence or absence of a wetland (hydrophytic) plant community based on the National List of Plant Species that Occur in Wetlands: Northwest Region 9 (Reed 1988, 1993). Where more than 50% of the dominant species were FAC or wetter, the plot was identified as having a hydrophytic plant community, and therefore designated as wetland. Where less than 50% of the dominant species were FAC or wetter, the plot was designated upland. Where exactly 50% of the dominant species were FAC or wetter, best professional judgment was used to designate the plot as wetland or upland. Professional judgment took into account the non-dominant species present in the plot and visual indicators of surface hydrology.

Preliminary preparation prior to the on-site investigation consisted of collecting and reviewing existing data and information that included the following:

- USGS Topographic Map, Battle Ground 7.5-minute Quadrangle (1975)
- Clark County tax lot information (Figure 2)
- Aerial photographs (Figure 3)
- Clark County soil survey and hydric soils list (Figure 4)
- National wetland inventory map (Figure 5a)
- Local wetland inventory map (Figure 5b)

- Clark County's Potential Wetland Area Map for Camp Bonneville (Figure 6)

The study areas were identified based on the range locations or portions of ranges that were within the boundary of Clark County's Potential Wetland Area Map for Camp Bonneville (Figure 6). This area was identified by Clark County based on site topography and the NWI and LWI maps. Portions of the ranges that fell outside this boundary were excluded from the investigation because they were clearly upland due to a rise in topography and corresponding change in vegetation.

Delineation fieldwork was conducted on June 26-29, 2007. Data were recorded for 198 sample plots. Sample plots were sited along transects to establish the location of the wetland boundaries. Other criteria, such as topography and visible hydrologic indicators, were also used. Each sample plot was marked in the field using pink wire flags or pink flagging ribbon (depending on the vegetation) labeled with the transect number and the plot number (e.g., T1, P1 for Transect 1 Plot 1). The wetland boundary was marked in the field using pink wire flags or pink flagging ribbon and a predefined labeling system. Wetland boundary flags were labeled with the name of the identified wetland plus sequential numbers going in a counter clockwise direction (e.g., A1-1, A1-2, and so on). PBS located the wetland boundary markers and sample plot locations with a Trimble GeoXT, a GPS unit with sub-meter accuracy after post-processing and differential corrections.

4.0 RESULTS

4.1 National and Local Wetlands Inventories

The National Wetlands Inventory and Clark County Local Wetland Inventory shapefiles provided by the Clark County GIS Department (2007) identified wetlands within portions of the identified study areas (Figure 5a and 5b). These did not identify most of the area delineated as wetland during this investigation.

4.2 Growing Season

The Natural Resources Conservation Service (NRCS) currently defines the growing season as that portion of the year when soil temperatures at 20 inches below the soil surface are higher than biological zero (41°F or 5°C). When soil temperature data are not available, the Wetland Delineation Manual allows using the closest and best available weather station data to estimate the length of the growing season based on a 50% probability of a temperature of 28°F or higher (Ecology 1997, paragraph 46).

Based on the 28° standard and climatic data for Vancouver, Washington (NRCS 2005), the growing season is approximately 292 days at least 50 percent of the time, extending from February 11 to December 1 (McGee 1972). Native plants in the study area were actively growing at the time of the site visit in June 2007.

4.3 Delineated Wetlands

PBS investigated each study area for wetlands and waters of the state. Twelve wetlands were delineated during the investigation. The wetlands were named with the letter of the identified study area (A through H) and a number (e.g., Wetland A1, A2, and A3). In most cases, the identified wetlands extend beyond the boundaries of the study areas. The combined area of wetlands occurring within the study areas under the jurisdiction of Clark County and the US Army Corps of Engineers is 7.68 acres.

The wetlands varied in the apparent level and duration of inundation and saturation. The wettest areas contained a dominance of sedges, small-flowered bulrush (*Scirpus microcarpus*), spikerush (*Eleocharis sp.*), or often had saplings of Oregon ash. Facultative (FAC) grasses (e.g., *Agrostis stolonifera*) occurred in and out of the wetlands, as did facultative upland (FACU) species (e.g., *Anthoxanthum odoratum* and *Cirsium arvense*). Common rush (*Juncus effusus*) is also present both in and out of the wetlands, and while thriving in moist conditions, did not appear to be a reliable indicator on this site given the history of disturbance. The upland boundary was often determined by the dominance of ox-eye daisy (*Leucanthemum vulgare*), sweet vernal grass (*Anthoxanthum odoratum*), spotted cat's-ear (*Hypochaeris radicata*), Virginia strawberry (*Fragaria virginiana*), and wild carrot (*Daucus carota*).

Wetland A1

Wetland A1 is in the northeastern portion of Study Area A and covers 1.29 acres. The topography consists of a gentle swale that conducts water north towards the creek, although it infiltrates short of the creek and the wetland does not connect to it. The vegetation is sparse with bare cracked soil exceeding 50% in some areas. Common plant species include: soft rush (*Juncus effusus),* taper-tip rush (*Juncus acuminatus*), bog St. John's-wort (*Hypericum anagalloides*), hairy cat's-ear (*Hypochaeris radicata*) and pointed broom sedge (*Carex scoparia*). Douglas-fir (*Pseudotsuga menziesii*) and red alder (*Alnus rubra*) saplings are encroaching near the eastern boundary of the wetland.

Wetland A2

Wetland A2 is on the west side of Study Area A and covers 1.00 acre of the study area. This wetland lies on a generally flat plain with subtle undulations at the base of a slope between the road and the creek. It is diversely vegetated including patches of slough sedge (*Carex obnupta*), common rush (*Juncus effusus*), pointed broom sedge (*Carex scoparia*), red fescue (*Festuca rubra*), and common velvet grass (*Holcus lanatus*). Canada thistle (*Cirsium arvense*) is fairly dense in some areas and often mixed with slough sedge. Ox-eye daisy, orchard grass (*Dactylis glomerata*), sweet vernal grass, spotted cat's-ear, and meadow knapweed (*Centaurea pratensis*) are present in areas but generally with low amounts of cover. Cluster rose is present in scattered patches. One small group of red alder is present near the center of the wetland. Most of the water collected in this wetland infiltrates into the soil, although the wetland does appear to connect to Lacamas Creek and wetlands south of the road.

Wetland A3

Wetland A3 is at the northwest corner of Study Area A and covers 0.26 acres of the study area. This wetland borders Lacamas Creek. The vegetation is strongly dominated by creek dogwood (*Cornus sericea*) with buckthorn cascara (*Rhamnus purshiana*) and vine maple (*Acer circinatum*) scattered along the edge. There is a large red alder near the center on the bank of the creek along with several saplings.

Wetland B1

Wetland B1 covers 2.68 acres of Study Area B and thus occupies the majority of it. This is a wetland mosaic with approximately 20% inclusions of small upland areas. Since the site was last mowed, Oregon ash, Douglas's spirea, and cluster rose have colonized the site,

occasionally in dense patches or as scattered individuals. The ash was generally less than 10 feet tall, while the spirea was often 4 to 6 feet. Trailing blackberry (*Rubus ursinus*) is common. In the herbaceous layer, there is a scattered distribution of slough sedge and common rush. The more open areas generally appear dryer and contain ox-eye daisy, spotted-cat's ear, wild carrot, self heal (*Prunella vulgaris*), Canadian goldenrod (*Solidago canadensis*), sweet vernal grass, and California oatgrass (*Danthonia californica*). Areas of bare soil typically have a cracked crust on the surface indicating recent inundation. Reed canarygrass (*Phalaris arundinacea*) is growing on and around the pop-up mounds that were used in training. Small-flowered bulrush occurs in a few patches. In the lowest area next to the road across from Wetland A1, the area was inundated.

Wetland C1

Wetland C1 occurs along the northern edge of Study Area C, but not within it. Study area C runs along the edge of Douglas-fir forest and contains a few red alder along its perimeter. The wetland covers a broad area and appears to connect to the creek in some places. Red alder, cluster rose, and Douglas's spirea occur in patches within a matrix of FAC and FACW grasses including reed canarygrass, common velvetgrass (*Holcus lanatus*), and slender hairgrass (*Deschampsia elongata*).

Wetland D1

Wetland D1 is in the northwest corner of Study Area D and covers 0.22 acres. The wetland lies on the edge of the flat valley floor abutting the Douglas-fir forest on the adjacent slope. The vegetation is a red alder dominated forest with a diversity of hydrophytic shrubs including creek dogwood, salmonberry (*Rubus spectabilis*), and twinberry honeysuckle (*Lonicera involucrata*). The herb layer contains lady fern (*Athyrium filix-femina*), western swordfern (*Polystichum munitum*), Siberian miner's lettuce (*Claytonia sibirica*), and common monkey flower (*Mimulus guttatus*).

Wetland E1

Wetland E1 covers 1.49 acres of Study Area E and occupies the entire area north of the road, with the exception of the berm. The inundated edge of the pond along the west side of the study area is dominated by creeping spikerush (*Eleocharis palustris*). This grades into slough sedge, taper-tip rush (*Juncus acuminatus*), and patches of Douglas's spirea and red alder along the base of the berm. The berm is vegetated predominantly with FACU species and is steeply sloped along the west side rising approximately 12 feet from the surrounding land. A constructed wall supports the east side of the berm. The northern portion of the study area adjoins an extensive area of wetland forest and scrub-shrub thicket.

Wetland G1

Wetland G1 covers 251 square feet (0.01 acre) in the northwest corner of Study Area G. The wetland consists of a ditch that runs along the east side of an old road track west of the adjacent slope. The vegetation contains an abundance of small-fruited bulrush along with slough sedge, common velvet grass, pointed broom sedge, and large-leaf avens (*Geum macrophyllum*). Saplings of Oregon ash, Douglas's spirea, and Himalayan blackberry are also present. The ditch drains to the south where it merges with wetland forest and scrub-shrub thickets.

Wetland G2
Wetland G2 consists of areas inside and outside of the horseshoe-shaped berm in Study Area G. It covers 0.31 acres of the study area. The berm rises 15 to 25 feet from the surrounding ground and is very steeply sloped. It is densely covered with common horsetail (*Equisetum arvense*), grasses, and Himalayan blackberry. The interior portion of the wetland is dominated by common rush (*Juncus effusus*) and lesser amounts of Canada thistle. Several Douglas's spirea and a few Oregon ash, red alder, and cascara are also present. To the north lies Wetland B1. To the east lies an extensive area of inundated Douglas's spirea thicket. To the south, there is wetland forest of Oregon ash, red alder, and Sitka willow (*Salix sitchensis*) with native shrub and herb layers. The portion inside the berm connects to the portion outside the berm in the southwest corner of the study area.

Wetland H1
Wetland H1 consists of all of Study Area H covering 0.42 acres. The wetland is drier to the north with the boundary not far beyond the edge of the study area. It gets wetter to the south where the study area adjoins a spirea thicket. Small trees and shrubs dominate the south edge including red alder, cascara, Oregon ash, creek dogwood, cluster rose, and Douglas' spirea with slough sedge sparse in the understory. The open area contains scattered patches of cluster rose and a mix of herbaceous species including slough sedge, sweet vernal grass, common velvet grass, self heal, and English plantain (*Plantago lanceolata*). The berm is a low mound approximately 2 feet tall supported by a wooden wall on the south side, but is dominated by hydrophytic vegetation.

Isolated Wetlands
Two small, isolated wetlands were identified within Study Area A. Wetland A4 is 144 square feet and consists of slough sedge with minor amounts of trailing blackberry, red fescue, and ox-eye daisy. Wetland A5 is 400 square feet and contains slough sedge with common rush and common velvet grass around the edge and several Oregon ash saplings.

4.4 Wetland Functional Values and Wetland Categories
The Washington Department of Ecology and Chapter 40.450.020 of the Clark County Code require the use of the Washington State Wetlands Rating System for Western Washington (Hruby 2004) to determine wetland categories. This system assesses values for water quality, hydrologic, and habitat functions. The values for these wetland functions are shown in Table 3. For the purposes of the wetland rating system, the entire wetland is rated as a whole, not just the portion that occurs within a given study area. Wetlands A1, A2, A3, B1, C1, D1, G1, G2, and H1 were rated together because they are connected to each other outside the boundaries of the study areas and are part of a valley bottom wetland complex that covers approximately 22 acres. Wetland E1 is also part of a larger wetland covering approximately 18 acres. Wetlands A4 and A5 were rated individually, because they are not connected to other wetlands and are considered isolated.

The valley bottom wetland complex includes nine of the delineated wetland areas within the study areas (A1, A2, A3, B1, C1, D1, G1, G2, and H1) and scored high for water quality, hydrologic, and habitat functions. The potential for water quality functions is enhanced by the seasonal ponding in some areas and the unmowed, ungrazed vegetation, while the presence of

lead in the soil provides the opportunity for pollutants to be filtered. The potential for hydrologic functions is enhanced by the depth of water storage and the intermittent outlet of the wetland, while flooding issues on Lacamas Creek provide the opportunity for the wetlands to reduce peak flows. The habitat functions are enhanced by the variety of vegetation types, habitat interspersion, high species diversity, and natural buffers with connectivity to other habitats and wetlands. Based on the results of this analysis, the wetland meets the criteria of a Category 2 wetland.

Wetland E1 has many of the same characteristics as those described above and scored the same for water quality and habitat functions. It scored slightly higher for hydrologic functions because of the depth of water storage in the pond. It also meets the criteria of a Category 2 wetland.

Wetlands A4 and A5 are very similar and scored the same for each function. The water quality score was relatively high because the wetlands are a depression with no outlet, they have persistent, ungrazed, unmowed vegetation, and because lead in the soils provides the opportunity for them to contribute to water quality. They scored slightly lower than those above because they are shallow depressions and lack significant seasonal ponding. The hydrologic score was also limited by the lack of water storage. The habitat functions were limited by the single vegetation type, absence of habitat interspersion, and low species diversity. Based on the results of this analysis, A4 and A5 meet the criteria of Category 3 wetlands.

Table 3. Functional values for wetlands delineated at Camp Bonneville.

Wetland	Water Quality	Hydrologic	Habitat	Total Score	Category
A1, A2, A3, B1, C1, D1, G1, G2, H1	18	10	31	59	2
E1	18	14	31	63	2
A4	16	6	11	33	3
A5	16	6	11	33	3

5.0 CONCLUSION

5.1 Summary

The identified study areas within the Camp Bonneville property contain twelve wetlands. Nine of these wetlands are hydrologically connected to each other and are part of a valley bottom wetland complex. Wetland E1 is also part of a larger wetland. Small, isolated wetlands, such as Wetlands A4 and A5, will not likely be regulated by the US Army Corps of Engineers (Corps) or Clark County, but are regulated by the Washington State Department of Ecology (See Section 5.2 below). The total area of the ten wetlands occurring within the identified study areas that are under the jurisdiction of the Corps and Clark County is 7.68 acres. Wetlands A4 and A5 have a combined area of 544 square feet (0.012 acres). The wetland boundaries

identified in this study were based on the presence of wetland plant communities, and visual surface hydrology indicators within the wetlands, and conditions in adjacent areas lacking indicators of one or more of the wetland criteria.

5.2 Regulatory Context

Wetlands are regulated as "Waters of the United States" by the US Army Corps of Engineers (Corps) under § 404 of the Clean Water Act, as "waters of the state" by the Washington Department of Ecology (Ecology) under Washington's Water Pollution Control Act (Chapter 90.48 RCW) and associated water quality regulations (Chapter 173-201A WAC), and by Clark County under its Wetland Protection Ordinance (Chapter 40.450).

The Corps regulates wetlands that are "tributary to navigable waters," which excludes most isolated wetlands. The Clark County Code exempts isolated Category 3 wetlands less than 2,500 square feet from regulation (Chapter 40.450.010C2a). Therefore, wetlands A4 and A5 fall outside the jurisdiction of the Corps and Clark County.

Washington State water quality regulations do not distinguish between isolated and non-isolated wetlands. Therefore, wetlands A4 and A5 fall under the jurisdiction of the Washington State Department of Ecology (90.48 RCW, Chapter 173-201A WAC).

5.3 Wetland and Water Body Buffer Requirements

The Clark County Code (Chapter 40.450.030E) prescribes regulatory buffers based on the score for water quality functions or habitat functions. The water quality buffer for Category 2 wetlands is 50 feet for low intensity use, 75 feet for moderate intensity use, and 100 feet for high intensity use.

The required buffers for habitat functions exceed the water quality buffer if the habitat score from the wetland functions assessment exceeds 19 points. Ten wetlands described in this report (A1, A2, A3, B1, C1, D1, E1, G1, G2, and H1) have a habitat score of 31 points. The habitat buffer for Category 2 wetlands with a habitat score of 31 or greater is 150 feet for low intensity use, 225 feet for moderate intensity use, and 300 feet for high intensity use.

5.4 Permits for Activities in Wetlands, Streams and Buffers

Clark County regulates activities in and adjacent to wetlands and their buffers through a Wetland Permit, and streams and their adjacent riparian areas through a Habitat Permit. The permit processes require submittal of a permit application along with a plan to mitigate for adverse effects of the proposed action. For temporary activities, such as clearing and grading associated with removing hazardous materials, restoring the wetland, buffer, and Habitat Area to pre-project conditions will likely satisfy mitigation requirements.

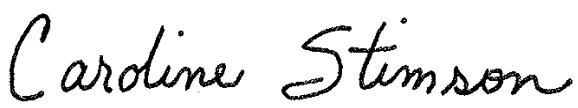
The Corps of Engineers allows temporary disturbance to regulated wetlands for cleanup of hazardous materials under Nationwide Permit 38. NWP 38 requires that the applicant notify the District Engineer 30 days prior to commencing activities in waters of the US and requires a mitigation plan for areas greater than 1/10 of an acre. Like the Clark County permits, restoration of the site to pre-project conditions will likely meet the mitigation requirement.

The Washington Department of Ecology will issue a Water Quality Certification under § 401 of the Clean Water Act for those wetlands under federal jurisdiction. For isolated wetlands not under jurisdiction of the Corps, Ecology requires that the applicant obtain an Administrative Order pursuant to the anti-degradation provisions of state water quality standards for surface waters.

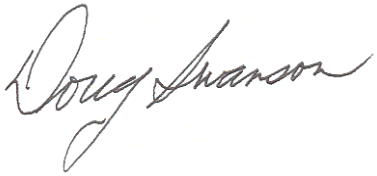
This wetland assessment report documents the investigation, best professional judgment and conclusions of PBS Engineering and Environmental. It is correct and complete to the best of our knowledge. It should be considered a Preliminary Jurisdictional Determination of wetlands and other waters until it has been reviewed and approved in writing by the appropriate jurisdictional authorities.

Respectfully submitted,

Jason Clark, MS
Botanist



Caroline Stimson
Botanist



Doug Swanson, PWS
Manager, Natural Resources

6.0 REFERENCES

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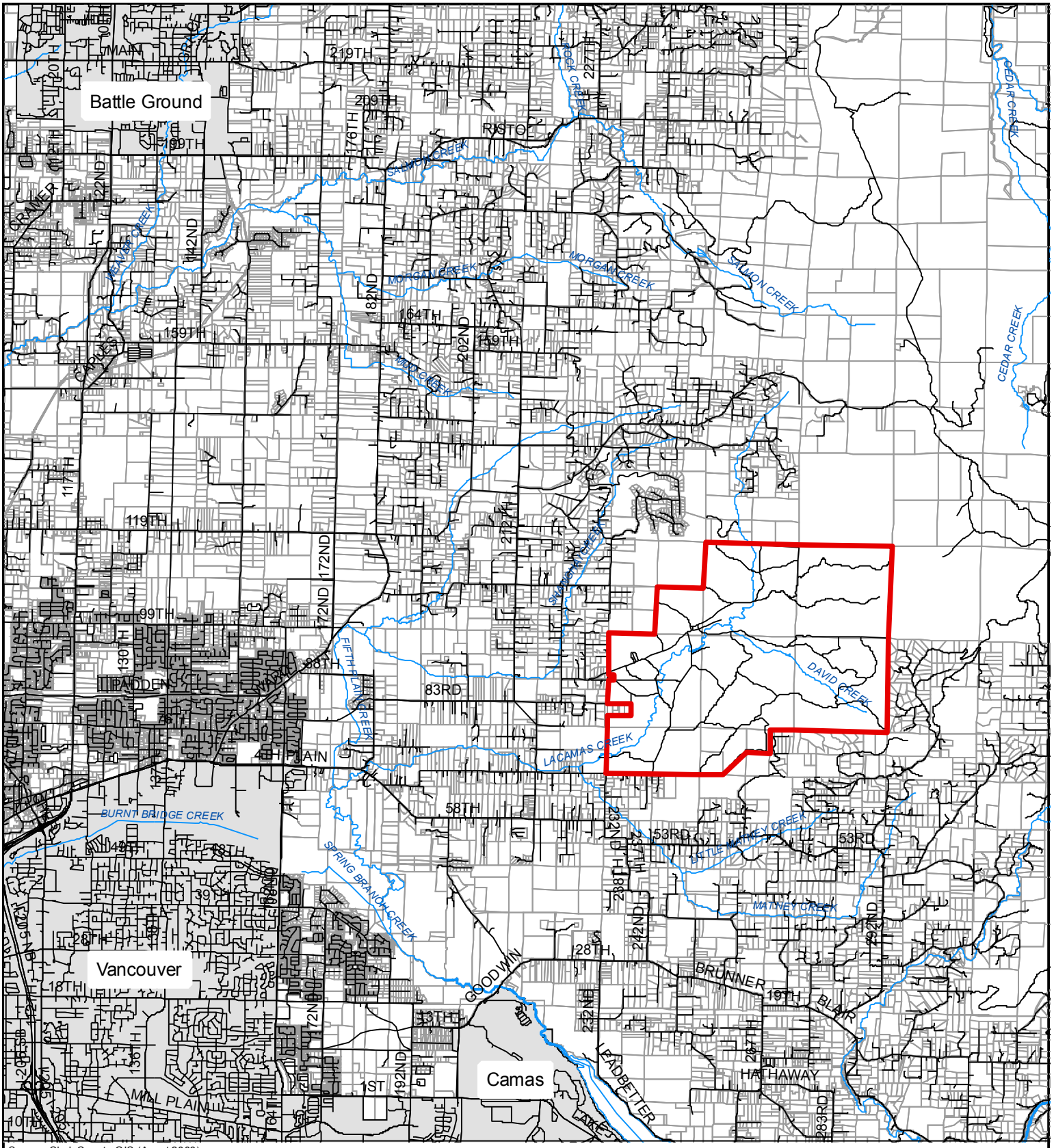
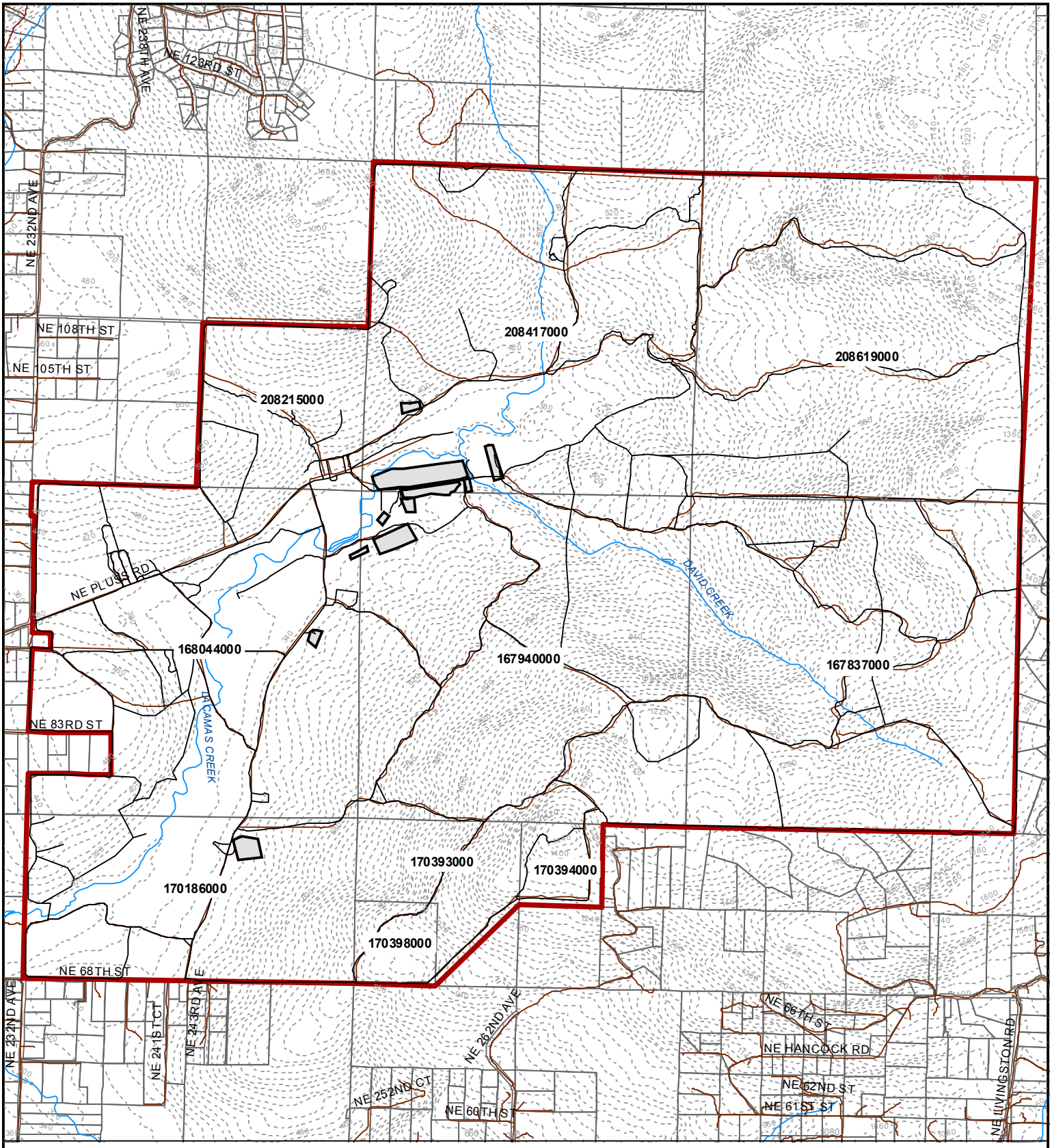
FIGURES



PBS	Project #: 70489.000 Date: JULY 2007	VICINITY MAP Camp Bonneville 23201 NE Pluss Road CLARK COUNTY, WASHINGTON	FIGURE 1



Source: Clark County GIS (Agust 2006)

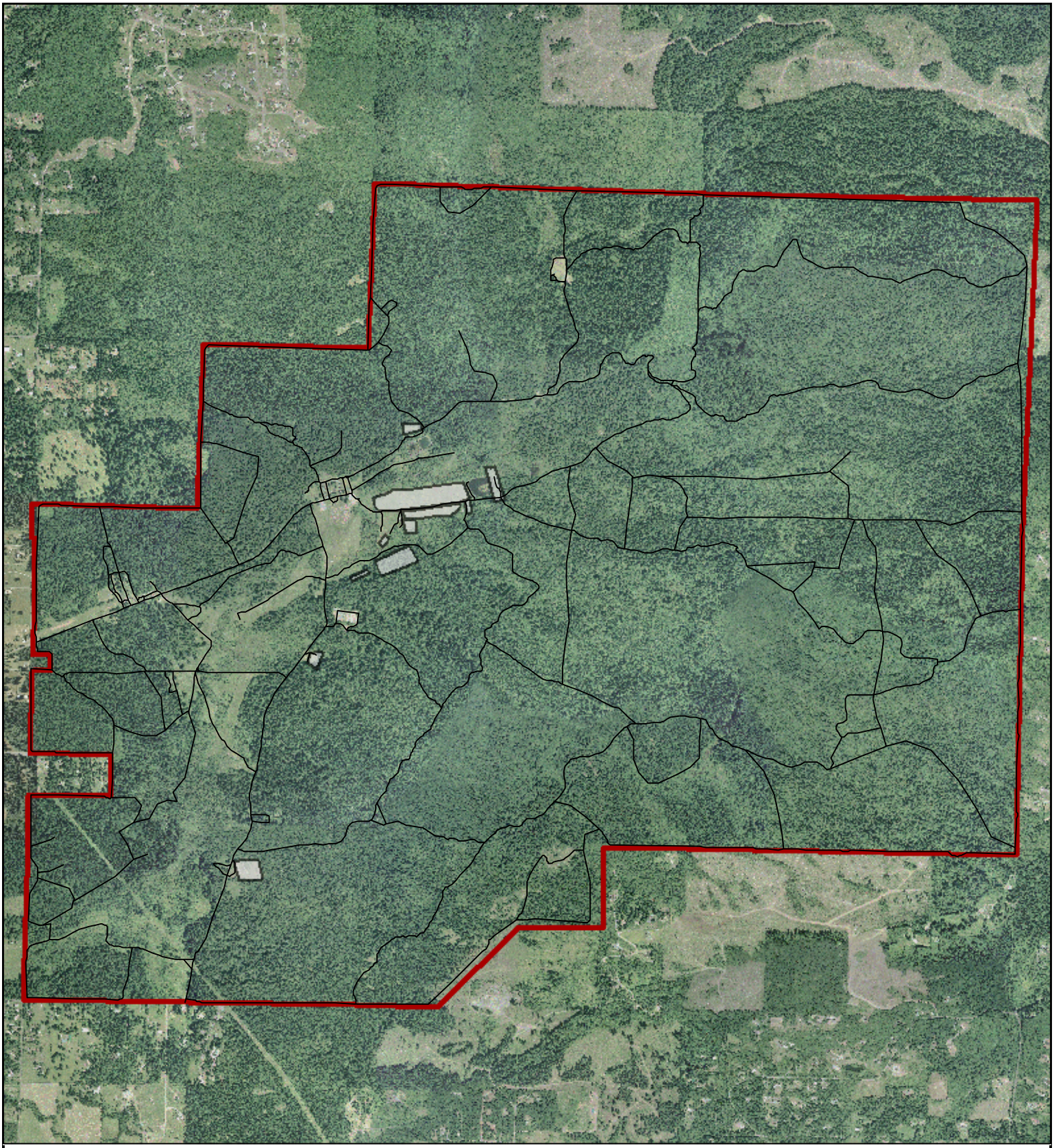
Camp Bonneville
Firing Ranges
Roads and Trails
Streams
170393000 Tax Lots
Contours (20 ft)

N

0 0.25 0.5
Miles

PBS	Project #: 70489.000 Date: JULY 2007	PROJECT SITE Camp Bonneville 23201 NE Pluss Road CLARK COUNTY, WASHINGTON

FIGURE
2



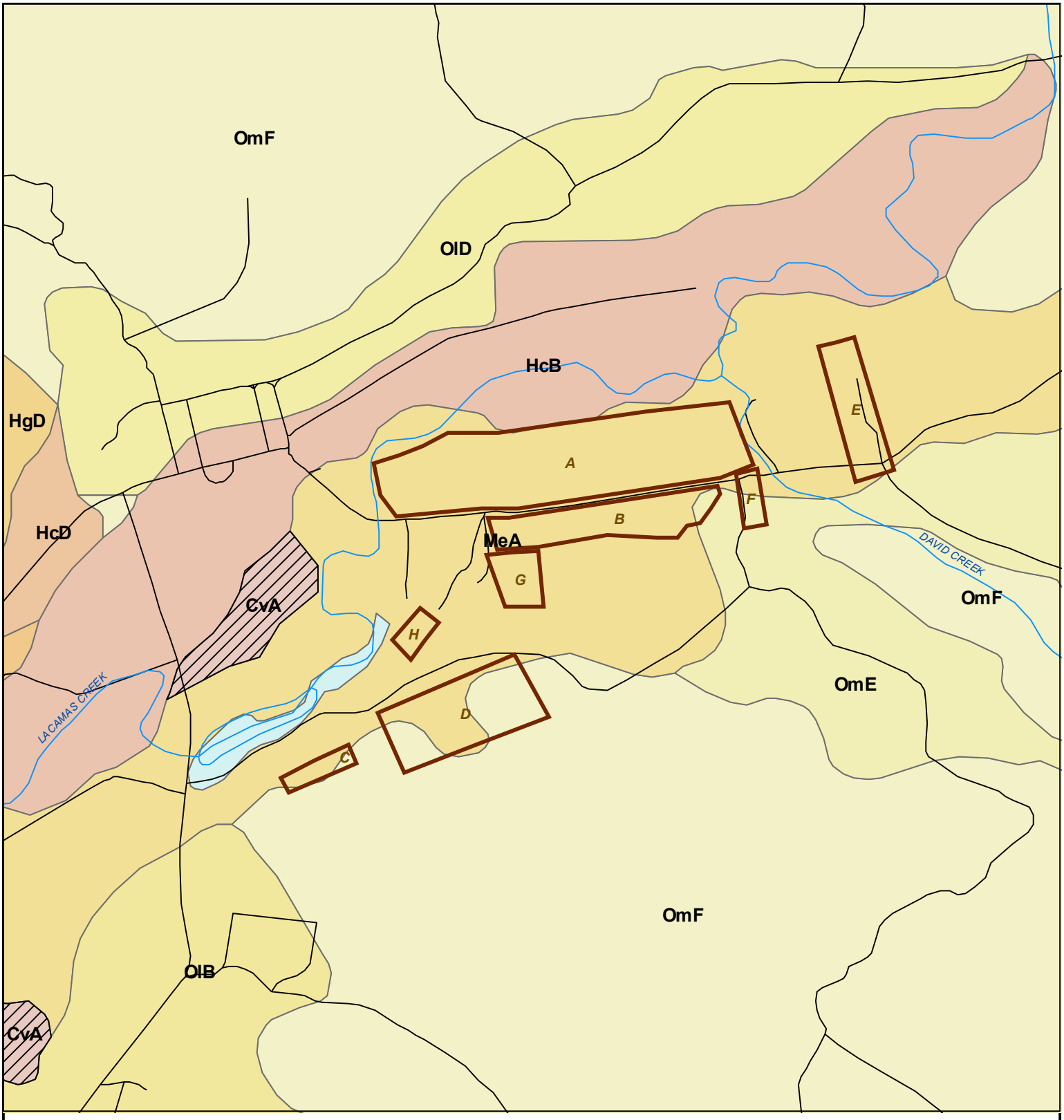
Source: Clark County GIS (Agust 2006)

Camp Bonneville
Firing Ranges
Roads and Trails

N

0 0.25 0.5
Miles

PBS	Project #: 70489.000 Date: JULY 2007	AERIAL PHOTOGRAPH Camp Bonneville 23201 NE Pluss Road CLARK COUNTY, WASHINGTON	FIGURE 3



A Study Areas
Streams
Roads and Trails
Hydric Soils

Soil Class

- CvA - Cove Silty Clay Loam, 0 to 3 Percent Slopes
- HcB - Hesson Clay Loam,) to 8 Percent Slopes
- HcD - Hesson Clay Loam, 8 to 20 Percent Slopes
- HgB - Hesson Gravelly Clay Loam, 0 to 8 Percent Slopes
- HgD - Hesson Gravelly Clay Loam, 8 to 20 Percent Slopes
- MeA - McBee Silty Clay Loam, 0 to 3 Percent Slopes
- OlB - Olympic Clay Loam, 3 to 8 Percent Slopes
- OlD - Olympic Clay Loam, 8 to 20 Percent Slopes
- OmE - Olympic Stony Clay Loam, 3 to 30 Percent Slopes
- OmF - Olympic Stony Clay Loam, 30 to 60 Percent Slopes
- Water

N

0 210 420
Feet

Source: Soil Survey of Clark County Washington

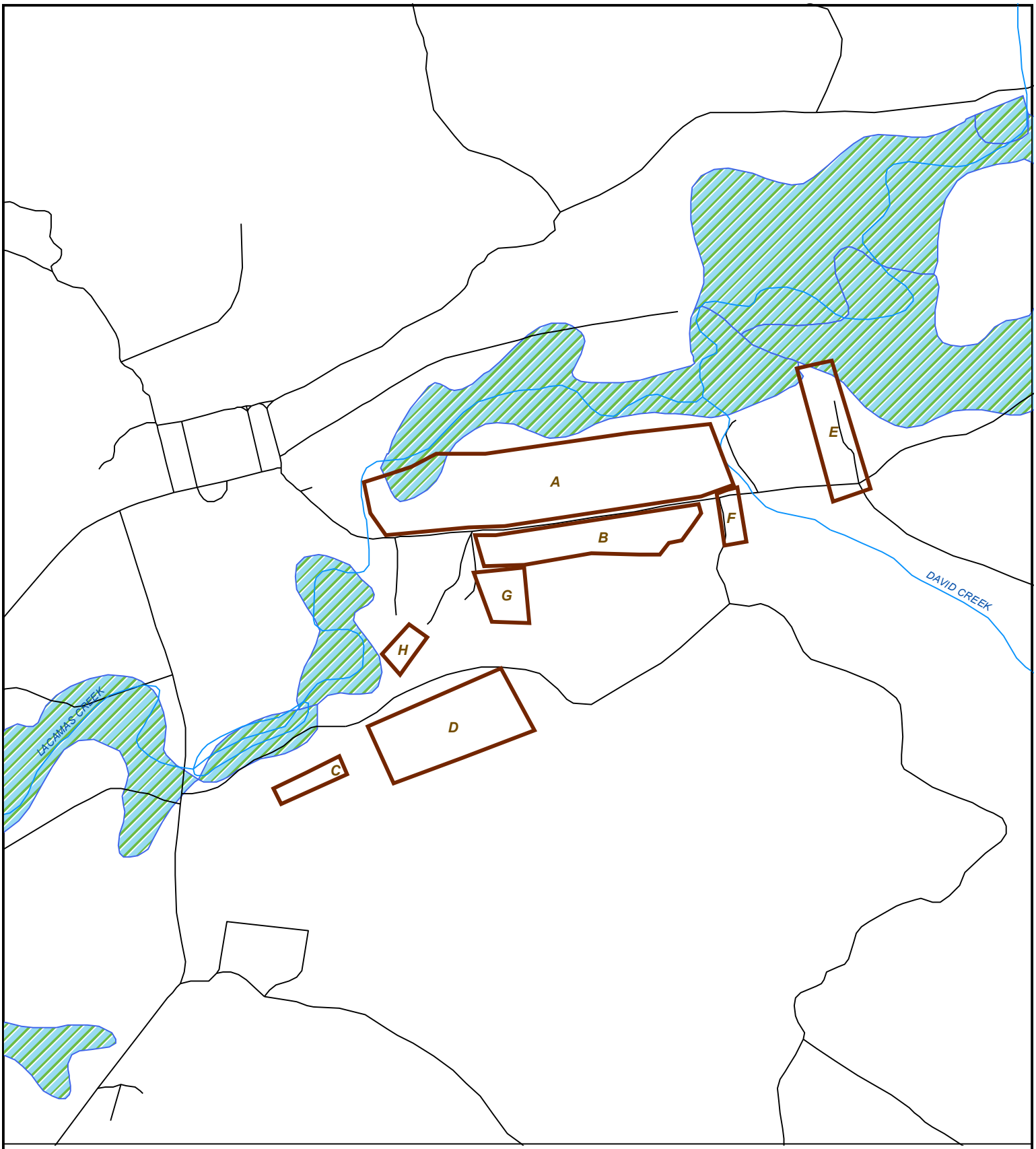
PBS

Project #: 70489.000

Date: JULY 2007

CLARK COUNTY SOIL SURVEY
Camp Bonneville
23201 NE Pluss Road
CLARK COUNTY, WASHINGTON

FIGURE
4



Source: US Fish and Wildlife Service National Wetland Inventory

N

0 210 420

Feet

A Study Areas

National Wetland Inventory

Streams

Roads and Trails

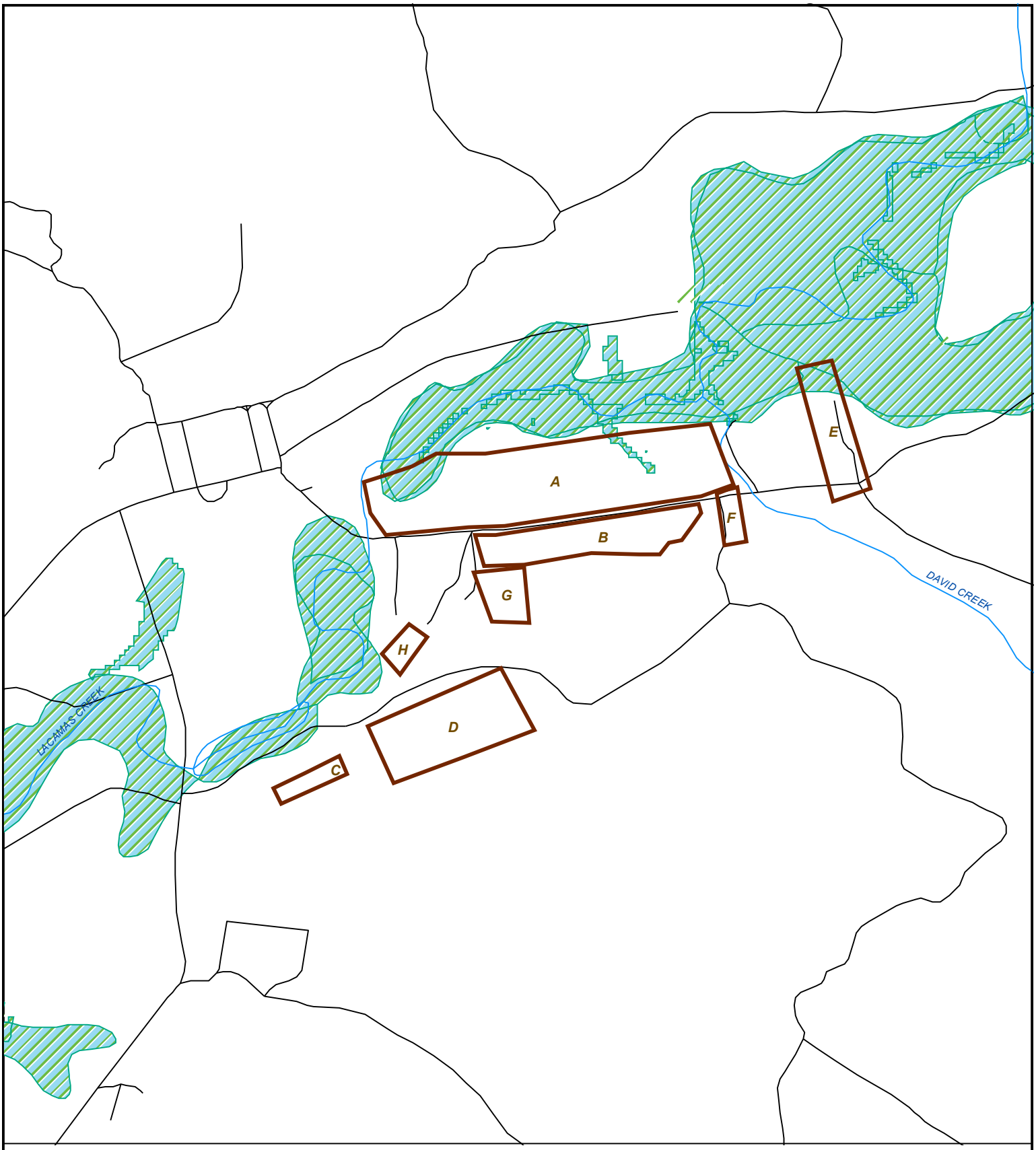
PBS

Project #: 70489.000

Date: JULY 2007

NATIONAL WETLAND INVENTORY
Camp Bonneville
23201 NE Pluss Road
CLARK COUNTY, WASHINGTON

FIGURE
5A



Source: Clark County Local Wetland Inventory GIS Data (August 2006).

N

0 210 420

Feet

A Study Areas

Streams

Roads and Trails

Clark County Local Wetland Inventory

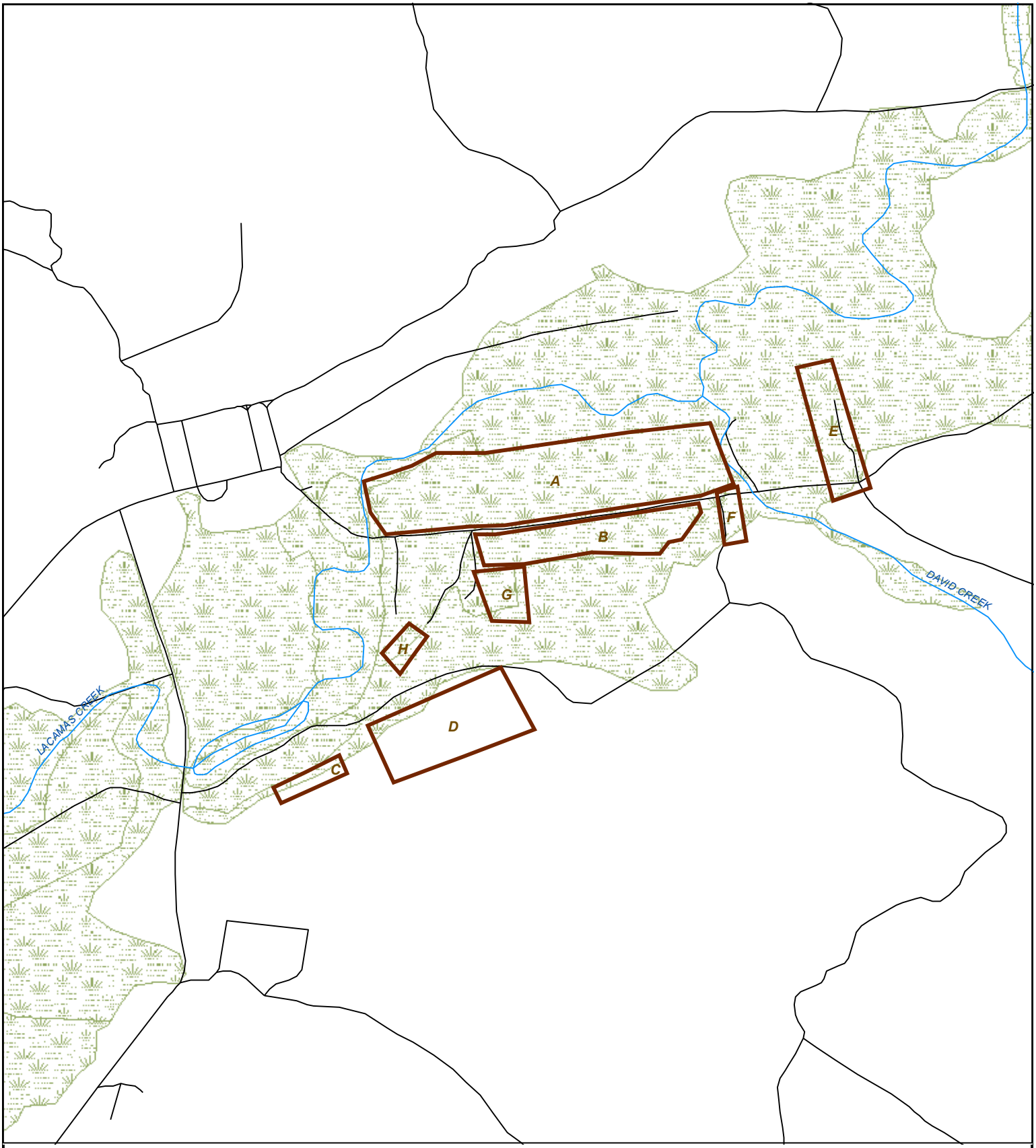
PBS

Project #: 70489.000

Date: JULY 2007

CLARK COUNTY LOCAL WETLAND INVENTORY
Camp Bonneville
23201 NE Pluss Road
CLARK COUNTY, WASHINGTON

FIGURE 5B



Source: Clark County Wetland Biologist identified potential wetland areas at the site.

N

0 210 420

Feet

A Study Areas

Streams

Roads and Trails

Wetland Areas

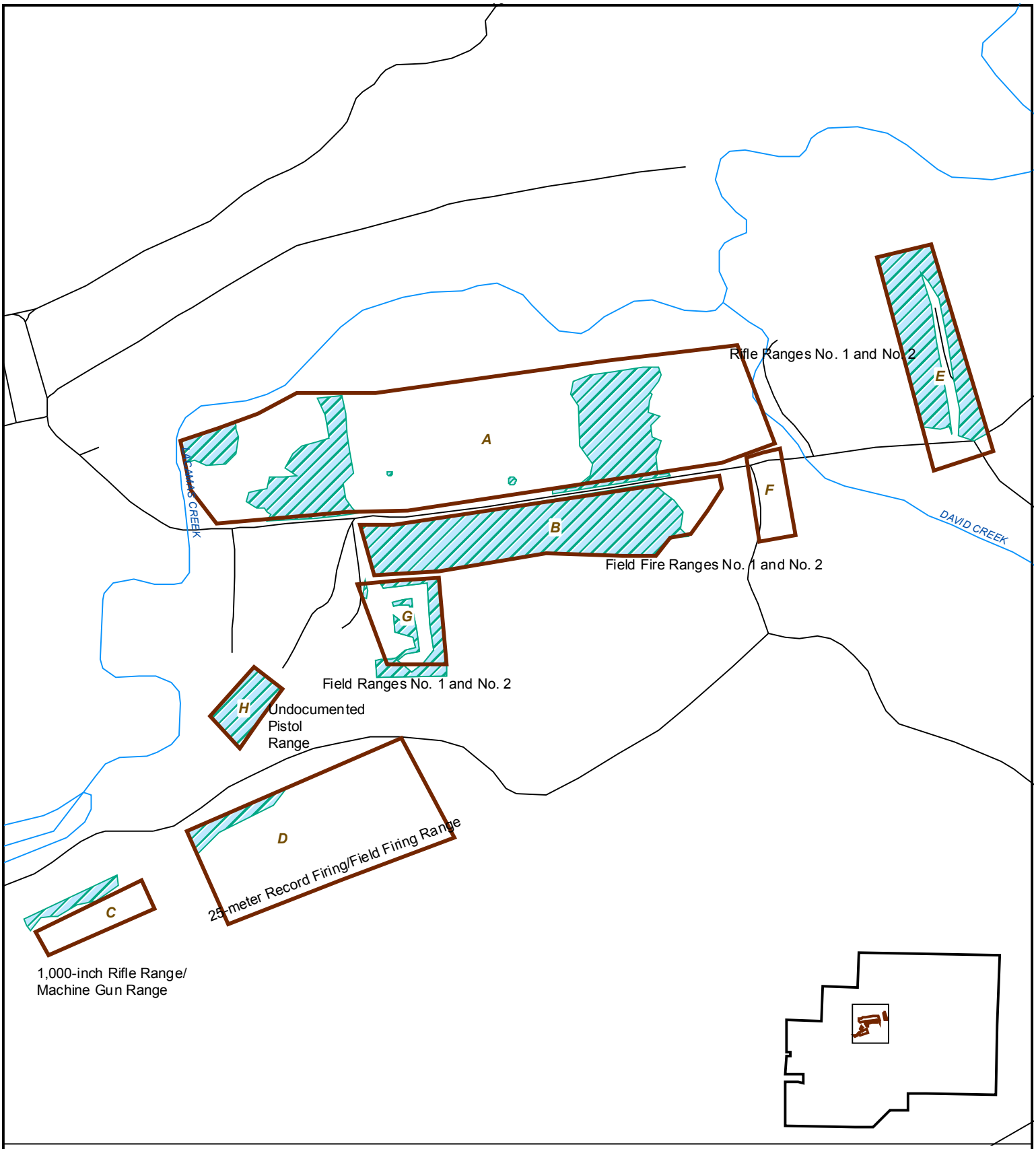
PBS

Project #: 70489.000

Date: JULY 2007

CLARK COUNTY - POTENTIAL WETLAND AREAS
Camp Bonneville
23201 NE Pluss Road
CLARK COUNTY, WASHINGTON

FIGURE 6



Source: Clark County GIS Data, August 2006. Wetland boundaries, sample plot locations, and transects mapped by PBS using a Trimble GeoXT. The GeoXT has sub-meter post processing accuracy.

N

0 140 280

Feet

A Study Areas

Wetlands

Streams

Roads and Trails

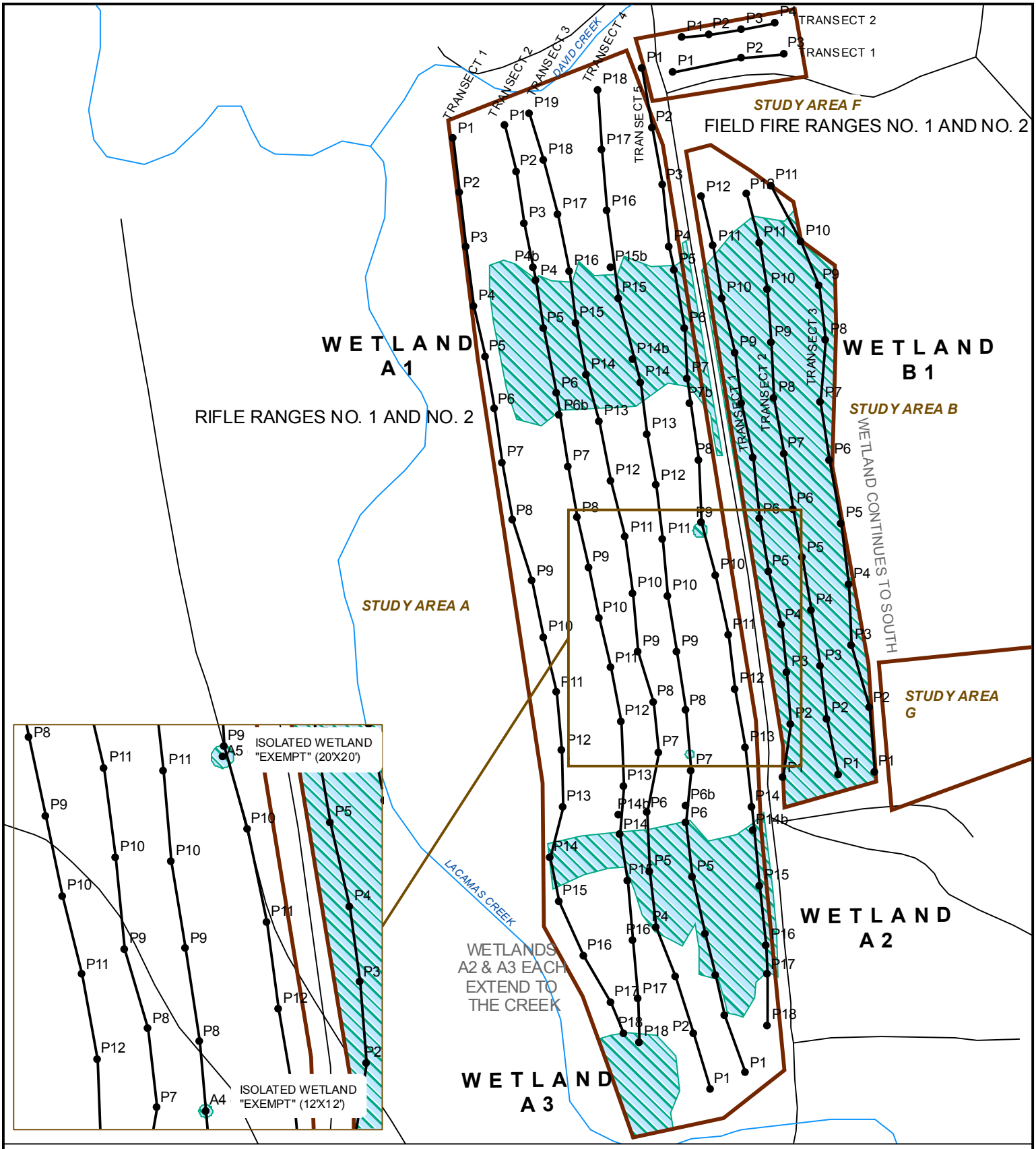
PBS

Project #: 70489.000

Date: JULY 2007

WETLAND DELINEATION - OVERVIEW MAP
Camp Bonneville
23201 NE Pluss Road
CLARK COUNTY, WASHINGTON

FIGURE 7



Source: Clark County GIS Data, August 2006. Wetland boundaries, sample plot locations, and transects mapped by PBS using a Trimble GeoXT. The GeoXT has sub-meter post processing accuracy.

N

0 90 180

Feet

Study Area (Firing Range)
Wetlands
Transects
Data Plots
Streams
Roads and Trails

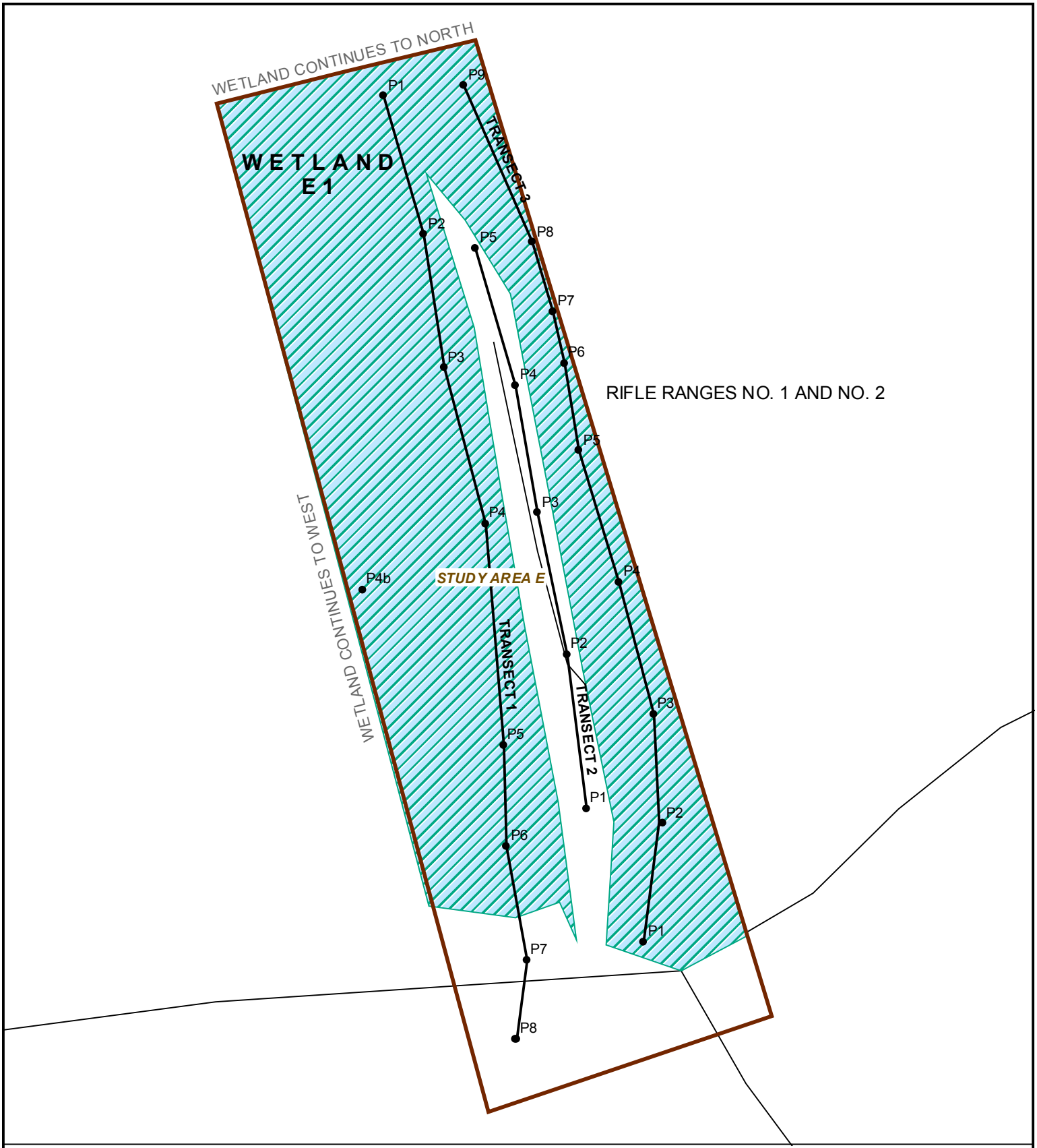
PBS

Project #: 70489.000

Date: JULY 2007

WETLAND DELINEATION - WETLANDS A1, A2, A3, B1
Camp Bonneville
23201 NE Pluss Road
CLARK COUNTY, WASHINGTON

FIGURE 7A



Source: Clark County GIS Data, August 2006. Wetland boundaries, sample plot locations, and transects mapped by PBS using a Trimble GeoXT. The GeoXT has sub-meter post processing accuracy.

N

0 40 80

Feet

Study Area (Firing Range)
Wetlands
Data Plots
Streams
Roads and Trails

PBS

Project #: 70489.000

Date: JULY 2007

WETLAND DELINEATION - WETLAND E1
Camp Bonneville
23201 NE Pluss Road
CLARK COUNTY, WASHINGTON

FIGURE 7B

Source: Clark County GIS Data, August 2006. Wetland boundaries, sample plot locations, and transects mapped by PBS using a Trimble GeoXT. The GeoXT has sub-meter post processing accuracy.

N

0 20 40

Feet

Study Area (Firing Range)
Wetlands
Data Plots
Transects
Streams
Roads and Trails

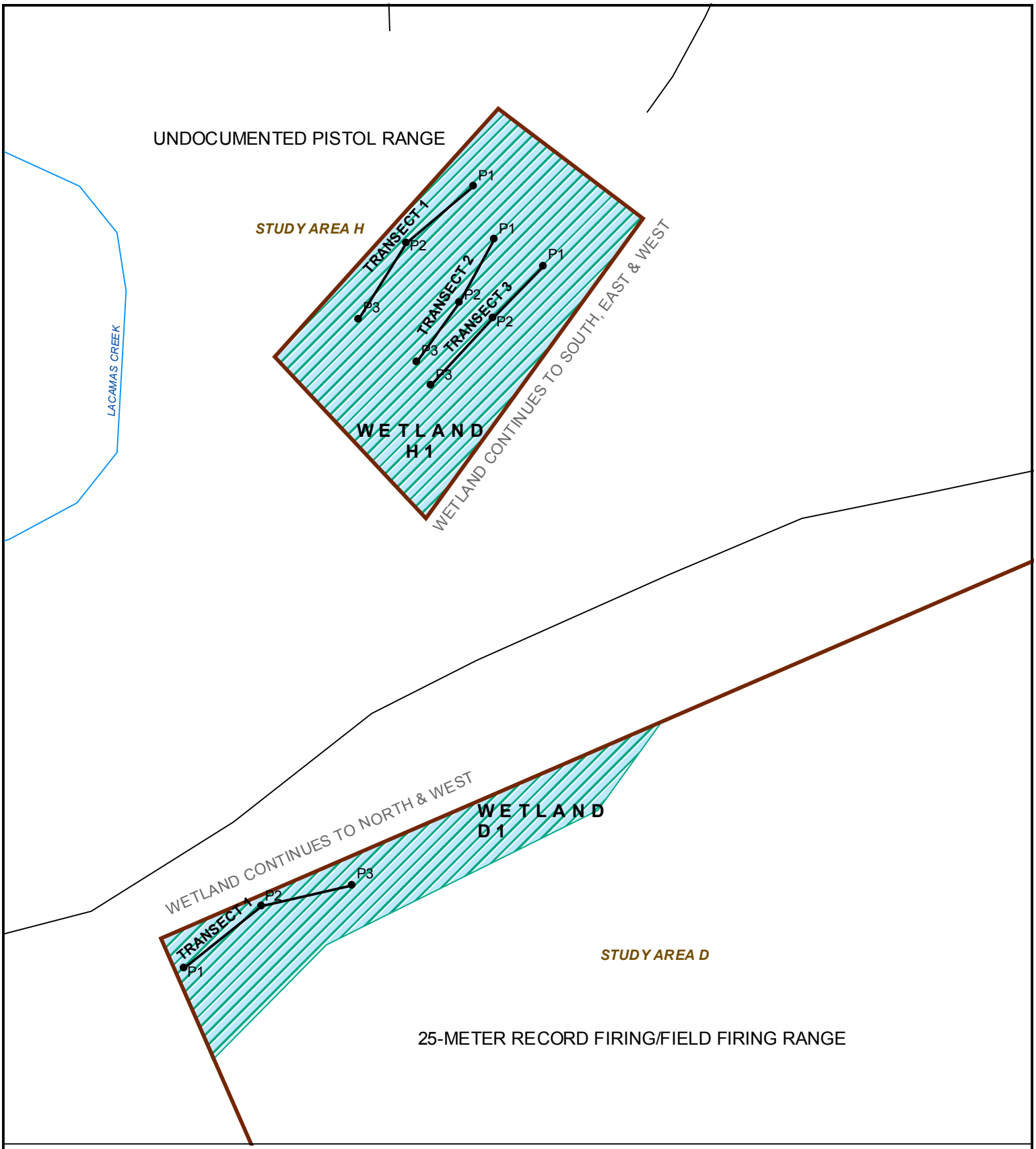
PBS

Project #: 70489.000

Date: JULY 2007

WETLAND DELINEATION - WETLAND C1
Camp Bonneville
23201 NE Pluss Road
CLARK COUNTY, WASHINGTON

FIGURE 7C



Source: Clark County GIS Data, August 2006. Wetland boundaries, sample plot locations, and transects mapped by PBS using a Trimble GeoXT. The GeoXT has sub-meter post processing accuracy.

N

0 30 60

Feet

Study Area (Firing Range)
Wetlands
Data Plots
Transects
Streams
Roads and Trails

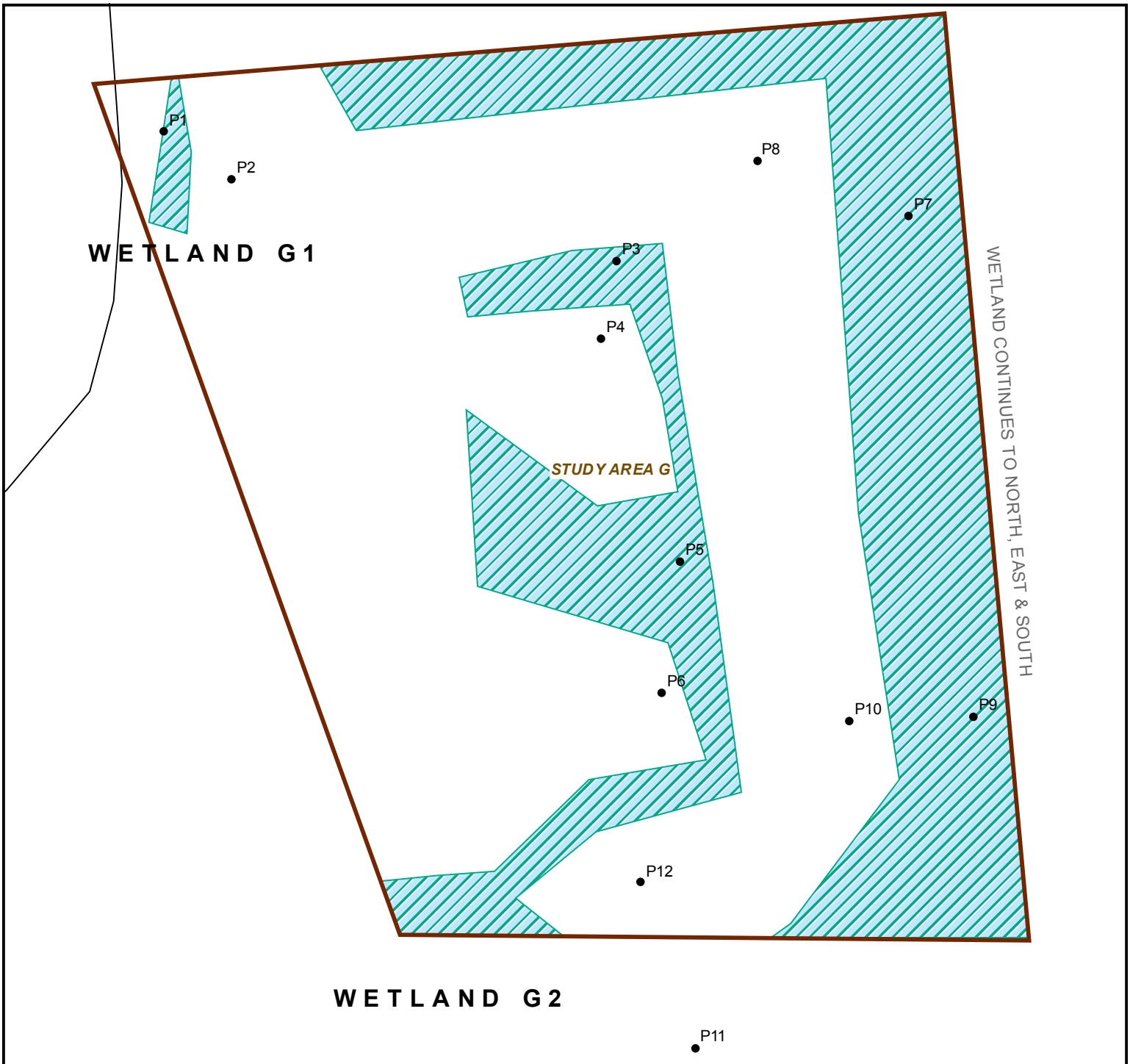
PBS

Project #: 70489.000

Date: JULY 2007

WETLAND DELINEATION - WETLANDS D1, H1
Camp Bonneville
23201 NE Pluss Road
CLARK COUNTY, WASHINGTON

FIGURE 7D



FIELD RANGES NO. 1 AND NO. 2

Source: Clark County GIS Data, August 2006. Wetland boundaries, sample plot locations, and transects mapped by PBS using a Trimble GeoXT. The GeoXT has sub-meter post processing accuracy.

N

0 20 40

Feet

Study Area (Firing Range)
Wetlands
Data Plots
Streams
Roads and Trails

PBS

Project #: 70489.000

Date: JULY 2007

WETLAND DELINEATION - WETLAND G1, G2
Camp Bonneville
23201 NE Pluss Road
CLARK COUNTY, WASHINGTON

FIGURE 7E

APPENDIX A

Site Photographs

Photo 1: Study Area A Wetland A1- Reddish plant is taper-tip rush (*Juncus acuminatus*). OBL

Photo 2: Study Area A Wetland A1-Cracked soil indicating periodic inundation.

Photo 3: Study Area A Overview of site, oxeye daisy an introduced weed dominates drier site areas.

Photo 4: Study Area A Wetland A1-Ungulate hoof prints in recently saturated soil.

Photo 5: Study Area A Wetland A2-Dense patch of slough sedge (*Carex obnupta*) OBL and pointed broom sedge (*Carex scoparia*). OBL

Photo 6: Study Area A Wetland A2-View of wetland looking west.

Photo 7: Study Area A Wetland A3-Close-up of red- osier dogwood (*Cornus sericea*). FACW

Photo 8: Study Area A Wetland A3-Shrubby riparian thicket above Lacamas Creek.

Photo 09: Study Area B Wetland B1-Patches of Douglas' spiraea (*Spiraea douglasii*) FACW and soft rush (*Juncus effusus*). FACW

Photo 10: Study Area B Wetland B1-Low depressional area with saturation to surface. Reddish area dominated by mats of needle spikerush (*Eleocharis acicularis*). OBL

Photo 11: Study Area C Wetland C1- Douglas' spiraea (*Spiraea douglasii*). FACW

Photo 12: Study Area C Wetland C1-Red alder in background.

Photo 13: Study Area D Wetland D1-Red alder riparian forest.

Photo 14: Study Area E Wetland E1-View of the pond looking west. Island is on the left.

Photo 15: Study Area E Wetland E1-Berm excluded from wetland.

Photo 16: Study Area E Wetland E1-Overgrown un-paved road on east side of berm.

Photo 17: Study Area E Wetland E1-Small-fruit bulrush (*Scripus microcarpus*) OBL and soft rush (*Juncus effusus*) FACW, growing up through the old roadbed. Northern end.

Photo 18: Study Area F No wetlands, site mainly a raised berm. (above the white sign)

Photo 19: Study Area G Wetland G2-View of wetland looking south-east.

Photo 20: Study Area G Wetland G2-View of wetland from top of berm looking west.

Photo 21: Study Area H Wetland H1-Patch of slough sedge (*Carex opnupta*) OBL and velvet grass (*Holcus lanatus*) FAC.

Photo 22: Study Area H Wetland H1-Overview of wetland with red alder in the background.

APPENDIX B

Data Sheets

	6/26/2007					
Transect, Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
T1, P1	*Rubus ursinus*	shrub	20	1	FACU	*
	Anthoxanthum odoratum	Herb	20	25	FACU	*
	Leucanthemum vulgare	Herb	20	25	NL	*
	Fragaria virginiana	Herb	20	25	FACU	*
	Festuca rubra	Herb	20	25	FAC-	*
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No
T1, P2	*Leucanthemum vulgare*	Herb	5	14	NL	
	Hypochaeris radicata	Herb	25	71	FACU	*
	Agrostis stolonifera	Herb	5	14	FAC	
	bare ground		65			
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No
T1, P3	*Leucanthemum vulgare*	Herb	10	22	NL	*
	Hypochaeris radicata	Herb	25	56	FACU	*
	Agrostis stolonifera	Herb	5	11	FAC	
	Anthoxanthum odoratum	Herb	5	11	FACU	
	bare ground		55			
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No
T1, P4	*Leucanthemum vulgare*	Herb	10	18	NL	
	Hypochaeris radicata	Herb	35	64	FACU	*
	Agrostis stolonifera	Herb	10	18	FAC	
	bare ground		45			
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No
T1, P5	*Leucanthemum vulgare*	Herb	5	10	NL	
	Hypochaeris radicata	Herb	40	80	FACU	*
	Agrostis stolonifera	Herb	5	10	FAC	
	bare ground		50			
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No
T1, P5b	*Juncus tenuis*	Herb	20	50	FACW--	*
	Navarretia intertexta	Herb	10	25	FACW	*
	Hypochaeris radicata	Herb	10	13	FACU	
	bare ground		60			
	Percent of Dominants that are FAC, FACW, or OBL =					100
	Hydrophytic Vegetation Present?					Yes
Note: Soil surface is a whitish, cracked crust indicating inundation						

	6/26/2007					
Transect, Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
T1, P6	*Leucanthemum vulgare*	Herb		10	NL	
	Hypochaeris radicata	Herb		60	FACU	*
	Agrostis stolonifera	Herb		10	FAC	
	Fragaria virginiana	Herb		10	FACU	
	Daucus carota			5	NL	
	Trifolium dubium			5	UPL	
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No
T1, P7	*Anthoxanthum odoratum*	Herb		30	FACU	*
	Centaurea pratensis	Herb		30	NL	*
	Prunella vulgaris	Herb		5	FACU+	
	Hypochaeris radicata	Herb		30	FACU	*
	Daucus carota			5	NL	
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No
T1, P8	*Anthoxanthum odoratum*	Herb		25	FACU	*
	Danthonia californica	Herb		25	FACU	*
	Leucanthemum vulgare	Herb		20	NL	*
	Daucus carota	Herb		3	NL	
	Prunella vulgaris	Herb		2	FACU+	
	Fragaria virginiana	Herb		5	FACU	
	Hypochaeris radicata	Herb		20	FACU	*
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No
T1, P9	*Rubus ursinus*	Sap/Shrub	25	100	FACU	*
	Leucanthemum vulgare	Herb		27	NL	*
	Anthoxanthum odoratum	Herb		27	FACU	*
	Hypochaeris radicata	Herb		7	FACU	
	Agrostis stolonifera	Herb		33	FAC	*
	Cirsium arvense	Herb		7	FACU+	
	Percent of Dominants that are FAC, FACW, or OBL =					25
	Hydrophytic Vegetation Present?					No
T1, P10	*Anthoxanthum odoratum*	Herb		45	FACU	*
	Leucanthemum vulgare	Herb		20	NL	*
	Cirsium arvense	Herb		15	FACU+	
	Daucus carota	Herb		10	NL	
	Agrostis stolonifera	Herb		5	FAC	
	Festuca rubra	Herb		5	FAC-	
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No

	6/26/2007					
Transect, Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
T1, P11	*Rubus ursinus*	Sap/Shrub	10	0	FACU	
	Agrostis stolonifera	Herb		7	FAC	
	Anthoxanthum odoratum	Herb		7	FACU	
	Cirsium arvense	Herb		86	FACU+	*
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No
T1, P12	*Rubus ursinus*	Sap/Shrub	65	100	FACU	*
	Leucanthemum vulgare	Herb		42	NL	*
	Agrostis stolonifera	Herb		14	FAC	
	Anthoxanthum odoratum	Herb		14	FACU	
	Cirsium arvense	Herb		28	FACU+	*
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No
T1, P13	*Rubus ursinus*	Sap/Shrub	15	0	FACU	
	Leucanthemum vulgare	Herb		23	NL	*
	Cirsium arvense	Herb		12	FACU+	
	Anthoxanthum odoratum	Herb		18	FACU	*
	Hypochaeris radicata	Herb		24	FACU	*
	Holcus lanatus	Herb		6	FAC	
	Festuca rubra	Herb		6	FAC	
	Danthonia californica	Herb		6	FACU	
	Equisetum arvense	Herb		6	FAC	
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No
T1, P14	*Festuca rubra*	Herb		50	FAC	*
	Cirsium arvense	Herb		50	FACU+	*
	Percent of Dominants that are FAC, FACW, or OBL =					50
	Hydrophytic Vegetation Present?					Yes
T1, P15	*Rubus ursinus*	Sap/Shrub	5	0	FACU	
	Leucanthemum vulgare	Herb		6	NL	
	Arrhenatherum elatius	Herb		88	UPL	*
	Anthoxanthum odoratum	Herb		6	FACU	
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No
T1, P16	*Symphoricarpos albus*	Sap/Shrub	5	0		
	Leucanthemum vulgare	Herb		15	NL	
	Anthoxanthum odoratum	Herb		10	FACU	
	Trifolium dubium	Herb		23	UPL	*
	Fragaria virginiana	Herb		37	FACU	*
	Daucus carota	Herb		5	NL	
	Trifolium pratense	Herb		10	FACU	
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No

	6/26/2007					
Transect, Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
T1, P17	*Leucanthemum vulgare*	Herb		25	NL	
	Anthoxanthum odoratum	Herb		10	FACU	
	Cirsium arvense	Herb		60	FACU+	*
	Dactylis glomerata	Herb		5	FACU	
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No
T1, P18	*Cornus sericea*	Sap/Shrub	100	100	FACW	*
	Percent of Dominants that are FAC, FACW, or OBL =					100
	Hydrophytic Vegetation Present?					Yes
T2, P1	*Agrostis stolonifera*	Herb		30	FAC	*
	Leucanthemum vulgare	Herb		10	NL	
	Hypochaeris radicata	Herb		5	FACU	
	Anthoxanthum odoratum	Herb		20	FACU	*
	Plantago lanceolata	Herb		15	FAC	
	Daucus carota	Herb		20	NL	*
	Percent of Dominants that are FAC, FACW, or OBL =					33
	Hydrophytic Vegetation Present?					No
T2, P2	*Agrostis stolonifera*	Herb		20	FAC	*
	Leucanthemum vulgare	Herb		20	NL	*
	Anthoxanthum odoratum	Herb		40	FACU	*
	Fragaria virginiana	Herb		20	FACU	*
	Percent of Dominants that are FAC, FACW, or OBL =					25
	Hydrophytic Vegetation Present?					No
T2, P3	*Agrostis stolonifera*	Herb		20	FAC	*
	Leucanthemum vulgare	Herb		15	NL	
	Anthoxanthum odoratum	Herb		25	FACU	*
	Hypochaeris radicata	Herb		40	FACU	*
	Percent of Dominants that are FAC, FACW, or OBL =					33
	Hydrophytic Vegetation Present?					No
T2, P4	*Alnus rubra*	Tree	20	100		*
	Agrostis stolonifera	Herb		25	FAC	*
	Juncus tenuis	Herb		10	FACW-	
	Anthoxanthum odoratum	Herb		15	FACU	
	Hypochaeris radicata	Herb		50	FACU	*
	Percent of Dominants that are FAC, FACW, or OBL =					67
	Hydrophytic Vegetation Present?					Yes
T2, P4b	*Agrostis stolonifera*	Herb		50	FAC	*
	Anthoxanthum odoratum	Herb		25	FACU	*
	Hypochaeris radicata	Herb		25	FACU	*
	Percent of Dominants that are FAC, FACW, or OBL =					33
	Hydrophytic Vegetation Present?					No

	6/26/2007					
Transect, Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
T2, P5	*Agrostis stolonifera*	Herb		45	FAC	*
	Carex obnupta	Herb		20	OBL	*
	Carex scoparia	Herb		20	FACW	*
	Hypochaeris radicata	Herb		5	FACU	
	Juncus tenuis	Herb		5	FACW-	
	Hypericum anagalloides	Herb		5	OBL	
	Percent of Dominants that are FAC, FACW, or OBL =					100
	Hydrophytic Vegetation Present?					Yes
T2, P6	*Agrostis stolonifera*	Herb		45	FAC	*
	Leucanthemum vulgare	Herb		5	NL	
	Hypochaeris radicata	Herb		50	FACU	*
	Percent of Dominants that are FAC, FACW, or OBL =					50
	Hydrophytic Vegetation Present?					Yes
Note: Hypochaeris was depauperate from saturated condition.						
T2, P7	*Agrostis stolonifera*	Herb		30	FAC	*
	Leucanthemum vulgare	Herb		18	NL	
	Hypochaeris radicata	Herb		25	FACU	*
	Anthoxanthum odoratum	Herb		25	FACU	*
	Trifolium dubium	Herb		2	UPL	
	Percent of Dominants that are FAC, FACW, or OBL =					33
	Hydrophytic Vegetation Present?					No
T2, P8	*Rubus ursinus*	Sap/Shrub	30	100	FACU	
	Agrostis stolonifera	Herb		15	FAC	
	Leucanthemum vulgare	Herb		40	NL	*
	Daucus carota	Herb		10	NL	
	Anthoxanthum odoratum	Herb		30	FACU	*
	Achillea millefolium	Herb		5	FACU	
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No
T2, P9	*Agrostis stolonifera*	Herb		20	FAC	*
	Leucanthemum vulgare	Herb		20	NL	*
	Festuca rubra	Herb		15	FAC	
	Cirsium arvense	Herb		40	FACU+	*
	Poa pratensis	Herb		5	FAC	
	Percent of Dominants that are FAC, FACW, or OBL =					33
	Hydrophytic Vegetation Present?					No
T2, P10	*Anthoxanthum odoratum*	Herb		20	FACU	*
	Leucanthemum vulgare	Herb		30	NL	*
	Festuca arundinacea	Herb		5	FAC-	
	Cirsium arvense	Herb		10	FACU+	
	Plantago lanceolata	Herb		5	FAC	
	Daucus carota	Herb		30	NL	*
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No

	6/26/2007					
Transect, Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
T2, P11	*Anthoxanthum odoratum*	Herb		25	FACU	*
	Leucanthemum vulgare	Herb		13	NL	
	Rumex acetosella	Herb		2	FACU	
	Danthonia californica	Herb		t	FACU	
	Cirsium arvense	Herb		10	FACU+	
	Plantago lanceolata	Herb		25	FAC	*
	Daucus carota	Herb		25	NL	*
	Percent of Dominants that are FAC, FACW, or OBL =					33
	Hydrophytic Vegetation Present?					No
T2, P12	*Rubus ursinus*	Sap/Shrub	20	100	FACU	*
	Anthoxanthum odoratum	Herb		25	FACU	*
	Leucanthemum vulgare	Herb		15	NL	
	Festuca arundinacea	Herb		15	FAC-	
	Daucus carota	Herb		10	NL	
	Cirsium arvense	Herb		5	FACU+	
	Hypochaeris radicata	Herb		30	FACU	*
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No
T2, P13	*Anthoxanthum odoratum*	Herb		35	FACU	*
	Leucanthemum vulgare	Herb		22	NL	*
	Agrostis stolonifera	Herb		3	FAC	
	Daucus carota	Herb		5	NL	
	Plantago lanceolata	Herb		20	FAC	*
	Hypochaeris radicata	Herb		15	FACU	
	Percent of Dominants that are FAC, FACW, or OBL =					33
	Hydrophytic Vegetation Present?					No
T2, P14	*Rubus ursinus*	Sap/Shrub	5	0	FACU	*
	Dactylis glomerata	Herb		5	FACU	*
	Festuca rubra	Herb		60	FAC	
	Cirsium arvense	Herb		30	FACU+	*
	Poa pratensis	Herb		2	FAC	
	Equisetum arvense	Herb		3	FAC	
	Percent of Dominants that are FAC, FACW, or OBL =					33
	Hydrophytic Vegetation Present?					No
T2, P14b	*Rubus ursinus*	Sap/Shrub	20	100	FACU	*
	Anthoxanthum odoratum	Herb		5	FACU	
	Festuca arundinacea	Herb		45	FAC-	*
	Agrostis stolonifera	Herb		17	FAC	
	Cirsium arvense	Herb		33	FACU+	*
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No

	6/26/2007					
Transect, Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
T2, P15	*Rosa pisocarpa*	Herb	35	100	FAC	*
	Anthoxanthum odoratum	Herb		30	FACU	*
	Cirsium arvense	Herb		5	FACU+	
	Leucanthemum vulgare	Herb		5	NL	
	Dactylis glomerata	Herb		50	FACU	*
	Daucus carota	Herb		10	NL	
	Percent of Dominants that are FAC, FACW, or OBL =					33
	Hydrophytic Vegetation Present?					No
T2, P16	*Symphoricarpos albus*	Sap/Shrub	15	0	FACU	
	Anthoxanthum odoratum	Herb		20	FACU	*
	Cirsium arvense	Herb		5	FACU+	
	Leucanthemum vulgare	Herb		20	NL	*
	Fragaria virginiana	Herb		25	FACU	*
	Daucus carota	Herb		25	NL	*
	Equisetum arvense	Herb		5	FAC	
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No
T2, P17	*Anthoxanthum odoratum*	Herb		5	FACU	
	Cirsium arvense	Herb		35	FACU+	*
	Equisetum arvense	Herb		20	FAC	*
	Agrostis stolonifera	Herb		5	FAC	
	Leucanthemum vulgare	Herb		15	NL	
	Dactylis glomerata	Herb		25	FACU	*
	Daucus carota	Herb		5	NL	
	Percent of Dominants that are FAC, FACW, or OBL =					33
	Hydrophytic Vegetation Present?					No
T2, P18	*Cornus sericea*	Sap/Shrub	100	100	FACW	*
	Percent of Dominants that are FAC, FACW, or OBL =					100
	Hydrophytic Vegetation Present?					Yes
T3, P1	*Festuca arundinacea*	Herb		70	FAC-	*
	Cirsium arvense	Herb		10	FACU+	
	Dactylis glomerata	Herb		10	FACU	
	Holcus lanatus	Herb		10	FAC	
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No
T3, P2	*Dactylis glomerata*	Herb		15	FACU	*
	Anthoxanthum odoratum	Herb		35	FACU	*
	Leucanthemum vulgare	Herb		15	NL	*
	Fragaria virginiana	Herb		15	FACU	*
	Daucus carota	Herb		15	NL	*
	Senecio jacobaea	Herb		5	FACU	
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No

	6/26/2007					
Transect, Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
T3, P3	*Anthoxanthum odoratum*	Herb		20	FACU	*
	Fragaria virginiana	Herb		15	FACU	
	Leucanthemum vulgare	Herb		10	NL	
	Dactylis glomerata	Herb		5	FACU	
	Holcus lanatus	Herb		15	FAC	
	Plantago lanceolata	Herb		5	FAC	
	Daucus carota	Herb		30	NL	*
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No
T3, P4	*Carex obnupta*	Herb		60	OBL	*
	Cirsium arvense	Herb		10	FACU+	
	Holcus lanatus	Herb		15	FAC	
	Percent of Dominants that are FAC, FACW, or OBL =					100
	Hydrophytic Vegetation Present?					Yes
T3, P5	*Rubus ursinus*	Sap/Shrub	35	100	FACU	*
	Anthoxanthum odoratum	Herb		23	FACU	*
	Dactylis glomerata	Herb		53	FACU	*
	Agrostis stolonifera	Herb		15	FAC	
	Cirsium arvense	Herb		8	FACU+	
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No
T3, P6	*Anthoxanthum odoratum*	Herb		5	FACU	
	Festuca arundinacea	Herb		85	FAC-	*
	Cirsium arvense	Herb		5	FACU+	
	Hypochaeris radicata	Herb		2	FACU	
	Daucus carota	Herb		3	NL	
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No
T3, P7	*Anthoxanthum odoratum*	Herb		30	FACU	*
	Fragaria virginiana	Herb		10	FACU	
	Leucanthemum vulgare	Herb		10	NL	
	Prunella vulgaris	Herb		5	FACU+	
	Hypochaeris radicata	Herb		35	FACU	*
	Daucus carota	Herb		10	NL	
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No

	6/26/2007					
Transect, Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
T3, P8	*Cytisus scoparius*	Sap/Shrub	15	0	NL	
	Anthoxanthum odoratum	Herb		23	FACU	*
	Fragaria virginiana	Herb		6	FACU	
	Leucanthemum vulgare	Herb		6	NL	
	Plantago lanceolata	Herb		18	FAC	*
	Hypochaeris radicata	Herb		23	FACU	*
	Cirsium arvense	Herb		6	FACU+	
	Daucus carota	Herb		18	NL	*
	Percent of Dominants that are FAC, FACW, or OBL =					25
	Hydrophytic Vegetation Present?					No
T3, P9	*Rubus ursinus*	Sap/Shrub	5	0	FACU	
	Anthoxanthum odoratum	Herb		15	FACU	
	Leucanthemum vulgare	Herb		21	NL	*
	Plantago lanceolata	Herb		21	FAC	*
	Hypochaeris radicata	Herb		21	FACU	*
	Daucus carota	Herb		21	NL	*
	Percent of Dominants that are FAC, FACW, or OBL =					25
	Hydrophytic Vegetation Present?					No
T3, P10	*Rubus ursinus*	Sap/Shrub	20	100	FACU	*
	Anthoxanthum odoratum	Herb		25	FACU	*
	Leucanthemum vulgare	Herb		25	NL	*
	Hypochaeris radicata	Herb		25	FACU	*
	Daucus carota	Herb		25	NL	*
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No
T3, P11	*Anthoxanthum odoratum*	Herb		10	FACU	
	Leucanthemum vulgare	Herb		30	NL	*
	Phleum pratense	Herb		5	FAC-	
	Rumex acetosella	Herb		5	FACU+	
	Cirsium arvense	Herb		10	FACU+	
	Daucus carota	Herb		40	NL	*
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No
T3, P12	*Anthoxanthum odoratum*	Herb		30	FACU	*
	Leucanthemum vulgare	Herb		30	NL	*
	Prunella vulgaris	Herb		5	FACU+	
	Hypochaeris radicata	Herb		30	FACU	*
	Holcus lanatus	Herb		5	FAC	
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No

	6/26/2007					
Transect, Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
T3, P13	*Anthoxanthum odoratum*	Herb		30	FACU	*
	Leucanthemum vulgare	Herb		30	NL	*
	Prunella vulgaris	Herb		5	FACU+	
	Hypochaeris radicata	Herb		30	FACU	*
	Agrostis stolonifera	Herb		5	FAC	
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No
T3, P14	*Juncus tenuis*	Herb		55	FACW-	*
	Prunella vulgaris	Herb		5	FACU+	
	Hypochaeris radicata	Herb		20	FACU	*
	Agrostis stolonifera	Herb		20	FAC	*
	Percent of Dominants that are FAC, FACW, or OBL =					67
	Hydrophytic Vegetation Present?					Yes
T3, P15	*Carex scoparia*	Herb		65	FACW	*
	Hypochaeris radicata	Herb		25	FACU	*
	Agrostis stolonifera	Herb		5	FAC	
	Hypericum anagalloides	Herb		5	OBL	
	Percent of Dominants that are FAC, FACW, or OBL =					50
	Hydrophytic Vegetation Present?					Yes
Note: The Hypericum was depauperate from growing in the saturated conditions.						
T3, P16	*Anthoxanthum odoratum*	Herb		5	FACU	
	Leucanthemum vulgare	Herb		5	NL	
	Prunella vulgaris	Herb		5	FACU+	
	Hypochaeris radicata	Herb		45	FACU	*
	Daucus carota	Herb		5	NL	
	Agrostis stolonifera	Herb		35	FAC	*
	Percent of Dominants that are FAC, FACW, or OBL =					50
	Hydrophytic Vegetation Present?					No
Note: Considering the non-dominant species, this plot does not have hydrophytic vegetation.						
T3, P17	*Anthoxanthum odoratum*	Herb		30	FACU	*
	Hypochaeris radicata	Herb		30	FACU	*
	Daucus carota	Herb		30	NL	*
	Agrostis stolonifera	Herb		5	FAC	
	Aira caryophyllea	Herb		5	NL	
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No
T3, P18	*Rubus ursinus*	Sap/Shrub	5	0	FACU	
	Hypochaeris radicata	Herb		35	FACU	*
	Leucanthemum vulgare	Herb		30	NL	*
	Prunella vulgaris	Herb		20	FACU+	*
	Agrostis stolonifera	Herb		10	FAC	
	Aira caryophyllea	Herb		5	NL	
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No

	6/26/2007					
Transect, Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
T3, P19	*Rubus ursinus*	Sap/Shrub	5	0	FACU	
	Anthoxanthum odoratum	Herb		25	FACU	*
	Fragaria virginiana	Herb		30	FACU	*
	Leucanthemum vulgare	Herb		20	NL	*
	Plantago lanceolata	Herb		5	FAC	
	Prunella vulgaris	Herb		5	FACU+	
	Daucus carota	Herb		15	NL	
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No
T4, P1	*Cirsium arvense*	Herb		25	FACU+	*
	Holcus lanatus	Herb		25	FAC	*
	Anthoxanthum odoratum	Herb		15	FACU	
	Poa pratensis	Herb		5	FAC	
	Phleum pratense	Herb		20	FAC-	*
	Festuca rubra	Herb		10	FAC	
	Percent of Dominants that are FAC, FACW, or OBL =					33
	Hydrophytic Vegetation Present?					No
T4, P2	*Rosa pisocarpa*	Sap/Shrub	10	0	FAC	
	Dactylis glomerata	Herb		50	FACU	*
	Holcus lanatus	Herb		20	FAC	*
	Cirsium arvense	Herb		20	FACU+	*
	Agropyron repens	Herb		10	FAC-	
	Percent of Dominants that are FAC, FACW, or OBL =					33
	Hydrophytic Vegetation Present?					No
T4, P3	*Carex obnupta*	Herb		45	OBL	*
	Cirsium arvense	Herb		35	FACU+	*
	Holcus lanatus	Herb		20	FAC	*
	Percent of Dominants that are FAC, FACW, or OBL =					67
	Hydrophytic Vegetation Present?					Yes
T4, P4	*Carex obnupta*	Herb		90	OBL	*
	Equisetum arvense	Herb		10	FAC	
	Percent of Dominants that are FAC, FACW, or OBL =					100
	Hydrophytic Vegetation Present?					Yes
T4, P5	*Alnus rubra*	Tree	20	50	FAC	*
	Rhamnus purshiana	Tree	20	50	FAC-	*
	Rubus ursinus	Sap/Shrub	50	100	FACU	*
	Festuca rubra	Herb		20	FAC	*
	Holcus lanatus	Herb		35	FAC	*
	Cirsium arvense	Herb		20	FACU+	*
	Anthoxanthum odoratum	Herb		5	FACU	
	Agrostis stolonifera	Herb		20	FAC	*
	Percent of Dominants that are FAC, FACW, or OBL =					57
	Hydrophytic Vegetation Present?					No

	6/26/2007					
Transect, Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
T4, P6	*Festuca rubra*	Herb		40	FAC	*
	Anthoxanthum odoratum	Herb		35	FACU	*
	Daucus carota	Herb		5	NL	
	Juncus effusus	Herb		20	FACW	*
	Percent of Dominants that are FAC, FACW, or OBL =					67
	Hydrophytic Vegetation Present?					Yes
T4, P6b	*Festuca arundinacea*	Herb		80	FAC-	*
	Anthoxanthum odoratum	Herb		15	FACU	
	Daucus carota	Herb		5	NL	
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					Yes
T4, P7	*Anthoxanthum odoratum*	Herb		35	FACU	*
	Hypochaeris radicata	Herb		35	FACU	*
	Leucanthemum vulgare	Herb		5	NL	
	Agrostis stolonifera	Herb		25	FAC	*
	Percent of Dominants that are FAC, FACW, or OBL =					33
	Hydrophytic Vegetation Present?					No
T4, P8	*Anthoxanthum odoratum*	Herb		15	FACU	
	Hypochaeris radicata	Herb		50	FACU	*
	Leucanthemum vulgare	Herb		20	NL	*
	Agrostis stolonifera	Herb		5	FAC	
	Danthonia californica	Herb		t	FACU	
	Solidago canadensis	Herb		10	FACU	
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No
T4, P9	*Anthoxanthum odoratum*	Herb		60	FACU	*
	Leucanthemum vulgare	Herb		10	NL	
	Agrostis stolonifera	Herb		20	FAC	
	Festuca arundinacea	Herb		35	FAC-	*
	Daucus carota	Herb		5	NL	
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No
T4, P10	*Anthoxanthum odoratum*	Herb		60	FACU	*
	Leucanthemum vulgare	Herb		10	NL	
	Agrostis stolonifera	Herb		20	FAC	
	Festuca arundinacea	Herb		35	FAC-	*
	Daucus carota	Herb		5	NL	
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No

	6/26/2007					
Transect, Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
T4, P11	*Rubus ursinus*	Sap/Shrub	20	100	FACU	*
	Anthoxanthum odoratum	Herb		25	FACU	*
	Madia sp.	Herb		50	NL	*
	Agrostis stolonifera	Herb		20	FAC	*
	Daucus carota	Herb		5	NL	
	Percent of Dominants that are FAC, FACW, or OBL =					25
	Hydrophytic Vegetation Present?					No
T4, P12	*Anthoxanthum odoratum*	Herb		20	FACU	*
	Hypochaeris radicata	Herb		25	FACU	*
	Leucanthemum vulgare	Herb		25	NL	*
	Madia sp.	Herb		25	NL	*
	Danthonia californica	Herb		t	FACU	
	Daucus carota	Herb		5	NL	
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No
T4, P13	*Anthoxanthum odoratum*	Herb		35	FACU	*
	Hypochaeris radicata	Herb		35	FACU	*
	Leucanthemum vulgare	Herb		5	NL	
	Agrostis stolonifera	Herb		25	FAC	*
	Percent of Dominants that are FAC, FACW, or OBL =					33
	Hydrophytic Vegetation Present?					No
T4, P14	*Hypochaeris radicata*	Herb		25	FACU	*
	Leucanthemum vulgare	Herb		10	NL	
	Agrostis stolonifera	Herb		40	FAC	*
	Juncus tenuis	Herb		10	FACW	
	Prunella vulgaris	Herb		15	FACU+	
	Percent of Dominants that are FAC, FACW, or OBL =					50
	Hydrophytic Vegetation Present?					Yes
Note: With the presence of Juncus tenuis, BPJ determines that this plot has hydrophytic vegetation.						
T4, P14b	*Hypochaeris radicata*	Herb		5	FACU	
	Carex scoparia	Herb		15	FACW	
	Agrostis stolonifera	Herb		50	FAC	*
	Juncus tenuis	Herb		30	FACW	*
	Percent of Dominants that are FAC, FACW, or OBL =					100
	Hydrophytic Vegetation Present?					Yes
T4, P15	*Hypochaeris radicata*	Herb		20	FACU	*
	Carex aurea	Herb		25	FACW+	*
	Agrostis stolonifera	Herb		30	FAC	*
	Juncus tenuis	Herb		10	FACW	
	Anthoxanthum odoratum	Herb		5	FACU	
	Solidago canadensis	Herb		5	FACU	
	Juncus effusus	Herb		5	FACW	
	Percent of Dominants that are FAC, FACW, or OBL =					67
	Hydrophytic Vegetation Present?					Yes

	6/26/2007					
Transect, Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
T4, P15b	*Anthoxanthum odoratum*	Herb		25	FACU	*
	Hypochaeris radicata	Herb		35	FACU	*
	Prunella vulgaris	Herb		5	FACU+	
	Parentucellia viscosa	Herb		5	FAC-	
	Agrostis stolonifera	Herb		15	FAC	
	Danthonia californica	Herb		5	FACU	
	Trifolium dubium	Herb		10	UPL	
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No
T4, P16	*Anthoxanthum odoratum*	Herb		15	FACU	
	Hypochaeris radicata	Herb		30	FACU	*
	Leucanthemum vulgare	Herb		20	NL	*
	Aira caryophyllea	Herb		5	NL	
	Agrostis stolonifera	Herb		30	FAC	*
	Percent of Dominants that are FAC, FACW, or OBL =					33
	Hydrophytic Vegetation Present?					No
T4, P17	*Daucus carota*	Herb		15	NL	
	Hypochaeris radicata	Herb		20	FACU	*
	Leucanthemum vulgare	Herb		25	NL	*
	Agrostis stolonifera	Herb		40	FAC	*
	Percent of Dominants that are FAC, FACW, or OBL =					33
	Hydrophytic Vegetation Present?					No
T4, P18	*Anthoxanthum odoratum*	Herb		25	FACU	*
	Hypochaeris radicata	Herb		10	FACU	
	Leucanthemum vulgare	Herb		10	NL	
	Agrostis stolonifera	Herb		40	FAC	*
	Festuca arundinacea	Herb		40	FAC-	*
	Prunella vulgaris	Herb		5	FACU+	
	Fragaria virginiana	Herb		5	FACU	
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No

	6/27/2007					
Transect, Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
T5, P1	*Anthoxanthum odoratum*	Herb		25	FACU	*
	Hypochaeris radicata	Herb		5	FACU	
	Agrostis stolonifera	Herb		10	FAC	
	Daucus carota	Herb		5	NL	
	Fragaria virginiana	Herb		15	FACU	
	Plantago lanceolata	Herb		20	FAC	*
	Leucanthemum vulgare	Herb		20	NL	*
	Percent of Dominants that are FAC, FACW, or OBL =					33
	Hydrophytic Vegetation Present?					No
T5, P2	*Pseudotsuga menziesii*	Tree	15	50	FACU	*
	Alnus rubra	Tree	15	50	FAC	*
	Cytisus scoparius	Sap/Shrub	5	100	NL	
	Anthoxanthum odoratum	Herb		20	FACU	*
	Leucanthemum vulgare	Herb		5	NL	
	Hypochaeris radicata	Herb		25	FACU	*
	Agrostis stolonifera	Herb		15	FAC	
	Daucus carota	Herb		5	NL	
	Trifolium dubium	Herb		25	UPL	*
	Festuca rubra	Herb		5	FAC	
	Percent of Dominants that are FAC, FACW, or OBL =					20
	Hydrophytic Vegetation Present?					No
T5, P3	*Pseudotsuga menziesii*	Tree	35	100	FACU	*
	Rubus ursinus	Sap/Shrub	30	100	FACU	*
	Anthoxanthum odoratum	Herb		35	FACU	*
	Leucanthemum vulgare	Herb		15	NL	
	Hypochaeris radicata	Herb		20	FACU	*
	Agrostis stolonifera	Herb		25	FAC	*
	Daucus carota	Herb		5	NL	
	bare ground		5			
	Percent of Dominants that are FAC, FACW, or OBL =					20
	Hydrophytic Vegetation Present?					No
T5, P4	*Pseudotsuga menziesii*	Tree	22	100	FACU	*
	Anthoxanthum odoratum	Herb		25	FACU	*
	Leucanthemum vulgare	Herb		8	NL	
	Hypochaeris radicata	Herb		20	FACU	*
	Agrostis stolonifera	Herb		30	FAC	*
	Daucus carota	Herb		2	NL	
	Trifolium dubium	Herb		10	UPL	
	Prunella vulgaris	Herb		2	FACU+	
	Parentucellia viscosa	Herb		3	FAC-	
	bare ground		5			
	Percent of Dominants that are FAC, FACW, or OBL =					25
	Hydrophytic Vegetation Present?					No

	6/27/2007					
Transect, Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
T5, P5	*Alnus rubra*	Tree	20	74	FAC	*
	Salix sitchensis	Tree	7	26	FACW	
	Rubus ursinus	Sap/Shrub	20	57	FACU	*
	Spiraea douglasii	Sap/Shrub	15	43	FACW	*
	Anthoxanthum odoratum	Herb		5	FACU	
	Hypochaeris radicata	Herb		5	FACU	
	Prunella vulgaris	Herb		15	FACU+	
	Juncus effusus	Herb		30	FACW	*
	Carex obnupta	Herb		40	OBL	*
	Solidago canadensis	Herb		5	FACU	
	Percent of Dominants that are FAC, FACW, or OBL =					80
	Hydrophytic Vegetation Present?					No
T5, P6	*Spiraea douglasii*	Sap/Shrub	7	100	FACW	
	Hypochaeris radicata	Herb		25	FACU	*
	Carex aurea	Herb		25	FACW+	*
	Agrostis stolonifera	Herb		25	FAC	*
	Juncus tenuis	Herb		20	FACW	*
	Prunella vulgaris	Herb		3	FACU+	
	Holcus lanatus	Herb		2	FAC	
	Percent of Dominants that are FAC, FACW, or OBL =					75
	Hydrophytic Vegetation Present?					Yes
T5, P7	*Anthoxanthum odoratum*	Herb		25	FACU	*
	Hypochaeris radicata	Herb		40	FACU	*
	Agrostis stolonifera	Herb		25	FAC	*
	Carex aurea	Herb		10	FACW+	
	bare ground		15			
	Percent of Dominants that are FAC, FACW, or OBL =					33
	Hydrophytic Vegetation Present?					Yes
Note: The Hypochaeris was depauperate from growing in the wet conditions and the bare soil was cracked indicating inundation. Given the presence of Carex aurea, BPJ determines this plot is hydrophytic.						
T5, P7b	*Anthoxanthum odoratum*	Herb		20	FACU	*
	Leucanthemum vulgare	Herb		20	NL	*
	Hypochaeris radicata	Herb		30	FACU	*
	Agrostis stolonifera	Herb		10	FAC	
	Trifolium dubium	Herb		3	UPL	
	Prunella vulgaris	Herb		15	FACU+	
	Aira caryophyllea	Herb		2	NL	
	bare ground		15			
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No

	6/27/2007					
Transect, Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
T5, P8	*Anthoxanthum odoratum*	Herb		15	FACU	
	Hypochaeris radicata	Herb		2	FACU	
	Agrostis stolonifera	Herb		5	FAC	
	Leucanthemum vulgare	Herb		13	NL	
	Madia sp.	Herb		65	NL	*
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No
T5, P9	*Fraxinus latifolia*	Tree	5	100	FACW	
	Anthoxanthum odoratum	Herb		5	FACU	
	Leucanthemum vulgare	Herb		5	NL	
	Juncus effusus	Herb		5	FACW	
	Carex obnupta	Herb		80	OBL	*
	Holcus lanatus	Herb		5	FAC	
	Percent of Dominants that are FAC, FACW, or OBL =					100
	Hydrophytic Vegetation Present?					Yes
T5, P10	*Anthoxanthum odoratum*	Herb		5	FACU	
	Leucanthemum vulgare	Herb		20	NL	*
	Hypochaeris radicata	Herb		25	FACU	*
	Festuca arundinacea	Herb		45	FAC-	*
	Prunella vulgaris	Herb		5	FACU+	
	bare ground		5			
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No
T5, P11	*Anthoxanthum odoratum*	Herb		5	FACU	
	Hypochaeris radicata	Herb		35	FACU	*
	Agrostis stolonifera	Herb		50	FAC	*
	Solidago canadensis	Herb		5	FACU	
	bare ground		20			
	Percent of Dominants that are FAC, FACW, or OBL =					50
	Hydrophytic Vegetation Present?					No
Note: Taking into account the non-dominant species, BPJ determines that this plot is not hydrophytic.						
T5, P12	*Anthoxanthum odoratum*	Herb		10	FACU	
	Hypochaeris radicata	Herb		35	FACU	*
	Agrostis stolonifera	Herb		5	FAC	
	Solidago canadensis	Herb		15	FACU	
	Juncus effusus	Herb		30	FACW	*
	Madia sp.	Herb		5	NL	
	Percent of Dominants that are FAC, FACW, or OBL =					50
	Hydrophytic Vegetation Present?					No
Note: Juncus effusus is a poor indicator of wetlands in disturbed areas like this site.						

	6/27/2007					
Transect, Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
T5, P13	*Anthoxanthum odoratum*	Herb		10	FACU	
	Hypochaeris radicata	Herb		48	FACU	*
	Agrostis stolonifera	Herb		40	FAC	*
	Daucus carota	Herb		2	NL	
	bare ground		15			
	Percent of Dominants that are FAC, FACW, or OBL =					50
	Hydrophytic Vegetation Present?					No
T5, P14	*Anthoxanthum odoratum*	Herb		10	FACU	
	Hypochaeris radicata	Herb		2	FACU	
	Agrostis stolonifera	Herb		35	FAC	*
	Leucanthemum vulgare	Herb		3	NL	
	Daucus carota	Herb		20	NL	*
	Fragaria virginiana	Herb		5	FACU	
	Plantago lanceolata	Herb		5	FAC	
	Centaurea pratensis	Herb		15	NL	
	Festuca arundinacea	Herb		5	FAC-	
	bare ground		15			
	Percent of Dominants that are FAC, FACW, or OBL =					50
	Hydrophytic Vegetation Present?					No
T5, P14b	*Anthoxanthum odoratum*	Herb		5	FACU	
	Hypochaeris radicata	Herb		3	FACU	
	Leucanthemum vulgare	Herb		2	NL	
	Daucus carota	Herb		3	NL	
	Juncus effusus	Herb		30	FACW	*
	Carex obnupta	Herb		10	OBL	
	Carex scoparia	Herb		15	FACW	*
	Holcus lanatus	Herb		15	FAC	*
	Prunella vulgaris	Herb		2	FACU+	
	Festuca arundinacea	Herb		15	FAC-	*
	Percent of Dominants that are FAC, FACW, or OBL =					100
	Hydrophytic Vegetation Present?					Yes
T5, P15	*Anthoxanthum odoratum*	Herb		5	FACU	
	Carex obnupta	Herb		10	OBL	
	Carex nebrascensis	Herb		15	OBL	*
	Holcus lanatus	Herb		15	FAC	*
	Prunella vulgaris	Herb		2	FACU+	
	Festuca rubra	Herb		15	FAC	*
	Erigeron sp.	Herb		35	NL	
	Percent of Dominants that are FAC, FACW, or OBL =					100
	Hydrophytic Vegetation Present?					Yes

	6/27/2007					
Transect, Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
T5, P16	*Carex obnupta*	Herb		85	OBL	*
	Carex stipata	Herb		1	OBL	
	Carex scoparia	Herb		3	FACW	
	Veronica sp.	Herb		3	NL	
	Geum macrophyllum	Herb		3	FACW-	
	Erigeron sp.	Herb		5	NL	
	Percent of Dominants that are FAC, FACW, or OBL =					100
	Hydrophytic Vegetation Present?					Yes
T5, P17	*Rubus ursinus*	Sap/Shrub	20	100	FACU	*
	Anthoxanthum odoratum	Herb		15	FACU	
	Hypochaeris radicata	Herb		3	FACU	
	Leucanthemum vulgare	Herb		20	NL	*
	Daucus carota	Herb		2	NL	
	Fragaria virginiana	Herb		5	FACU	
	Holcus lanatus	Herb		5	FAC	
	Festuca rubra	Herb		50	FAC	*
	bare ground		5			
	Percent of Dominants that are FAC, FACW, or OBL =					33
	Hydrophytic Vegetation Present?					No
T5, P18	*Anthoxanthum odoratum*	Herb		3	FACU	
	Leucanthemum vulgare	Herb		20	NL	*
	Daucus carota	Herb		10	NL	
	Prunella vulgaris	Herb		2	FACU+	
	Holcus lanatus	Herb		2	FAC	
	Festuca rubra	Herb		45	FAC	*
	Cirsium arvense	Herb		8	FACU+	
	Dactylis glomerata	Herb		10	FACU	
	Poa pratensis	Herb		t	FAC	
	bare ground		5			
	Percent of Dominants that are FAC, FACW, or OBL =					50
	Hydrophytic Vegetation Present?					No

	6/27/2007					
Transect, Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
T1, P1	*Agrostis stolonifera*	Herb		25	FAC	*
	Leucanthemum vulgare	Herb		22	NL	*
	Hypochaeris radicata	Herb		20	FACU	*
	Fragaria virginiana	Herb		3	FACU	
	Festuca rubra	Herb		5	FAC	
	Prunella vulgaris	Herb		2	FACU+	
	Plantago lanceolata	Herb		23	FAC	*
	bare ground		15			
	Percent of Dominants that are FAC, FACW, or OBL =					50
	Hydrophytic Vegetation Present?					Yes
T1, P2	*Anthoxanthum odoratum*	Herb		15	FACU	
	Agrostis stolonifera	Herb		5	FAC	
	Madia sp.	Herb		30	NL	*
	Hypochaeris radicata	Herb		30	FACU	*
	Prunella vulgaris	Herb		5	FACU+	
	Juncus effusus	Herb		5	FACW	
	bare ground		10			
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No
T1, P3	*Anthoxanthum odoratum*	Herb		60	FACU	*
	Leucanthemum vulgare	Herb		20	NL	
	Hypochaeris radicata	Herb		5	FACU	
	Daucus carota	Herb		10	NL	
	Phalaris arundinacea	Herb		5	FACW	
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No
T1, P4	*Anthoxanthum odoratum*	Herb		60	FACU	*
	Leucanthemum vulgare	Herb		10	NL	
	Madia sp.	Herb		5	NL	
	Cirsium arvense	Herb		10	FACU+	
	Prunella vulgaris	Herb		3	FACU+	
	Holcus lanatus	Herb		10	FAC	
	Senecio jacobaea	Herb		2	FACU	
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No
T1, P5	*Anthoxanthum odoratum*	Herb		5	FACU	
	Leucanthemum vulgare	Herb		2	NL	
	Hypochaeris radicata	Herb		76	FACU	*
	Agrostis stolonifera	Herb		10	FAC	
	Prunella vulgaris	Herb		3	FACU+	
	Sisyrinchium douglasii	Herb		2	FACU	
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No

	6/27/2007					
Transect, Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
T1, P6	*Bellis perennis*	Herb	1	3	NL	
	Leucanthemum vulgare	Herb	4	11	NL	
	Hypochaeris radicata	Herb	30	86	FACU	*
	bare ground		65			
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					Yes
Note: The Hypochaeris was depauperate from growing in the wet conditions and the bare soil was cracked indicating inundation. BPJ determines this plot is hydrophytic.						
T1, P7	*Rosa pisocarpa*	Sap/Shrub	15	100	FAC	*
	Leucanthemum vulgare	Herb		40	NL	*
	Hypochaeris radicata	Herb		40	FACU	*
	Agrostis stolonifera	Herb		20	FAC	*
	bare ground		65			
	Percent of Dominants that are FAC, FACW, or OBL =					50
	Hydrophytic Vegetation Present?					Yes
Note: The Hypochaeris was depauperate from growing in the wet conditions and the bare soil was cracked indicating inundation. BPJ determines this plot is hydrophytic.						
T1, P8	*Anthoxanthum odoratum*	Herb		5	FACU	
	Leucanthemum vulgare	Herb		5	NL	
	Hypochaeris radicata	Herb		85	FACU	*
	Prunella vulgaris	Herb		1	FACU+	
	Daucus carota	Herb		4	NL	
	bare ground		5			
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No
T1, P9	*Juncus acuminatus*	Herb		40	OBL	*
	Juncus tenuis	Herb		15	FACW	*
	Hypericum anagalloides	Herb		10	OBL	
	Carex scoparia	Herb		10	FACW	
	Madia sp.	Herb		10	NL	
	Eleocharis acicularis	Herb		10	OBL	
	Agrostis stolonifera	Herb		5	FAC	
	bare ground		50			
	Percent of Dominants that are FAC, FACW, or OBL =					100
	Hydrophytic Vegetation Present?					Yes

	6/27/2007					
Transect, Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
T1, P10	*Juncus acuminatus*	Herb		10	OBL	
	Hypochaeris radicata	Herb		70	FACU	*
	Leucanthemum vulgare	Herb		1	NL	
	Prunella vulgaris	Herb		10	FACU+	
	Daucus carota	Herb		1	NL	
	Agrostis stolonifera	Herb		1	FAC	
	Carex aurea	Herb		2	FACW+	
	Trifolium dubium	Herb		5		
	bare ground		25			
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					Yes
Note: The Hypochaeris was depauperate from growing in the wet conditions. Given the presence of Juncus tenuis and Carex aurea, BPJ determines this plot is hydrophytic.						
T1, P11	*Anthoxanthum odoratum*	Herb		10	FACU	
	Leucanthemum vulgare	Herb		5	NL	
	Hypochaeris radicata	Herb		80	FACU	*
	Daucus carota	Herb		1	NL	
	Fragaria virginiana	Herb		1	FACU	
	Prunella vulgaris	Herb		2	FACU+	
	Aira caryophyllea	Herb		1	NL	
	bare ground		4			
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No
T1, P12	*Pseudotsuga menziesii*	Tree	40	100	FACU	*
	Rubus ursinus	Sap/Shrub	10	90	FACU	
	Cytisus scoparius	Sap/Shrub	1	10		
	Anthoxanthum odoratum	Herb		40	FACU	
	Leucanthemum vulgare	Herb		2	NL	
	Hypochaeris radicata	Herb		20	FACU	*
	Daucus carota	Herb		1	NL	
	Agrostis stolonifera	Herb		35	FAC	
	Bellis perennis	Herb		1	NL	
	bare ground		10			
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No

	6/28/2007					
Transect, Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
T2, P1	*Spiraea douglasii*	Sap/Shrub	25	100	FACW	*
	Anthoxanthum odoratum	Herb		10	FACU	
	Leucanthemum vulgare	Herb		10	NL	
	Hypochaeris radicata	Herb		15	FACU	*
	Daucus carota	Herb		15	NL	*
	Agrostis stolonifera	Herb		14	FAC	
	Plantago lanceolata	Herb		25	FAC	*
	Trifolium dubium	Herb		10	UPL	
	Danthonia californica	Herb		1	FACU	
	bare ground		15			
	Percent of Dominants that are FAC, FACW, or OBL =					50
	Hydrophytic Vegetation Present?					Yes
T2, P2	*Fraxinus latifolia*	Sap/Shrub	3	38	FACW	
	Rubus discolor	Sap/Shrub	5	63	FACU	
	Anthoxanthum odoratum	Herb		5	FACU	
	Leucanthemum vulgare	Herb		5	NL	
	Hypochaeris radicata	Herb		70	FACU	*
	Daucus carota	Herb		5	NL	
	Plantago lanceolata	Herb		5	FAC	
	Prunella vulgaris	Herb		5	FACU+	
	Festuca rubra	Herb		5	FAC	
	bare ground		15			
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No
T2, P3	*Fraxinus latifolia*	Tree	10	50	FACW	*
	Rhamnus purshiana	Tree	10	50	FAC-	*
	Rubus discolor	Sap/Shrub	10	50	FACU	*
	Spiraea douglasii	Sap/Shrub	10	50	FACW	*
	Phalaris arundinacea	Herb	100	100	FACW	*
	Percent of Dominants that are FAC, FACW, or OBL =					60
	Hydrophytic Vegetation Present?					Yes
T2, P4	*Fraxinus latifolia*	Tree	20	80	FACW	*
	Rhamnus purshiana	Tree	5	20	FAC-	
	Rosa pisocarpa	Sap/Shrub	5	50	FACW	
	Spiraea douglasii	Sap/Shrub	5	50	FACW	
	Leucanthemum vulgare	Herb		5	NL	
	Juncus effusus	Herb		65	FACW	*
	Solidago canadensis	Herb		20	FACU	*
	Eriophyllum lanatum	Herb		10	NL	
	Percent of Dominants that are FAC, FACW, or OBL =					67
	Hydrophytic Vegetation Present?					Yes

	6/28/2007					
Transect, Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
T2, P5	*Fraxinus latifolia*	Tree	5	100	FACW	
	Fraxinus latifolia	Sap/Shrub	15	43	FACW	*
	Spiraea douglasii	Sap/Shrub	20	57	FACW	*
	Leucanthemum vulgare	Herb		5	NL	
	Juncus effusus	Herb		85	FACW	*
	Hypochaeris radicata	Herb		15	FACU	
	Percent of Dominants that are FAC, FACW, or OBL =					100
	Hydrophytic Vegetation Present?					Yes
T2, P6	*Fraxinus latifolia*	Sap/Shrub	25	45	FACW	*
	Spiraea douglasii	Sap/Shrub	30	55	FACW	*
	Leucanthemum vulgare	Herb		3	NL	
	Solidago canadensis	Herb		5	FACU	
	Juncus effusus	Herb		80	FACW	*
	Hypochaeris radicata	Herb		10	FACU	
	Prunella vulgaris	Herb		2	FACU+	
	Percent of Dominants that are FAC, FACW, or OBL =					100
	Hydrophytic Vegetation Present?					Yes
T2, P7	*Fraxinus latifolia*	Sap/Shrub	25	38	FACW	*
	Spiraea douglasii	Sap/Shrub	30	46	FACW	*
	Rubus ursinus	Sap/Shrub	10	15	FACU	
	Anthoxanthum odoratum	Herb		35	FACU	*
	Leucanthemum vulgare	Herb		10	NL	
	Hypochaeris radicata	Herb		15	FACU	
	Agrostis stolonifera	Herb		15	FAC	
	Danthonia californica	Herb		15	FACU	
	Daucus carota	Herb		2	NL	
	Madia sp.	Herb		3	FACU	
	Percent of Dominants that are FAC, FACW, or OBL =					67
	Hydrophytic Vegetation Present?					Yes
T2, P8	*Fraxinus latifolia*	Sap/Shrub	3	60	FACW	
	Spiraea douglasii	Sap/Shrub	1	20	FACW	
	Rosa pisocarpa	Sap/Shrub	1	20	FAC	
	Anthoxanthum odoratum	Herb	1	3	FACU	
	Leucanthemum vulgare	Herb	1	3	NL	
	Hypochaeris radicata	Herb	20	57	FACU	*
	Agrostis stolonifera	Herb	1	3	FAC	
	Prunella vulgaris	Herb	1	3	FACU+	
	Juncus tenuis	Herb	1	3	FACW	
	Holcus lanatus	Herb	1	3	FAC	
	Juncus effusus	Herb	9	26	FACW	*
	bare ground		60			
	Percent of Dominants that are FAC, FACW, or OBL =					50
	Hydrophytic Vegetation Present?					Yes

	6/28/2007					
Transect, Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
T2, P9	*Leucanthemum vulgare*	Herb	1	3	NL	
	Hypochaeris radicata	Herb	12	30	FACU	*
	Agrostis stolonifera	Herb	20	50	FAC	*
	Juncus tenuis	Herb	5	13	FACW	
	Madia sp.	Herb	2	5	FACU	
	bare ground		60			
	Percent of Dominants that are FAC, FACW, or OBL =					50
	Hydrophytic Vegetation Present?					Yes
T2, P10	*Leucanthemum vulgare*	Herb	1	1	NL	
	Hypochaeris radicata	Herb	30	38	FACU	*
	Agrostis stolonifera	Herb	15	19	FAC	*
	Madia sp.	Herb	15	19	FACU	*
	Danthonia californica	Herb	1	1	FACU	
	Daucus carota	Herb	1	1	NL	
	Solidago canadensis	Herb	15	19	FACU	*
	Prunella vulgaris	Herb	2	3	FACU+	
	bare ground		20			
	Percent of Dominants that are FAC, FACW, or OBL =					25
	Hydrophytic Vegetation Present?					No
T2, P11	*Pseudotsuga menziesii*	Tree	20	100	FACU	*
	Rosa pisocarpa	Sap/Shrub	20	44	FAC	*
	Spiraea douglasii	Sap/Shrub	10	22	FACW	
	Rubus discolor	Sap/Shrub	10	22	FACU	
	Rubus ursinus	Sap/Shrub	5	11	FACU	
	Leucanthemum vulgare	Herb	10	10	NL	
	Juncus effusus	Herb	20	20	FACW	*
	Solidago canadensis	Herb	10	10	FACU	
	Cirsium arvense	Herb	10	10	FACU+	
	Carex obnupta	Herb	45	45	OBL	*
	Percent of Dominants that are FAC, FACW, or OBL =					75
	Hydrophytic Vegetation Present?					Yes
T2, P12	*Pseudotsuga menziesii*	Sap/Shrub	30	68	FACU	*
	Rosa pisocarpa	Sap/Shrub	2	5	FAC	
	Rubus discolor	Sap/Shrub	2	5	FACU	
	Rubus ursinus	Sap/Shrub	10	23	FACU	
	Leucanthemum vulgare	Herb		1	NL	
	Hypochaeris radicata	Herb		5	FACU	
	Agrostis stolonifera	Herb		85	FAC	*
	Daucus carota	Herb		3	NL	
	Prunella vulgaris	Herb		2	FACU+	
	Percent of Dominants that are FAC, FACW, or OBL =					50
	Hydrophytic Vegetation Present?					No

	6/28/2007					
Transect, Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
PBX	*Juncus effusus*	Herb	5	6	FACW	
	Carex obnupta	Herb	70	82	OBL	*
	Veronica scutellata	Herb	10	12	OBL	
	Portulaca oleracea	Herb	t	t	FAC	
	Eleocharis acicularis	Herb	t	t	FACU+	
	bare ground		15			
	Percent of Dominants that are FAC, FACW, or OBL =					100
	Hydrophytic Vegetation Present?					Yes
Note: Soil surface was saturated.						
T3, P1	*Alnus rubra*	Tree	10	100	FAC	
	Alnus rubra	Sap/Shrub	4	15	FAC	
	Rubus ursinus	Sap/Shrub	10	38	FACU	
	Fraxinus latifolia	Sap/Shrub	3	12	OBL	
	Spiraea douglasii	Sap/Shrub	8	31	FACW	
	Cornus sericea	Sap/Shrub	1	4	FACW	
	Anthoxanthum odoratum	Herb	20	20	FACU	*
	Leucanthemum vulgare	Herb	5	5	NL	
	Daucus carota	Herb	5	5	NL	
	Festuca rubra	Herb	20	20	FAC	*
	Juncus effusus	Herb	10	10	FACW	
	Equisetum arvense	Herb	15	15	FAC	*
	Plantago lanceolata	Herb	10	10	FAC	
	Fragaria virginiana	Herb	10	10	FACU	
	Prunella vulgaris	Herb	5	5	FACU+	
	bare ground		0			
	Percent of Dominants that are FAC, FACW, or OBL =					67
	Hydrophytic Vegetation Present?					Yes
T3, P2	*Alnus rubra*	Sap/Shrub	7	18	FAC	
	Rhamnus purshiana	Sap/Shrub	5	13	FAC-	
	Fraxinus latifolia	Sap/Shrub	4	11	OBL	
	Spiraea douglasii	Sap/Shrub	22	58	FACW	*
	Anthoxanthum odoratum	Herb	10	10	FACU	
	Leucanthemum vulgare	Herb	5	5	NL	
	Juncus effusus	Herb	50	50	FACW	*
	Equisetum arvense	Herb	3	3	FAC	
	Plantago lanceolata	Herb	5	5	FAC	
	Geum macrophyllum	Herb	2	2	FACW-	
	Holcus lanatus	Herb	20	20	FAC	*
	Prunella vulgaris	Herb	5	5	FACU+	
	bare ground		0			
	Percent of Dominants that are FAC, FACW, or OBL =					100
	Hydrophytic Vegetation Present?					Yes

	6/28/2007					
Transect, Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
T3, P3	*Alnus rubra*	Tree	25	100	FAC	*
	Pseudotsuga menziesii	Sap/Shrub	4	25	FACU	
	Fraxinus latifolia	Sap/Shrub	6	38	OBL	
	Spiraea douglasii	Sap/Shrub	6	38	FACW	
	Anthoxanthum odoratum	Herb		20	FACU	*
	Leucanthemum vulgare	Herb		5	NL	
	Daucus carota	Herb		5	NL	
	Agrostis stolonifera	Herb		40	FAC	*
	Hypochaeris radicata	Herb		25	FACU	*
	Lotus purshiana	Herb		5	FAC	
	bare ground		35			
	Percent of Dominants that are FAC, FACW, or OBL =					50
	Hydrophytic Vegetation Present?					Yes
Note: Soil surface was a cracked crust indicating inundatio						
T3, P4	*Alnus rubra*	Tree	50	100	FAC	*
	Alnus rubra	Sap/Shrub	10	17	FAC	
	Pseudotsuga menziesii	Sap/Shrub	10	17	FACU	
	Fraxinus latifolia	Sap/Shrub	20	33	OBL	*
	Spiraea douglasii	Sap/Shrub	20	33	FACW	*
	Anthoxanthum odoratum	Herb		30	FACU	*
	Leucanthemum vulgare	Herb		5	NL	
	Daucus carota	Herb		5	NL	
	Agrostis stolonifera	Herb		20	FAC	*
	Hypochaeris radicata	Herb		40	FACU	*
	Juncus acuminatus	Herb		t	FACW	
	bare ground		10			
	Percent of Dominants that are FAC, FACW, or OBL =					67
	Hydrophytic Vegetation Present?					Yes
T3, P5	*Pseudotsuga menziesii*	Sap/Shrub	5	7	FACU	
	Rubus ursinus	Sap/Shrub	25	33	FACU	*
	Fraxinus latifolia	Sap/Shrub	5	7	OBL	
	Spiraea douglasii	Sap/Shrub	40	53	FACW	*
	Anthoxanthum odoratum	Herb	10	10	FACU	
	Leucanthemum vulgare	Herb	10	10	NL	
	Daucus carota	Herb	5	5	NL	
	Festuca rubra	Herb	50	50	FAC	*
	Hypochaeris radicata	Herb	20	20	FACU	*
	Prunella vulgaris	Herb	5	5	FACU+	
	bare ground		0			
	Percent of Dominants that are FAC, FACW, or OBL =					50
	Hydrophytic Vegetation Present?					Yes

	6/28/2007					
Transect, Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
T3, P6	*Pseudotsuga menziesii*	Sap/Shrub	10	15	FACU	
	Rubus ursinus	Sap/Shrub	15	23	FACU	*
	Fraxinus latifolia	Sap/Shrub	15	23	OBL	*
	Spiraea douglasii	Sap/Shrub	25	38	FACW	*
	Anthoxanthum odoratum	Herb	10	10	FACU	
	Leucanthemum vulgare	Herb	5	5	NL	
	Daucus carota	Herb	2	2	NL	
	Festuca rubra	Herb	70	70	FAC	*
	Hypochaeris radicata	Herb	5	5	FACU	
	Prunella vulgaris	Herb	3	3	FACU+	
	Agrostis stolonifera	Herb	5	5	FAC	
	bare ground		0			
	Percent of Dominants that are FAC, FACW, or OBL =					75
	Hydrophytic Vegetation Present?					Yes
T3, P7	*Pseudotsuga menziesii*	Sap/Shrub	5	13	FACU	
	Rosa nutkana	Sap/Shrub	15	38	FAC	*
	Fraxinus latifolia	Sap/Shrub	5	13	OBL	
	Spiraea douglasii	Sap/Shrub	15	38	FACW	*
	Anthoxanthum odoratum	Herb	15	15	FACU	
	Leucanthemum vulgare	Herb	10	10	NL	
	Daucus carota	Herb	3	3	NL	
	Carex obnupta	Herb	45	45	OBL	*
	Solidago canadensis	Herb	25	25	FACU	*
	Prunella vulgaris	Herb	2	2	FACU+	
	bare ground		0			
	Percent of Dominants that are FAC, FACW, or OBL =					75
	Hydrophytic Vegetation Present?					Yes
T3, P8	*Pseudotsuga menziesii*	Sap/Shrub	10	29	FACU	
	Rosa nutkana	Sap/Shrub	5	14	FAC	
	Fraxinus latifolia	Sap/Shrub	5	14	OBL	
	Spiraea douglasii	Sap/Shrub	15	43	FACW	*
	Anthoxanthum odoratum	Herb		10	FACU	
	Leucanthemum vulgare	Herb		14	NL	
	Danthonia californica	Herb		1	FACU	
	Carex obnupta	Herb		50	OBL	*
	Solidago canadensis	Herb		2	FACU	*
	Madia sp.	Herb		5	FACU	
	Hypochaeris radicata	Herb		10	FACU	
	Agrostis stolonifera	Herb		5	FAC	*
	Juncus tenuis	Herb		3	FACW	
	bare ground		4			
	Percent of Dominants that are FAC, FACW, or OBL =					75
	Hydrophytic Vegetation Present?					Yes

	6/28/2007					
Transect, Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
T3, P9	*Pseudotsuga menziesii*	Sap/Shrub	5	20	FACU	
	Rosa nutkana	Sap/Shrub	12	48	FAC	
	Fraxinus latifolia	Sap/Shrub	5	20	OBL	
	Spiraea douglasii	Sap/Shrub	3	12	FACW	
	Anthoxanthum odoratum	Herb	5	5	FACU	
	Leucanthemum vulgare	Herb	20	20	NL	
	Daucus carota	Herb	3	3	NL	
	Carex obnupta	Herb	40	40	OBL	*
	Solidago canadensis	Herb	25	25	FACU	*
	Prunella vulgaris	Herb	2	2	FACU+	
	Madia sp.	Herb	3	3	FACU	
	Carex scoparia	Herb	2	2	FACW	
	bare ground		0			
	Percent of Dominants that are FAC, FACW, or OBL =					50
	Hydrophytic Vegetation Present?					Yes
Note: The ash, spirea, and rose have insufficiently low covers to be considered dominant, but given their presence, BPJ determines this plot to have hydrophytic vegetation.						
T3, P10	*Alnus rubra*	Tree	35	100	FAC	*
	Pseudotsuga menziesii	Sap/Shrub	35	58	FACU	*
	Rosa nutkana	Sap/Shrub	5	8	FAC	
	Spiraea douglasii	Sap/Shrub	5	8	FACW	
	Rubus ursinus	Sap/Shrub	15	25	FACU	*
	Anthoxanthum odoratum	Herb		15	FACU	
	Leucanthemum vulgare	Herb		5	NL	
	Glyceria elata	Herb		25	FACW+	*
	Festuca rubra	Herb	70	55	FAC	*
	Percent of Dominants that are FAC, FACW, or OBL =					60
	Hydrophytic Vegetation Present?					Yes
T3, P11	*Alnus rubra*	Tree	3	38	FAC	
	Pseudotsuga menziesii	Tree	5	63	FACU	
	Pseudotsuga menziesii	Sap/Shrub	35	66	FACU	*
	Rhamnus purshiana	Sap/Shrub	1	2	FAC-	
	Rubus ursinus	Sap/Shrub	15	28	FACU	*
	Spiraea douglasii	Sap/Shrub	2	4	FACW	
	Anthoxanthum odoratum	Herb		10	FACU	
	Leucanthemum vulgare	Herb		20	NL	*
	Hypochaeris radicata	Herb		25	FACU	*
	Prunella vulgaris	Herb		20	FACU+	*
	Agrostis stolonifera	Herb		2	FAC	
	Daucus carota	Herb		5	NL	
	Centaurea x pratense	Herb		15	NL	
	Plantago lanceolata	Herb		3	FAC	
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No

	6/26/2007					
Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
P1	*Pseudotsuga menziesii*	Tree	10	33	FACU	
	Alnus rubra	Tree	20	67	FAC	*
	Crataegus douglasii	Sap/Shrub	20	27	FAC	*
	Rubus ursinus	Sap/Shrub	20	27	FACU	*
	Rhamnus purshiana	Sap/Shrub	20	27	FAC-	*
	Gaultheria shallon	Sap/Shrub	15	20	FACU	*
	Deschampsia elongata	Herb	40	50	FACW-	*
	Anthoxanthum odoratum	Herb	40	50	FACU	*
	Claytonia sibirica	Herb	t		FAC	
	Percent of Dominants that are FAC, FACW, or OBL =					43
	Hydrophytic Vegetation Present?					No
P2	*Rhamnus purshiana*	Tree	50	100	FAC-	*
	Rubus ursinus	Sap/Shrub	20	40	FACU	*
	Gaultheria shallon	Sap/Shrub	25	50	FACU	*
	Rosa pisocarpa	Sap/Shrub	5	10	FAC	
	Deschampsia elongata	Herb	17	22	FACW-	*
	Anthoxanthum odoratum	Herb	1	1	FACU	
	Festuca arundinacea	Herb	60	76	FAC-	*
	Galium aparine		1	1	FACU	
	Claytonia sibirica	Herb	t		FAC	
	Percent of Dominants that are FAC, FACW, or OBL =					20
	Hydrophytic Vegetation Present?					No
P3	*Pseudotsuga menziesii*	Tree	20	29	FACU	*
	Alnus rubra	Tree	50	71	FAC	*
	Rubus ursinus	Sap/Shrub	60	92	FACU	*
	Rosa pisocarpa	Sap/Shrub	5	8	FAC	
	Deschampsia elongata	Herb	25	83	FACW-	*
	Festuca arundinacea	Herb	5	17	FAC-	
	Percent of Dominants that are FAC, FACW, or OBL =					50
	Hydrophytic Vegetation Present?					No
Note: Given the dominance of Rubus ursinus and the presence of Pseudotsuga, BPJ determines this not to be hydrophytic vegetation.						
P4	*Pseudotsuga menziesii*	Tree	10	17	FACU	
	Alnus rubra	Tree	50	83	FAC	*
	Rubus ursinus	Sap/Shrub	75	94	FACU	*
	Rosa pisocarpa	Sap/Shrub	5	6	FAC	
	Deschampsia elongata	Herb	5	100	FACW-	
	Percent of Dominants that are FAC, FACW, or OBL =					50
	Hydrophytic Vegetation Present?					No
Note: Given the dominance of Rubus ursinus and the presence of Pseudotsuga, BPJ determines that the vegetation in this plot is not hydrophytic.						

	6/26/2007					
Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
P4b	*Alnus rubra*	Tree	5	100	FAC	
	Rubus ursinus	Sap/Shrub	40	50	FACU	*
	Rosa pisocarpa	Sap/Shrub	20	25	FAC	*
	Spiraea douglasii	Sap/Shrub	20	25	FACW	*
	Deschampsia elongata	Herb	75	94	FACW-	*
	Festuca arundinacea	Herb	2	3	FAC-	
	Holcus lanatus	Herb	2	3	FAC	
	Galium aparine	Herb	1	1	FACU	
	Percent of Dominants that are FAC, FACW, or OBL =					75
	Hydrophytic Vegetation Present?					Yes
P5	*Pseudotsuga menziesii*	Tree	10	25	FACU	
	Alnus rubra	Tree	30	75	FAC	*
	Rubus ursinus	Sap/Shrub	40	47	FACU	*
	Rosa pisocarpa	Sap/Shrub	20	24	FAC	*
	Spiraea douglasii	Sap/Shrub	20	24	FACW	*
	Acer circinatum	Sap/Shrub	5	6	FAC-	
	Phalaris arundinacea	Herb	75	100	FACW	*
	Percent of Dominants that are FAC, FACW, or OBL =					80
	Hydrophytic Vegetation Present?					Yes

	6/26/2007					
Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
P1	*Alnus rubra*	Tree	60	100	FAC	*
	Cornus sericea	Sap/Shrub	10	25	FACW	
	Rubus spectabilis	Sap/Shrub	30	75	FAC+	*
	Osmorhiza chilensis	Herb		90	NL	*
	Stellaria calycantha	Herb		5	FACW+	
	Claytonia sibirica	Herb		5	FAC	
	Percent of Dominants that are FAC, FACW, or OBL =					67
	Hydrophytic Vegetation Present?					Yes
P2	*Alnus rubra*	Tree	20	33	FAC	*
	Rhamnus purshiana	Tree	40	67	FAC-	*
	Cornus sericea	Sap/Shrub	20	21	FACW	*
	Rubus spectabilis	Sap/Shrub	40	42	FAC+	*
	Rubus ursinus	Sap/Shrub	15	16	FACU	
	Spiraea douglasii	Sap/Shrub	20	21	FACW	*
	Athyrium filix-femina	Herb	50	83	NL	*
	Galium aparine	Herb	5	8	FACU	
	Claytonia sibirica	Herb	5	8	FAC	
	Percent of Dominants that are FAC, FACW, or OBL =					67
	Hydrophytic Vegetation Present?					Yes
P3	*Alnus rubra*	Tree	80	89	FAC	*
	Pseudotsuga menziesii	Tree	10	11	FACU	
	Cornus sericea	Sap/Shrub	15	20	FACW	*
	Rubus spectabilis	Sap/Shrub	40	53	FAC+	*
	Rosa pisocarpa	Sap/Shrub	5	7	FAC	
	Lonicera involucrata	Sap/Shrub	5	7		
	Rubus ursinus	Sap/Shrub	10	13	FACU	
	Athyrium filix-femina	Herb	8	9	FAC	
	Carex obnupta	Herb	70	77	OBL	*
	Polystichum munitum	Herb	10	11	FACU	
	Mimulus guttatus	Herb	3	3	OBL	
	Percent of Dominants that are FAC, FACW, or OBL =					100
	Hydrophytic Vegetation Present?					Yes

	6/29/2007					
Transect, Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
T1, P1	*Rosa pisocarpa*	Sap/Shrub	10	20	FAC	
	Rubus ursinus	Sap/Shrub	40	80	FACU	*
	Anthoxanthum odoratum	Herb	10	17	FACU	
	Cirsium arvense	Herb	10	17	FACU+	
	Deschampsia elongata	Herb	15	25	FACW	*
	Holcus lanatus	Herb	15	25	FAC	*
	Festuca arundinacea	Herb	10	17	FAC-	
	Claytonia sibirica	Herb	t	t	FAC	
	Percent of Dominants that are FAC, FACW, or OBL =					67
	Hydrophytic Vegetation Present?					Yes
T1, P2	*Alnus rubra*	Tree	80	100	FAC	*
	Rhamnus purshiana	Sap/Shrub	10	22	FAC-	
	Rubus ursinus	Sap/Shrub	30	67	FACU	*
	Spiraea douglasii	Sap/Shrub	5	11	FACW	
	Anthoxanthum odoratum	Herb	3	4	FACU	
	Deschampsia elongata	Herb	55	80	FACW	*
	Solidago canadensis	Herb	1	1	FACU	
	Hypericum perforatum	Herb	10	14	NL	
	Percent of Dominants that are FAC, FACW, or OBL =					67
	Hydrophytic Vegetation Present?					Yes
T1, P3	*Alnus rubra*	Tree	50	100	FAC	*
	Rhamnus purshiana	Sap/Shrub	5	11	FAC-	
	Rubus ursinus	Sap/Shrub	20	44	FACU	*
	Spiraea douglasii	Sap/Shrub	15	33	FACW	*
	Gaultheria shallon	Sap/Shrub	5	11	FACU	
	Deschampsia elongata	Herb	20	67	FACW	*
	Holcus lanatus	Herb	5	17	FAC	
	Hypericum perforatum	Herb	1	3	NL	
	Anthoxanthum odoratum	Herb	4	13	FACU	
	Percent of Dominants that are FAC, FACW, or OBL =					75
	Hydrophytic Vegetation Present?					Yes
T1, P4	*Alnus rubra*	Tree	40	100	FAC	*
	Amelanchier alnifolia	Sap/Shrub	10	25	FAC-	
	Rubus ursinus	Sap/Shrub	10	25	FACU	
	Spiraea douglasii	Sap/Shrub	15	38	FACW	*
	Rubus discolor	Sap/Shrub	5	13	FACU	
	Deschampsia elongata	Herb	50	63	FACW	*
	Cirsium arvense	Herb	1	1	FACU+	
	Prunella vulgaris	Herb	1	1	FACU+	
	Juncus effusus	Herb	25	25	FACW	*
	Equisetum arvense	Herb	3	3	FAC	
	Carex scoparia	Herb	20	20	FACW	*
	Percent of Dominants that are FAC, FACW, or OBL =					100
	Hydrophytic Vegetation Present?					Yes

	6/29/2007					
Transect, Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
T1, P5	*Rhamnus purshiana*	Tree	5	25	FAC-	
	Pseudotsuga menziesii	Tree	15	75	FACU	*
	Symphoricarpos albus	Sap/Shrub	15	19	FACU	
	Rubus ursinus	Sap/Shrub	15	19	FACU	
	Spiraea douglasii	Sap/Shrub	40	50	FACW	*
	Corylus cornuta	Sap/Shrub	5	6	FACU	
	Rosa pisocarpa	Sap/Shrub	5	6	FAC	
	Anthoxanthum odoratum	Herb		1	FACU	
	Carex scoparia	Herb		5	FACW	
	Deschampsia elongata	Herb		45	FACW	*
	Phalaris arundinacea	Herb		45	FACW	*
	Lotus corniculatus	Herb		1	FAC	
	Carex stipata	Herb		2	NL	
	Solidago canadensis	Herb		1	FACU	
	Percent of Dominants that are FAC, FACW, or OBL =					75
	Hydrophytic Vegetation Present?					Yes
T1, P6	*Scirpus microcarpus*	Herb	60	75	OBL	*
	Lotus corniculatus	Herb	5	6	FAC	
	Carex stipata	Herb	5	6	NL	
	Carex scoparia	Herb	5	6	FACW	
	Geum macrophyllum	Herb	5	6	FACW-	
	Percent of Dominants that are FAC, FACW, or OBL =					100
	Hydrophytic Vegetation Present?					Yes
T1, P7	*Alnus rubra*	Tree	40	73	FAC	*
	Pseudotsuga menziesii	Tree	15	27	FACU	*
	Spiraea douglasii	Sap/Shrub	60	100	FACW	*
	Phalaris arundinacea	Herb		100	FACW	*
	Percent of Dominants that are FAC, FACW, or OBL =					75
	Hydrophytic Vegetation Present?					Yes
T1, P8	*Alnus rubra*	Tree	40	100	FAC	*
	Rosa pisocarpa	Sap/Shrub	10	100	FAC	
	Spiraea douglasii	Sap/Shrub	90	90	FACW	*
	Phalaris arundinacea	Herb		100	FACW	*
	Percent of Dominants that are FAC, FACW, or OBL =					100
	Hydrophytic Vegetation Present?					Yes
T1, P9	*Spiraea douglasii*	Sap/Shrub	60	60	FACW	*
	Rosa pisocarpa	Sap/Shrub	20	20	FAC	*
	Cornus sericea	Sap/Shrub	20	20	FACW	*
	Percent of Dominants that are FAC, FACW, or OBL =					100
	Hydrophytic Vegetation Present?					Yes

	6/29/2007					
Transect, Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
T2, P1	*Rhamnus purshiana*	Sap/Shrub	30	40	FAC-	*
	Rubus ursinus	Sap/Shrub	15	20	FACU	*
	Rosa pisocarpa	Sap/Shrub	20	27	FAC	*
	Acer circinatum	Sap/Shrub	10	13	FAC-	
	Holcus lanatus	Herb	5	13	FAC	
	Polystichum munitum	Herb	6	16	FACU	
	Hypericum perforatum	Herb	3	8	NL	
	Dactylis glomerata	Herb	10	26	FACU	*
	Equisetum arvense	Herb	10	26	FAC	*
	Pteridium aquilinum	Herb	4	11	FACU	
	Percent of Dominants that are FAC, FACW, or OBL =					25
	Hydrophytic Vegetation Present?					No
T2, P2	*Rhamnus purshiana*	Sap/Shrub	5	6	FAC-	
	Rubus ursinus	Sap/Shrub	15	19	FACU	*
	Rosa pisocarpa	Sap/Shrub	20	25	FAC	*
	Rubus discolor	Sap/Shrub	15	19	FACU	*
	Corylus cornuta	Sap/Shrub	10	13	FACU	
	Symphoricarpos albus	Sap/Shrub	15	19	FACU	*
	Holcus lanatus	Herb	10	18	FAC	*
	Elymus glaucus	Herb	3	5	FACU	
	Deschampsia elongata	Herb	3	5	FACW	
	Dactylis glomerata	Herb	7	13	FACU	
	Equisetum arvense	Herb	25	45	FAC	*
	Pteridium aquilinum	Herb	5	9	FACU	
	Leucanthemum vulgare	Herb	3	5	NL	
	Percent of Dominants that are FAC, FACW, or OBL =					50
	Hydrophytic Vegetation Present?					No
T2, P3	*Rhamnus purshiana*	Sap/Shrub	3	13	FAC-	
	Rubus ursinus	Sap/Shrub	20	87	FACU	*
	Equisetum arvense	Herb	40	38	FAC	*
	Holcus lanatus	Herb	10	9	FAC	
	Hypericum perforatum	Herb	2	2	NL	
	Anthoxanthum odoratum	Herb	5	5	FACU	
	Dactylis glomerata	Herb	35	33	FACU	*
	Cirsium vulgare	Herb	1	1	FACU	
	Daucus carota	Herb	3	3	NL	
	Plantago lanceolata	Herb	3	3	FAC	
	Fragaria virginiana	Herb	1	1	FACU	
	Leucanthemum vulgare	Herb	6	6	NL	
	Percent of Dominants that are FAC, FACW, or OBL =					33
	Hydrophytic Vegetation Present?					No

	6/29/2007					
Transect, Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
T2, P4	*Rhamnus purshiana*	Sap/Shrub	10	22	FAC-	
	Rubus ursinus	Sap/Shrub	35	78	FACU	*
	Holcus lanatus	Herb	5	5	FAC	
	Hypericum perforatum	Herb	5	5	NL	
	Dactylis glomerata	Herb	25	27	FACU	*
	Equisetum arvense	Herb	30	32	FAC	*
	Pteridium aquilinum	Herb	5	5	FACU	
	Cirsium arvense	Herb	20	22	FACU	*
	Leucanthemum vulgare	Herb	3	3	NL	
	Percent of Dominants that are FAC, FACW, or OBL =					25
	Hydrophytic Vegetation Present?					No
T2, P5	*Rhamnus purshiana*	Sap/Shrub	10	11	FAC-	
	Rubus ursinus	Sap/Shrub	20	21	FACU	*
	Rosa pisocarpa	Sap/Shrub	45	47	FAC	*
	Symphoricarpos albus	Sap/Shrub	20	21	FACU	*
	Equisetum arvense	Herb	10	50	FAC	*
	Pteridium aquilinum	Herb	10	50	FACU	*
	Percent of Dominants that are FAC, FACW, or OBL =					40
	Hydrophytic Vegetation Present?					No
T3, P1	*Alnus rubra*	Tree	25	100	FAC	*
	Cornus sericea	Sap/Shrub	40	40	FACW	*
	Spiraea douglasii	Sap/Shrub	40	40	FACW	*
	Rosa pisocarpa	Sap/Shrub	20	20	FAC	*
	Glyceria elata	Herb	10	50	FACW+	*
	Oenanthe sarmentosa	Herb	5	25	OBL	
	Equisetum arvense	Herb	5	25	FAC	
	Percent of Dominants that are FAC, FACW, or OBL =					100
	Hydrophytic Vegetation Present?					Yes
Note: Soil surface was saturated.						
T3, P2	*Alnus rubra*	Tree	45	64	FAC	*
	Salix scouleriana	Tree	10	14	FAC	
	Fraxinus latifolia	Tree	15	21	FACW	*
	Fraxinus latifolia	Sap/Shrub	10	14	FACW	
	Spiraea douglasii	Sap/Shrub	5	7	FACW	
	Rhamnus purshiana	Sap/Shrub	5	7	FAC-	
	Rubus ursinus	Sap/Shrub	10	14	FACU	
	Rubus spectabilis	Sap/Shrub	15	21	FAC+	*
	Rosa pisocarpa	Sap/Shrub	25	36	FAC	*
	Scirpus microcarpus	Herb	20	49	OBL	*
	Equisetum arvense	Herb	5	12	FAC	*
	Athyrium filix-femina	Herb	5	12	FAC	*
	Galium triflorum	Herb	3	7	FACU	
	Veronica sp.	Herb	3	7	NL	
	Carex deweyana	Herb	5	12	FACU	*
	Percent of Dominants that are FAC, FACW, or OBL =					88
	Hydrophytic Vegetation Present?					Yes

	6/29/2007					
Transect, Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
T3, P3	*Alnus rubra*	Tree	35	100	FAC	*
	Alnus rubra	Sap/Shrub	10	17	FAC	
	Spiraea douglasii	Sap/Shrub	50	83	FACW	*
	Juncus effusus	Herb	15	25	FACW	*
	Equisetum arvense	Herb	5	8	FAC	
	Carex obnupta	Herb	35	58	OBL	*
	Geum macrophyllum	Herb	5	8	FACW-	
	bare ground		15			
	Percent of Dominants that are FAC, FACW, or OBL =					100
	Hydrophytic Vegetation Present?					Yes
Note: Soil surface was saturated.						
T3, P4	*Alnus rubra*	Tree	15	83	FAC	*
	Pseudotsuga menziesii	Tree	3	17	FACU	
	Alnus rubra	Sap/Shrub	10	30	FAC	*
	Spiraea douglasii	Sap/Shrub	20	61	FACW	*
	Rhamnus purshiana	Sap/Shrub	3	9	FAC-	
	Carex scoparia	Herb	10	11	FACW	
	Prunella vulgaris	Herb	5	6	FACU+	
	Carex obnupta	Herb	60	67	OBL	*
	Juncus acuminatus	Herb	10	11	OBL	
	Unidentified forb	Herb	5	6	NL	
	bare ground		20			
	Percent of Dominants that are FAC, FACW, or OBL =					100
	Hydrophytic Vegetation Present?					Yes
T3, P4b	Eleocharis palustris	Herb	50	100	OBL	*
	bare ground		50			
	Percent of Dominants that are FAC, FACW, or OBL =					100
	Hydrophytic Vegetation Present?					Yes
Note: Inundated 2 inches deep.						
T3, P5	*Alnus rubra*	Sap/Shrub	35	90	FAC	*
	Salix sitchensis	Sap/Shrub	4	10	FACW	
	Carex scoparia	Herb	35	37	FACW	*
	Juncus acuminatus	Herb	35	37	OBL	*
	Holcus lanatus	Herb	10	11	FAC	
	Oenanthe sarmentosa	Herb	5	5	OBL	
	Agrostis stolonifera	Herb	7	7	FAC	
	Unidentified forb	Herb	3	3	NL	
	bare ground		25			
	Percent of Dominants that are FAC, FACW, or OBL =					100
	Hydrophytic Vegetation Present?					Yes

	6/29/2007					
Transect, Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
T3, P6	*Alnus rubra*	Sap/Shrub	80	62	FAC	*
	Pseudotsuga menziesii	Sap/Shrub	10	8	FACU	
	Rubus ursinus	Sap/Shrub	40	31	FACU	*
	Holcus lanatus	Herb	2	4	FAC	
	Deschampsia elongata	Herb	40	77	FACW	*
	Anthoxanthum odoratum	Herb	4	8	FACU	
	Danthonia californica	Herb	1	2	FACU	
	Dactylis glomerata	Herb	5	10	FACU	
	bare ground		5			
	Percent of Dominants that are FAC, FACW, or OBL =					67
	Hydrophytic Vegetation Present?					Yes
T3, P7	*Rubus ursinus*	Sap/Shrub	20	100	FACU	*
	Festuca arundinacea	Herb		5	FAC-	
	Deschampsia elongata	Herb		20	FACW	*
	Anthoxanthum odoratum	Herb		10	FACU	
	Agrostis stolonifera	Herb		5	FAC	
	Dactylis glomerata	Herb		20	FACU	*
	Plantago lanceolata	Herb		10	FAC	
	Leucanthemum vulgare	Herb		15	NL	*
	Hypericum perforatum	Herb		5	NL	
	bare ground		5			
	Percent of Dominants that are FAC, FACW, or OBL =					25
	Hydrophytic Vegetation Present?					No
T3, P8	*Alnus rubra*	Tree	20	57	FAC	*
	Pseudotsuga menziesii	Tree	15	43	FACU	*
	Pseudotsuga menziesii	Sap/Shrub	35	30	FACU	*
	Rubus ursinus	Sap/Shrub	10	9	FACU	
	Gaultheria shallon	Sap/Shrub	20	17	FACU	*
	Symphoricarpos albus	Sap/Shrub	15	13	FACU	
	Corylus cornuta	Sap/Shrub	17	15	FACU	*
	Rhamnus purshiana	Sap/Shrub	10	9	FAC-	
	Acer circinatum	Sap/Shrub	5	4	FAC-	
	Vaccinium parvifolium	Sap/Shrub	3	3	NL	
	Pteridium aquilinum	Herb	10	100	FACU	*
	Percent of Dominants that are FAC, FACW, or OBL =					17
	Hydrophytic Vegetation Present?					Yes

	6/29/2007					
Transect, Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
T1,P1	*Alnus rubra*	Tree	20	100	FAC	*
	Symphoricarpos albus	Sap/Shrub	15	60	FACU	*
	Rubus ursinus	Sap/Shrub	10	40	FACU	
	Holcus mollis	Herb	15	25	FACU	*
	Deschampsia elongata	Herb	25	42	FACW	*
	Cirsium arvense	Herb	20	20	FACU+	*
	Percent of Dominants that are FAC, FACW, or OBL =					40
	Hydrophytic Vegetation Present?					No
T1,P2	*Alnus rubra*	Tree	20	100	FAC	*
	Alnus rubra	Sap/Shrub	15	25	FAC	*
	Rubus ursinus	Sap/Shrub	5	8	FACU	
	Rubus discolor	Sap/Shrub	35	58	FACU	*
	Symphoricarpos albus	Sap/Shrub	5	8	FACU	
	Holcus mollis	Herb	15	38	FACU	*
	Pteridium aquilinum	Herb	25	63	FACU	*
	Percent of Dominants that are FAC, FACW, or OBL =					40
	Hydrophytic Vegetation Present?					No
T1,P3	*Alnus rubra*	Tree	25	100	FAC	*
	Alnus rubra	Sap/Shrub	45	31	FAC	*
	Rubus ursinus	Sap/Shrub	70	48	FACU	*
	Rubus discolor	Sap/Shrub	10	7	FACU	
	Pseudotsuga menziesii	Sap/Shrub	20	14	FACU	
	Polystichum munitum	Herb	20	50	FACU	*
	Deschampsia elongata	Herb	10	25	FACW	*
	Galium aparine	Herb	10	25	FACU	*
	Percent of Dominants that are FAC, FACW, or OBL =					40
	Hydrophytic Vegetation Present?					No
T2,P1	*Alnus rubra*	Tree	25	29	FAC	*
	Pseudotsuga menziesii	Tree	60	71	FACU	*
	Rubus ursinus	Sap/Shrub	20	36	FACU	*
	Rubus discolor	Sap/Shrub	10	18	FACU	
	Symphoricarpos albus	Sap/Shrub	25	45	FACU	*
	Pteridium aquilinum	Herb	10	67	FACU	*
	Hypericum perforatum	Herb	5	33	NL	
	Percent of Dominants that are FAC, FACW, or OBL =					20
	Hydrophytic Vegetation Present?					No
T2,P2	*Alnus rubra*	Tree	25	29	FAC	*
	Pseudotsuga menziesii	Sap/Shrub	60	75	FACU	*
	Rubus ursinus	Sap/Shrub	20	25	FACU	*
	Cirsium arvense	Herb	5	100	FACU+	
	Percent of Dominants that are FAC, FACW, or OBL =					33
	Hydrophytic Vegetation Present?					No

	6/29/2007					
Transect, Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
T2,P3	*Alnus rubra*	Tree	80	89	FAC	*
	Pseudotsuga menziesii	Tree	10	11	FACU	
	Rubus ursinus	Sap/Shrub	90	90	FACU	*
	Rubus discolor	Sap/Shrub	10	10	FACU	
	Pteridium aquilinum	Herb	10	100	FACU	*
	Percent of Dominants that are FAC, FACW, or OBL =					33
	Hydrophytic Vegetation Present?					No
T2,P4	*Alnus rubra*	Tree	65	93	FAC	*
	Pseudotsuga menziesii	Tree	5	7	FACU	
	Rubus ursinus	Sap/Shrub	90	100	FACU	*
	Percent of Dominants that are FAC, FACW, or OBL =					50
	Hydrophytic Vegetation Present?					No

	6/29/2007					
Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
P1	*Fraxinus latifolia*	Sap/Shrub	20	40	FACW	*
	Spiraea douglasii	Sap/Shrub	10	20	FACW	*
	Rubus discolor	Sap/Shrub	20	40	FACU	*
	Carex scoparia	Herb		10	FACW	
	Geum macrophyllum	Herb		5	FACW-	
	Scirpus microcarpus	Herb		70	OBL	*
	Holcus lanatus	Herb		5	FAC	
	Carex obnupta	Herb		10	OBL	
	Percent of Dominants that are FAC, FACW, or OBL =					75
	Hydrophytic Vegetation Present?					No
Note: Plot is in ditch between berm and old road.						
P2	*Alnus rubra*	Tree	10	100	FAC	
	Rubus discolor	Sap/Shrub	30	86	FACU	*
	Rhamnus purshiana	Sap/Shrub	5	14	FAC-	
	Festuca arundinacea	Herb		90	FAC-	*
	Anthoxanthum odoratum	Herb		5	FACU	
	Daucus carota	Herb		5	NL	
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No
P3	*Anthoxanthum odoratum*	Herb		1	FACU	
	Leucanthemum vulgare	Herb		1	NL	
	Hypochaeris radicata	Herb		1	FACU	
	Carex obnupta	Herb		70	OBL	*
	Carex scoparia	Herb		1	FACW	
	Juncus effusus	Herb		25	FACW	*
	Prunella vulgaris	Herb		1	FACU+	
	Percent of Dominants that are FAC, FACW, or OBL =					100
	Hydrophytic Vegetation Present?					Yes
P4	*Anthoxanthum odoratum*	Herb		10	FACU	
	Leucanthemum vulgare	Herb		1	NL	
	Hypochaeris radicata	Herb		75	FACU	*
	Trifolium dubium	Herb		1	UPL	
	Aira caryophyllea	Herb		1	NL	
	Prunella vulgaris	Herb		1	FACU+	
	Danthonia californica	Herb		10	FACU	
	Percent of Dominants that are FAC, FACW, or OBL =					0
	Hydrophytic Vegetation Present?					No
P5	*Rubus discolor*	Sap/Shrub	10	18	FACU	
	Fraxinus latifolia	Sap/Shrub	5	9	OBL	
	Spiraea douglasii	Sap/Shrub	40	73	FACW	*
	Juncus effusus	Herb	40	57	FACW	*
	Carex obnupta	Herb	25	36	OBL	*
	Equisetum arvense	Herb	5	7	FAC	
	Percent of Dominants that are FAC, FACW, or OBL =					100
	Hydrophytic Vegetation Present?					Yes

	6/29/2007					
Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
P6	*Alnus rubra*	Tree	20	67	FAC	*
	Pseudotsuga menziesii	Tree	10	33	FACU	
	Pseudotsuga menziesii	Sap/Shrub	10	29	FACU	*
	Fraxinus latifolia	Sap/Shrub	5	14	OBL	
	Spiraea douglasii	Sap/Shrub	10	29	FACW	*
	Rubus ursinus	Sap/Shrub	10	29	FACU	*
	Anthoxanthum odoratum	Herb		35	FACU	*
	Leucanthemum vulgare	Herb		5	NL	
	Daucus carota	Herb		5	NL	
	Trifolium repens	Herb		5	FAC	
	Hypochaeris radicata	Herb		15	FACU	
	Fragaria virginiana	Herb		35	FACU	*
	Percent of Dominants that are FAC, FACW, or OBL =					33
	Hydrophytic Vegetation Present?					No
P7	*Alnus rubra*	Tree	25	100	FAC	*
	Alnus rubra	Sap/Shrub	10	10	FAC	
	Spiraea douglasii	Sap/Shrub	90	90	FACW	*
	Percent of Dominants that are FAC, FACW, or OBL =					100
	Hydrophytic Vegetation Present?					Yes
Note: Edge of inundated Spiraea thicket at edge of berm.						
P8	*Alnus rubra*	Tree	25	100	FAC	*
	Rubus discolor	Sap/Shrub	25	36	FACU	*
	Pseudotsuga menziesii	Sap/Shrub	15	21	FACU	*
	Rubus ursinus	Sap/Shrub	30	43	FACU	*
	Deschampsia elongata	Herb	15	27	FACW	*
	Cirsium arvense	Herb	20	36	FACU+	*
	Leucanthemum vulgare	Herb	5	9	NL	
	Equisetum arvense	Herb	5	9	FAC	
	Festuca arundinacea	Herb	10	18	FAC-	
	Percent of Dominants that are FAC, FACW, or OBL =					33
	Hydrophytic Vegetation Present?					No
P9	*Alnus rubra*	Tree	35	100	FAC	*
	Alnus rubra	Sap/Shrub	5	5	FAC	
	Spiraea douglasii	Sap/Shrub	95	95	FACW	*
	Percent of Dominants that are FAC, FACW, or OBL =					100
	Hydrophytic Vegetation Present?					Yes
Note: Edge of inundated Spiraea thicket at edge of berm.						

	6/29/2007					
Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
P10	*Alnus rubra*	Tree	25	100	FAC	*
	Rubus discolor	Sap/Shrub	20	50	FACU	*
	Rubus ursinus	Sap/Shrub	20	50	FACU	*
	Deschampsia elongata	Herb	10	10	FACW	
	Cirsium arvense	Herb	10	10	FACU+	
	Leucanthemum vulgare	Herb	2	2	NL	
	Equisetum arvense	Herb	68	68	FAC	*
	Festuca arundinacea	Herb	10	10	FAC-	
	Percent of Dominants that are FAC, FACW, or OBL =					50
	Hydrophytic Vegetation Present?					No
Note: Equisetum is abundant on the berm, but it doesn't indicate a wet condition.						
P11	*Alnus rubra*	Tree	60	80	FAC	*
	Fraxinus latifolia	Tree	15	20	FACW	*
	Alnus rubra	Sap/Shrub	20	31	FAC	*
	Spiraea douglasii	Sap/Shrub	20	31	FACW	*
	Rosa pisocarpa	Sap/Shrub	15	23	FAC	*
	Salix sitchensis	Sap/Shrub	5	8	FACW	
	Rubus spectabilis	Sap/Shrub	5	8	FAC+	
	Scirpus microcarpus	Herb	15	27	OBL	*
	Glyceria elata	Herb	25	45	FACW+	*
	Oenanthe sarmentosa	Herb	15	27	OBL	*
	Percent of Dominants that are FAC, FACW, or OBL =					100
	Hydrophytic Vegetation Present?					Yes
Note: Inundated 1 inch deep.						
P12	*Alnus rubra*	Tree	20	100	FAC	*
	Spiraea douglasii	Sap/Shrub	5	7	FACW	
	Rubus ursinus	Sap/Shrub	70	93	FACU	*
	Deschampsia elongata	Herb	20	45	FACW	*
	Cirsium arvense	Herb	20	45	FACU+	*
	Holcus lanatus	Herb	4	9	FAC	
	Percent of Dominants that are FAC, FACW, or OBL =					50
	Hydrophytic Vegetation Present?					No

	6/29/2007					
Transect, Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
T1, P1	*Anthoxanthum odoratum*	Herb		15	FACU	
	Leucanthemum vulgare	Herb		10	NL	
	Carex obnupta	Herb		55	OBL	*
	Festuca arundinacea	Herb		10	FAC-	
	Fragaria virginiana	Herb		10	FACU	
	Percent of Dominants that are FAC, FACW, or OBL =					100
	Hydrophytic Vegetation Present?					Yes
T1,P2	*Anthoxanthum odoratum*	Herb		2	FACU	
	Leucanthemum vulgare	Herb		2	NL	
	Carex obnupta	Herb		85	OBL	*
	Hypericum perforatum	Herb		1	NL	
	Daucus carota	Herb		1	NL	
	Rubus ursinus	Herb		5	FACU	
	Deschampsia elongata	Herb		2	FACW	
	Holcus lanatus	Herb		1	FAC	
	Percent of Dominants that are FAC, FACW, or OBL =					100
	Hydrophytic Vegetation Present?					Yes
T1, P3	*Anthoxanthum odoratum*	Herb		1	FACU	
	Leucanthemum vulgare	Herb		5	NL	
	Carex obnupta	Herb		90	OBL	*
	Prunella vulgaris	Herb		1	FACU+	
	Daucus carota	Herb		1	NL	
	Fragaria virginiana	Herb		1	FACU	
	Percent of Dominants that are FAC, FACW, or OBL =					100
	Hydrophytic Vegetation Present?					Yes
T2, P1	*Anthoxanthum odoratum*	Herb		20	FACU	*
	Leucanthemum vulgare	Herb		2	NL	
	Festuca arundinacea	Herb		13	FAC-	
	Poa pratensis	Herb		20	FAC	*
	Agrostis stolonifera	Herb		5	FAC	
	Plantago lanceolata	Herb		5	FAC	
	Hypochaeris radicata	Herb		10	FACU	
	Festuca rubra	Herb		25	FAC	*
	Holcus lanatus	Herb		5	FAC	
	Percent of Dominants that are FAC, FACW, or OBL =					67
	Hydrophytic Vegetation Present?					Yes
T2, P2	*Anthoxanthum odoratum*	Herb		15	FACU	
	Equisetum arvense	Herb		25	FAC	*
	Poa pratensis	Herb		35	FAC	*
	Daucus carota	Herb		5	NL	
	Holcus lanatus	Herb		20	FAC	*
	Percent of Dominants that are FAC, FACW, or OBL =					100
	Hydrophytic Vegetation Present?					Yes

	6/29/2007					
Transect, Plot	**Species**	**Stratum**	**Raw Cover**	**Relative Cover**	**Indicator Status**	**Dominant Species**
T2, P3	*Rosa pisocarpa*	Sap/Shrub	15	50	FAC	*
	Rubus ursinus	Sap/Shrub	15	50	FACU	*
	Carex obnupta	Herb		60	OBL	*
	Holcus lanatus	Herb		30	FAC	*
	Hypericum perforatum	Herb		3	NL	
	Cirsium arvense	Herb		7	FACU+	
	Percent of Dominants that are FAC, FACW, or OBL =					75
	Hydrophytic Vegetation Present?					Yes
T3, P1	*Pseudotsuga menziesii*	Tree	10	100	FACU	
	Alnus rubra	Sap/Shrub	35	36	FAC	*
	Rosa pisocarpa	Sap/Shrub	4	4	FAC	
	Spiraea douglasii	Sap/Shrub	25	26	FACW	*
	Gaultheria shallon	Sap/Shrub	7	7	FACU	
	Cornus sericea	Sap/Shrub	5	5	FACW	
	Fraxinus latifolia	Sap/Shrub	7	7	FACW	
	Carex obnupta	Herb	15	75	OBL	*
	Equisetum arvense	Herb	5	25	FAC	
	Percent of Dominants that are FAC, FACW, or OBL =					100
	Hydrophytic Vegetation Present?					Yes
T3, P2	*Alnus rubra*	Tree	20	100	FAC	*
	Alnus rubra	Sap/Shrub	3	5	FAC	
	Rosa pisocarpa	Sap/Shrub	10	16	FAC	
	Spiraea douglasii	Sap/Shrub	20	33	FACW	*
	Gaultheria shallon	Sap/Shrub	10	16	FACU	
	Cornus sericea	Sap/Shrub	15	25	FACW	*
	Fraxinus latifolia	Sap/Shrub	3	5	FACW	
	Rhamnus purshiana	Sap/Shrub	20	33	FAC-	*
	Pseudotsuga menziesii	Sap/Shrub	1	2	FACU	
	Carex obnupta	Herb	35	88	OBL	*
	Pteridium aquilinum	Herb	5	13	FACU	
	Percent of Dominants that are FAC, FACW, or OBL =					80
	Hydrophytic Vegetation Present?					Yes
T3, P3	*Alnus rubra*	Tree	25	100	FAC	*
	Rosa pisocarpa	Sap/Shrub	15	15	FAC	
	Spiraea douglasii	Sap/Shrub	35	35	FACW	*
	Cornus sericea	Sap/Shrub	20	20	FACW	*
	Rhamnus purshiana	Sap/Shrub	25	25	FAC-	*
	Viburnum trilobum	Sap/Shrub	5	5	FACU	
	Epilobium ciliatum	Herb	5	25	FACW_	
	Hypericum anagalloides	Herb	10	50	OBL	*
	Veronica sp.	Herb	5	25	NL	
	Percent of Dominants that are FAC, FACW, or OBL =					80
	Hydrophytic Vegetation Present?					Yes

APPENDIX C

Plant List and Wetland Indicator Status

US Fish and Wildlife Service Plant Indicator Status (Reed 1988, Reed 1993)

Indicator Status[1]	Definition
Obligate Wetland (OBL)	Occur almost always (estimated probability > 99%) under natural conditions in wetlands.
Facultative Wetland (FACW)	Usually occur in wetlands (estimated probability 67% -99%), but occasionally found in non-wetlands.
Facultative (FAC)	Equally likely to occur in wetlands or non-wetlands (estimate probability 34% - 66%).
Facultative Upland (FACU)	Usually occur in non-wetlands, but occasionally found in wetlands (estimated probability 1%-33%).
Obligate Upland (UPL)	May occur in wetlands in another region, but occur almost always (estimated probability >99%) under natural conditions in non-wetlands in the region specified.
No Indicator Status (NI)	Insufficient information exists to assign an indicator status.
Not Listed (NL)	Not on the National List in any region.

[1]A plus sign (+) after the indicator status category means that the plant is more likely to be adapted to wet conditions than the category indicated. A minus sign (-) means the plant is less likely to be adapted to wet conditions than the category indicated.

Plant List for Camp Bonneville; July 2007

Scientific Name	Common Name	Indicator Status
Acer circinatum	vine maple	FAC-
Achillea millefolium	common yarrow	FACU
Agropyron repens	quackgrass	FAC-
Agrostis stolonifera	creeping bentgrass	FAC
Aira caryophyllea	silver hairgrass	NL
Alnus rubra	red alder	FAC
Amelanchier alnifolia	Saskatoon service-berry	FAC-
Anthoxanthum odoratum	sweet vernal grass	FACU
Arrhenatherum elatius	tall oatgrass	UPL
Athyrium filix-femina	lady fern	NL
Bellis perennis	lawndaisy	NL
Carex aurea	golden-fruit sedge	FACW+
Carex deweyana	short-scale sedge	FACU
Carex obnupta	slough sedge	OBL
Carex scoparia	pointed broom sedge	FACW
Carex stipata	awlfruit sedge	NL
Centaurea x pratense	meadow knapweed	NL
Cirsium arvense	Canada thistle	FACU+
Cirsium vulgare	bull thistle	FACU
Claytonia sibirica	Siberian springbeauty	FAC
Cornus sericea	creek dogwood	FACW
Corylus cornuta	beaked hazelnut	FACU
Crataegus douglasii	Douglas' hawthorn	FAC
Cytisus scoparius	Scotch broom	NL
Dactylis glomerata	orchardgrass	FACU
Danthonia californica	California oatgrass	FACU
Daucus carota	Queen Anne's lace	NL
Deschampsia elongata	slender hairgrass	FACW-
Eleocharis acicularis	least spikerush	OBL
Eleocharis palustris	creeping spikerush	OBL
Elymus glaucus	blue wild-rye	FACU
Epilobium ciliatum	hairy willow-herb	FACW_
Equisetum arvense	field horsetail	FAC
Eriophyllum lanatum	common wooly sunflower	NL
Festuca arundinacea	tall fescue	FAC-
Festuca rubra	red fescue	FAC
Fragaria virginiana	Virginia strawberry	FACU
Fraxinus latifolia	Oregon ash	FACW

Plant List for Camp Bonneville continued; July 2007

Scientific Name	Common Name	Indicator Status
Galium aparine	catchweed bedstraw	FACU
Galium triflorum	sweet-scent bedstraw	FACU
Gaultheria shallon	salal	FACU
Geum macrophyllum	large-leaf avens	FACW-
Glyceria elata	tall manna grass	FACW+
Holcus lanatus	common velvetgrass	FAC
Holcus mollis	creeping velvetgrass	FACU
Hypericum perforatum	common St. Johnswort	NL
Hypericum anagalloides	bog St. Johnswort	OBL
Hypochaeris radicata	spotted cat's-ear	FACU
Juncus acuminatus	taper-tip rush	OBL
Juncus effusus	soft rush	FACW
Juncus tenuis	slender rush	FACW-
Leucanthemum vulgare	ox-eye daisy	NL
Lonicera involucrata	twinberry honeysuckle	FAC+
Lotus corniculatus	birds-foot trefoil	FAC
Lotus purshianus	Spanish clover	FAC
Madia sp.	tarweed	NL
Mimulus guttatus	common large monkey-flower	OBL
Navarretia intertexta	needle-leaf Navarretia	FACW
Oenanthe sarmentosa	water parsley	OBL
Osmorhiza chilensis	sweet cicely	NL
Phalaris arundinacea	reed canarygrass	FACW
Phleum pratense	timothy	FAC-
Plantago lanceolata	English plantain	FAC
Poa pratensis	Kentucky bluegrass	FAC
Polystichum munitum	swordfern	FACU
Portulaca oleracea	common purslane	FAC
Prunella vulgaris	heal-all	FACU+
Pseudotsuga menziesii	Douglas-fir	FACU
Pteridium aquilinum	bracken fern	FACU
Rhamnus purshiana	cascara	FAC-
Rosa nutkana	Nootka rose	FAC
Rosa pisocarpa	clustered rose	FAC
Rubus discolor	Himalayan blackberry	FACU
Rubus spectabilis	salmonberry	FAC+

Plant List for Camp Bonneville continued; July 2007

Scientific Name	Common Name	Indicator Status
Rubus ursinus	trailing blackberry	FACU
Rumex acetosella	sheep sorrel	FACU
Salix scouleriana	Scouler's willow	FAC
Salix sitchensis	Sitka willow	FACW
Scirpus microcarpus	small-fruit bulrush	OBL
Senecio jacobaea	stinking-willie	FACU
Sisyrinchium douglasii	purple blue-eye-grass	FACU
Solidago canadensis	Canada golden-rod	FACU
Spiraea douglasii	Douglas' spirea	FACW
Stellaria calycantha	northern starwort	FACW+
Symphoricarpos albus	snowberry	FACU
Trifolium dubium	suckling clover	UPL
Trifolium pratense	red clover	FACU
Trifolium repens	white clover	FAC
Vaccinium parvifolium	red huckleberry	NL
Veronica scutellata	marsh speedwell	OBL
Veronica sp.	speedwell	NL
Viburnum trilobum	American cranberrybush	FACU

APPENDIX D

Wetland Rating Form

WATER QUALITY FUNCTIONS

		Wetland	A1, A2, A3, B1, C1, D1, G1, G2, H1	E1	A4	A5
DEPRESSIONAL WETLAND						
Potential						
	Surface flow out:	Depression with no outlet -3 Intermittent or Constricted Outlet - 2 Unconstricted Outlet - 1 Flat with no outlet or outlet is ditch- 1	2	2	3	3
	Surface soils	Clay, organic, or smells anoxic yes = 4, no = 0	0	0	0	0
	Persistent, Ungrazed, Unmowed Vegetation	> = 95% area - 5 > = 1/2 area - 3 > = 1/10 area - 1 < 1/10 area - 0	5	5	5	5
	Seasonal Ponding > 2 months	> 1/2 total area of wetland - 4 >1/4 total area of wetland - 2 < 1/4 total area of wetland - 0	2	2	0	0
		Subtotal	9	9	8	8
Opportunity						
	Pollutants coming into wetland	From grazing in wetland or w/in 150 ft, untreated stormwater discharges, tilled fields, or orchards w/in 150 of wetland, residential, urban areas, golf course w/in 150 ft upslope of wetland, a stream or culvert discharging into wetland, wetland is fed by groundwater high in phosphorus or nitrogen. Yes: multiplier is 2, No: multiplier is 1	2	2	2	2
SLOPE WETLAND						
Potential						
	Average slope of wetland:	< = 1% - 3 1 - 2% - 2 2 - 5% - 1 > 5% - 0				
	Surface soils	Clay, organic, or smells anoxic yes = 3, no = 0				
	Vegetation that trap sediments and pollutants	Dense, ungrazed, herbaceous veg > 90% - 6 Dense, ungrazed, herbaceous veg > 1/2 - 3 Dense, woody, veg >1/2 of area - 2 Dense , ungrazed, herbaceous veg > 1/4 - 1 Does not meet any criteria above - 0				
		Subtotal	0	0	0	
Opportunity						
	Pollutants coming into wetland	From grazing in wetland or w/in 150 ft, untreated stormwater discharges, tilled fields, logging, or orchards w/in 150 of wetland, residential, urban areas, golf course w/in 150 ft upslope of wetland. Yes: multiplier is 2, No: multiplier is 1				
RIVERINE/FRESHWATER TIDAL WETLAND						
Potential						
	Area of surface depressions:	> 3/4 of area - 8 > 1/2 of area - 4 < 1/2 of area - 2 No depressions - 0				
	Vegetation characteristics	Forest or shrub > 2/3 of area - 8 Forest or shrub > 1/3 of area - 6 Ungrazed, emergent pls. > 2/3 of area - 6 Ungrazed, emergent pls. > 1/3 of area - 3 Forest, shrub, and ungrazed emergent < 1/3 of area - 0				
		Subtotal	0	0	0	
Opportunity						
	Pollutants coming into wetland	From grazing in wetland or w/in 150 ft, untreated stormwater discharges, tilled fields, logging, or orchards w/in 150 of wetland, residential, urban areas, golf course w/in 150 ft upslope of wetland. Or river/stream linked to wetland has a contributing basin where humans have raised levels of sediment, toxics, or nutrients above water quality standards. Yes: multiplier is 2, No: multiplier is 1				
Total Water Quality Score			**18**	**18**	**16**	**16**

HYDROLOGIC FUNCTIONS

		Wetland	A1, A2, A3, B1, C1, D1, G1, G2, H1	E1	A4	A5
DEPRESSIONAL WETLAND						
Potential						
	Characteristics of surface water flow out	No surface water outlet - 4 Intermittent or highly constricted outlet - 2 Flat with no outlet or outlet is ditch - 1 Unconstricted outlet - 0	2	2	3	3
	Depth of storage	3 ft or more - 7 headwater wetland - 5 2 ft to 3 ft - 5 0.5 to 2 ft - 3 flat with small depressions - 1 < 0.5 ft - 0	3	5	0	0
	Contribution to watershed storage	Basin is < 10 times area of wetland - 5 Basin is 10 to 100 times bigger - 3 Basin is > 100 times bigger - 0	0	0	0	0
		Subtotal	5	7	3	3
Opportunity						
	Flood storage or energy dissipation	Yes if: wetland drains to a river or stream that has flooding problems or has no outlet and impounds water that might otherwise contribute to downstream flooding. No if: water coming into wetland is controlled by flood gate, tide gate, flap valve, reservoir, etc. or more than 90% of water is from groundwater. Yes: multiplier is 2, No: multiplier is 1	2	2	2	2
SLOPE WETLAND						
Potential						
	Characteristics of veg that reduce velocity of surface flows	Dense, uncut, rigid veg > 90% - 6 Dense, uncut, rigid veg >1/2 - 3 Dense, uncut, rigid veg >1/4 - 1 >1/4 is grazed, mowed, tilled, or veg is not rigid - 0				
	Characteristics that hold back small flood flows	Wetland has small surface depressions that can retain water over at least 10% of its area: Yes - 2 No - 0				
		Subtotal	0	0	0	
Opportunity						
	Flood storage or energy dissipation	Yes if: wetland has surface runoff that drains to a river or stream that has flooding problems. No if: major source of water is controlled by a reservoir. Yes: multiplier is 2, No: multiplier is 1				
RIVERINE/FRESHWATER TIDAL WETLAND						
Potential						
	Overbank storage Ratio: wetland width/ stream width	> 20 - 9 10 - 20 - 6 5 - 10 - 4 1 - 5 - 2 < 1 - 1				
	Characteristics of veg that reduce water velocity during floods	Forest, shrub, lg. woody for > 1/3 area OR emergent pls. > 2/3 area - 7 Forest, shrub, lg. woody for > 1/10 area OR emergent pls. > 1/3 area - 4 Neither criteria met - 0				
		Subtotal	0	0	0	
Opportunity						
	Reducing flooding and erosion	Wetland in a location in the watershed storage and velocity reduction protect downstream property and aquatic resources from flooding or erosion? Yes: multiplier is 2, No: multiplier is 1 __Human structures and activities downstream __Nat. res. downstream i.e.. salmon redds __Other _____				
Total Hydrologic Score			**10**	**14**	**6**	**6**

HABITAT FUNCTIONS

			A1, A2, A3, B1, C1, D1, G1, G2, H1	E1	A4	A5
		Wetland				
Potential						
	Vegetation structure	Number of vegetation types: Aquatic bed, emergent plants, scrub/shrub, forested, forested with at least 3 strata. >= 4 types = 4 3 types = 2 2 types = 1 1 type = 0	4	4	0	0
	Hydroperiods	Permanently flooded or inundated Seasonally flooded or inundated Occasionally flooded or inundated Saturated only Permanent stream in or adjacent to the wetland Seasonal stream in or adjacent to the wetland >= 4 types = 3 3 types = 2 2 types = 1 lake-fringe = 2, freshwater tidal = 2	3	3	0	0
	Plant species diversity	Number of species covering at least 10 sq ft Do not count reed canarygrass, purple loosestrife, Canada thistle > 19 species = 2 5-19 = 1 < 5 =0	2	2	0	0
	Habitat interspersion	None = 0 low=1 moderate = 2 high = 3	3	3	0	0
	Special habitats	1 point for each of the following: *large downed woody debris *standing snags *undercut banks at least 2m long or overhanging vegetation at least 1m x 10m *stable steep banks of fine material *at least 1/3 acre thin-stemmed persistent vegetation *invasive plants cover less than 25% of wetland area in each stratum	6	6	0	0
		Subtotal	18	18	0	0
Opportunity						
	Buffers	see text next page; 0 - 5 pts.	5	5	5	5
	Corridors and connections	Vegetated corridor >=150ft wide with >= 30% cover that connects to > 250 acre block = 4 Vegetation corridor >= 50 ft wide with >= 30% cover that comments to > 25 acre block, or lake fringe = 2 Wetland is within 5 mi of salt water estuary, or 3 mi of field or pasture > 40 acres or within 1 mi of a lake > 20 acres = 1	4	4	4	4
	Near priority habitats	Number of priority habitats within 100m of wetland: 3 or more = 4 2 = 3 1 = 1	2	2	0	0
	Wetland landscape	At least 3 other wetlands within 0.5 miles with relatively undisturbed connections = 5 At least 3 other wetland with 0.5 miles but connections are disturbed = 3 At least 1 other wetland within 0.5 miles = 2 No wetlands within 0.5 miles = 0	2	2	2	2
		Subtotal	13	13	11	
Total Habitat Score			**31**	**31**	**11**	**11**
TOTAL SCORE			**59**	**63**	**33**	**33**
CATEGORY						

Wetland Name or Number _____

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 – Updated July 2006 to increase accuracy and reproducibility among users

Name of Wetland (if known) A4 Date of site visit: June 26-29, 2007

Rated by Jason Clark Trained by Ecology? Yes ☐ No ☒ Date of Training _____

SEC: 2 & 3 TWNSHP: 2N RNGE: 3E Is S/T/R in Appendix D? Yes ☐ No ☒

Map of wetland unit: Figure 7 Estimated size 144 sq. ft.

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I ☐ II ☐ III ☒ IV ☐

Category I – Score > = 70	
Category II – Score 51-69	
Category III – Score 30-50	
Category IV – Score < 30	

Score for Water Quality Functions	16
Score for Hydrologic Functions	6
Score for Habitat Functions	11
TOTAL score for Functions	33

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ II ☐ **Does not Apply** ☒

Final Category (choose the "highest" category from above) 3

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		**Wetland HGM Class Used for Rating**	
Estuarine	☐	**Depressional**	☒
Natural Heritage Wetland	☐	**Rivering**	☐
Bog	☐	**Lake-fringe**	☐
Mature Forest	☐	**Slope**	☐
Old Growth Forest	☐	**Flats**	☐
Coastal Lagoon	☐	**Freshwater Tidal**	☐
Interdunal	☐		☐
None of the above		Check is unit has multiple HGM classes present	☐

Wetland Name or Number _____

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 – Updated July 2006 to increase accuracy and reproducibility among users

Name of Wetland (if known) A5 Date of site visit: June 26-29, 2007

Rated by Jason Clark Trained by Ecology? Yes ☐ No ☒ Date of Training _____

SEC: 2 & 3 TWNSHP: 2N RNGE: 3E Is S/T/R in Appendix D? Yes ☐ No ☒

Map of wetland unit: Figure 7 Estimated size 400 sq. ft.

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I ☐ II ☐ III ☒ IV ☐

Category I – Score > = 70	
Category II – Score 51-69	
Category III – Score 30-50	
Category IV – Score < 30	

Score for Water Quality Functions	16
Score for Hydrologic Functions	6
Score for Habitat Functions	11
TOTAL score for Functions	33

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ II ☐ **Does not Apply** ☒

Final Category (choose the "highest" category from above) 3

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		**Wetland HGM Class Used for Rating**	
Estuarine	☐	**Depressional**	☒
Natural Heritage Wetland	☐	**Rivering**	☐
Bog	☐	**Lake-fringe**	☐
Mature Forest	☐	**Slope**	☐
Old Growth Forest	☐	**Flats**	☐
Coastal Lagoon	☐	**Freshwater Tidal**	☐
Interdunal	☐		☐
None of the above		Check is unit has multiple HGM classes present	☐

Wetland Name or Number _____

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 – Updated July 2006 to increase accuracy and reproducibility among users

Name of Wetland (if known) E1 Date of site visit: June 26-29, 2007

Rated by Jason Clark Trained by Ecology? Yes ☐ No ☒ Date of Training _____

SEC: 2 & 3 TWNSHP: 2N RNGE: 3E Is S/T/R in Appendix D? Yes ☐ No ☒

Map of wetland unit: Figure 7 Estimated size 18 ac.

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I ☐ II ☒ III ☐ IV ☐

Category I – Score > = 70	
Category II – Score 51-69	
Category III – Score 30-50	
Category IV – Score < 30	

Score for Water Quality Functions	18
Score for Hydrologic Functions	14
Score for Habitat Functions	31
TOTAL score for Functions	63

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ II ☐ **Does not Apply** ☒

Final Category (choose the "highest" category from above) 2

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		**Wetland HGM Class Used for Rating**	
Estuarine	☐	**Depressional**	☒
Natural Heritage Wetland	☐	**Rivering**	☐
Bog	☐	**Lake-fringe**	☐
Mature Forest	☒	**Slope**	☐
Old Growth Forest	☐	**Flats**	☐
Coastal Lagoon	☐	**Freshwater Tidal**	☐
Interdunal	☐		☐
None of the above		Check is unit has multiple HGM classes present	☒

Wetland Name or Number _____

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 – Updated July 2006 to increase accuracy and reproducibility among users

Name of Wetland (if known) A1, A2, A3, B1, C1, D1, G1, G2, & H1 Date of site visit: June 26-29, 2007

Rated by Jason Clark Trained by Ecology? Yes ☐ No ☒ Date of Training _____

SEC: 2 & 3 TWNSHP: 2N RNGE: 3E Is S/T/R in Appendix D? Yes ☐ No ☒

Map of wetland unit: Figure 7 Estimated size 22 ac.

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I ☐ II ☒ III ☐ IV ☐

Category I – Score > = 70	
Category II – Score 51-69	
Category III – Score 30-50	
Category IV – Score < 30	

Score for Water Quality Functions	18
Score for Hydrologic Functions	10
Score for Habitat Functions	31
TOTAL score for Functions	59

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ II ☐ **Does not Apply** ☒

Final Category (choose the "highest" category from above) 2

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		**Wetland HGM Class Used for Rating**	
Estuarine	☐	**Depressional**	☒
Natural Heritage Wetland	☐	**Rivering**	☐
Bog	☐	**Lake-fringe**	☐
Mature Forest	☒	**Slope**	☐
Old Growth Forest	☐	**Flats**	☐
Coastal Lagoon	☐	**Freshwater Tidal**	☐
Interdunal	☐		☐
None of the above		Check is unit has multiple HGM classes present	☒

PBS

PORTLAND
SEATTLE
VANCOUVER
EUGENE
BEND
TRI-CITIES
BANDON

CAMP BONNEVILLE

CLARK COUNTY, WASHINGTON

SEPTEMBER 2007

GRADING PERMIT APPLICATION

Location: 23201 NE Pluss Road, Vancouver, WA 98682
Sections 34 and 35 Township 3 North, Range 3 East and Sections 1,2,3 and 10 Township 2 North, Range 3 East

Request: The earthen berms and some support areas soils are expected to contain elevated levels of lead. Proposed activities include the excavation, screening, and sorting of soil from berms and fire support areas, and the grading of the former firing ranges to match surrounding topography after clean up is complete.

Applicant: Clark County Department of Public Works
Attn: Jerry Barnett
1300 Franklin Street, 4th Floor
Vancouver, WA 98660
(360) 397-6118 x4969; (360) 759-6330 Fax
Jerry.Barnett@clark.wa.gov

Consultant: PBS Engineering and Environmental
Attn: Christy McDonough
1310 Main Street
Vancouver, WA 98660
(360) 213-0444; (360) 696-9064 Fax
christy_mcdonough@pbsenv.com

TABLE OF CONTENTS

SECTION 1
APPLICATION FORM

ENGINEERING SERVICES GRADING APPLICATION REVIEW SUBMITTAL REQUIREMENTS

The following checklist identifies information to be included with the application. All submittals that are determined ***not*** "Counter Complete" will be ***returned*** to the applicant for correction and resubmittal. Submittals determined to be "Counter Complete" will be routed to Engineering Services for review.

GRADING PERMIT SUBMITTAL REQUIREMENTS

- ☐ Application Fee
- ☐ Application Form
- ☐ Developer's GIS Packet Information
- ☐ Narrative: Described the existing conditions and proposal in detail. Must identify the total cubic yards of cuts and fills, location of cuts and fills, and any cuts and fills required offsite for the project.
- ☐ Plan Set Copies - Four (4) copies Plans, including but not limited to:
  - ☐ Cover Sheet
  - ☐ Existing Conditions
  - ☐ Entire legal lot included, drawn to scale, showing north arrow, property lines, easements, cuts and fills , footprint of existing structures, abutting streets (name, centerline, curb & sidewalk), driveway locations, and utilities
  - ☐ Topography with existing and planned drainage features and structures
  - ☐ Location of any existing environmentally sensitive areas on the site, as indicated in the GIS materials
  - ☐ Existing surfacing and features on all portions of the site, such as asphalt, landscaping, lawn, gravel, stormwater swale, etc.
  - ☐ Existing and proposed drainage conditions/facilities
  - ☐ Proposed finished grades and limits of grading
- ☐ Proposed Erosion Control Plan
- ☐ Copy of Easements or Right of Way Agreements
- ☐ State Environmental Review

GRADING PERMIT APPLICATION FORM

PROJECT NAME:

Camp Bonneville - Grading at Small Range Berms and Fire Support Areas

DESCRIPTION AND PURPOSE FOR GRADING/EXCAVATION:

The earthen berms and some support areas soils are expected to contain elevated levels of lead. Proposed activities include the excavation, screening, and sorting of soil from berms and fire support areas, and the grading of the former firing ranges to match surrounding topography after clean up is complete.

SCOPE OF WORK: ☐ **Grading Prior to Bldg Permit** ☐ **Grading Prior to ENG Approval** ☐ **Other On-Site Grading** ☒ **Stand Alone Grading**

AMOUNT OF WORK: _____(cy) Excavation Amount _____(cy) Fill Amount
_____ Max Depth Excavation _____ Max Depth Fill
_____(sf) Excav Area Cover _____(sf) Fill Area Cover

APPLICANT NAME: Clark County Public Works Attn: Jerry Barnett	Address: 1300 Franklin Street Vancouver, WA 98666-9810
E-mail Address: Jerry.Barnett@clark.wa.gov	Phone: 360-397-6118 x4969
PROPERTY OWNER (list multiple owners on a separate sheet): Bonneville Conservation Restoration and Renewal Team (BCRRT), Attn: Mike Gage	
CONTACT PERSON (list if not same as APPLICANT): PBS Engineering and Environmental	
Name: Christy McDonough	Address: 1310 Main Street, Vancouver, WA 98660
E-Mail Address: christy_mcdonough@pbsenv.com	Phone: 360-213-0444
LOCATION OF PROJECT: Site Address: 23201 NE Pluss Road	Serial Number(s): See attached

AUTHORIZATION

The undersigned hereby certifies that this application has been made with the consent of the lawful property owner(s) and that all information submitted with this application is complete and correct. False statements, errors, and/or omissions may be sufficient cause for denial of the request. This application gives consent to the County to enter the properties listed above.

The granting of this permit does not presume to give authority to violate or cancel the provision of any other state or local law regulating this type of work requiring approval or permit.

If the erosion control measures detailed on the approved plans are not complied with, any permits issued will be revoked.

If the erosion control measures as approved are not adequate, additional plans and controls will be required. Also, a stop work order may be issues.

I understand that this permit is not valid until all fees are paid.

If the permit expires prior to completion of proposed grading activities, a new application and fees will be required. Permits may be extended prior to expiration of the initial term with payment of applicable fees.

Authorized Signature Date

Fees must be paid prior to application processing.

Camp Bonneville
Application Form Attachment

Serial # of Parcels	Legal	Acreage	Township	Range	¼ of Section	Overlay Districts
167837-000	ALL SEC 1 T2NR3EWM 640A	640	2N	3E	NE, NW, SE, SW of Section 1	
167940-000	#1 SEC 2 T2NR3EWM 640.94A	640.94	2N	3E	NE, NW, SE, SW of Section 2	
168044-000	#5 SEC 3 T2NR3EWM 619.12A	619.12	2N	3E	NE, NW, SE, SW of Section 3	Comprehensive Plan: Mining Zoning: Mining Combining District
170186-000	#15 SEC 10 T2NR3EWM 320A	320	2N	3E	NE, NW of Section 10	Comprehensive Plan: Mining Zoning: Mining Combining District
170393-000	#4 SEC 11 T2NR3EWM 120A	120	2N	3E	NW of Section 11	
170394-000	#5 SEC 11 T2NR3EWM 40A	40	2N	3E	NE of Section 11	
170398-000	#9 SEC 11 T2NR3EWM 40A	40	2N	3E	NW of Section 11	
208215-000	#7 OF SEC 34 T3NR3EWM 160A	160	3N	3E	SE of Section 34	Comprehensive Plan: Mining Zoning: Mining Combining District
208417-000	#1 OF SEC 35 T3NR3EWM 640A TARGET RANGE	640	3N	3E	NE, NW, SE, SW of Section 35	
208619-000	#1 OF SEC 36 T3NR3EWM 640A	640	3N	3E	NE, NW, SE, SW of Section 36	

SECTION 2

DEVELOPER'S GIS PACKET

SECTION 3
NARRATIVE

SUMMARY OF EXISTING CONDITIONS

Land in the vicinity of the project includes rural residential and forest lands. The majority of the Camp Bonneville site is located in the western slope foothills of the Cascade Mountains. The firing ranges are located within the valley floor.

Parts of Lacamas Creek and its tributaries are located within the installation boundary. Wetlands and a created in-stream pond are present at the site and are located along Lacamas Creek and it's tributaries. As shown on the existing conditions map, the project area is located in the floodway fringe of Lacamas Creek. Lacamas Creek flows southwest across the site.

A wetland delineation completed by PBS Engineering and Environmental in 2007 identified twelve wetland areas within the project area. The National Wetlands Inventory identified wetlands along Lacamas Creek and its tributaries. The Clark County Local Wetland Inventory is very similar to the NWI wetlands. Hydric soils are present in a few small areas of the project site.

Soil types and classification vary across the site. Soils in the eastern and central portion of Camp Bonneville are mainly Olympic series soils, specifically Olympic stony clay loam on areas between a 30 and 60 percent slope and Olympic clay loam on slopes between eight and 30 percent. McBee and Cove series soils are mapped within the Lacamas Creek valley, which are primarily silt or silty clay loams found at slopes ranging from zero to five percent. Finally, along the western edge of the installation, there are Hesson series soils that are gravelly clay loams from zero to 20 percent slopes and clay loam at zero to eight percent slopes.

Camp Bonneville is comprised of forested, undeveloped land, specifically coniferous forest and mixed coniferous and deciduous forest. Shrub communities are found primarily along drainages and wetland depressions and consist of red alder, hardhack, willows, red osier dogwood, and soft stem bulrush, in addition to non-native specifies such as Himalayan blackberry and scotch broom. There are meadows scattered throughout the upland and wetland portions of the site, and wetlands and riparian areas as well.

SUMMARY OF GRADING ACTIVITIES

The project will involve grading associated with the proposed remedial actions undertaken to improve the environmental and soil quality of the site. Firing range berms and fire support areas will be excavated to remove contaminated soils. All soils will be excavated, screened and stockpiled based on the concentrations of lead they contain. Soils with concentrations below the clean up screening level (50 mg/Kg) for lead will be reused to grade the site consistent with the surrounding topography. A precise quantity for removal/fill/grading cannot be determined until after each berm and fire support area has been screened, sorted, analyzed, and the classifications of the soils are determined.

EROSION PREVENTION AND SEDIMENT CONTROL PLAN

Approved erosion and sediment control measures will be installed prior to commencement of grading and maintained throughout construction to prevent sediment from entering the stream. Please refer to the attached Erosion Control Plans for more specific details and locations of measures that will be employed to prevent sediment from entering Lacamas Creek or its tributaries.

SECTION 4

PROJECT DESCRIPTION

CAMP BONNEVILLE
Small Range Berms and Fire Support Areas

BACKGROUND

The Department of the Army used Camp Bonneville for live fire of small arms, assault weapons, and field and air defense artillery between 1910 and 1995. Investigations to characterize and cleanup areas of contamination have been ongoing at Camp Bonneville. Berms at the firing ranges were used as a safety feature behind the targets and served as the impact areas for lead bullets. The fire support areas are in the vicinity of the firing lines where brass casings and/or residuals from live loads may have accumulated. The earthen berms and some support areas soils are expected to contain elevated levels of lead. Proposed activities include the excavation, screening, and sorting of soil from berms and fire support areas, and the grading of the former firing ranges to match surrounding topography after clean up is complete.

PROJECT DESCRIPTION

Excavation will occur based on one, or a combination of, four scenarios: 1) Earthen Berm Excavation; 2) Pop-Up Target Excavation; 3) Hillside Berm Excavation; or 4) Impact Zone Excavation.

SCENARIO 1 – EARTHEN BERMS
(Rifle Ranges 1 & 2; Field Fire Ranges 1 & 2; Field Ranges 1 & 2; 25-meter Machine Gun Range; Undocumented Pistol Range (Figure 1))

Removal action will involve excavation of any identified “hot spot” areas and approximately the front 2 feet of each berm face and top, and a six-inch lift off of the back. Soil samples will be taken to determine the necessity of removing an additional 1-foot lift from the berm face.

All excavated soil will be screened to remove bullets, brass casings, other metal, organic material, and rock. The screening equipment will have multiple screen sizes to remove various size materials. The last screen will have ¼” opening size to capture bullet-sized metal. Screened soils will be stockpiled into one of six different piles, as follows:

- Rocks, Gravel, Vegetation
- Hot Spot Soils
- < 50 mg/Kg Soil
- 50 ≤ 250 mg/Kg Soil
- 250 ≤ 1000 mg/Kg Soil
- 1000+ mg/Kg Soil

Appropriate disposal/recycling options will be selected based on the measured lead concentrations from each of the stockpiles. Metal collected during screening operations will be recycled and/or disposed of appropriately off-site. Based on laboratory analysis the soil samples of the above stockpiles, the soils will be characterized into one of three following categories:

- Category 1 – soils with Toxic Characteristics Leaching Procedure (TCLP) lead concentrations greater than 5 mg/L. These soils will be transported to a licensed landfill for stabilization and disposal.
- Category 2 – soils with maximum lead concentrations greater than 50 mg/Kg and TCLP lead concentrations less than 5 mg/L. These soils will be recycled or disposed of at an appropriate landfill.
- Category 3 – soils with maximum lead concentrations less than 50 mg/Kg and TCLP lead concentrations less than 5 mg/L. These soils will remain on site and be used for contour grading purposes.

Berm Face Excavation – An X-ray fluorescence spectrometer (XRF) will be used to determine lead concentrations in the remaining berm face after hot spot areas have been removed. The berm will be divided into 15-foot sections and two samples for XRF analysis will be collected in the center of each section. The XRF results will be used to segregate the soils into four lead concentration groups (<50 mg/Kg; 50 ≤ 250 mg/Kg; 250 ≤ 1000 mg/Kg; 1000+ mg/Kg). The berm soils will be excavated, screened, and stockpiled based on the concentrations of lead in each berm section.

After the 2-foot soil lift is removed from each berm, the surface and near-surface soils will be visually inspected for bullets. If no bullets are observed, soil samples will be collected from each section, sieved with a 2 mm screen, and analyzed for lead using the XRF. Samples below cleanup levels will be submitted for confirmation laboratory analysis. A berm section is considered "clean" if both XRF sample results for lead concentration are below 50 mg/Kg. Excavation of the sections along the berm face will continue until no bullets are encountered and the XRF analysis determines remaining soils are below the cleanup level.

Fire Support Areas - A 6-inch soil lift will be removed from fire support areas (e.g. range floors). The soil removal will occur across an area 20 feet wide by the length of the firing line. The 20-foot section will extend from 5 feet in front of the firing line to 15 feet behind the firing line. Excavated soils will be screened and stockpiled separate from the berm soils.

Excavation outside of the identified 20-foot wide section identified above will be based on the results of confirmatory sampling. If elevated levels of lead are identified an additional adjoining area will be excavated. This will continue until sample results for lead concentration are below 50 mg/Kg.

Sample Grid Areas - During soil sampling at the site a number of samples displayed elevated levels of lead. Grids identified during the soil sampling will be excavated as follows:

- A six-inch soil lift will be excavated from the entire 58x58 foot grid when average lead soil concentrations exceed 250 mg/Kg (4 of 307 grids)
- A six-inch soil lift will be excavated from a 29x29 foot area around the sample point when the average soil lead concentrations are greater than 50 mg/kg but less than 118 mg/kg with no indivudal sample contains greater than 250mg/kg. Or where the average lead concentration per grid is >118 mg/Kg but less than 250 mg/Kg. (24 of 307 grids) Confirmatory sampling will occur at each edge of the hot spot excavation area and from the center point.

  If necessary, an additional 6-inch soil lift will be removed from a 14.5x 29 foot section.
  - No excavation will occur in areas where samples displayed lead levels below 50 mg/Kg, or where lead concentrations average less than 50 mg/Kg and where no single sample from a grid exceeds 118mg/kg. (139 of 307 grids)

Grading – When laboratory results confirm the lead concentration in the berm soils are below 50 mg/Kg, the remaining berm will be graded to match surrounding contours. Organic material and rocks stockpiled during sieving will be combined with clean soils and remain on site. All graded sites will be reseeded.

Exceptions - Berm 1 at the 25-meter Machine Gun Range will be completely removed because it was likely reworked over the years and is, thus, potentially contaminated deeper than the 2-feet proposed for removal on all other berms. Additionally, the top 6 inches of soil in the area behind the main range berm will be removed. Lead bullets are visible on the ground surface and it appears as though the hillside may have been used as the target prior to construction of the berm

SCENARIO 2 – POP-UP TARGET BERMS
(Rifle Ranges 1 & 2; Field Fire Ranges 1 & 2; Combat Pistol Range (Figure 1))

The pop-up target berms will be completely removed. In addition, a 6-inch (0.5-ft) soil lift will be removed from an approximate 15-foot radius from the center of the concrete target. The area within the 15-foot

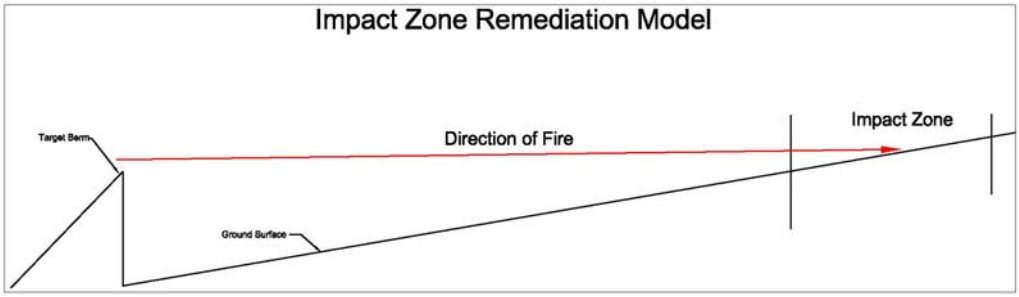
radius will be surface cleared using Shoenstedt's hand-held magnetometers. If nothing is discovered in the area behind the target, soil within that area will not be removed. The soil will be processed and the area graded as described above under Scenario 1.

SCENARIO 3 – HILLSIDE BERMS
(25-meter M60/Pistol Range; 25-meter Record Firing/Field Firing Range; Combat Pistol Range; 1,000-inch Rifle Range/Machine Gun Range (Figure 1))

The target berm located in front of the hillside will be completely removed. In addition, the front of the hillside will be excavated, processed, and the area graded as described above under Scenario 1.

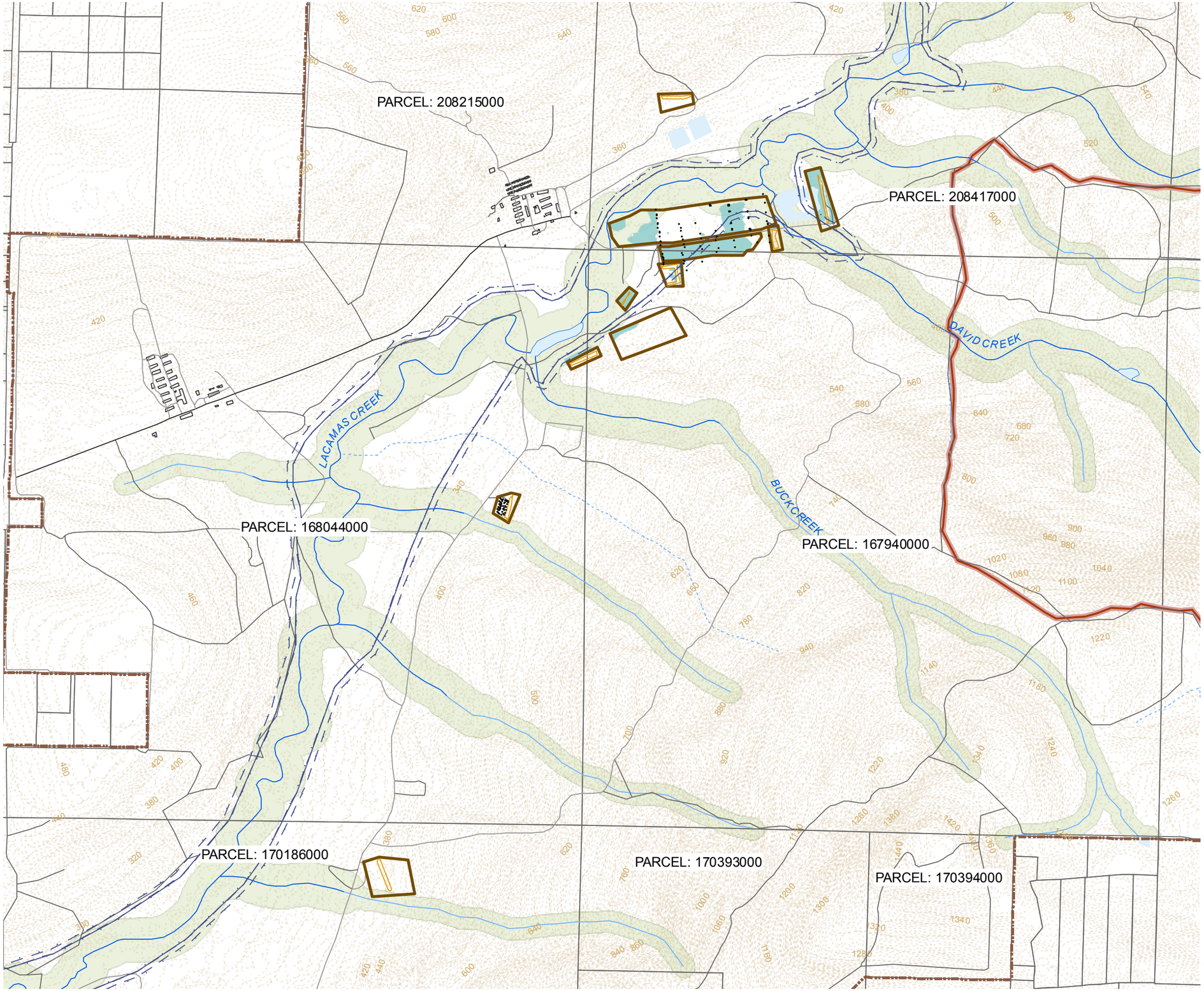
SCENARIO 4 – IMPACT ZONE
(Rifle Ranges 1 & 2 (Figure 1))

At this range, additional pop up targets were placed on a target berm across the pop up pond. The identified impact area behind the target berm will be excavated until clean material is left. The impact zone is the area behind the target berm where the trajectory of the bullet would land assuming it missed the target berm. The impact zone will be excavated, processed, and the area graded as described above under Scenario 1.



SECTION 5

EXISTING CONDITIONS MAP



Legend

- Camp Bonneville
- Central Impact Target Area
- Firing Ranges
- Berms
- Pop-up Berms
- Riparian Habitat Buffer
- Flood Transition Area
- Floodway Fringe
- Tax Lots
- Contours

Roads & Trails

- Paved
- Dirt
- Gravel
- Dirt Trail

Streams

- Fish
- Non-Fish
- Unknown
- Water Bodies and Ponds
- Wetlands

N

0 450 900 Feet

Data Sources: Clark County GIS (August 2006); Wetland boundaries marked in the field using a Trimble Geo XT GPS. Camp Bonneville layers provided by Michael Baker Jr., Inc. and MKM Engineers, Inc.

PBS

BCRRT

BONNEVILLE CONSERVATION, RESTORATION & RENEWAL TEAM, LLC

CAMP BONNEVILLE

23201 NE PLUSS ROAD
CLARK COUNTY, WASHINGTON

EXISTING CONDITIONS MAP

PROJECT: 70489.000

JULY 2007

FIGURE: 1

SECTION 6

GRADING AND EROSION CONTROL PLAN

SECTION 7

STATE ENVIRONMENTAL POLICY REVIEW

TYPE II DEVELOPMENT & ENVIRONMENTAL REVIEW, STAFF REPORT & DECISION

SEPA Review by Wetland Biologist
(Form DS1593)

Project Name:	**Camp Bonneville SEPA**
Case Number:	**SEP2007-00088**
Location:	23201 NE Pluss Road
Request:	Grading to remove lead from firing range berms.
Applicant:	Clark County Public Works Jerry Barnett 1300 Franklin Street Vancouver, WA 98666 397.6118.4969
Contact Person:	Same as above
Property Owner:	Bonneville Conservation R & R 2320 NE Russ Road Vancouver, WA 98682
Planner:	Travis Goddard
Report Issue Date:	July 20, 2007
Vesting Date:	June 13, 2007

SEPA Determination
Determination of Non-significance (DNS)
Planner's Initials:_____ Date Issued: July 20, 2007

County Review Staff:
Planner Travis Goddard, (360) 397-2375 x4180

Parcel No: 167837-000, 208417-000, 208619-000, 170393-000, 170394-000, 208215-000, 167940-000, 170398-000, 168044-000, 170186-000

Comp Plan Designation: Forest Resource Land
Zoning Designation FR-80

Applicable Laws:
WAC Chapter 197-111 (SEPA), and Clark County Code Chapters: 40.570 (SEPA), 40.510.020 (Procedures), 40.380 (Stormwater and Erosion Control), 40.210 (Rural and Resource Districts), 40.440 (Habitat Conservation), 40.450 (Wetland Protection), and 14.07 (Grading).

Neighborhood Association/Contact:
Proebstel Neighborhood Association; Wendy Garrett;
PM Box 315 ; 6700 NE 162 Ave. #611 ; Vancouver, WA 98682 ; 253-9659
E-mail: proebstelnawendy@yahoo.com

Time Limits:
The application was determined to be fully complete on July 3, 2007. Therefore, the County Code requirement for issuing a decision within 78 days lapses on May 9, 2007. The State requirement for issuing a decision within 120 calendar days lapses on June 20, 2007.

Vesting:
An application is reviewed against the subdivision, zoning, transportation, stormwater and other land development codes in effect at the time a fully complete application for preliminary approval is submitted. If a pre-application conference is required, the application shall earlier contingently vest on the date the fully complete pre-application is filed. Contingent vesting requires that a fully complete application for substantially the same proposal is filed within 180 calendar days of the date the county issues its pre-application conference report.

The fully complete application was submitted on June 13, 2007 and determined to be fully complete on July 3, 2007. Given these facts, the application is vested on June 13, 2007.

Public Notice:
Notice of application and likely SEPA Determination of Non-Significance was mailed to the applicant, property owners within 500 feet of the site, the Proebstel Neighborhood Association**,** and other agencies on July 5, 2007.

Public Comments:
The Cowlitz Indian Tribe expressed concerns regarding cultural resources on the site. This discussion resulted in the County's Archaeological Review Coordinator including the attached finding and mitigation measure.

Background/Project Description

The applicant proposes to excavate and clean berms at 9 existing firing ranges within Camp Bonneville. The work will entail removal of berm soils, sifting and sorting of contaminated soils, and export, disposal, and recycling of sorted fractions as deemed necessary by the lead content of each fraction. Detailed procedures are outlined in the SEPA Checklist.

Major Issues and Analysis

Staff first analyzed the proposal in light of the 16 topics from the Environmental Checklist (see list below). The purpose of this analysis was to identify any potential adverse environmental impacts that may occur without the benefit of protection found within existing ordinances.

1. Earth
2. Air
3. Water
4. Plants
5. Animals
6. Energy and Natural Resources
7. Environmental Health
8. Land and Shoreline Use
9. Housing
10. Aesthetics
11. Light and Glare
12. Recreation
13. Historic and Cultural Preservation
14. Transportation
15. Public Services
16. Utilities

Then staff reviewed the proposal for compliance with applicable code criteria and standards in order to determine whether all potential impacts will be mitigated by the requirements of the code.

Staff's analysis also reflects review of agency and public comments received during the comment period, and knowledge gained through a site visit.

Only the major issues, errors in the SEPA Checklist and/or development proposal, and/or justification for any mitigation conditions are discussed below. Staff finds that all other aspects of this proposed development comply with the applicable code requirements, and, therefore, are not discussed.

SEPA ELEMENTS

1. EARTH:

Finding 1 The applicant has not applied for a Clark County Grading permit. This permit is required under CCC 14.07. Compliance with the standards of this chapter will ensure that there are no significant impacts to soils.

Mitigation Measure:

The applicant shall obtain a Clark County Grading Permit prior to starting work on the firing ranges.

3. WATER:

Finding 1 the applicant has submitted preliminary data and analysis indicated that several of the firing ranges where grading is proposed contains wetlands and wetland buffers. Wetland analysis is based solely on vegetation because the firing ranges have not been certified to be clear of unexploded ordinance. The analysis indicates that limits of Field Range

No. 2 and the Combat Pistol Range do not contain wetlands or wetland buffers.

Compliance with CCC 40.450 through a Clark County Wetland Permit will be required to ensure that there are no significant impacts to soils.

Mitigation Measure:

The applicant shall obtain a Clark County Wetland Permit prior to starting work on all firing ranges except Field Fire Range No. 2 and the Combat Pistol Range.

4. PLANTS and
5. ANIMALS:

Finding 1 The applicant has not applied for a Clark County Habitat permit. This permit is required under CCC 40.440. Compliance with the standards of this chapter will ensure that there are no significant impacts to habitat.

Mitigation Measure:

The applicant shall obtain a Clark County Habitat Permit prior to starting work on the firing ranges.

13. HISTORIC AND CULTURAL PRESERVATION

Finding 1 Currently, the safety concerns regarding exposure to contaminants and unexploded ordinance restrict or limit the possibility of conducting archaeological investigations during the site clean-up phase. Therefore, prior to any ground disturbing activities associated with the development of the site, the applicant, shall be required to conduct archaeological investigations.

Mitigation Measure:

The applicant shall perform archaeological investigations for the areas disturbed by activity associated with this review, as part of the permitting process for the future development of this site.

SEPA Determination

The likely SEPA Determination of Non-Significance (DNS) in the Notice of Development Review Application issued on July 5, 2007 is hereby revised to a Mitigated Determination of Non-Significance (MDNS).

Mitigation Conditions:

1. The applicant shall obtain a Clark County Grading Permit prior to starting work on the firing ranges.
2. The applicant shall obtain a Clark County Wetland Permit prior to starting work on all firing ranges except Field Fire Range No. 2 and the Combat Pistol Range.
3. The applicant shall obtain a Clark County Habitat Permit prior to starting work on the firing ranges.
4. The applicant shall perform archaeological investigations for the areas disturbed by activity associated with this review, as part of the permitting process for the future development of this site.

Note: The Development Services Manager reserves the right to develop a complete written report and findings of fact regarding this decision, if appealed.

An **appeal** of any aspect of this decision, including the SEPA determination and any required mitigation measures, may be appealed only by a party of record (i.e., the applicant and those individuals who submitted written testimony to the Planning Director within the designated comment period). The appeal shall be filed with the Department of Community Development within fourteen (14) calendar days from the date the notice of final land use decision is mailed to parties of record. This decision was mailed on July 20, 2007. Therefore any appeal must be received in this office by 4:30 PM August 3, 2007.

APPEAL FILING DEADLINE

Date: August 3, 2007

Any appeal of the final land use decisions shall be in writing and contain the following information:

1. The case number designated by the County and the name of the applicant;
2. The name and signature of each person or group (petitioners) and a statement showing that each petitioner is entitled to file an appeal as described under Clark County Code, Section 40.510.020 H. If multiple parties file a single petition for review, the petition shall designate one party as the contact representative with the Development Services Manager. All contact with the Development Services Manager regarding the petition, including notice, shall be with this contact person;
3. The specific aspect(s) of the decision and/or SEPA issue being appealed, the reasons why each aspect is in error as a matter of fact or law, and the evidence relied on to prove the error; and,
4. A check in the amount of **$1080** (made payable to the Community Development Department).

The appeal request and fee shall be submitted to the Community Development Department, Permit Services Center, between 8:00 a.m. and 4:30 p.m. Monday through Friday, at the address listed above.

A copy of the SEPA Checklist and Clark County Code are available for review at:

Community Development Department
1408 Franklin Street
P.O. Box 9810
Vancouver, WA 98666-9810
Phone: (360) 397-2375; Fax: (360) 397-2011

A copy of the Clark County Code is also available on our Web Page at:
http://www.co.clark.wa.us

DEVELOPER'S GIS PACKET

Produced by:
Clark County Department of Assessment and GIS

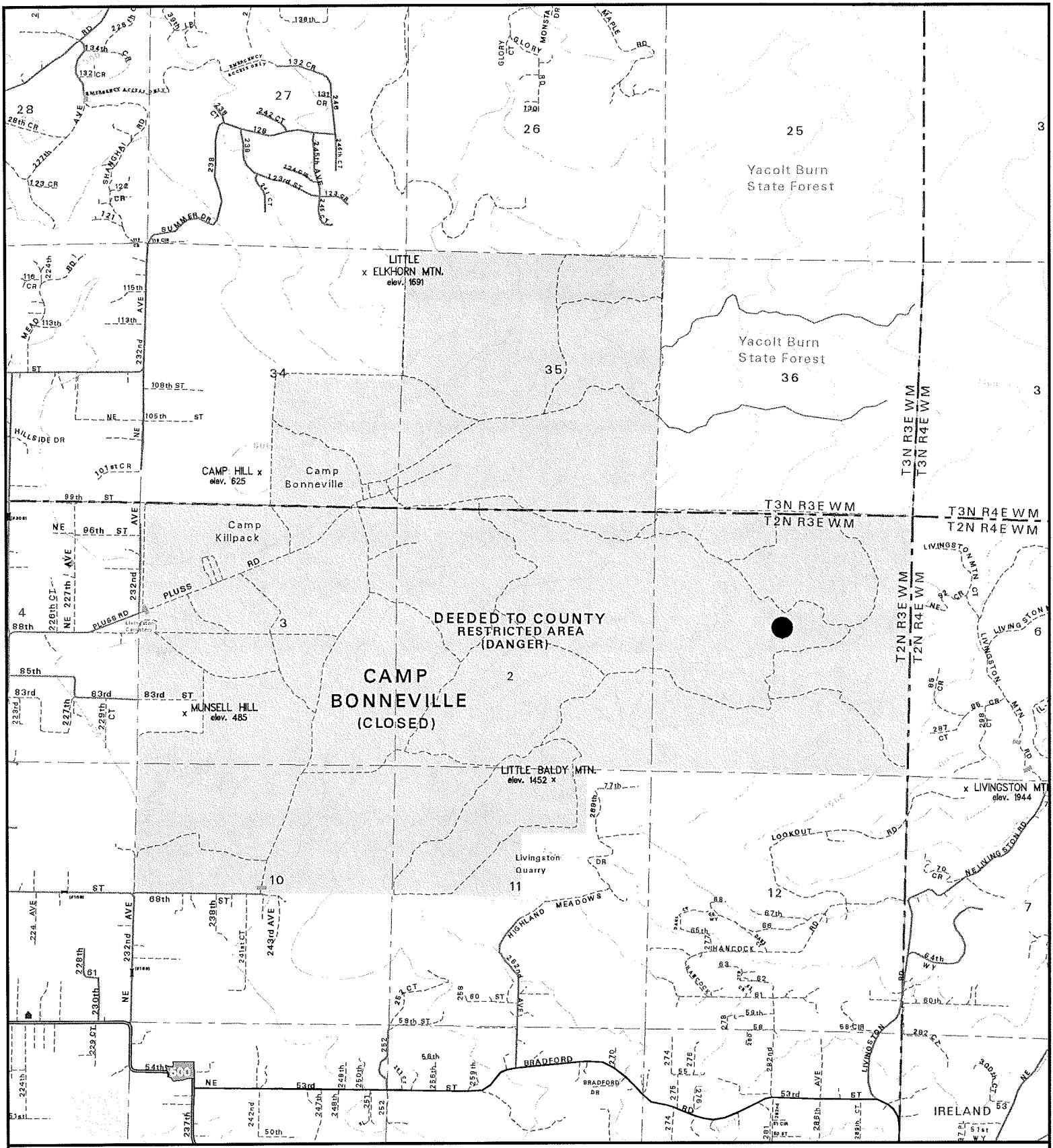
For:
CHRISTY McDONOUGH
213-0444

Subject Parcel Serial Number(s):
167837–000
167940–000
168044–000
170186–000
170393–000
170394–000
170398–000
208215–000
208417–000
208619–000

Printed: July 11, 2007
Expires: July 11, 2008

proud past, promising future
CLARK COUNTY
WASHINGTON

Table of Contents



Scale 1:31680

1 Miles

CLARK COUNTY, WASHINGTON

Department of Assessment and GIS

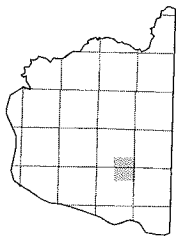
Order 29677 GIS Product 1_24

Plotted: July 11, 2007

General Location

Serial No.: 167837-000, 167940-000, 168044-000, 170186-000, . . .
Owner: BONNEVILLE CONSERVATION RandR
Address: 2320 NE RUSS RD
C/S/Z: VANCOUVER, WA 98682

● Subject Property Location



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Property Information Fact Sheet

Mailing Information:

Serial No.: 167837–000, 167940–000, 168044–000, 170186–000, 170393–000, 170394–000, 170398–000, 208215–000, 208417–000, 208619–000
Owner: BONNEVILLE CONSERVATION RandR
Address: 2320 NE RUSS RD
C/S/Z: VANCOUVER, WA 98682

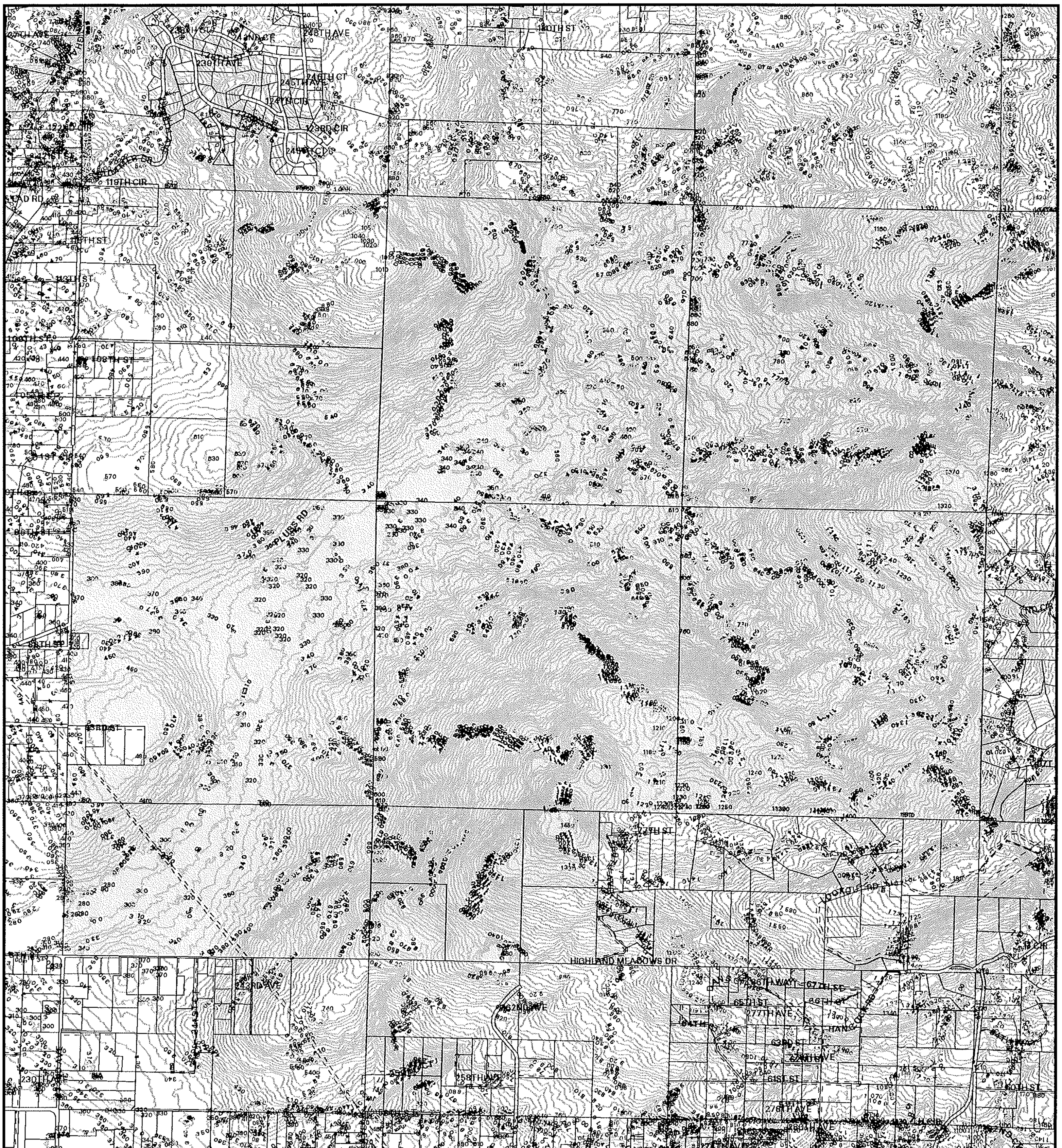
Assessed Parcel Size: 3860.06 Acres
Property Type: MILITARY BUILDINGS / FACILITIES

PARCEL LOCATION FINDINGS:

Quarter Section(s): NE 1/4 of Sec 01, T2N R3E W.M.
NW 1/4 of Sec 01, T2N R3E W.M.
SE 1/4 of Sec 01, T2N R3E W.M.
SW 1/4 of Sec 01, T2N R3E W.M.
NE 1/4 of Sec 02, T2N R3E W.M.
NW 1/4 of Sec 02, T2N R3E W.M.
SE 1/4 of Sec 02, T2N R3E W.M.
SW 1/4 of Sec 02, T2N R3E W.M.
NE 1/4 of Sec 03, T2N R3E W.M.
SE 1/4 of Sec 03, T2N R3E W.M.
NW 1/4 of Sec 03, T2N R3E W.M.
SW 1/4 of Sec 03, T2N R3E W.M.
NE 1/4 of Sec 10, T2N R3E W.M.
NW 1/4 of Sec 10, T2N R3E W.M.
NW 1/4 of Sec 11, T2N R3E W.M.
NE 1/4 of Sec 11, T2N R3E W.M.
SE 1/4 of Sec 34, T3N R3E W.M.
NW 1/4 of Sec 35, T3N R3E W.M.
SW 1/4 of Sec 35, T3N R3E W.M.
NE 1/4 of Sec 35, T3N R3E W.M.
SE 1/4 of Sec 35, T3N R3E W.M.
NW 1/4 of Sec 36, T3N R3E W.M.
NE 1/4 of Sec 36, T3N R3E W.M.
SE 1/4 of Sec 36, T3N R3E W.M.
SW 1/4 of Sec 36, T3N R3E W.M.

Municipal Jurisdiction: Clark County
Urban Growth Area: County
Zoning: FR–80
Comprehensive Plan Designation: FR–1
Neighborhood Association(s): Proebstel
School District: Camas –Impact Fee, Evergreen –Impact Fee, Hockinson –Impact Fee
Elementary School: Lacamas Heights, Pioneer, Hockinson Heights
Junior High School: Liberty, Frontier, Hockinson
Senior High School: Camas, Heritage, Hockinson
Fire District: East County, No District
Trans. Impact Fee Area: None
Park Impact Fee Dist: None
Sewer District: Rural/Resource
Water District: Clark Public Utilities
Building Moratorium Area: No Indicators
Late-Comer Area: None
Soil Type(s): OmF, 63% of parcel
OlD, 12%
OmE, 2%
MeA, 3%
WAT, 0%
OlB, 3%
HgD, 6%
HgB, 4%
HcB, 3%

Liquefaction Susceptibility: Bedrock, Very Low
NEHRP: B, C
Slope: 15 –25 percent, 33% of parcel
25 –40 percent, 19%
10 –15 percent, 18%
40 –100 percent, 3%
0 –5 percent, 12%
5 –10 percent, 14%
Unknown, 0%
Landslide Hazards: Slopes > 15%
Areas of Older Landslide Debris
Slope Stability: Severe erosion hazard areas
Flood Zone Designation: Outside Flood Area
Floodway Fringe
Flood Transition Are
CARA: 0, 2
Columbia River Gorge NSA: No
Wildland: 500+ elev. & forest, slopes, or no FD
500+ elev. and nothing else
Priority Habitat and Species Areas: Riparian Habitat Conservation Area
Priority Species Area Buffer: No Mapping Indicators
Priority Habitat Area Buffer: No Mapping Indicators
Archeological Predictive: Low (0 – 20 percent), 46% of parcel
High (80 – 100 percent), 28%
Moderate–High (60 – 80 percent), 15%
Low–Moderate (20 – 40 percent), 9%
Moderate (40 – 60 percent), 3%
Archeological Site Buffers: Yes



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Department of Assessment and GIS

Order 29677 GIS Product 1_24

Plotted: July 11, 2007

Elevation Contours

Serial No.: 167837-000, 167940-000, 168044-000, 170186-000, . . .

Owner: BONNEVILLE CONSERVATION RandR

Address: 2320 NE RUSS RD

C/S/Z: VANCOUVER, WA 98682

33135	33136	34131
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Subject Parcel

Public Road

Elevation Contour

Transportation or Major Utility Easement

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CLARK COUNTY, WASHINGTON

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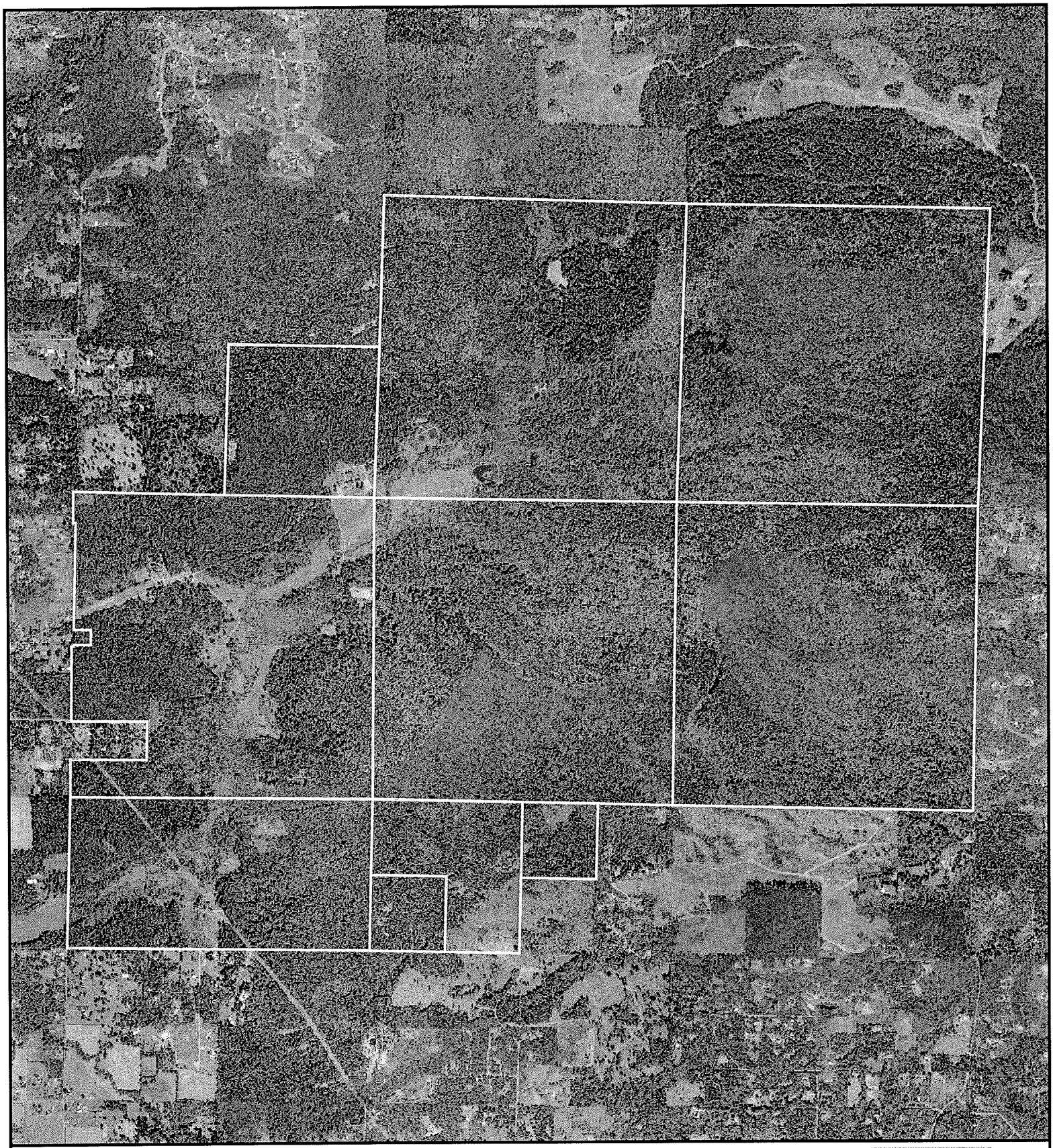

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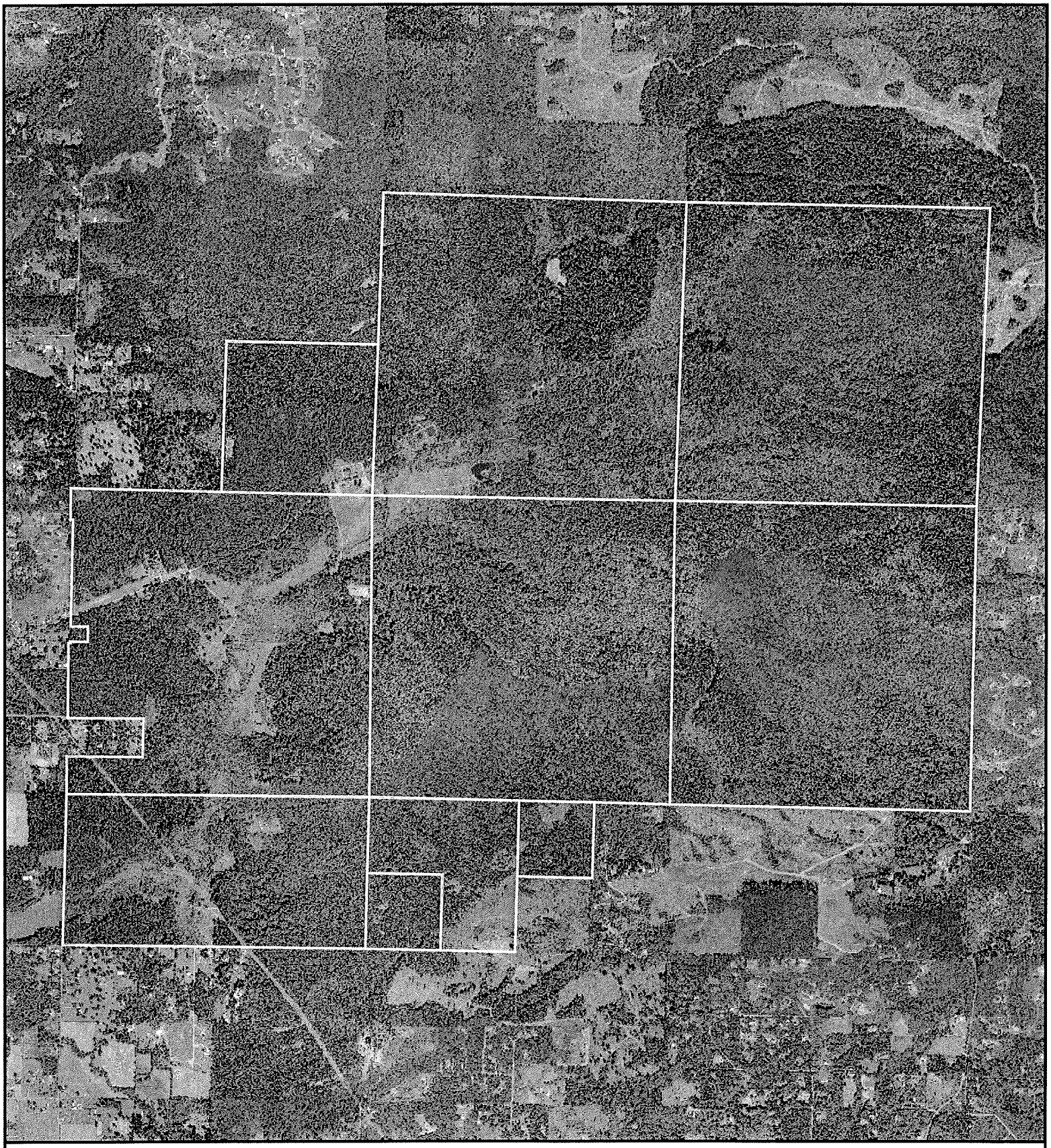

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Department of Assessment and GIS

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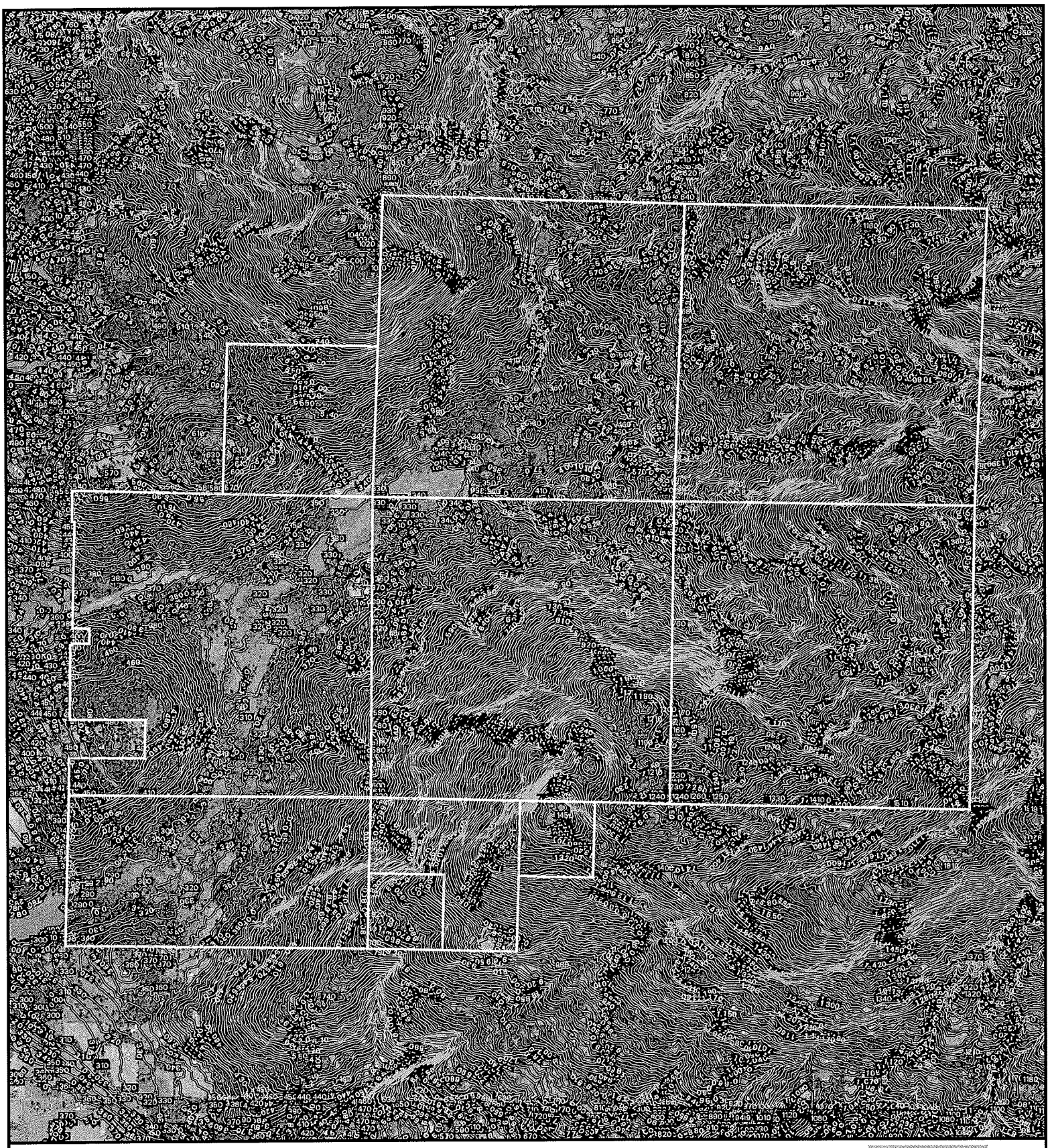

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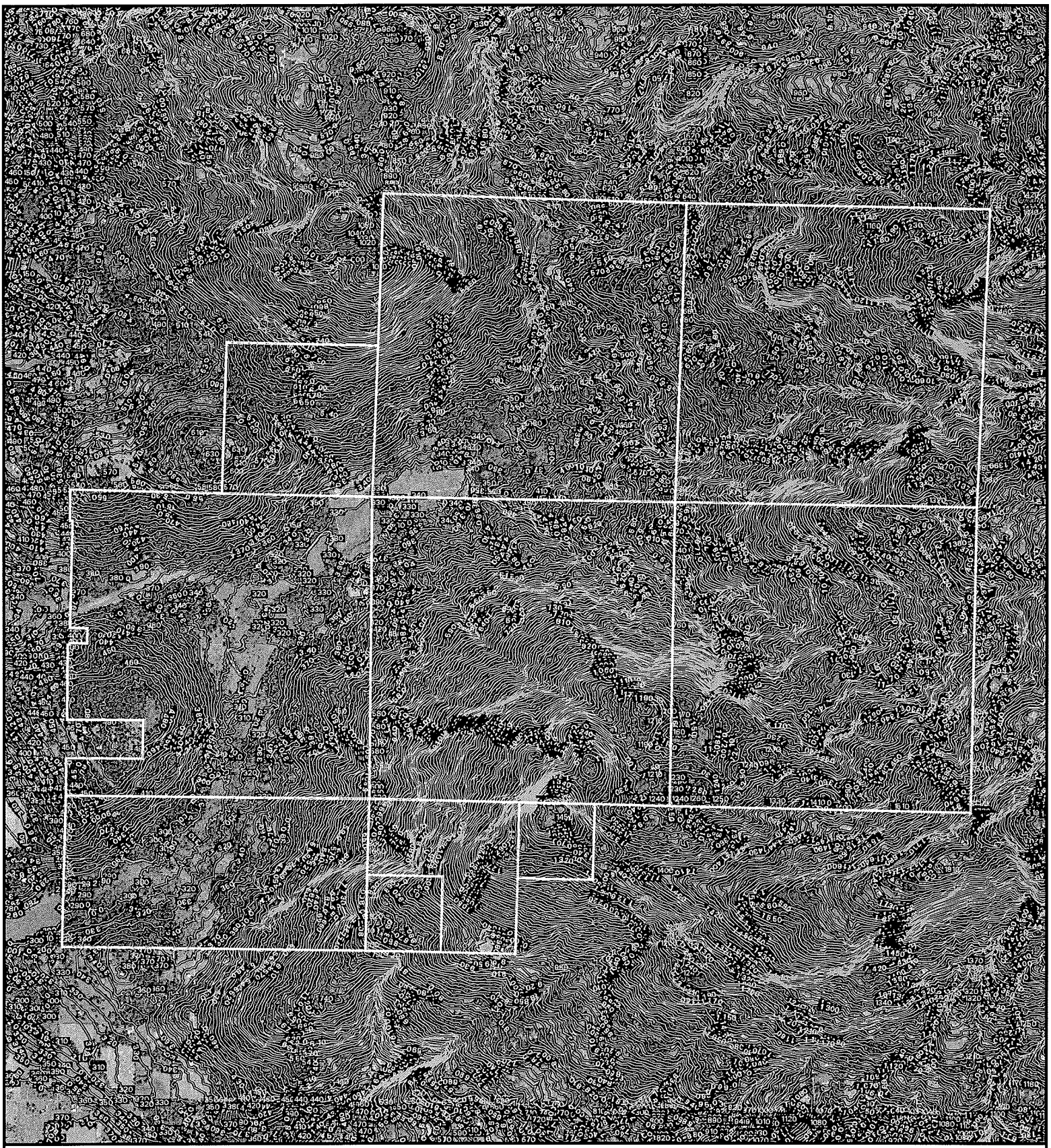

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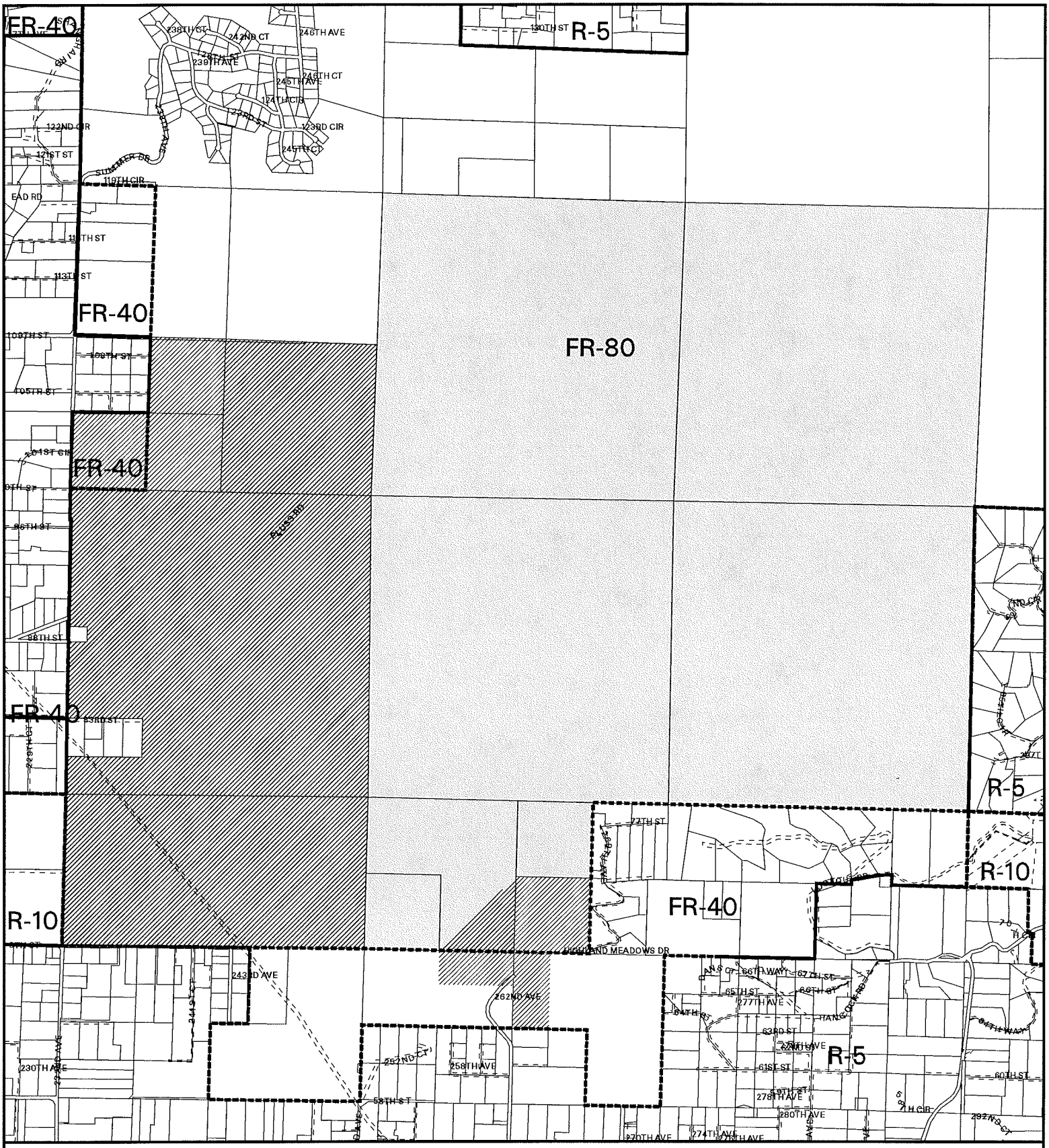

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CLARK COUNTY, WASHINGTON

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Zoning Designation: 'FR-80'

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Address: 2320 NE RUSS RD
C/S/Z: VANCOUVER, WA 98682

- Subject Parcel
- Public Road
- Contingent Zoning
- Urban Holding - 10
- Urban Holding - 20
- Urban Holding - 40
- Mining Combining Dist.
- Transportation or Major Utility Easement
- Zoning Boundary

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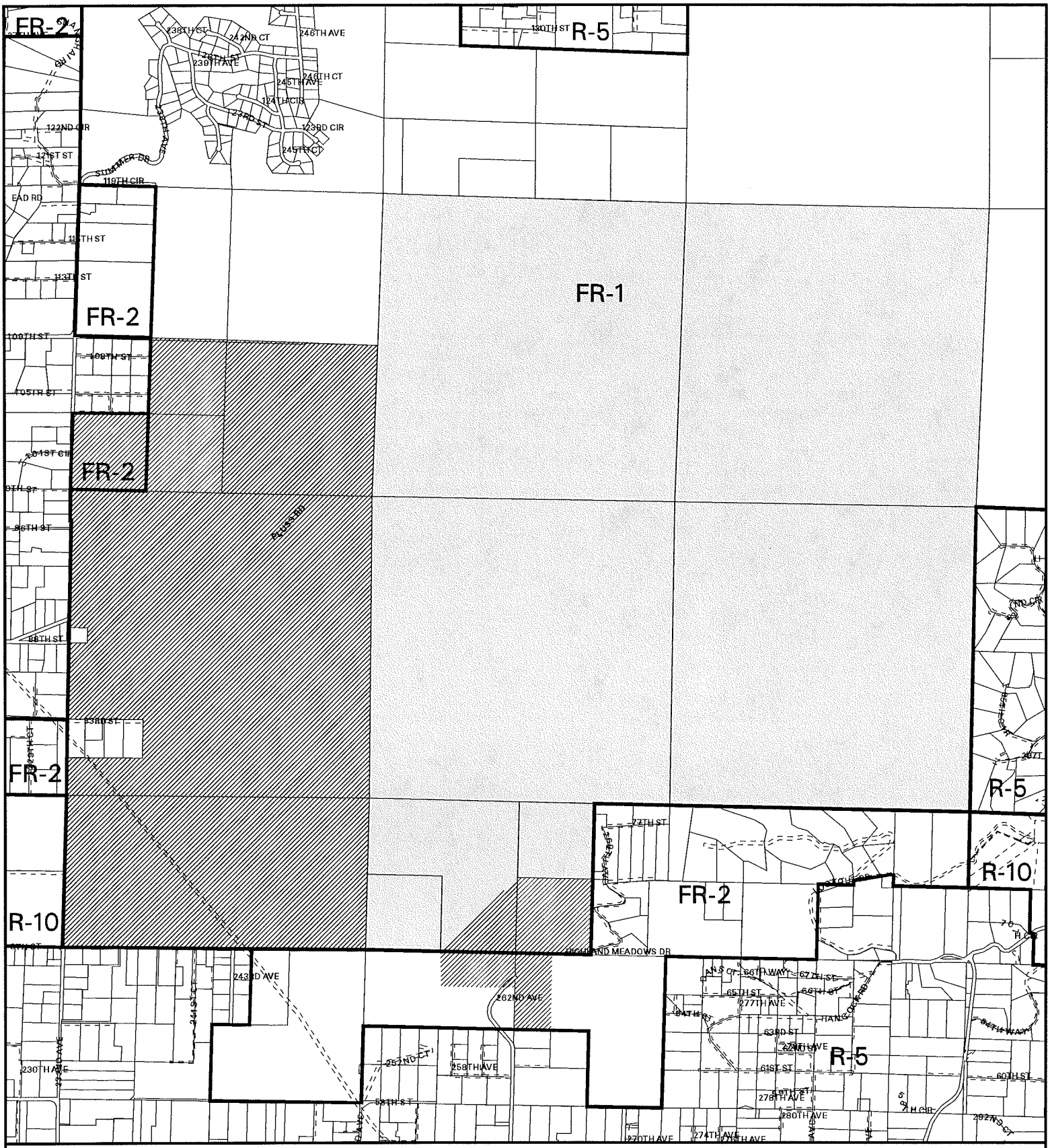

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CLARK COUNTY, WASHINGTON

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Comprehensive Plan Designation: R-5 FR-2 FR-1 R-5

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Owner: BONNEVILLE CONSERVATION RandR
Address: 2320 NE RUSS RD
C/S/Z: VANCOUVER, WA 98682

- Subject Parcel
- Public Road
- Mining
- Industrial Reserve
- Open Space/Density Transfer
- Columbia River Gorge N.S.A.
- Transportation or Major Utility Easement
- Comprehensive Plan Boundary

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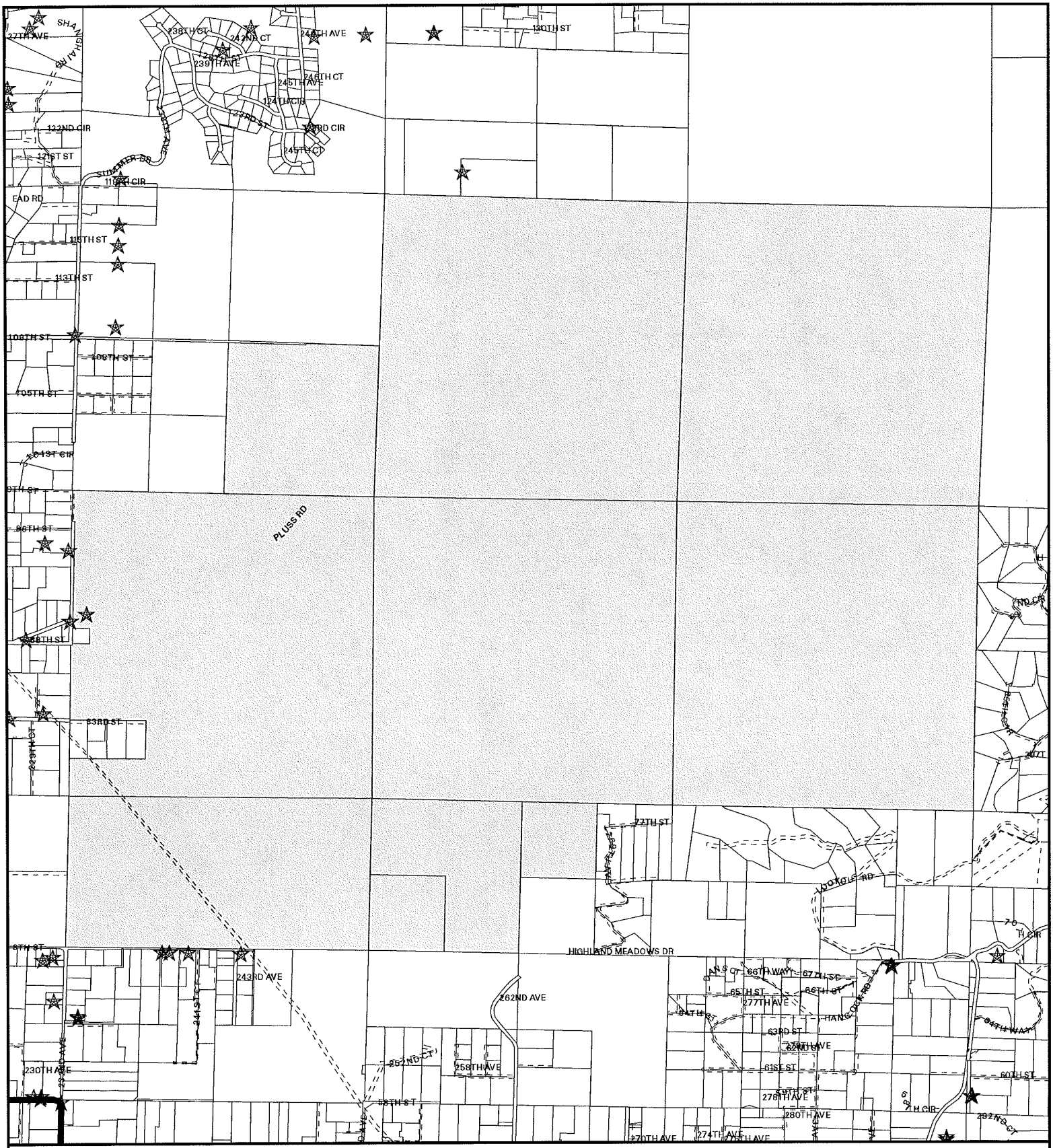

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Arterials, C-Tran Routes, Parks & Trails

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Owner: BONNEVILLE CONSERVATION RandR
Address: 2320 NE RUSS RD
C/S/Z: VANCOUVER, WA 98682

- Subject Parcel
- Public Road
- Parks
- Transportation or Major Utility Easement
- C-Tran Route
- Trails
- State Route
- Principal Arterial
- Minor Arterial
- Urban Collector
- Rural Major Collector
- Rural Minor Collector
- Scenic Highway
- Proposed
- School Bus Stop

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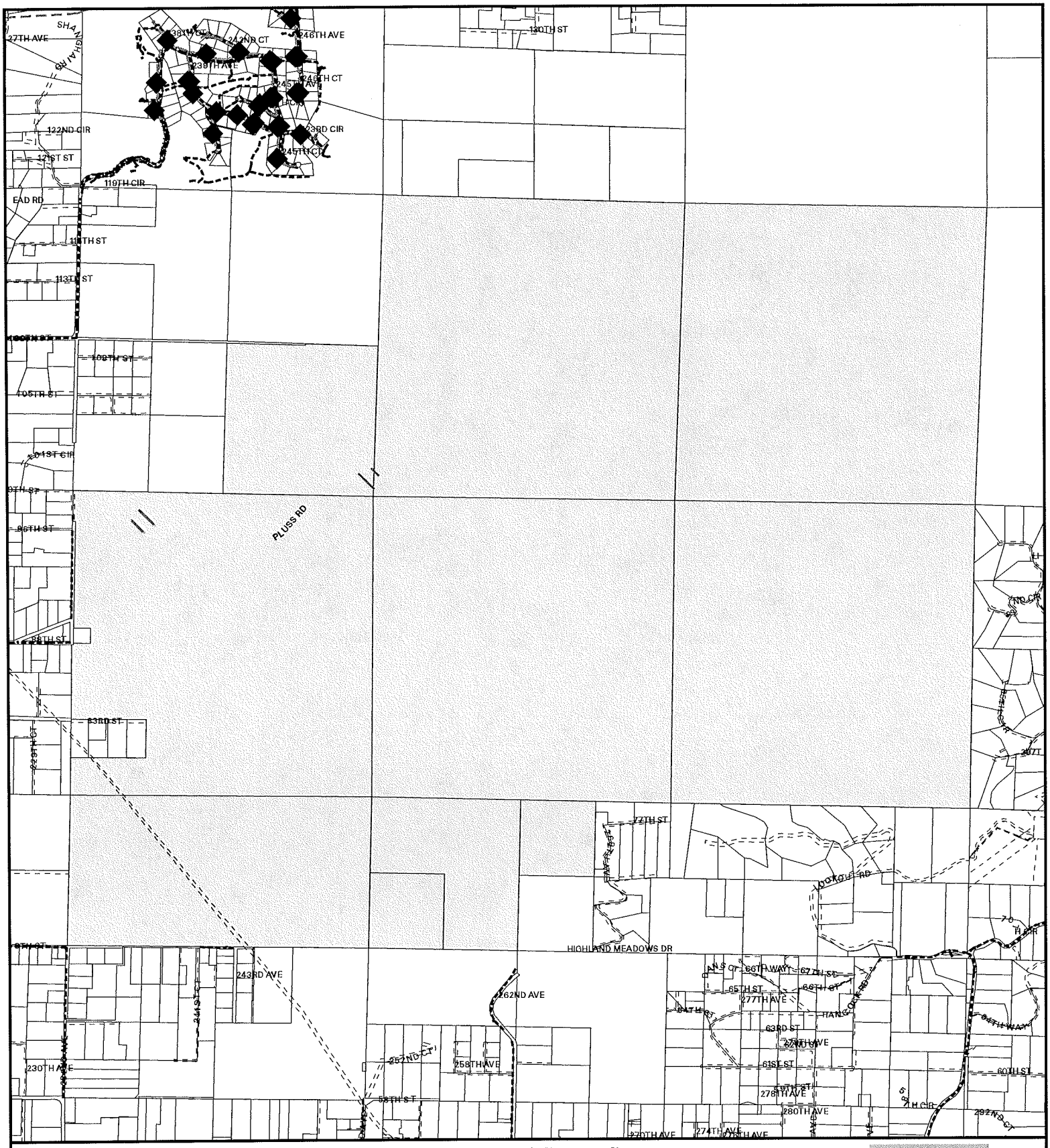

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Water, Sewer and Storm Systems

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Owner: BONNEVILLE CONSERVATION RandR
Address: 2320 NE RUSS RD
C/S/Z: VANCOUVER, WA 98682

- Subject Parcel
- Public Road
- 1-year Wellhead ZOC
- 5-year Wellhead ZOC
- 10-year Wellhead ZOC
- Transportation or Major Utility Easement
- Storm Sewer Lines
- Water Lines
- Sewer Lines
- Hydrant

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23111	23112	24107

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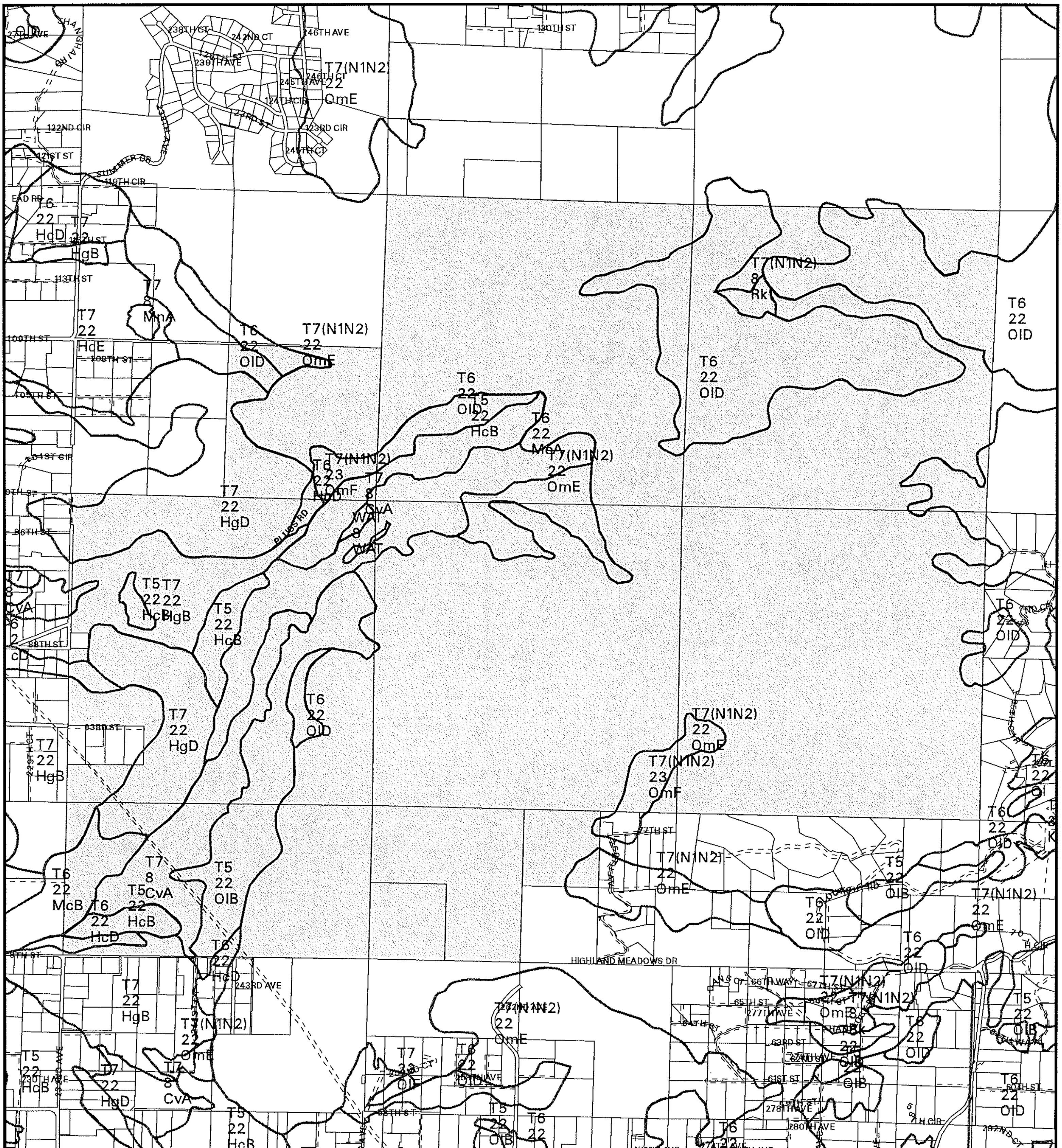


Soil Types

Scale 1:27000

500 0 500 1000 1500 Feet

Serial No.: 167837-000, 167940-000, 168044-000, 170186-000, . . .
Owner: BONNEVILLE CONSERVATION RandR
Address: 2320 NE RUSS RD
C/S/Z: VANCOUVER, WA 98682

CLARK COUNTY, WASHINGTON
Department of Assessment and GIS
Order 29677 GIS Product 1_24
Plotted: July 11, 2007

33135	33136	34131
23102	23101	24106
23111	23112	24107

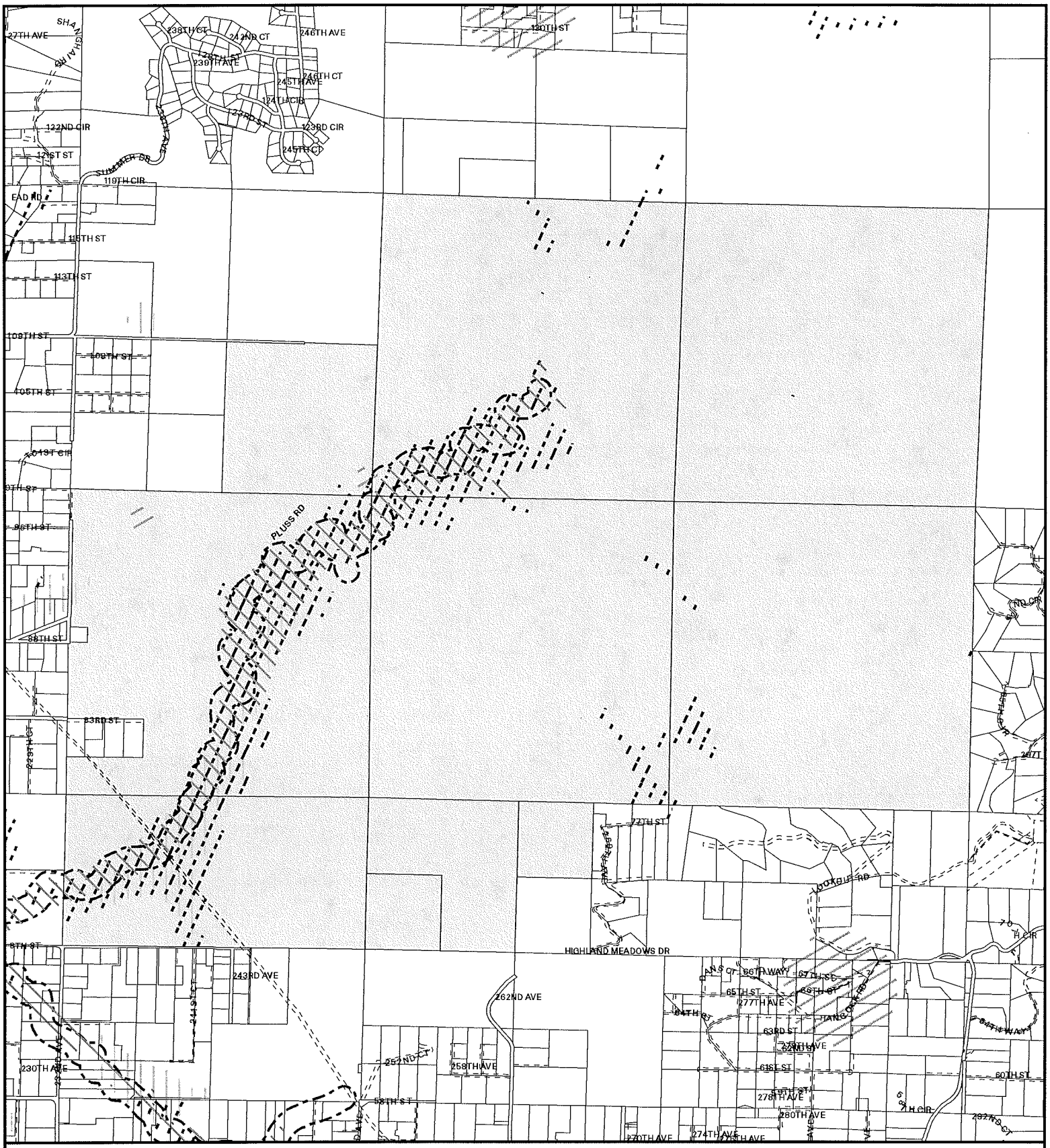
Subject Parcel

Public Road

Transportation or Major Utility Easement

Soil Type Boundary

Information shown on this map was collected from several sources. Clark County accepts no responsibility for any inaccuracies that may be present.



Scale 1:27000

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CLARK COUNTY, WASHINGTON

Department of Assessment and GIS

Order 29677 GIS Product 1_24

Plotted: July 11, 2007

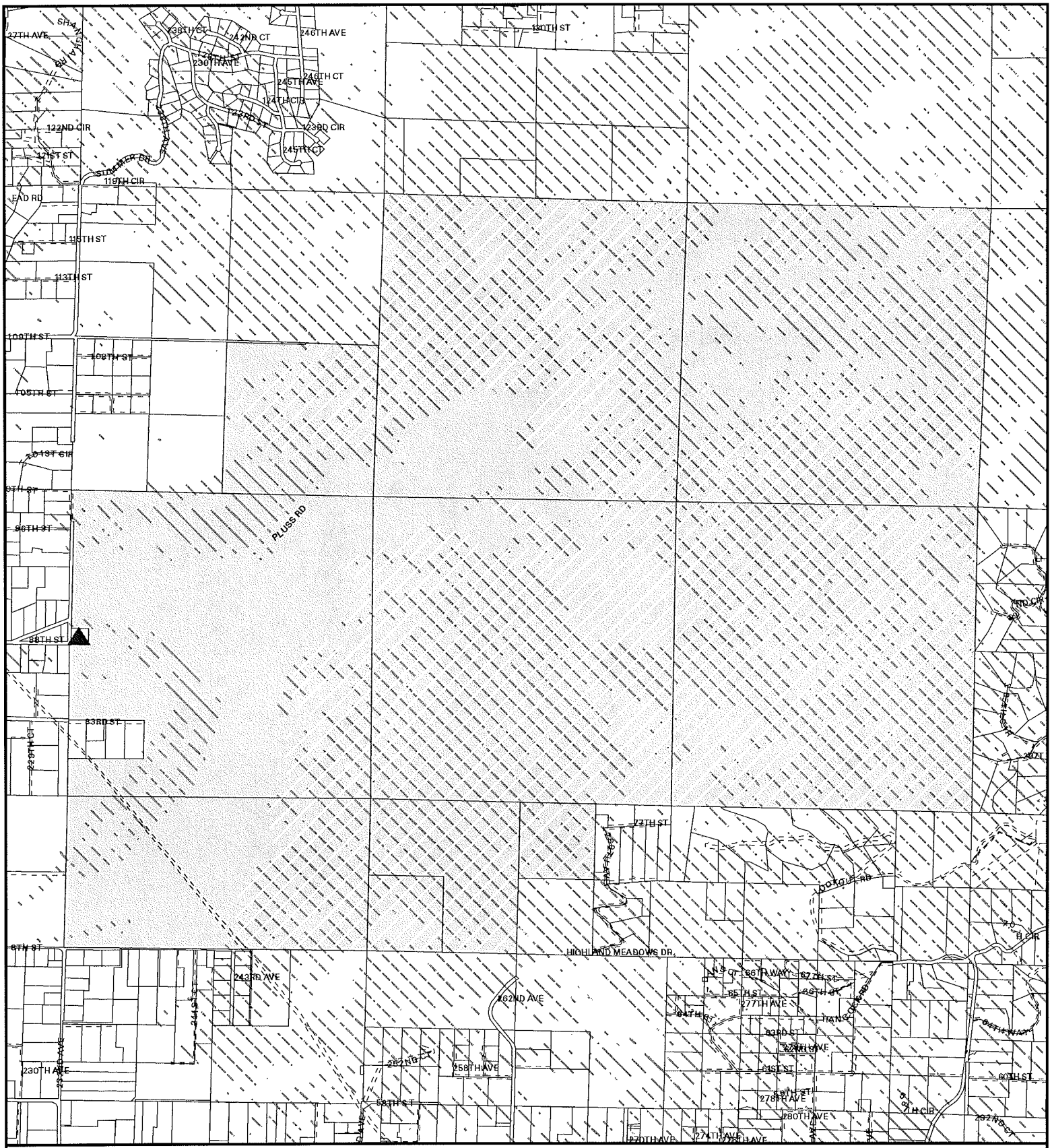
Environmental Constraints I

Serial No.: 167837-000, 167940-000, 168044-000, 170186-000, . . .
Owner: BONNEVILLE CONSERVATION RandR
Address: 2320 NE RUSS RD
C/S/Z: VANCOUVER, WA 98682

33135	33136	34131
23102	23101	24106
23111	23112	24107

- Subject Parcel
- Public Road
- Hydric soils
- Wetland Inventory
- CARA Category 1
- 100 yr Floodplains
- Floodways
- Shorelines
- Streams
- Transportation or Major Utility Easement

Information shown on this map was collected from several sources. Clark County accepts no responsibility for any inaccuracies that may be present.



Scale 1:27000

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CLARK COUNTY, WASHINGTON

Department of Assessment and GIS

Order 29677 GIS Product 1_24

Plotted: July 11, 2007

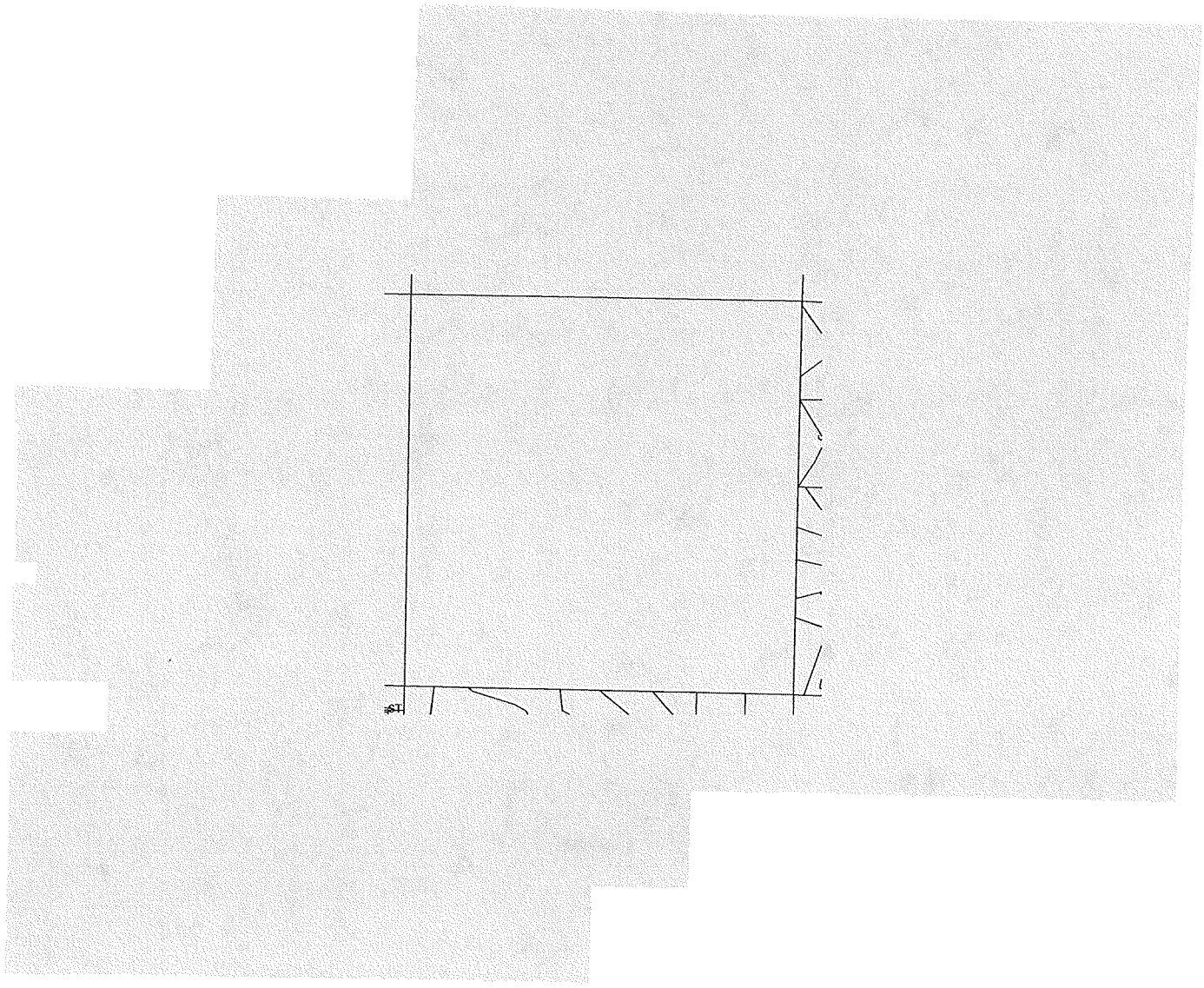
Environmental Constraints II

Serial No.: 167837-000, 167940-000, 168044-000, 170186-000, . . .
Owner: BONNEVILLE CONSERVATION RandR
Address: 2320 NE RUSS RD
C/S/Z: VANCOUVER, WA 98682

33135	33136	34131
23102	23101	24106
23111	23112	24107

- Subject Parcel
- Public Road
- Slopes Greater Than 15 percent
- Potentially Unstable Slope
- Historic or Active Landslide
- Severe Erosion Hazard Areas
- Transportation or Major Utility Easement
- CCHR Historic Site
- NRHP Historic Site
- INV Historic Site

Information shown on this map was collected from several sources. Clark County accepts no responsibility for any inaccuracies that may be present.



Scale 1:27000

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Department of Assessment and GIS

Order 29677 GIS Product 1_24

Plotted: July 11, 2007

Adjacent Development

Serial No.: 167837-000, 167940-000, 168044-000, 170186-000, . . .
Owner: BONNEVILLE CONSERVATION RandR
Address: 2320 NE RUSS RD
C/S/Z: VANCOUVER, WA 98682

Subject Parcel

Public Road

Transportation or Major Utility Easement

33135	33136	34131
23102	23101	24106
23111	23112	24107

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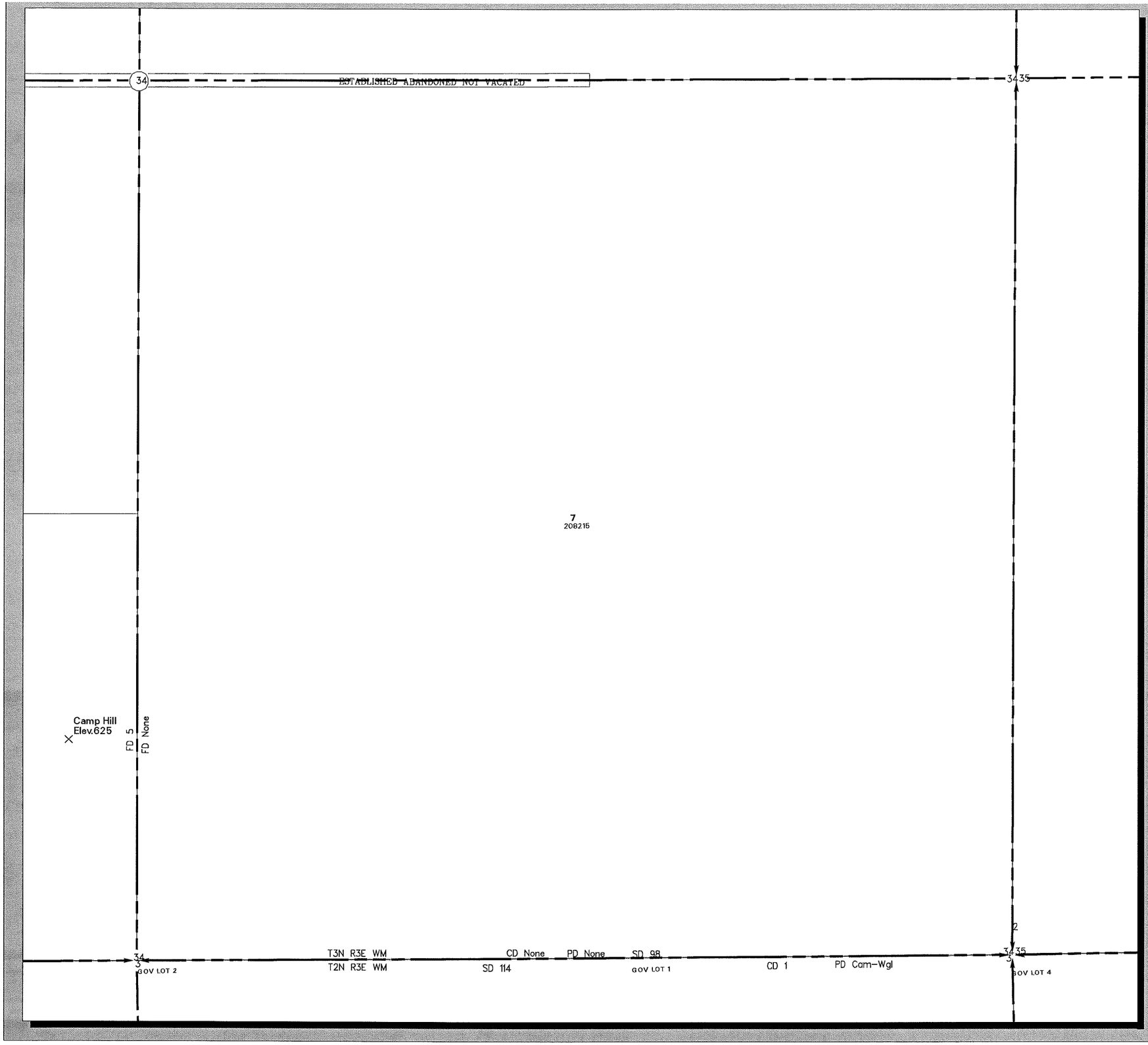

Clark County

Washington

SE Qtr of Section 34 T3N R3E WM

Explanation

Streams

Tax Code Line

Donation Land Claim

Easements

Control Lines

History

Subdivision Lines

City Boundary

Road Right of Way
' Actual Road May Not Exist'

Water

Marsh

None

Cemetery District:
None

Municipality:
CC

School District:
Hockinson–Impact Fee

Fire District:
FD 5, No District

Port District:

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Atlas Page(s)
21

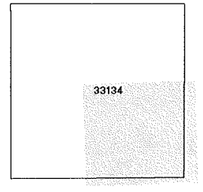
Scale 1:3600

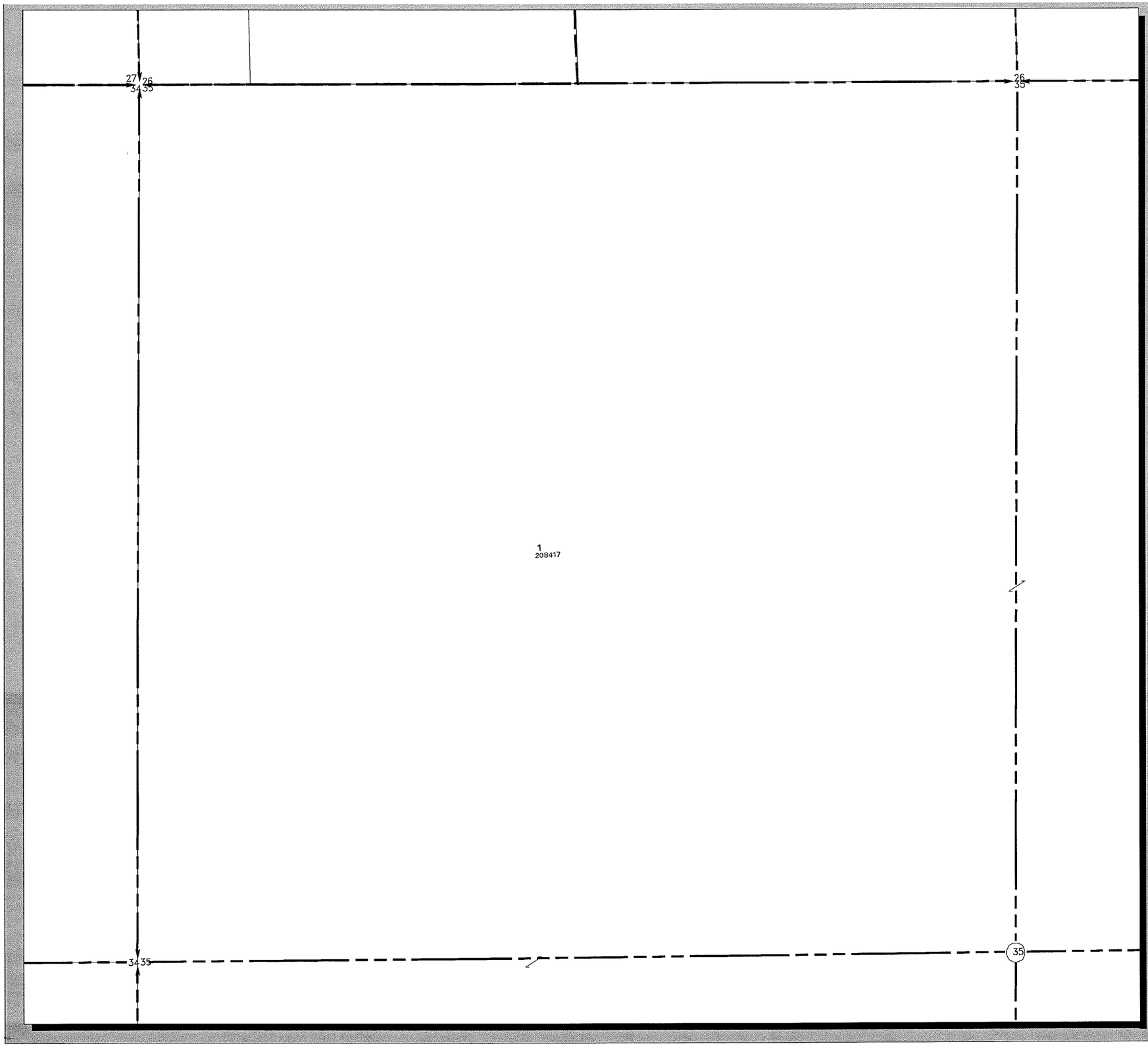
0 100 200 300 400 500 600 Feet

CLARK COUNTY, WASHINGTON
Department of Assessment and GIS

Order 29677 GIS Product 1_24

July 11, 2007





Clark County

Washington

NW Qtr of Section 35 T3N R3E WM

Explanation

Streams

Tax Code Line

Donation Land Claim

Easements

Control Lines

History

Subdivision Lines

City Boundary

Road Right of Way
' Actual Road May Not Exist'

Water

Marsh

None

Cemetery District:
None

Municipality:
CC

School District:
98-Hock

Fire District:
FD 3, No District

Port District:

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Atlas Page(s)
30
21

Scale 1:3600

0 100 200 300 400 500 600 Feet

Department of Assessment and GIS

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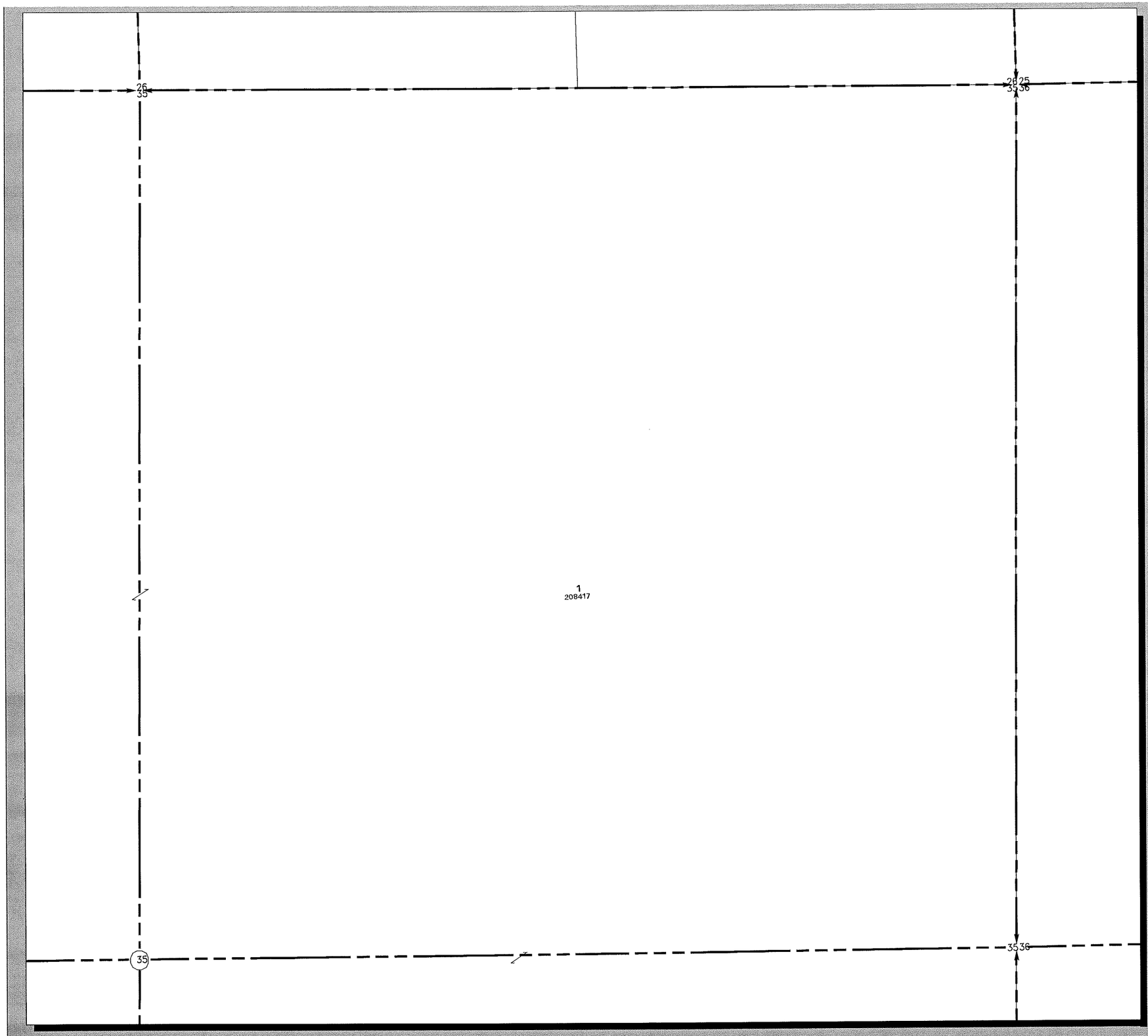
July 11, 2007

33135



Clark County

Washington

NE Qtr of Section 35 T3N R3E WM

Explanation

Streams

Tax Code Line

Donation Land Claim

Easements

Control Lines

History

Subdivision Lines

City Boundary

Road Right of Way
' Actual Road May Not Exist'

Water

Marsh

None

Cemetery District:
None

Municipality:
CC

School District:
98-Hock

Fire District:
FD 3, No District

Port District:

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Atlas Page(s)
30
21

Scale 1:3600

0 100 200 300 400 500 600 Feet

Department of Assessment and GIS

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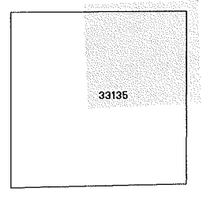
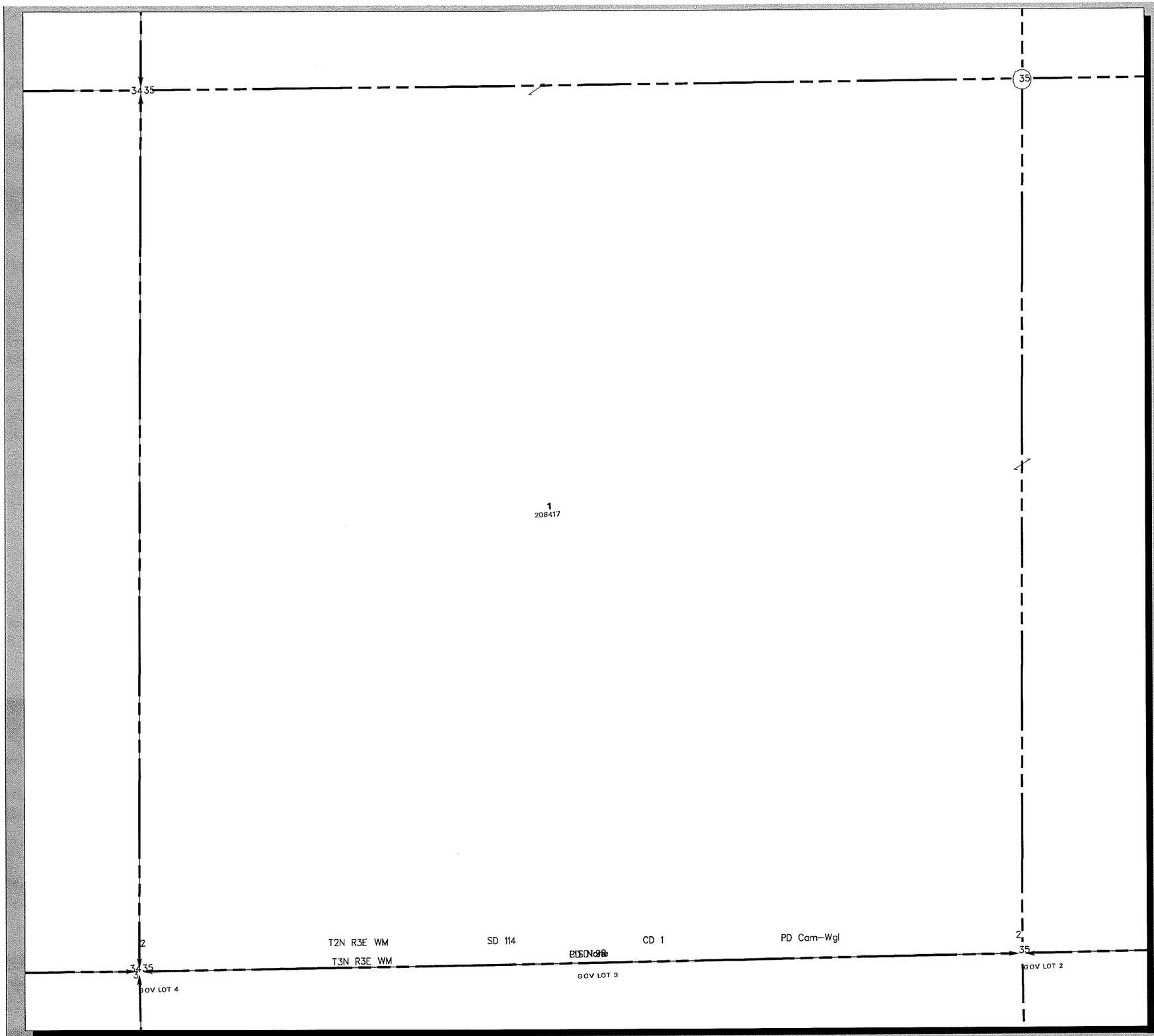
July 11, 2007



Clark County

Washington

SW Qtr of Section 35 T3N R3E WM



Explanation

- Streams
- Tax Code Line
- Donation Land Claim
- Easements
- Control Lines
- History
- Subdivision Lines
- City Boundary
- Road Right of Way ' Actual Road May Not Exist'
- Water
- Marsh

None

Cemetery District:
None

Municipality:
CC

School District:
98-Hock

Fire District:
No District

Port District:

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Atlas Page(s)
21

Scale 1:3600

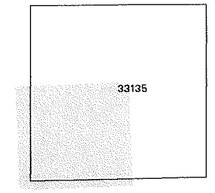
0 100 200 300 400 500 600 Feet

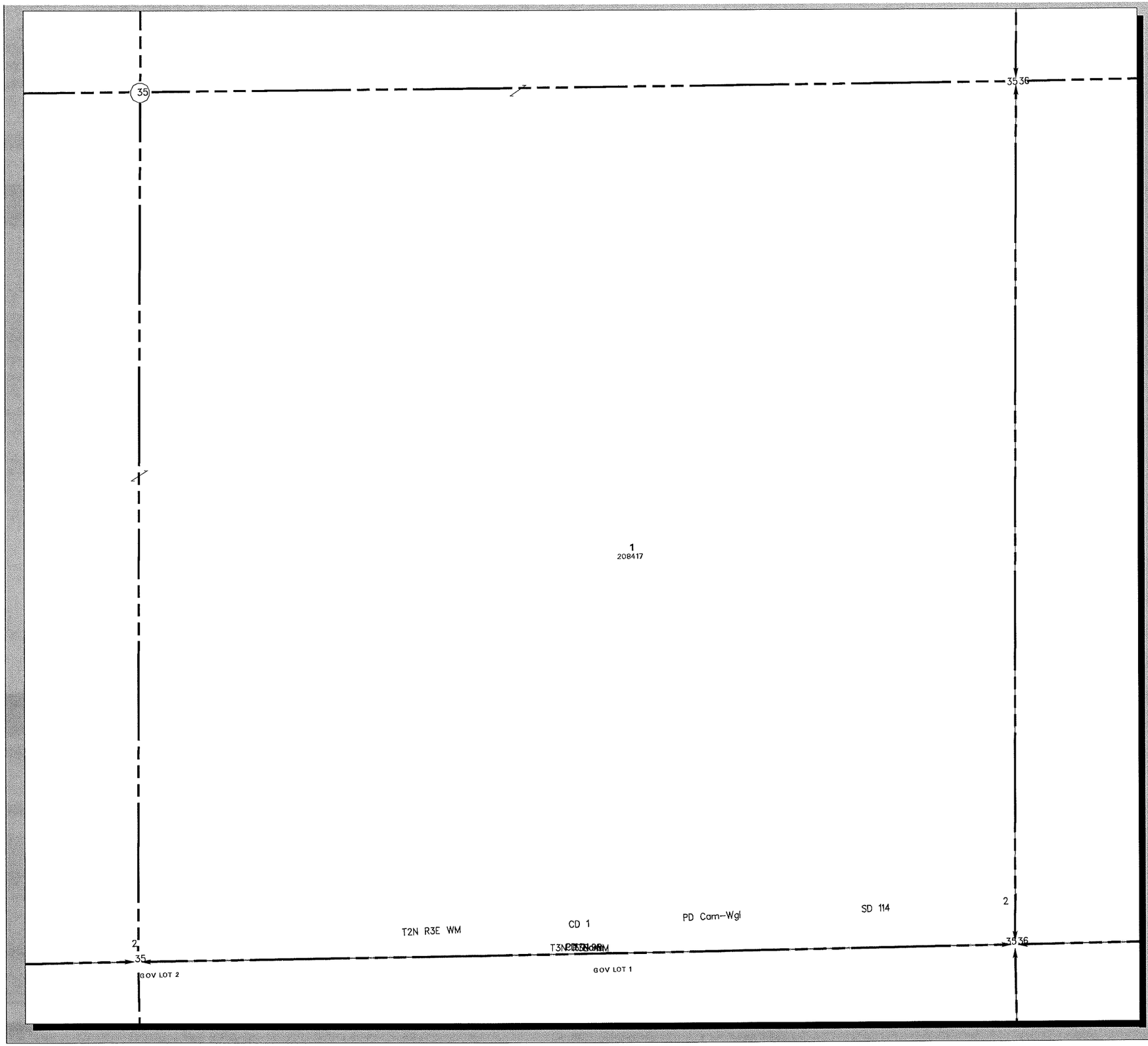
CLARK COUNTY, WASHINGTON

Department of Assessment and GIS

Order 29677 GIS Product 1_24

July 11, 2007





Clark County

Washington

SE Qtr of Section 35 T3N R3E WM

Explanation

Streams
Tax Code Line
Donation Land Claim
Easements
Control Lines
History
Subdivision Lines
City Boundary

Road Right of Way
' Actual Road May Not Exist'

Water

Marsh

None

Cemetery District:
None

Municipality:
CC

School District:
98-Hock

Fire District:
No District

Port District:

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Atlas Page(s)
21

Scale 1:3600

0 100 200 300 400 500 600 Feet

Department of Assessment and GIS

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July 11, 2007

33135

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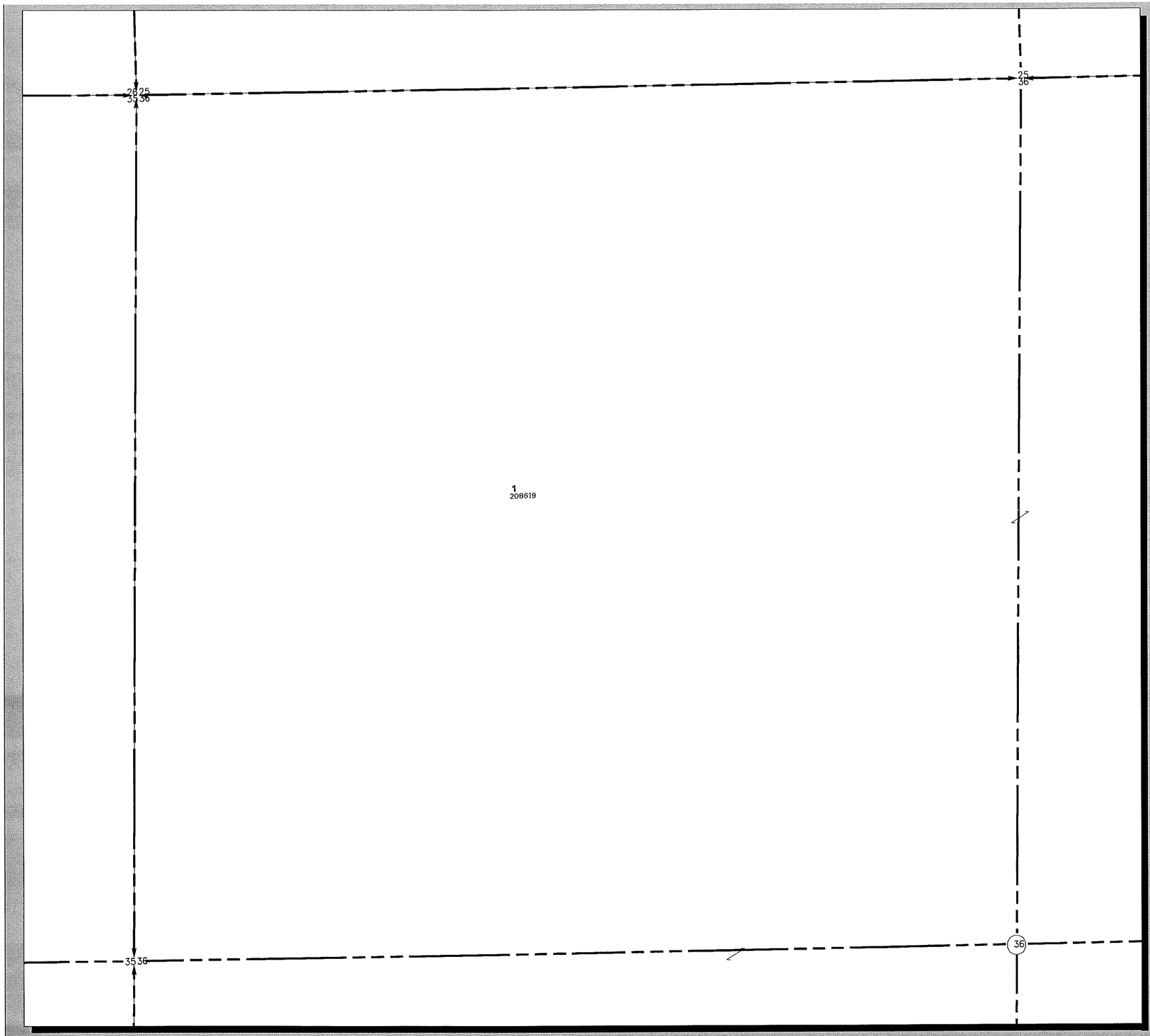

Clark County

Washington

NW Qtr of Section 36 T3N R3E WM

Explanation

Streams

Tax Code Line

Donation Land Claim

Easements

Control Lines

History

Subdivision Lines

City Boundary

Road Right of Way
' Actual Road May Not Exist'

Water

Marsh

None

Cemetery District:
None

Municipality:
CC

School District:
98-Hock

Fire District:
FD 3, No District

Port District:

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30
21

Scale 1:3600

0 100 200 300 400 500 600 Feet

Department of Assessment and GIS

Order 29677 GIS Product 1_24

July 11, 2007

33136

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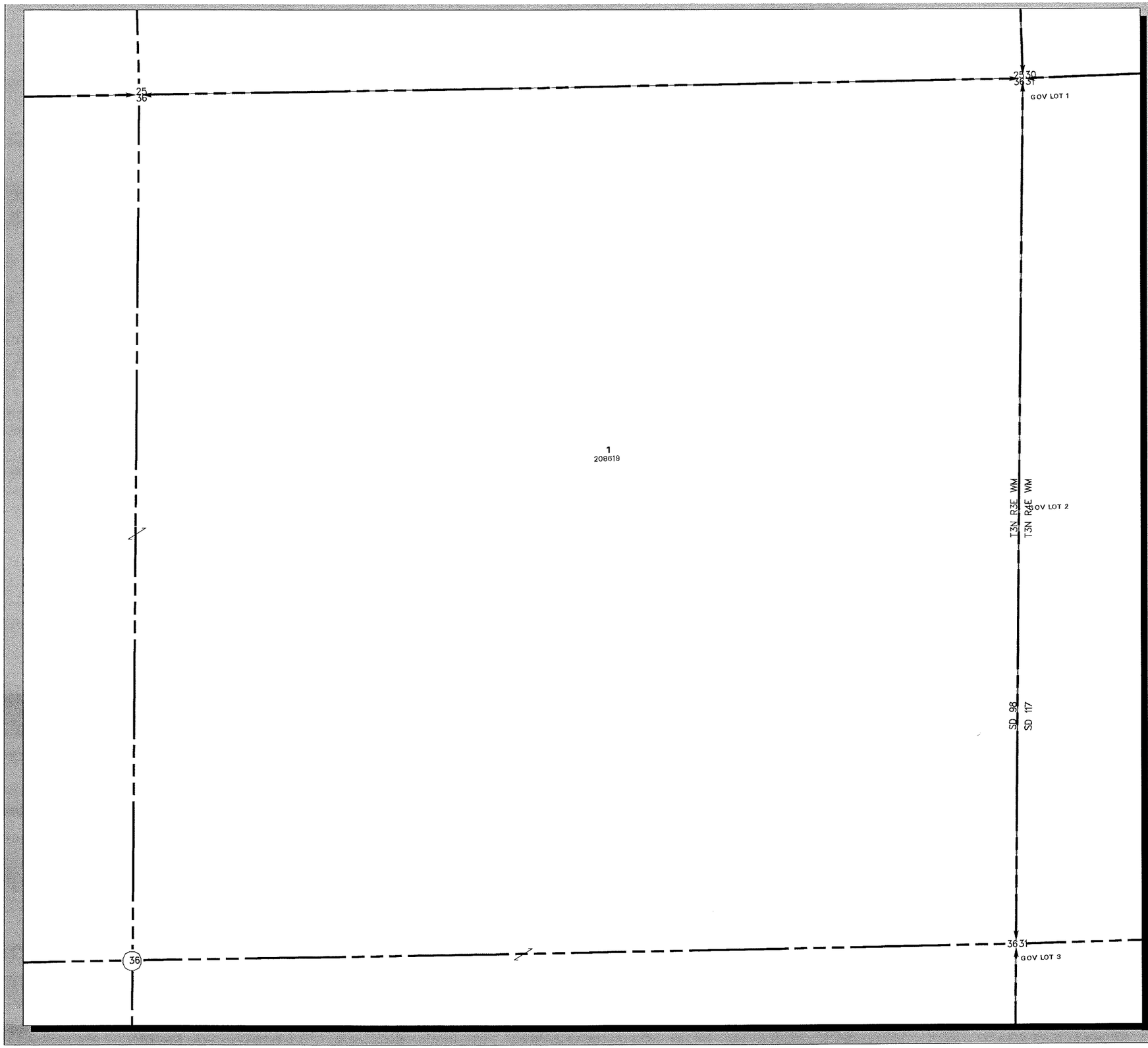

Clark County

Washington

NE Qtr of Section 36 T3N R3E WM

Explanation

Streams

Tax Code Line

Donation Land Claim

Easements

Control Lines

History

Subdivision Lines

City Boundary

Road Right of Way
' Actual Road May Not Exist'

Water

Marsh

Municipality:
CC

School District:
98-Hock

Fire District:
FD 3, No District

Port District:

None

Cemetery District:
None

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Atlas Page(s)
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31
21
22

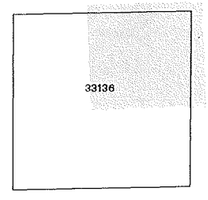
Scale 1:3600

0 100 200 300 400 500 600 Feet

CLARK COUNTY, WASHINGTON
Department of Assessment and GIS

Order 29677 GIS Product 1_24

July 11, 2007



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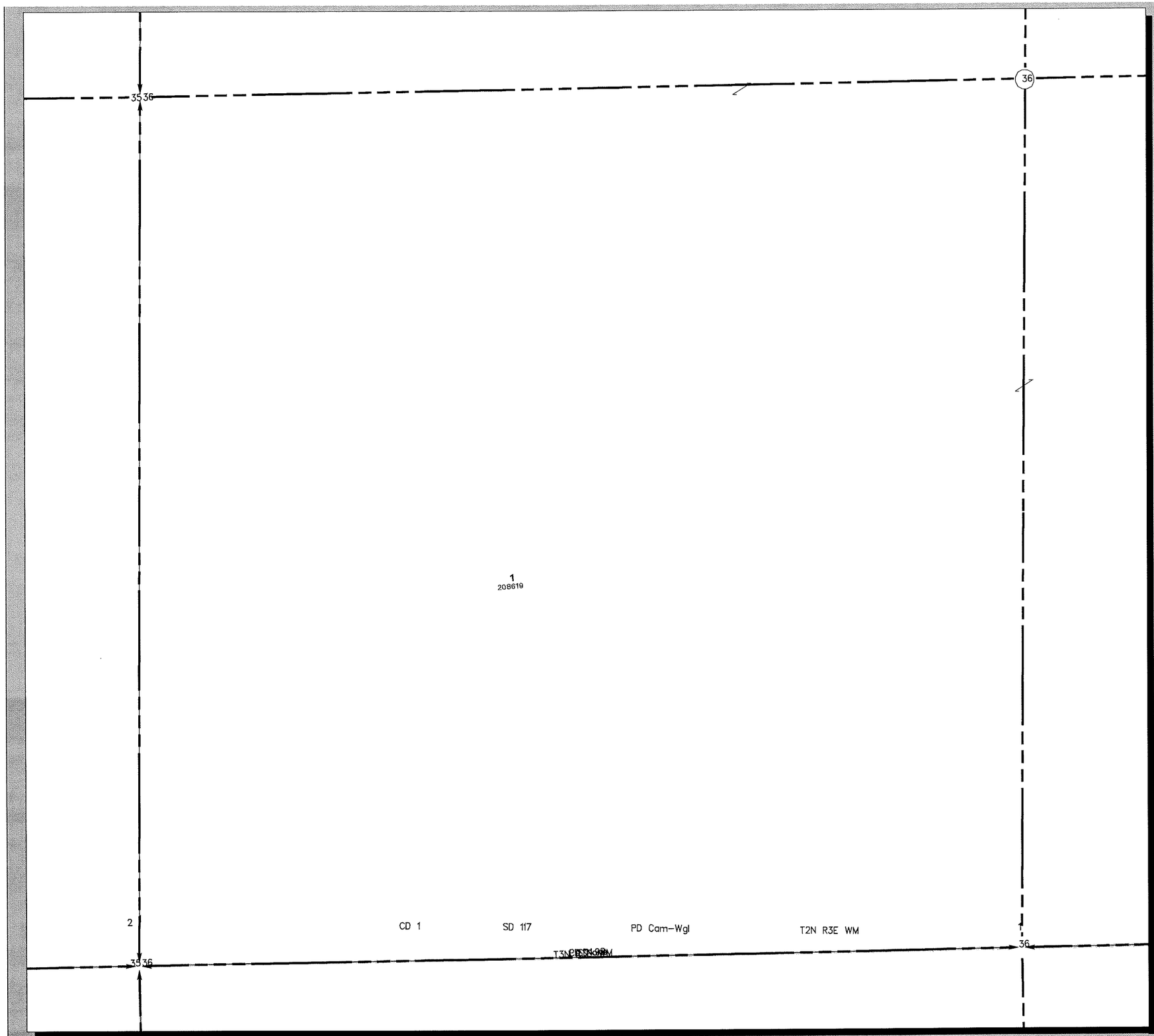
Clark County

Washington

SW Qtr of Section 36 T3N R3E WM



Explanation

- Streams
- Tax Code Line
- Donation Land Claim
- Easements
- Control Lines
- History
- Subdivision Lines
- City Boundary
- Road Right of Way ' Actual Road May Not Exist'
- Water
- Marsh

None

Cemetery District:
None

Municipality:
CC

School District:
98-Hock

Fire District:
No District

Port District:

Developer's GIS Packet: Page 21 of 41

Atlas Page(s)
21

Scale 1:3600

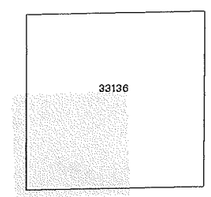
0 100 200 300 400 500 600 Feet

CLARK COUNTY, WASHINGTON

Department of Assessment and GIS

Order 29677 GIS Product 1_24

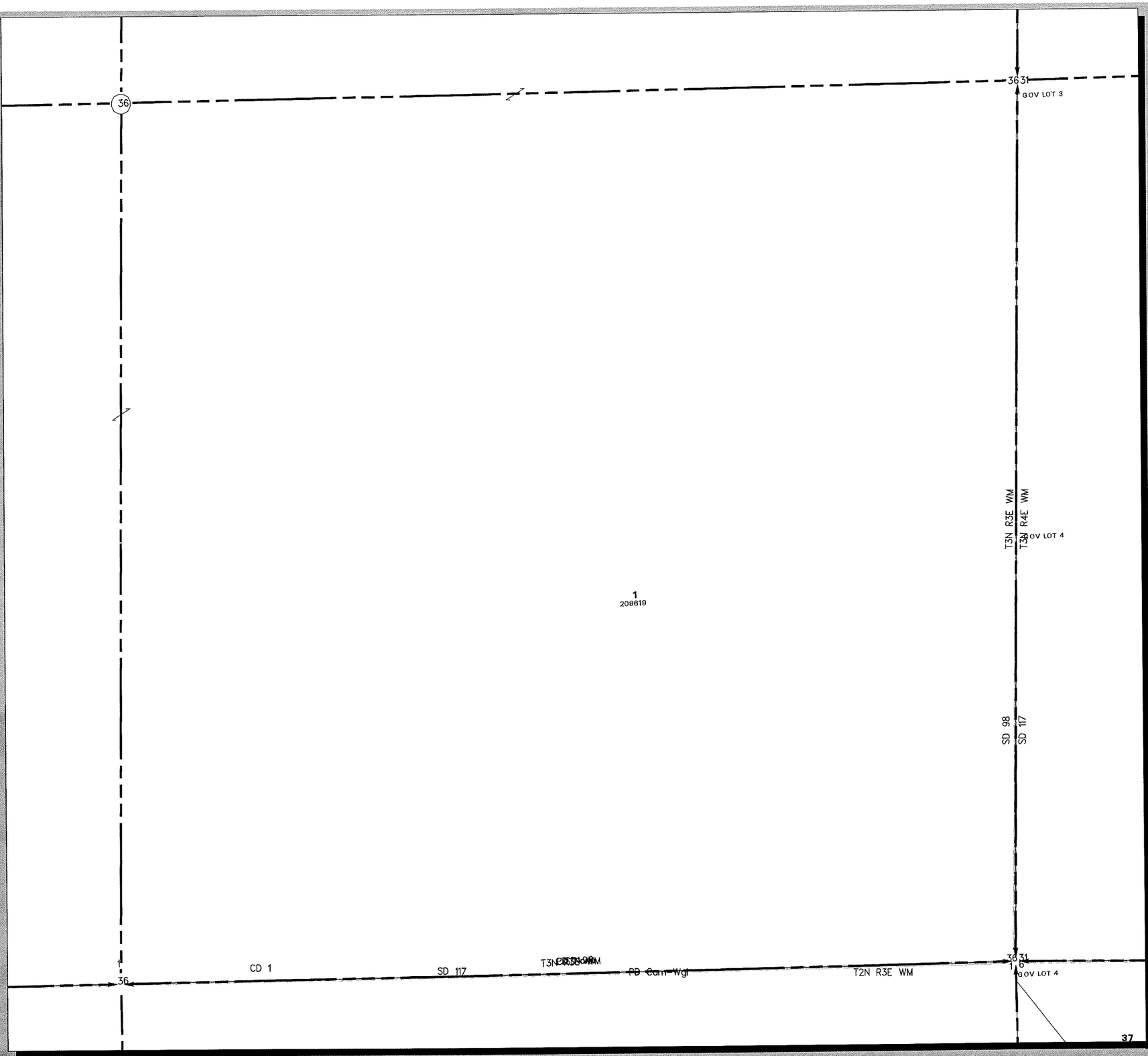
July 11, 2007



Clark County

Washington

SE Qtr of Section 36 T3N R3E WM



Explanation

- Streams
- Tax Code Line
- Donation Land Claim
- Easements
- Control Lines
- History
- Subdivision Lines
- City Boundary
- Road Right of Way ' Actual Road May Not Exist'
- Water
- Marsh

None

Cemetery District:
None

Municipality:
CC

School District:
98-Hock

Fire District:
FD 3, No District

Port District:

Developer's GIS Packet: Page 22 of 41

Atlas Page(s)
21
22

Scale 1:3600

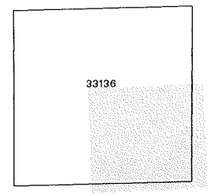
0 100 200 300 400 500 600 Feet

CLARK COUNTY, WASHINGTON

Department of Assessment and GIS

Order 29677 GIS Product 1_24

July 11, 2007



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Clark County

Washington

SW Qtr of Section 31 T3N R4E WM

Explanation

- Streams
- Tax Code Line
- Donation Land Claim
- Easements
- Control Lines
- History
- Subdivision Lines
- City Boundary
- Road Right of Way ' Actual Road May Not Exist'
- Water
- Marsh

None

Cemetery District:
None

Municipality:
CC

School District:
117-Cam

Fire District:
East County, FD 3, No District

Port District:

Developer's GIS Packet: Page 23 of 41

Atlas Page(s)
21
22

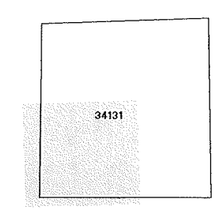
Scale 1:3600

0 100 200 300 400 500 600 Feet

CLARK COUNTY, WASHINGTON
Department of Assessment and GIS

Order 29677 GIS Product 1_24

July 11, 2007



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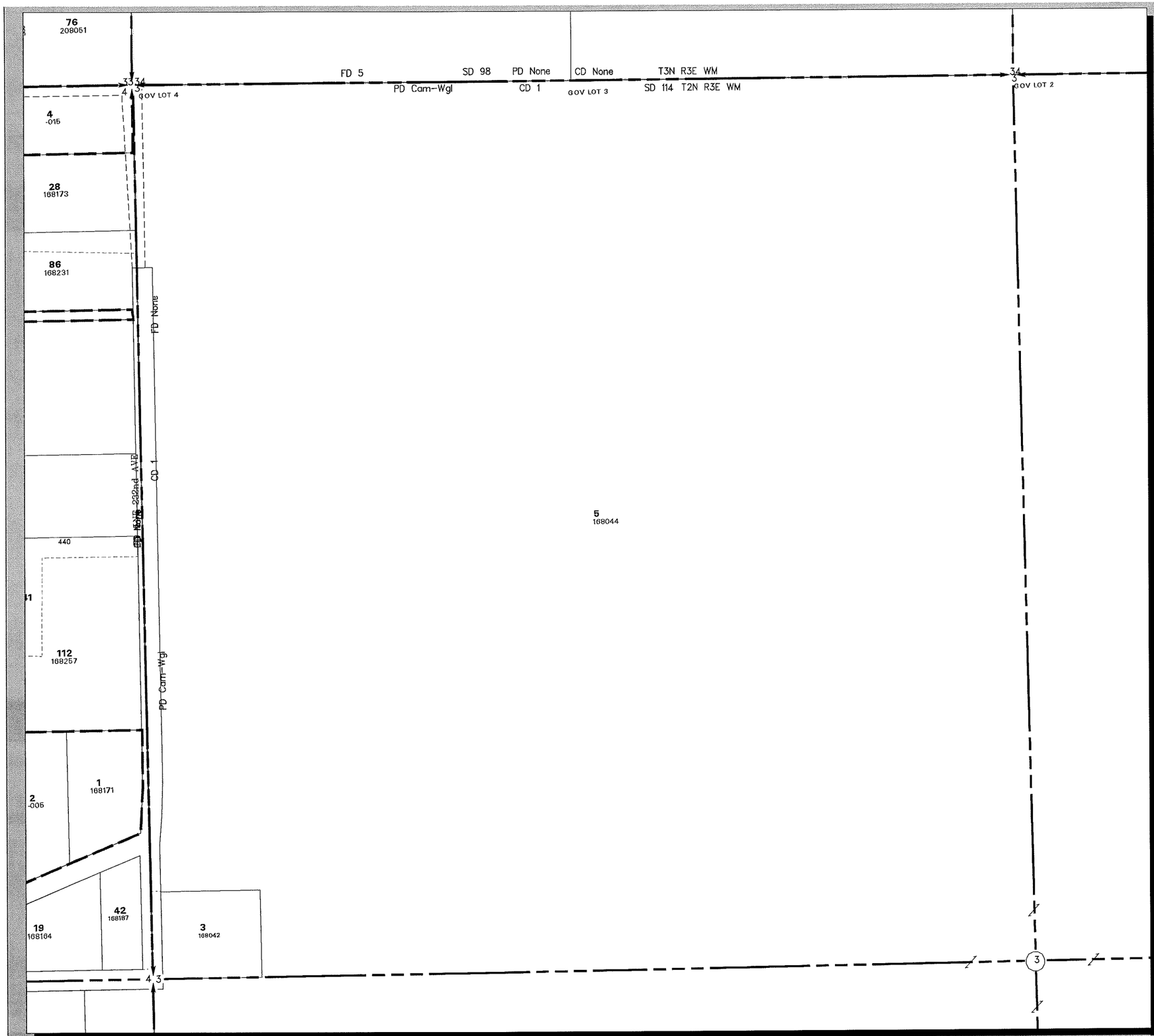


Clark County

Washington

NW Qtr of Section 3 T2N R3E WM

Explanation

- Streams
- Tax Code Line
- Donation Land Claim
- Easements
- Control Lines
- History
- Subdivision Lines
- City Boundary
- Road Right of Way ' Actual Road May Not Exist'
- Water
- Marsh

Cam

Cemetery District:
1

Municipality:
CC

School District:
114-Evr

Fire District:
FD 5, No District

Port District:

Developer's GIS Packet: Page 24 of 41

Atlas Page(s)
20
21

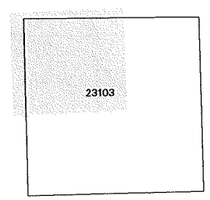
Scale 1:3600

0 100 200 300 400 500 600 Feet

CLARK COUNTY, WASHINGTON
Department of Assessment and GIS

Order 29677 GIS Product 1_24

July 11, 2007



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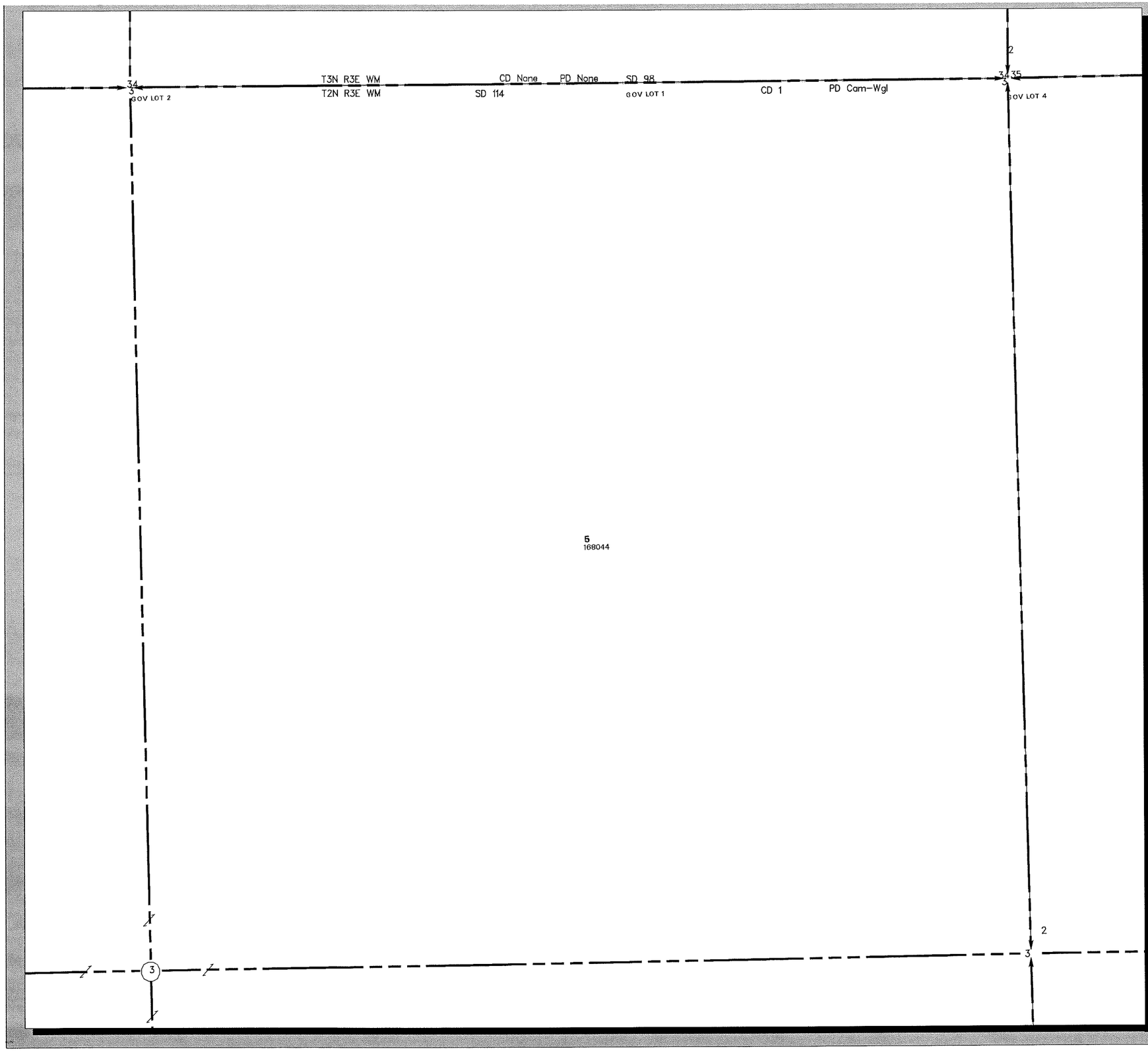

Clark County

Washington

NE Qtr of Section 3 T2N R3E WM

Explanation

- Streams
- Tax Code Line
- Donation Land Claim
- Easements
- Control Lines
- History
- Subdivision Lines
- City Boundary
- Road Right of Way ' Actual Road May Not Exist'
- Water
- Marsh

Cam

Cemetery District:
1

Municipality:
CC

School District:
114-Evr

Fire District:
No District

Port District:

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Atlas Page(s)
21

Scale 1:3600

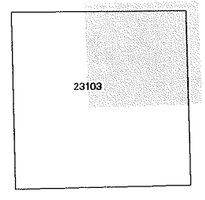
0 100 200 300 400 500 600 Feet

CLARK COUNTY, WASHINGTON
Department of Assessment and GIS

N

Order 29677 GIS Product 1_24

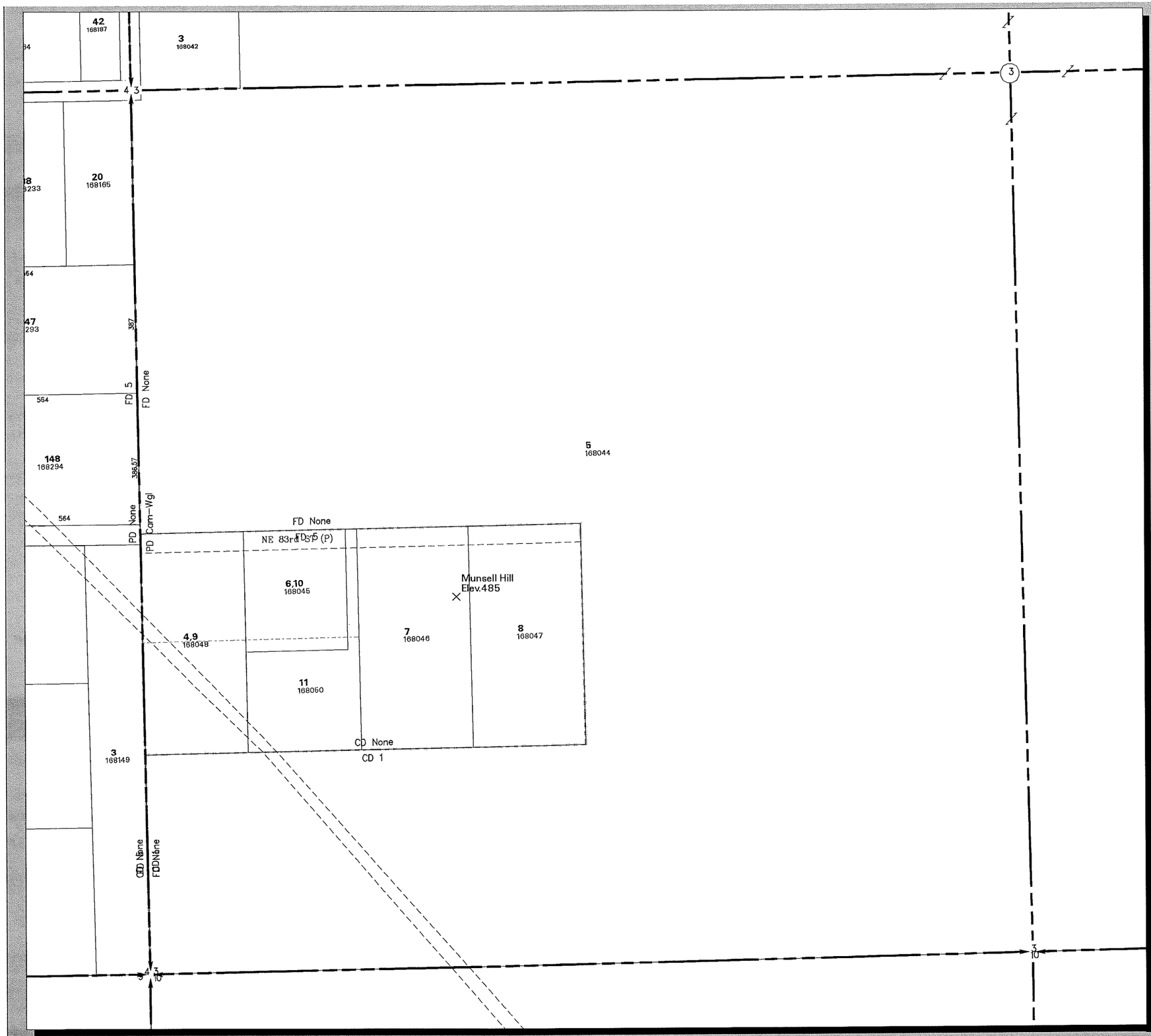
July 11, 2007



Clark County

Washington

SW Qtr of Section 3 T2N R3E WM



Explanation

- Streams
- Tax Code Line
- Donation Land Claim
- Easements
- Control Lines
- History
- Subdivision Lines
- City Boundary
- Road Right of Way
  ' Actual Road May Not Exist'
- Water
- Marsh

Municipality:
CC

School District:
114-Evr

Fire District:
FD 5, No District

Port District:

Cam

Cemetery District:
None, 1

Developer's GIS Packet: Page 26 of 41

Atlas Page(s)
20
21

Scale 1:3600

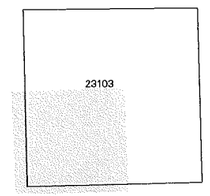
0 100 200 300 400 500 600 Feet

CLARK COUNTY, WASHINGTON

Department of Assessment and GIS

Order 29677 GIS Product 1_24

July 11, 2007



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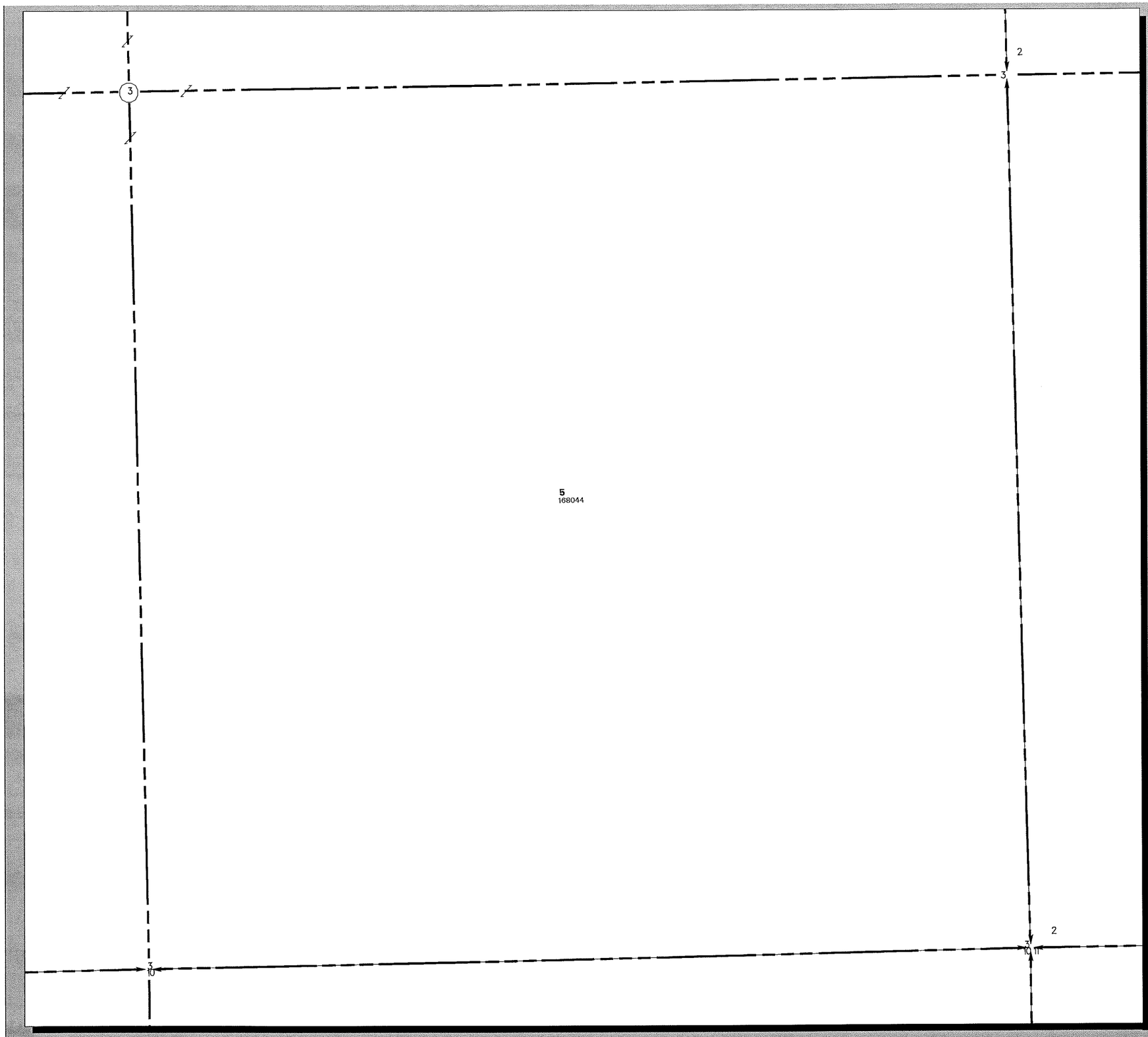

Clark County

Washington

SE Qtr of Section 3 T2N R3E WM

Explanation

- Streams
- Tax Code Line
- Donation Land Claim
- Easements
- Control Lines
- History
- Subdivision Lines
- City Boundary
- Road Right of Way ' Actual Road May Not Exist'
- Water
- Marsh

Cam

Cemetery District: 1

Municipality: CC

School District: 114-Evr

Fire District: No District

Port District:

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Atlas Page(s) 21

Scale 1:3600

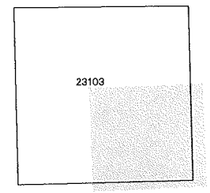
0 100 200 300 400 500 600 Feet

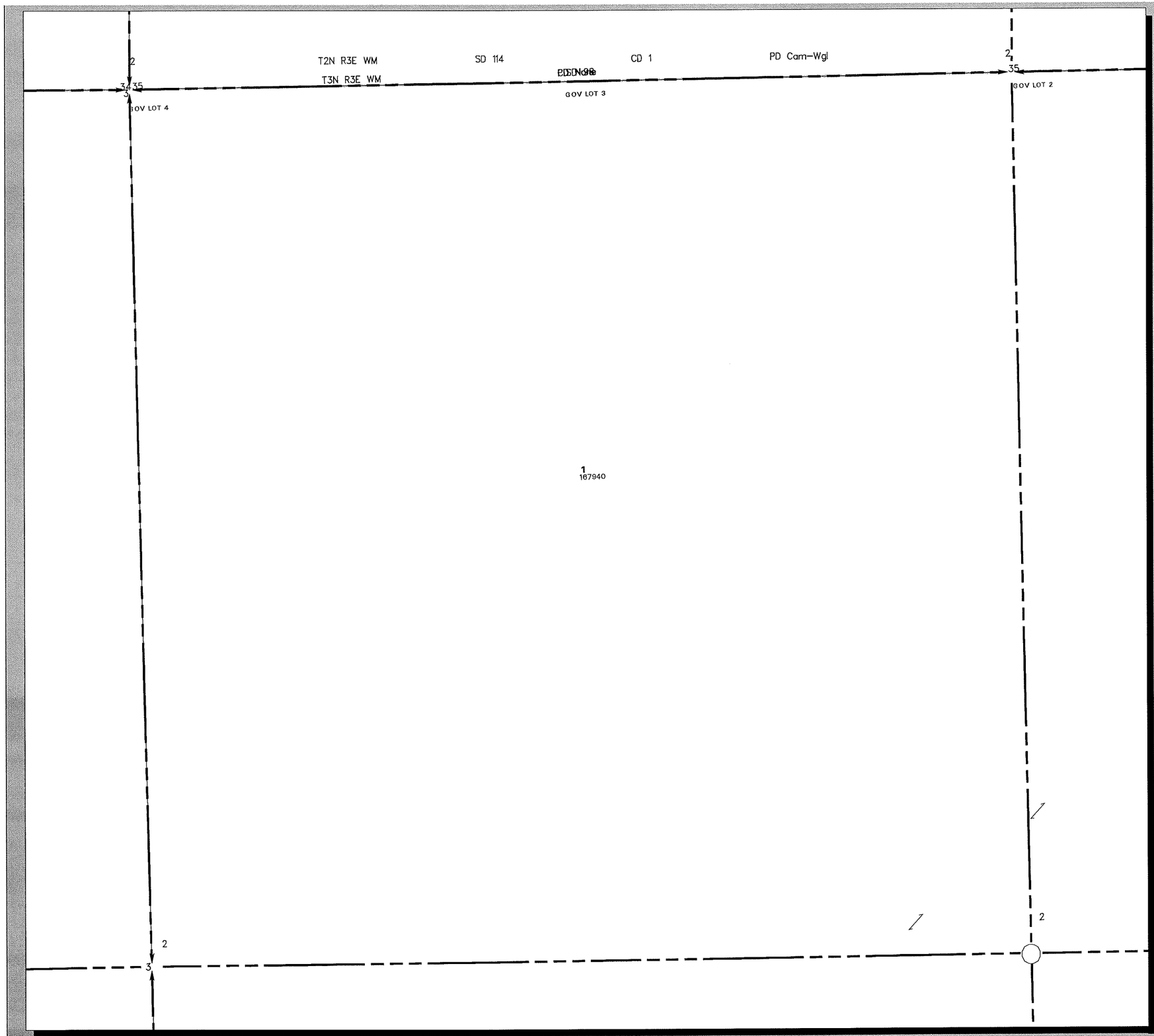
CLARK COUNTY, WASHINGTON

Department of Assessment and GIS

Order 29677 GIS Product 1_24

July 11, 2007





Clark County

Washington

NW Qtr of Section 2 T2N R3E WM

Explanation

- Streams
- Tax Code Line
- Donation Land Claim
- Easements
- Control Lines
- History
- Subdivision Lines
- City Boundary
- Road Right of Way ' Actual Road May Not Exist'
- Water
- Marsh

Cam

Cemetery District:
1

Municipality:
CC

School District:
114-Evr

Fire District:
No District

Port District:

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21

Scale 1:3600

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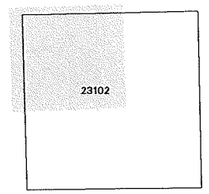
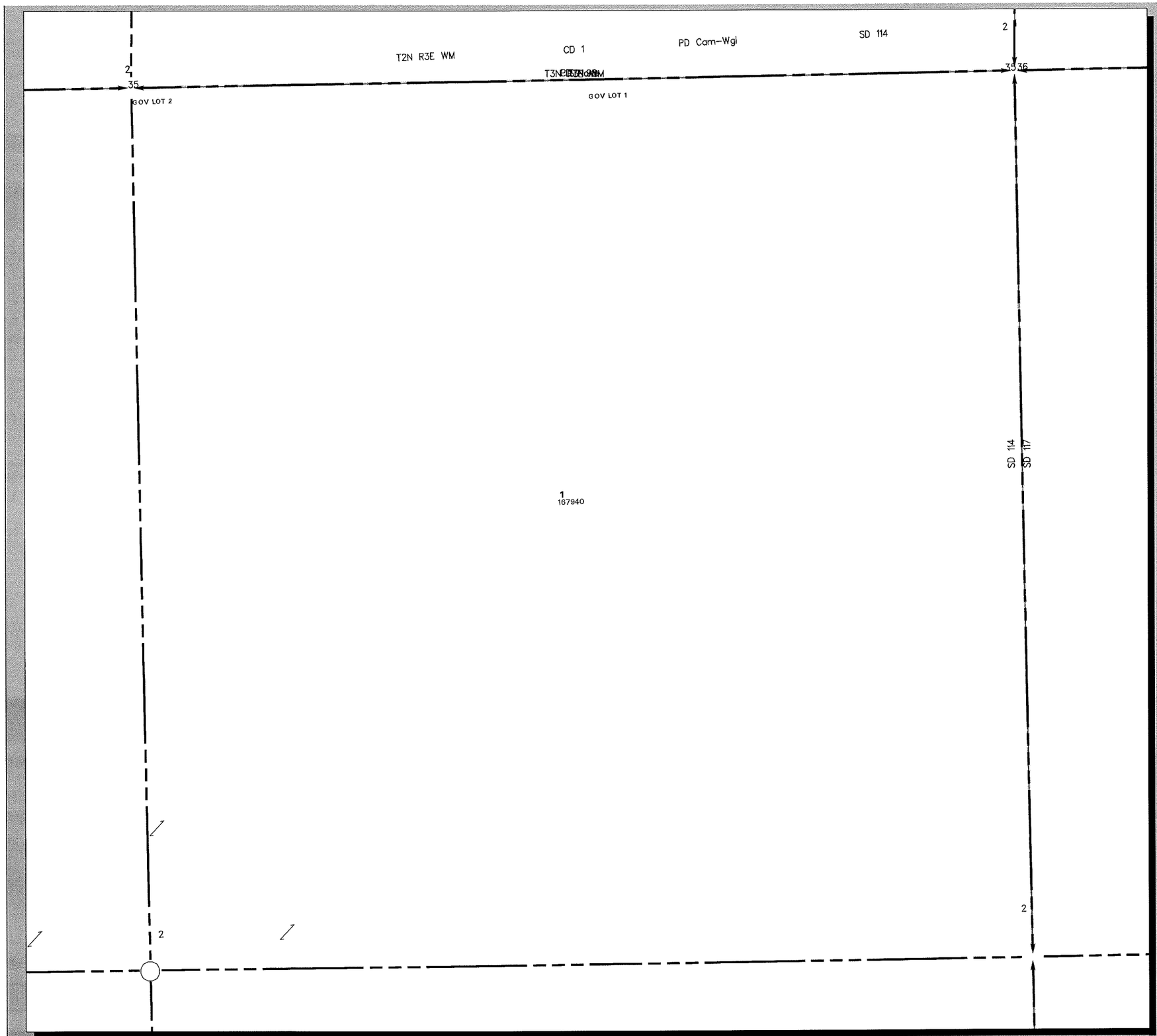
CLARK COUNTY, WASHINGTON
Department of Assessment and GIS

N

Order 29677 GIS Product 1_24

July 11, 2007





Clark County

Washington

NE Qtr of Section 2 T2N R3E WM

Explanation

- Streams
- Tax Code Line
- Donation Land Claim
- Easements
- Control Lines
- History
- Subdivision Lines
- City Boundary
- Road Right of Way ' Actual Road May Not Exist'
- Water
- Marsh

Cam

Cemetery District:
1

Municipality:
CC

School District:
114-Evr

Fire District:
No District

Port District:

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Atlas Page(s)
21

Scale 1:3600

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CLARK COUNTY, WASHINGTON

Department of Assessment and GIS

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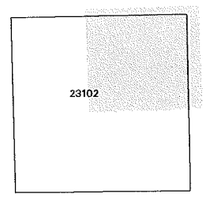
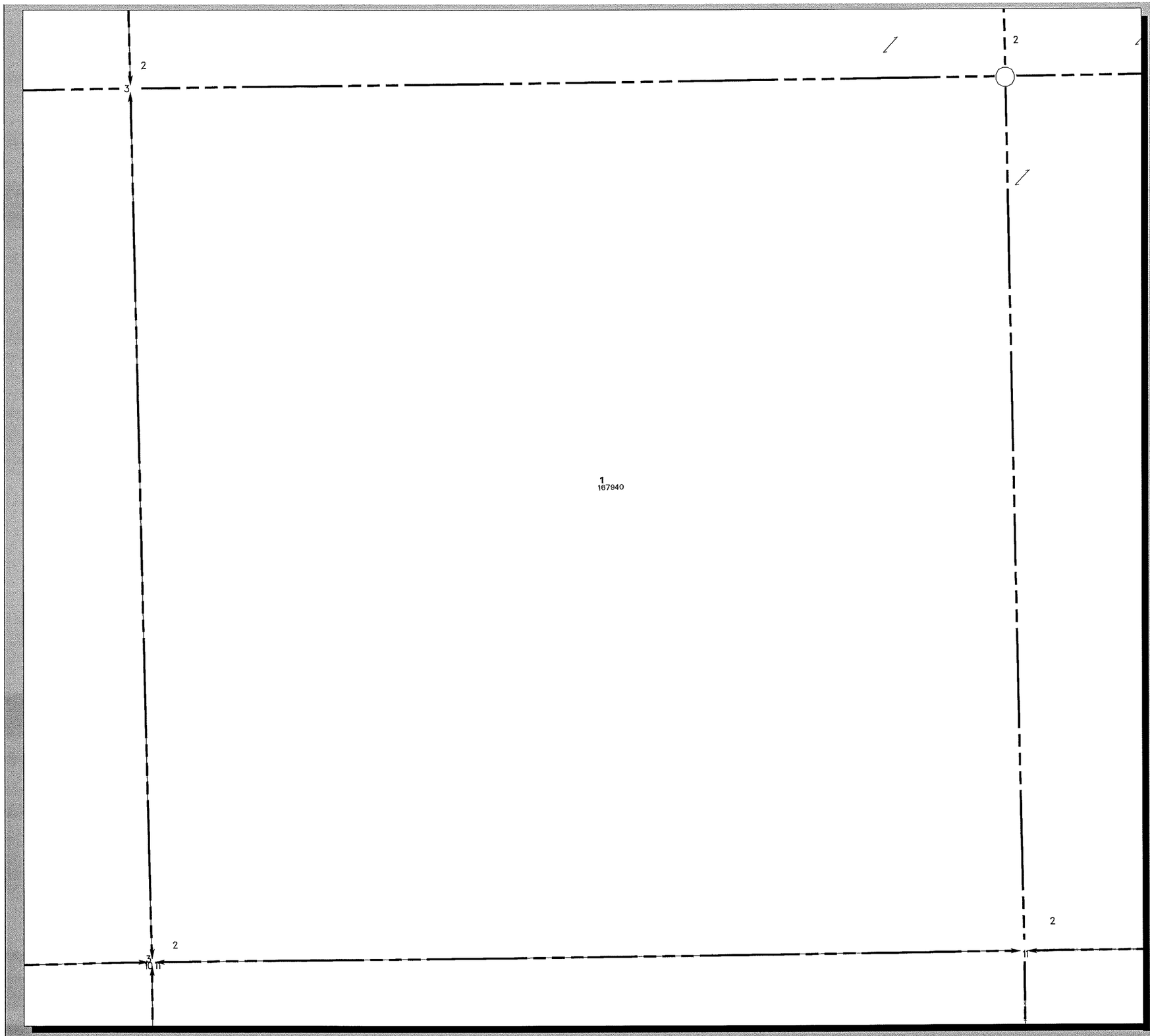
July 11, 2007





Clark County

Washington

SW Qtr of Section 2 T2N R3E WM

Explanation

- Streams
- Tax Code Line
- Donation Land Claim
- Easements
- Control Lines
- History
- Subdivision Lines
- City Boundary
- Road Right of Way ' Actual Road May Not Exist'
- Water
- Marsh

Cam

Cemetery District:
I

Municipality:
CC

School District:
114-Evr

Fire District:
No District

Port District:

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Atlas Page(s)
21

Scale 1:3600

0 100 200 300 400 500 600 Feet

CLARK COUNTY, WASHINGTON

Department of Assessment and GIS

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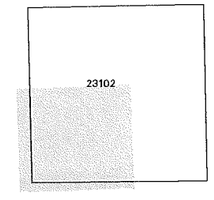
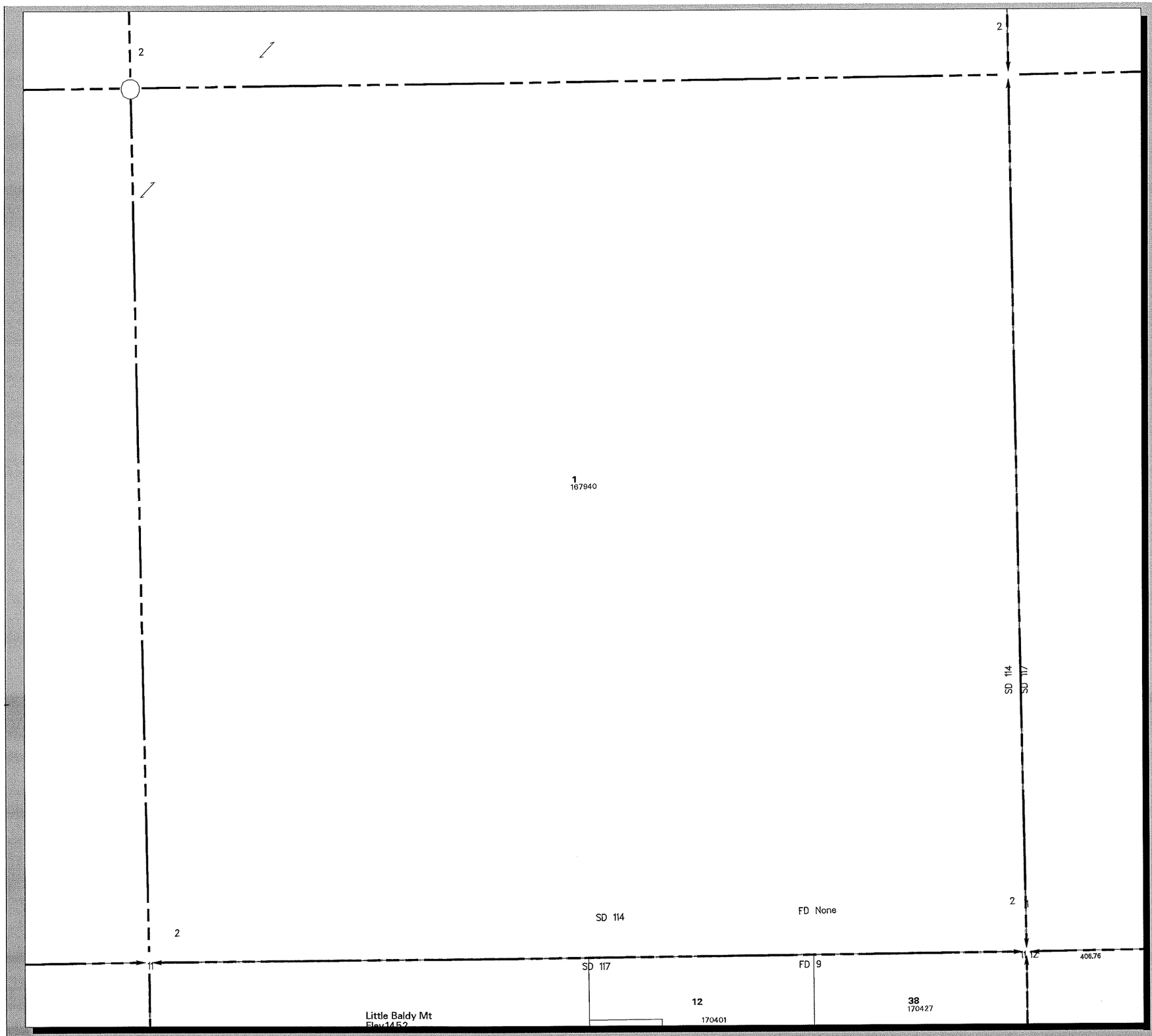
July 11, 2007



Clark County

Washington

SE Qtr of Section 2 T2N R3E WM



Explanation

- Streams
- Tax Code Line
- Donation Land Claim
- Easements
- Control Lines
- History
- Subdivision Lines
- City Boundary
- Road Right of Way ' Actual Road May Not Exist'
- Water
- Marsh

Cam

Cemetery District:
1

Municipality:
CC

School District:
114-Evr

Fire District:
East County, No District

Port District:

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21

Scale 1:3600

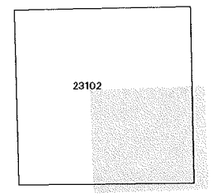
0 100 200 300 400 500 600 Feet

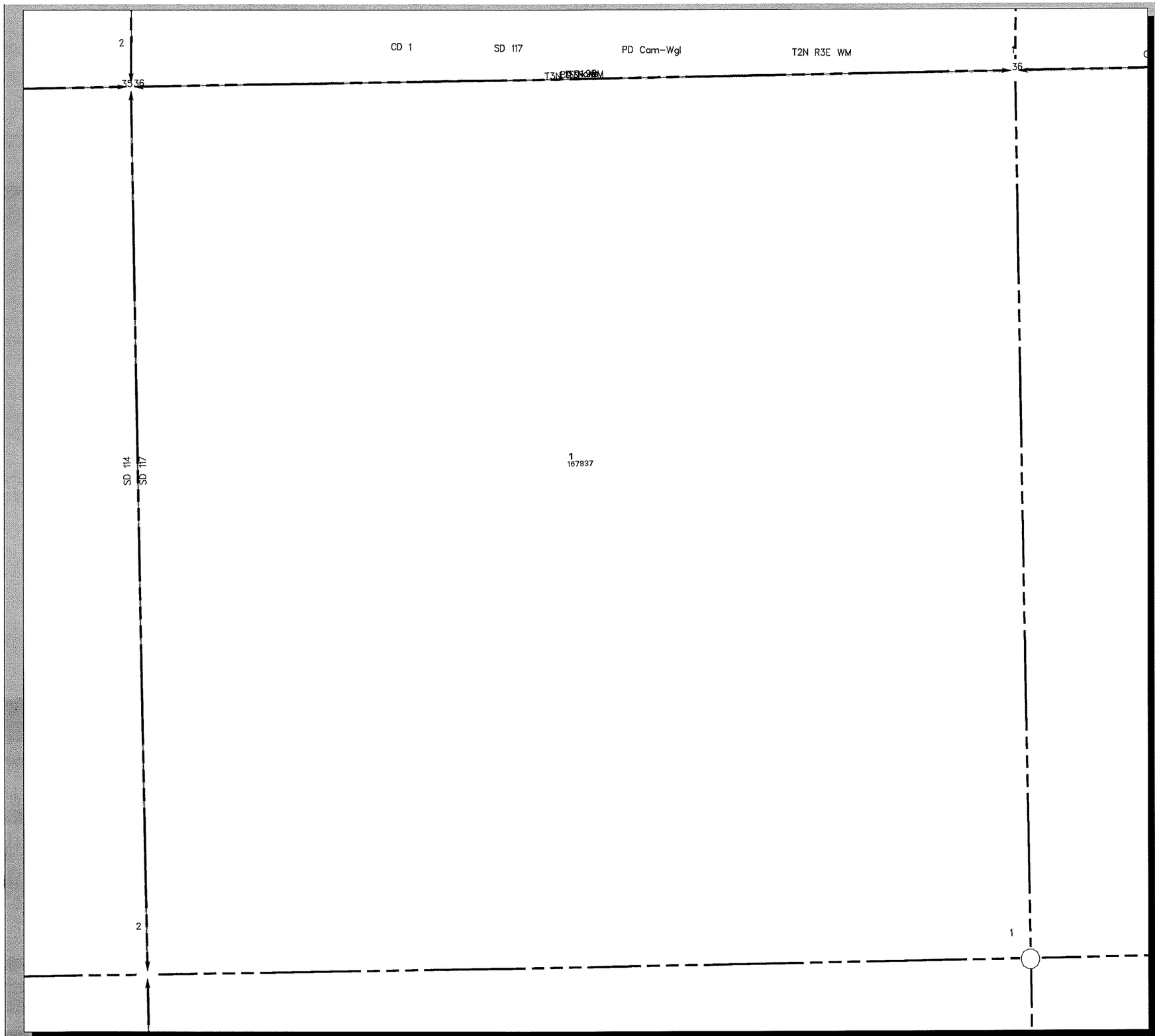
CLARK COUNTY, WASHINGTON
Department of Assessment and GIS

N

Order 29677 GIS Product 1_24

July 11, 2007





Clark County

Washington

NW Qtr of Section 1 T2N R3E WM

Explanation

- Streams
- Tax Code Line
- Donation Land Claim
- Easements
- Control Lines
- History
- Subdivision Lines
- City Boundary
- Road Right of Way ' Actual Road May Not Exist'
- Water
- Marsh

Cam

Cemetery District:
None, 1

Municipality:
CC

School District:
117-Cam

Fire District:
No District

Port District:

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Atlas Page(s)
21

Scale 1:3600

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Department of Assessment and GIS

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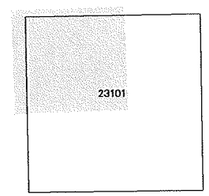
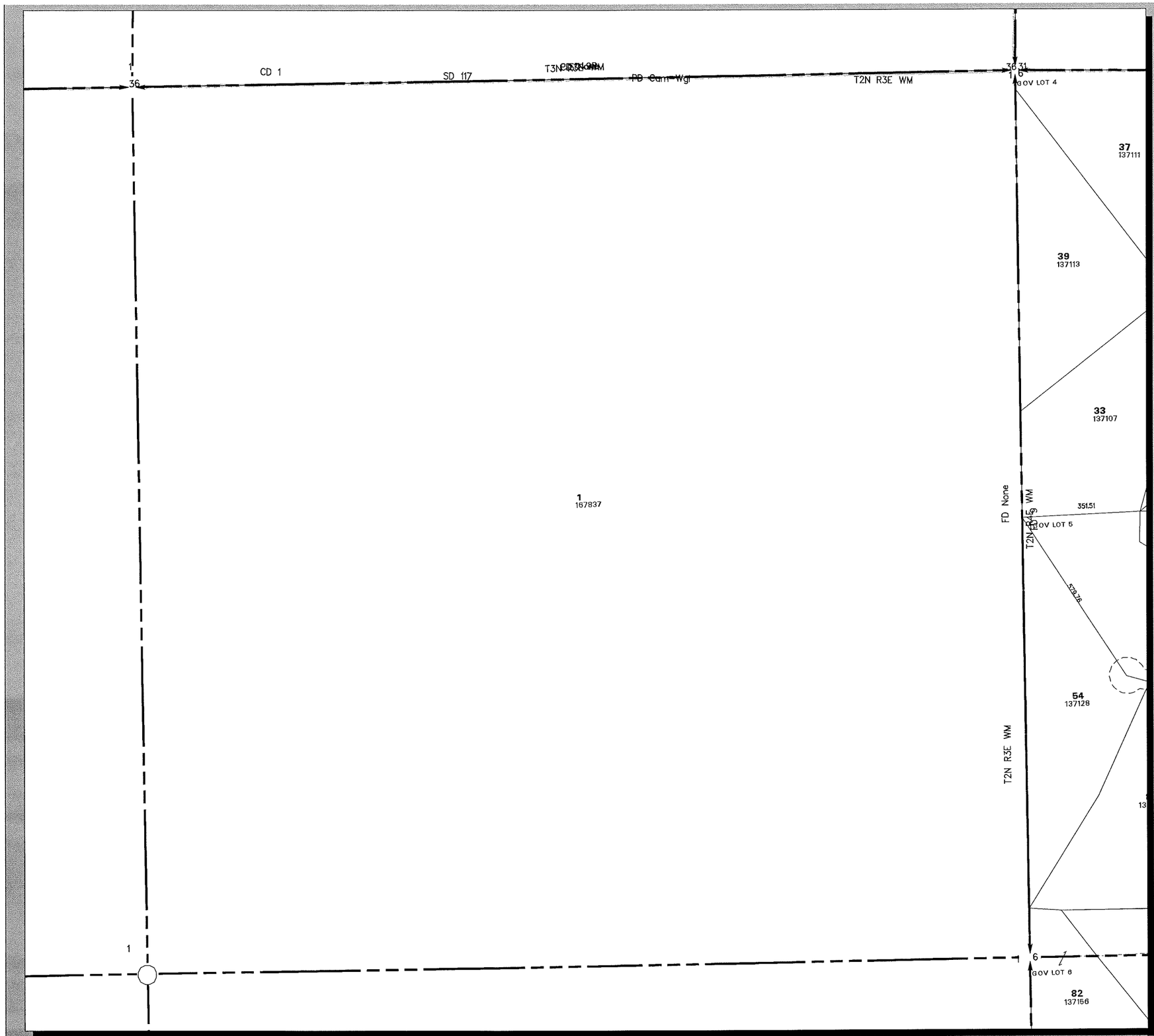
July 11, 2007



Clark County

Washington

NE Qtr of Section 1 T2N R3E WM



Explanation

- Streams
- Tax Code Line
- Donation Land Claim
- Easements
- Control Lines
- History
- Subdivision Lines
- City Boundary
- Road Right of Way ' Actual Road May Not Exist'
- Water
- Marsh

Cam

Cemetery District:
None, 1

Municipality:
CC

School District:
98-Hock

Fire District:
East County, FD 3, No District

Port District:

Developer's GIS Packet: Page 33 of 41

Atlas Page(s)
21
22

Scale 1:3600

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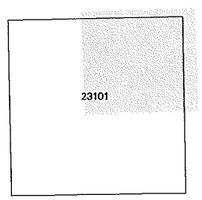
Department of Assessment and GIS

Order 29677 GIS Product 1_24

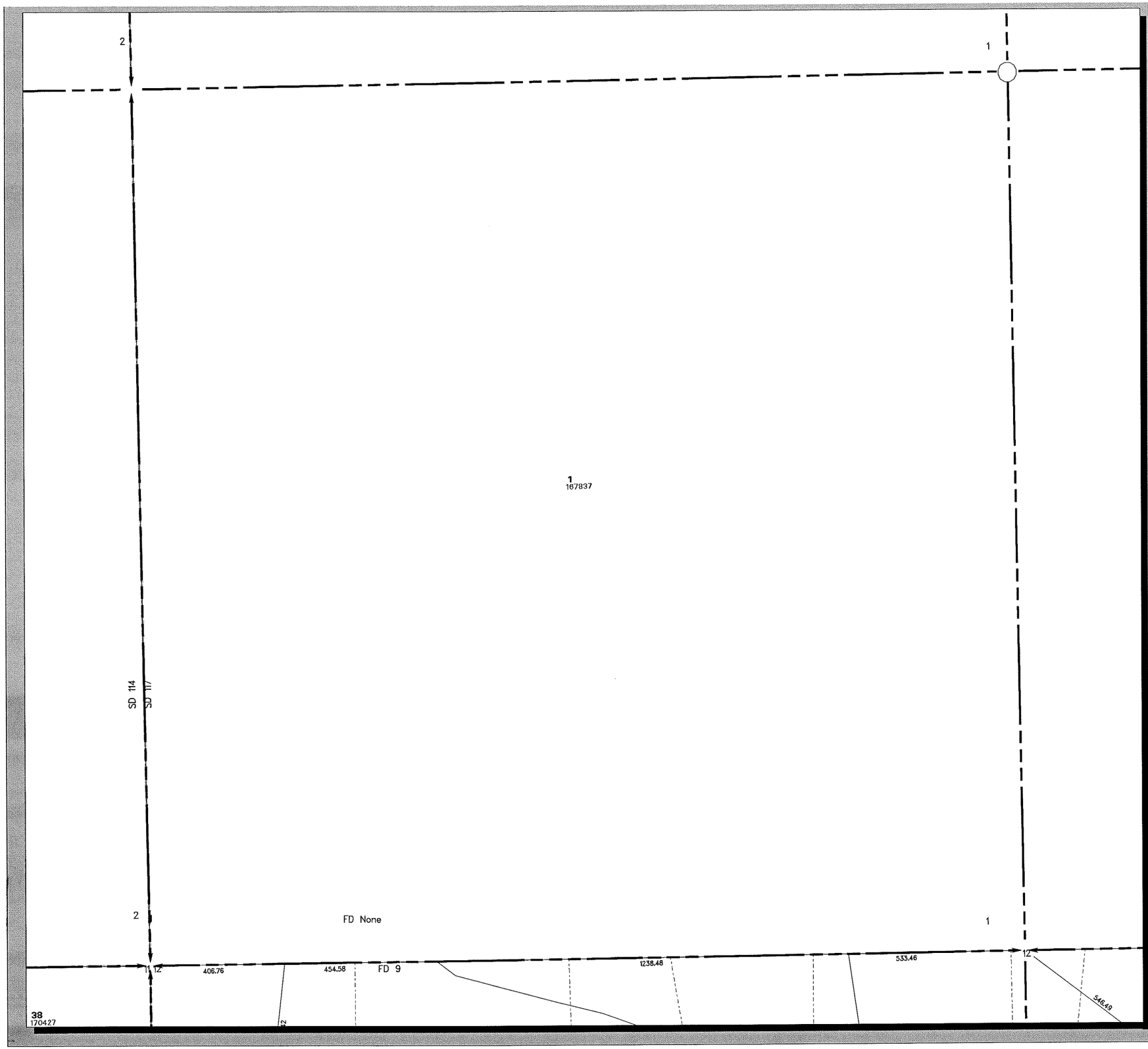
July 11, 2007



Clark County

Washington

SW Qtr of Section 1 T2N R3E WM



Explanation

- Streams
- Tax Code Line
- Donation Land Claim
- Easements
- Control Lines
- History
- Subdivision Lines
- City Boundary
- Road Right of Way ' Actual Road May Not Exist'
- Water
- Marsh

Cam

Cemetery District: 1

Municipality: CC

School District: 117-Cam

Fire District: East County, No District

Port District:

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Atlas Page(s) 21

Scale 1:3600

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Department of Assessment and GIS

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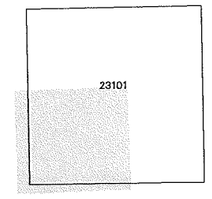
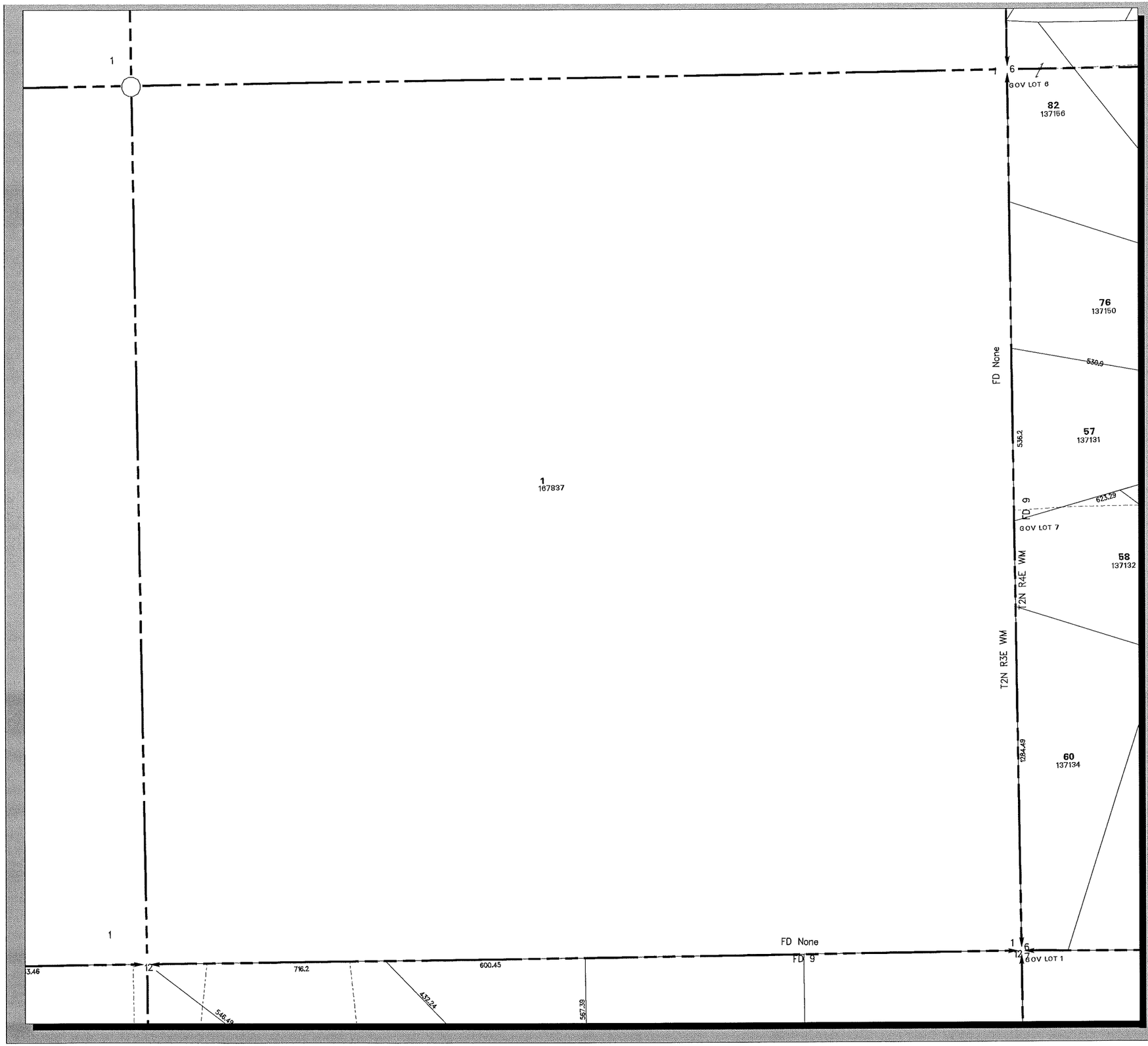
July 11, 2007



Clark County

Washington

SE Qtr of Section 1 T2N R3E WM



Explanation

- Streams
- Tax Code Line
- Donation Land Claim
- Easements
- Control Lines
- History
- Subdivision Lines
- City Boundary
- Road Right of Way ' Actual Road May Not Exist'
- Water
- Marsh

Municipality:
CC

School District:
117-Cam

Fire District:
East County, No District

Port District:

Cam

Cemetery District:
1

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Atlas Page(s)
21
22

Scale 1:3600

0 100 200 300 400 500 600 Feet

Department of Assessment and GIS

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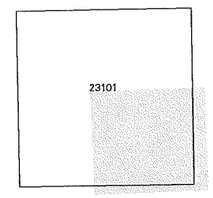
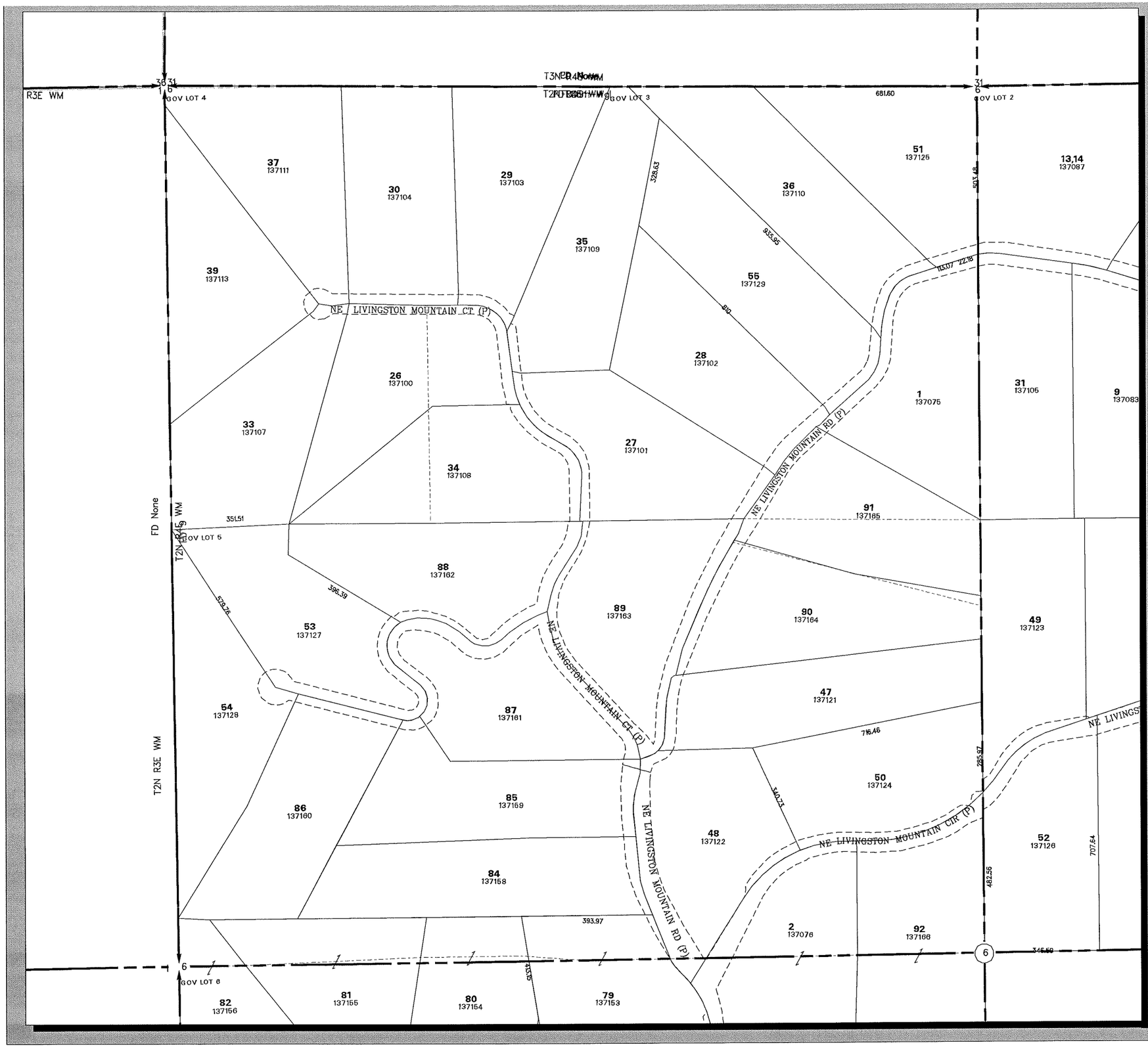
July 11, 2007



Clark County

Washington

NW Qtr of Section 6 T2N R4E WM



Explanation

- Streams
- Tax Code Line
- Donation Land Claim
- Easements
- Control Lines
- History
- Subdivision Lines
- City Boundary
- Road Right of Way ' Actual Road May Not Exist'
- Water
- Marsh

Cam

Cemetery District:
None, 1

Municipality:
CC

School District:
117-Cam

Fire District:
East County, FD 3, No District

Port District:

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Atlas Page(s)
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22

Scale 1:3600

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Department of Assessment and GIS

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July 11, 2007

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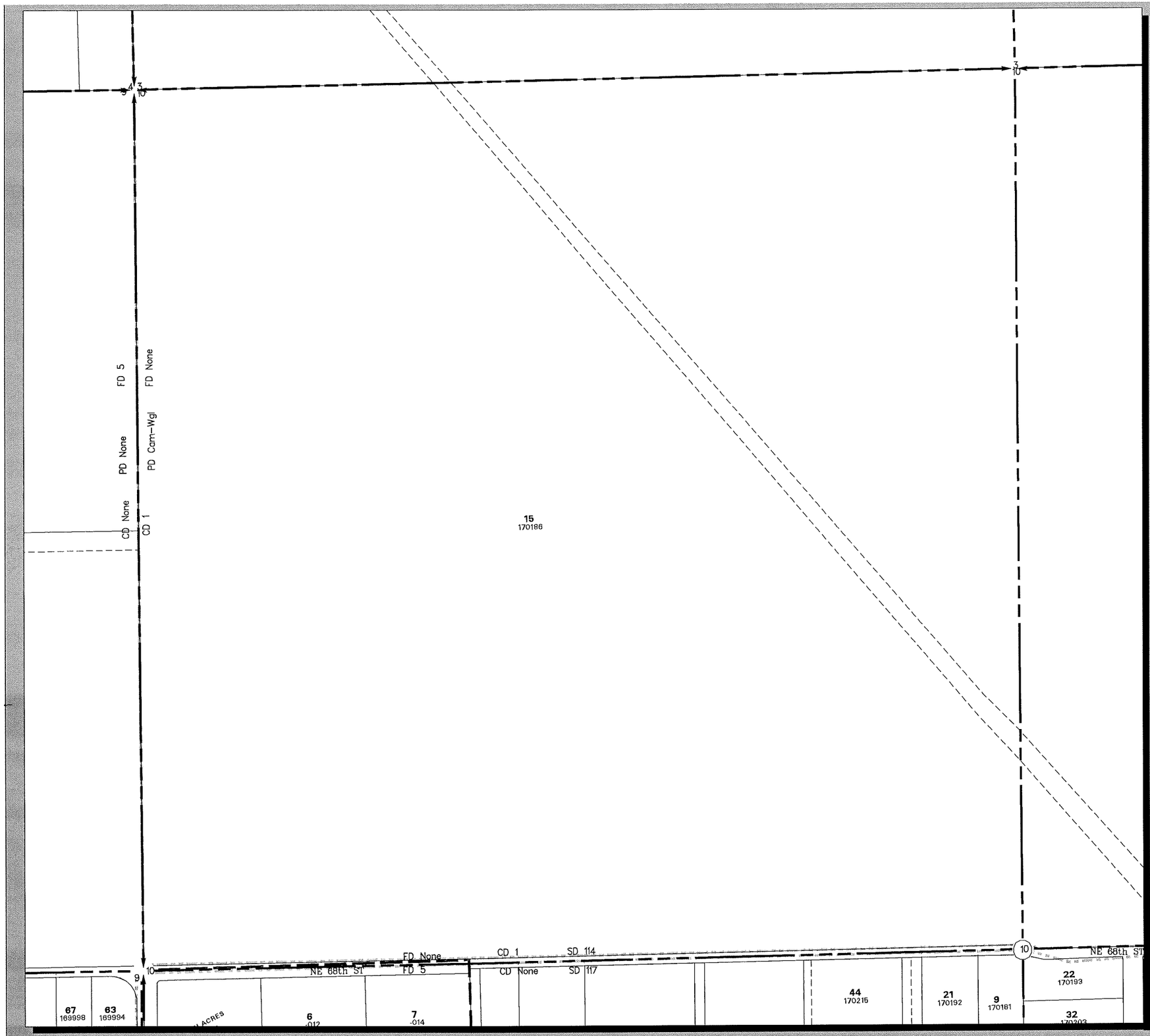
Clark County

Washington

NW Qtr of Section 10 T2N R3E WM



Explanation

- Streams
- Tax Code Line
- Donation Land Claim
- Easements
- Control Lines
- History
- Subdivision Lines
- City Boundary
- Road Right of Way ' Actual Road May Not Exist'
- Water
- Marsh

Cam

Cemetery District:
I

Municipality:
CC

School District:
114-Evr

Fire District:
FD 5, No District

Port District:

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Atlas Page(s)
20
21

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CLARK COUNTY, WASHINGTON
Department of Assessment and GIS

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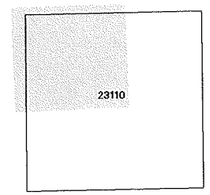
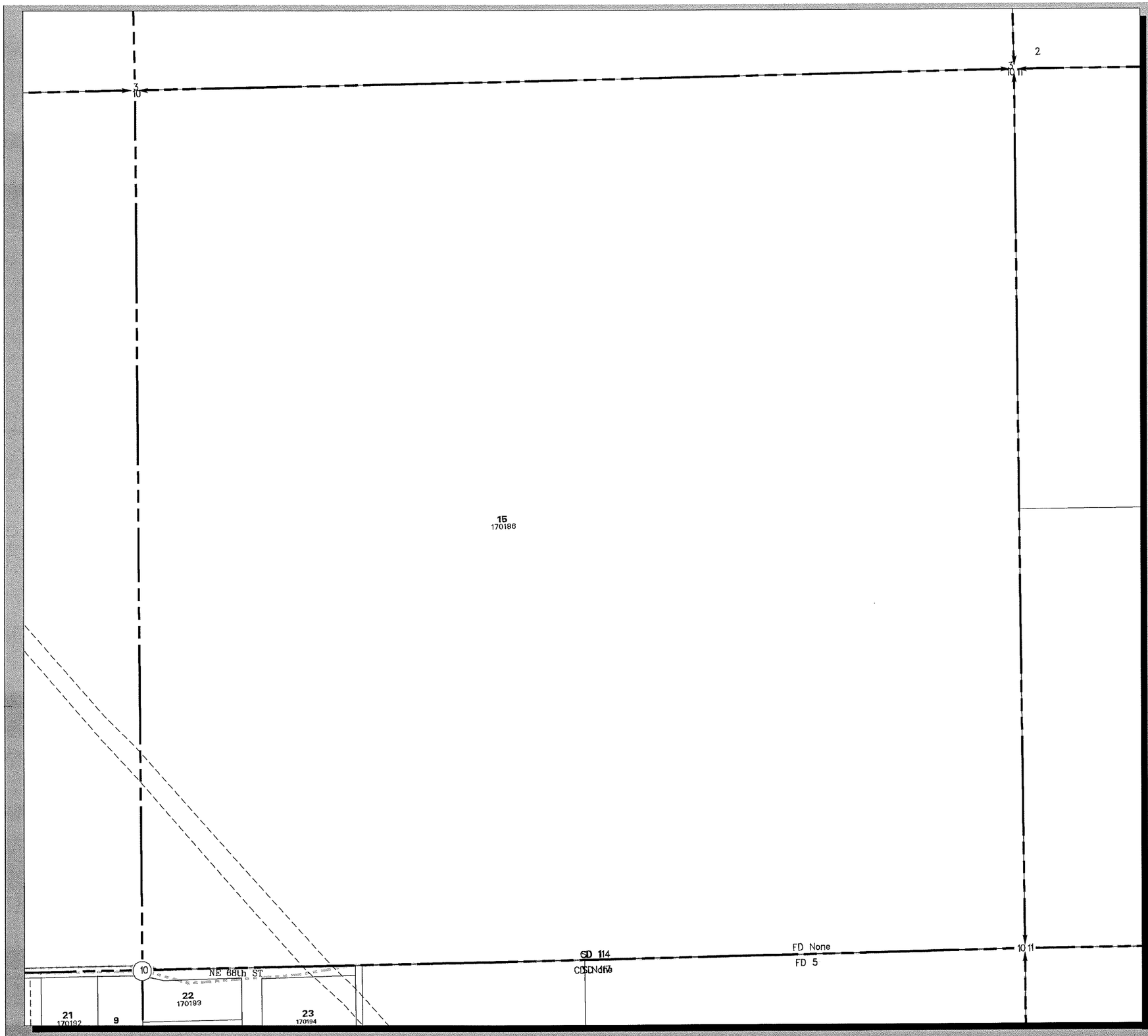
July 11, 2007



Clark County

Washington

NE Qtr of Section 10 T2N R3E WM



Explanation

- Streams
- Tax Code Line
- Donation Land Claim
- Easements
- Control Lines
- History
- Subdivision Lines
- City Boundary
- Road Right of Way ' Actual Road May Not Exist'
- Water
- Marsh

Cam

Cemetery District:
1

Municipality:
CC

School District:
114-Evr

Fire District:
FD 5, No District

Port District:

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21

Scale 1:3600

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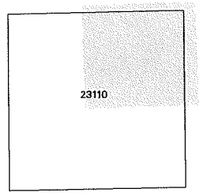
CLARK COUNTY, WASHINGTON
Department of Assessment and GIS

Order 29677 GIS Product 1_24

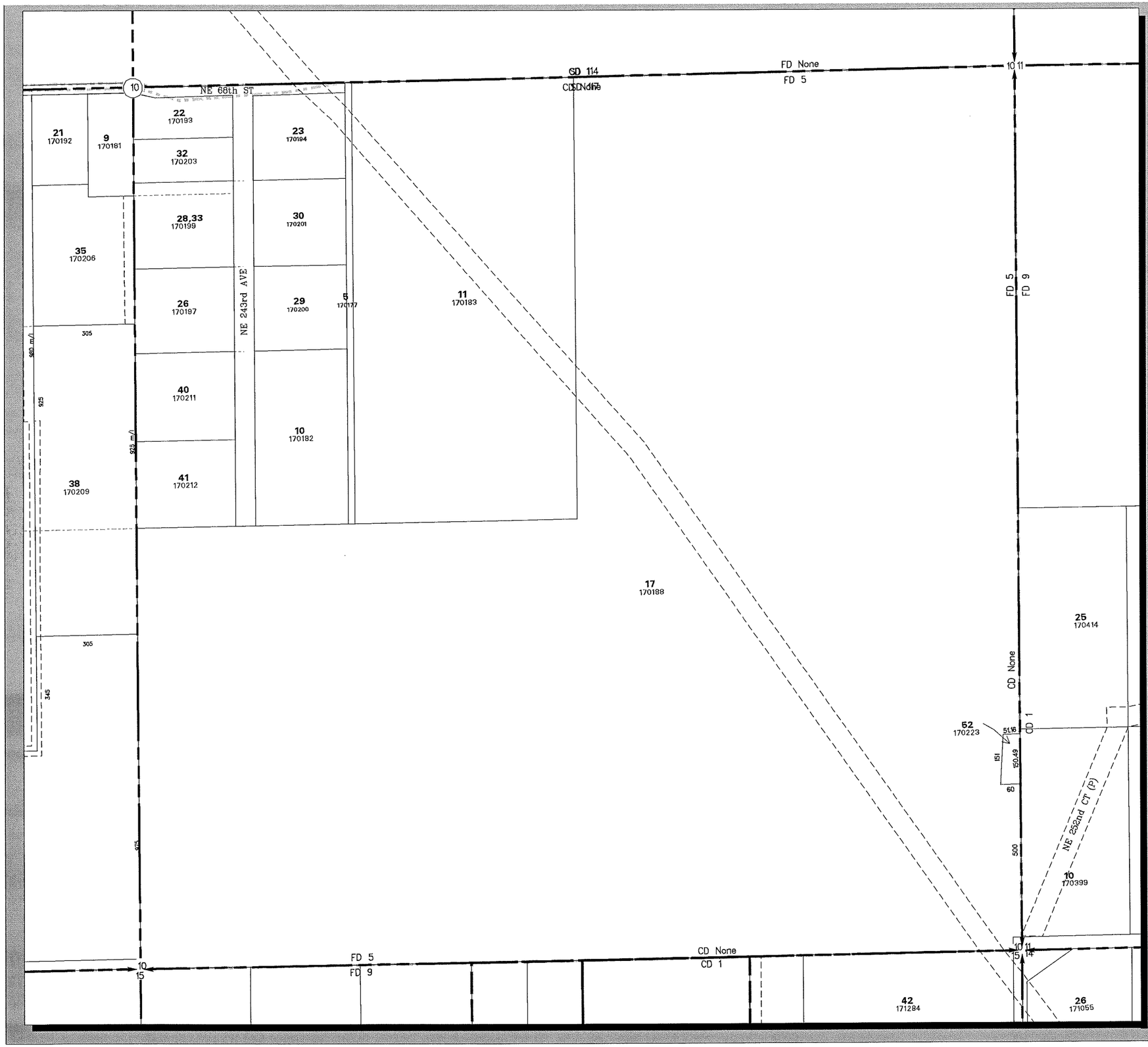
July 11, 2007



Clark County

Washington

SE Qtr of Section 10 T2N R3E WM



Explanation

- Streams
- Tax Code Line
- Donation Land Claim
- Easements
- Control Lines
- History
- Subdivision Lines
- City Boundary
- Road Right of Way ' Actual Road May Not Exist'
- Water
- Marsh

Cam

Cemetery District:
None, I

Municipality:
CC

School District:
114-Evr

Fire District:
East County, FD 5, No District

Port District:

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Atlas Page(s)
21

Scale 1:3600

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Department of Assessment and GIS

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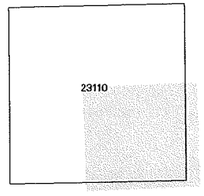
July 11, 2007

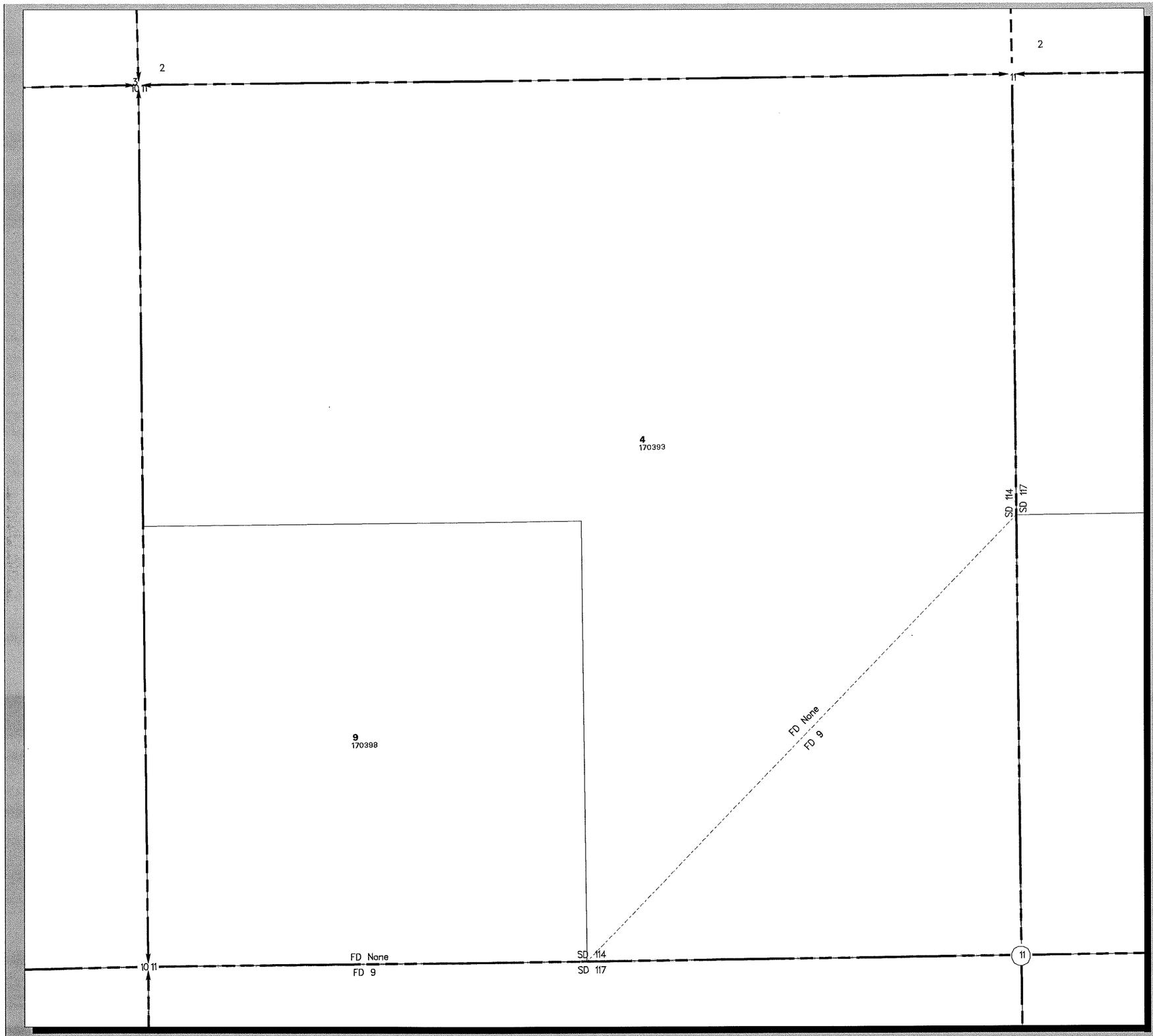


CAUTION: This map is based upon information furnished by local surveyors and information available from public records. This information has not been checked by Clark County for accuracy. Clark County expressly disclaims any liability for any inaccuracies which may be present in this map. Users of this map should themselves check any details for accuracy before relying thereon.

Clark County

Washington

NW Qtr of Section 11 T2N R3E WM



Explanation

- Streams
- Tax Code Line
- Donation Land Claim
- Easements
- Control Lines
- History
- Subdivision Lines
- City Boundary
- Road Right of Way ' Actual Road May Not Exist'
- Water
- Marsh

Cam

Cemetery District:
1

Municipality:
CC

School District:
114-Evr

Fire District:
East County, No District

Port District:

Developer's GIS Packet: Page 40 of 41

Atlas Page(s)
21

Scale 1:3600

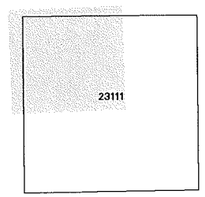
0 100 200 300 400 500 600 Feet

CLARK COUNTY, WASHINGTON

Department of Assessment and GIS

Order 29677 GIS Product 1_24

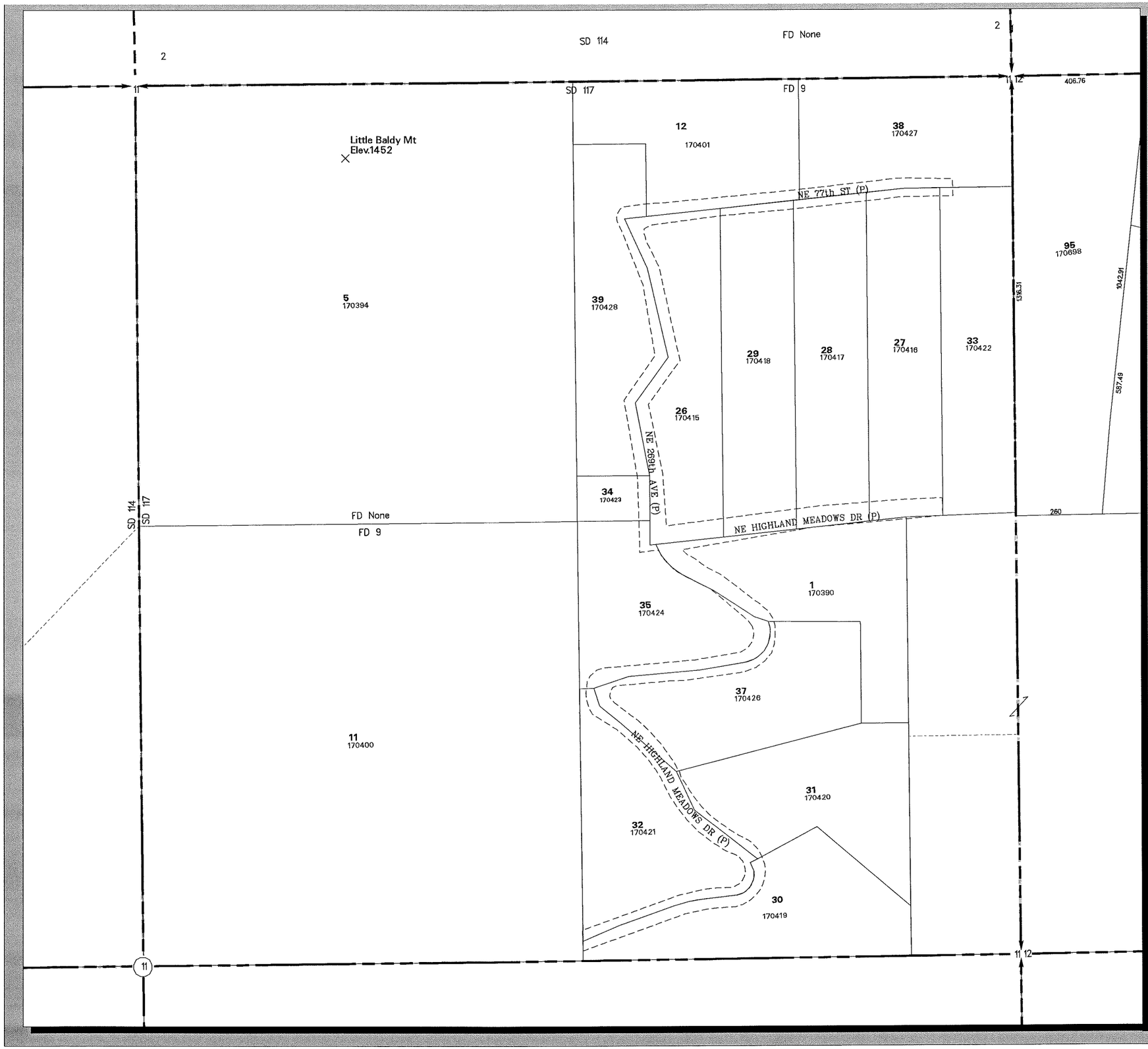
July 11, 2007



Clark County

Washington

NE Qtr of Section 11 T2N R3E WM



Explanation

- Streams
- Tax Code Line
- Donation Land Claim
- Easements
- Control Lines
- History
- Subdivision Lines
- City Boundary
- Road Right of Way ' Actual Road May Not Exist'
- Water
- Marsh

Cam

Cemetery District:
1

Municipality:
CC

School District:
117-Cam

Fire District:
East County, No District

Port District:

Developer's GIS Packet: Page 41 of 41

Atlas Page(s)
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Scale 1:3600

0 100 200 300 400 500 600 Feet

Department of Assessment and GIS

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