GEOPACIFIC
Real-World Geotechnical Solutions
Investigation • Design • Construction Support

December 22, 2021
GeoPacific Project No. 21-5946

Kess Romano
Romano Development
4660 NE 77th Avenue, Suite 200
Vancouver, WA 98662

C/O: John Meier, P.E.
AKS Engineering and Forestry, LLC
Phone: 360-882-0419
Email: John@aks-eng.com

Subject: **PHASE I ENVIRONMENTAL ASSESSMENT**
CAMAS MEADOWS SUBDIVISION
4525, 4555, 4615, AND 4711 NW CAMAS MEADOWS DRIVE
CAMAS, WASHINGTON

GeoPacific Engineering, Inc. (GeoPacific) performed a Phase I environmental site assessment (ESA) for the Camas Meadows Subdivision property (herein referred to as the "site"), which is associated with the addresses 4525, 4555, 4615, and 4711 NW Camas Meadows Drive. The site located on the north side of NW Camas Meadows Drive, approximately 160 feet northwest of the intersection of NW Camas Meadows Drive and NW Morgan Way in Camas, Clark County, Washington (see Figure 1). The project site is approximately 13.8 acres in size and is located approximately 3.5 miles northwest of the Camas, Washington city center (Figure 1). The site is currently undeveloped with the exception of an existing parking lot on the southeastern corner of the site. The site is primarily forested with medium to large size conifer, deciduous trees, grasses, and undergrowth (Figure 2). Topography at the site is gently to moderately sloping down toward the east and northeast. Results of the ESA are presented herein.

INTRODUCTION

The purpose of a typical ESA is to make "appropriate inquiries" (Superfund Amendments and Reauthorization Act of 1986, SARA) into whether a site has, or may reasonably be expected to have on its lands, hazardous wastes or substances that would have adversely impacted the environment. An additional purpose of the ESA is to assess adjoining properties and properties in the immediate vicinity of the site that may have an environmental impact on the site from the use of hazardous materials.

Environmental Professional Statement: We declare that, to the best of our professional knowledge and belief, we meet the definition of Environmental Professional as defined in 40 CFR 312.10. We have the specific qualifications based on education, training and experience to assess the nature, history, and setting of the subject property. We have developed and performed all appropriate enquiries in general performance with the standards and practices set forth in 40 CFR Part 312, subject to the stated limitations of this report.

SCOPE OF WORK

This ESA includes a record search and a site reconnaissance to evaluate the possible presence of hazardous materials at the site or from adjoining properties that may impact the site. The scope of services was performed in a manner generally consistent with the scope and limitations of American Society for Testing and Materials (ASTM) Practice E 1527-13, the current industry guidance for ESAs. In summary, our scope of work was as follows:

- A site reconnaissance to evaluate the site for recognized environmental conditions such as underground or above ground storage tanks; lagoons; landfills; pipelines; hazardous materials and hazardous waste storage/disposal areas including sumps, pits, ponds, drums; dead and stressed vegetation; discarded electrical transformers and capacitors; construction materials suspected to contain hazardous materials; groundwater monitoring wells or water supply wells; storm drains; obvious locations of past and present chemical storage, use, and disposal.
- A site reconnaissance of the area immediately surrounding the site to evaluate land use and make observations regarding the presence of recognized environmental conditions. The off-site reconnaissance was non-intrusive with the adjacent properties observed from the subject site or adjoining public right-of-ways.
- A review of regulatory agency (U.S. Environmental Protection Agency, Oregon Department of Environmental Quality, etc.) database lists and files (if necessary) for the purpose of evaluating reported environmental concerns in the vicinity of the subject site.
- A survey of available local geologic and topographic maps, as well as obtaining additional information concerning public and private water sources, including water wells, in the project vicinity.
- A review of historical sources including available business directories, aerial photographs, maps, tax assessment records, and building/planning department records. The historical information was used to evaluate past uses of the site and immediate surrounding area to document businesses, activities, and/or conditions that may compromise the environmental integrity of the site.
- A limited visual survey of suspect asbestos-containing building materials (ACBMs) and lead paint for on-site buildings. It should be noted that this visual survey for suspect ACBMs and lead paint is not sufficient to satisfy federal, state, and local regulations for buildings that are to be renovated or demolished. In the event of future renovation or demolition of existing structure(s), site-specific ACBM and lead paint surveys would be needed.

- Preparation of this report documenting the findings of the Phase I Assessment and opinions regarding the possibility that contamination of the property may exist due to on-site or nearby off-site land use activities.

This assessment does not address ASTM Phase I non-scope issues of radon, lead-based paint, lead in drinking water, and wetlands.

SITE FEATURES

Setting and Site Description

The site is approximately 13.8 acres in size, and consists of seven tax lots as summarized below:

Property ID No.	Address	Ex. Structure Construction Date	Acreage
172970000	4615 NW Camas Meadows Drive	NA	2.58
986035733	4555 NW Camas Meadows Drive	NA	2.22
986035734	4525 NW Camas Meadows Drive	NA	0.88
172963000	4525 NW Camas Meadows Drive	NA	1.12
172973000	NA	NA	1.82
175980000	NA	NA	0.18
986026906	4711 NW Camas Meadows Drive	NA	5.0

The site is located on the north side of NW Camas Meadows Drive, approximately 160 feet northwest of the intersection of NW Camas Meadows Drive and NW Morgan Way in Camas, Clark County, Washington (Figure 1). The site is currently undeveloped with the exception of an existing parking lot on the southeastern corner of the site. The site is primarily forested with medium to large size conifer, deciduous trees, grasses, and undergrowth (Figure 2). The northwest portion of the site consists primarily of grassy fields, brush and shrubs. No structures are currently located at the site.

The site is bounded by Camas Meadows Golf Club to the east and north; and NW Camas Meadows Drive to the west and south (Figure 2). Based upon review of preliminary plans, it is our understanding that a residential subdivision consisting of 60 building lots is proposed for the site, with associated stormwater management facilities, utilities, and public streets.

The U.S. Geological Survey (USGS) topographic coordinates for the site are: Sections 28 and 29, Township 2 North, Range 3 East, Willamette Meridian. Google Earth gives coordinates near the center of the site as Latitude 45.630020 degrees, Longitude -122.456942 degrees.

Site Reconnaissance

GeoPacific performed a site reconnaissance for this study on November 24, 2021. Photographs from the site reconnaissance are attached immediately following the text of this report. The site consists primarily of dense forest and brush with occasional grassy clearings

except for the northwest portion of the site which consists primarily of tall grasses, brush, and shrubs. A small asphalt parking area is located on the southeast corner of the site and was slightly overgrown at the time of this reconnaissance. A pad mounted electrical transformer was located in an area of brush off the southeast corner of the parking area. Multiple treated wooden poles were observed in a forest and brush area to the north of the parking lot on the eastern end of the site.

During the reconnaissance, we did not observe any indications of environmental hazardous material contamination sources on the site, including soil staining or distressed vegetation. In addition, we did not observe any underground storage tanks (USTs) or drywells at the site. However, it should be noted that such features can be present and not detected during a visual reconnaissance, due to vegetative or soil cover or other factors.

Description of Adjacent Land Use

During our site reconnaissance, we performed limited visual inspections of adjoining properties for evidence of current or past environmental practices that may impact the site. Visual observations of the remaining surrounding properties did not reveal any obvious indicators of environmentally hazardous material sources or contamination. Camas Meadows Golf Club is located on the adjacent properties to the east and north of the site; the clubhouse and parking area for the golf club are located to the east. The properties across NW Camas Meadows Drive to the south and west consist of commercial office buildings and additional portions of the Camas Meadows Golf Club golf course.

HISTORIC LAND USE

General

Our limited site historical investigation consisted of reviewing selected historical aerial photographs and maps; reviewing information contained in selected public agency files; and conducting interviews with the current property owners.

The purpose of the record review was to develop an understanding of the history of the site and to evaluate past activities or conditions that may have an environmental impact on the site from the use of hazardous materials. Based on this review of available information, we have developed a general history of the site from 1918 to the present.

Site History

City Directories. Our search using the EDR-City Directory records for information on the target property returned no results. A summary of directory records is presented below, for each address thought to apply to the project site. The site area is associated with the addresses 4525, 4555, 4615, and 4711 NW Camas Meadows Drive. No listings found for variations of these addresses. The City Directory Report is included as an attachment to this report.

Property Owner Interviews

Interviews were conducted with Michael Foss of iCap Equity and Martin Hertrich of Vanport Manufacturing Inc in December 2021. ICap Equity (iCap) owns property parcels 986035734, 172963000, 172973000 and 175980000, which are associated with the addresses 4525 and 4555 NW Camas Meadows Drive. Vanport Manufacturing Inc (Vanport) owns property parcels 986025733 and 17297000, which are associated with the addresses 4615 and 4711 NW Camas Meadows Drive. The answers regarding the individually owned parcels are detailed below.

4525 and 4555 NW Camas Meadows Drive, Parcels 986035734, 172963000, 172973000 and 175980000: Mr. Foss indicated that these parcels are currently owned by two separate LLCs, both of which are owned by iCap which purchased the properties in 2014. Mr. Foss confirmed that the properties are not connected to municipal sewer services or municipal water lines. Mr. Foss stated that there are no known septic tanks, water wells, or drywells located on the properties. Mr. Foss stated that there are no known underground storage tanks or underground heating oil tanks at the properties. Mr. Foss stated that no previous structures have occupied the site that are no longer standing. Mr. Foss did not know why the parking lot was constructed on the southeast portion of the properties or for what purpose the treated wooden utility poles may have served that are located to the north of the parking lot area. Mr. Foss stated that no known commercial agricultural crops have ever been cultivated at the properties. Mr. Foss stated that no known pesticides or herbicides have been used on the properties. Mr. Foss was not aware of any hazardous material spills or storage having occurred at the property. Mr. Foss stated that previous environmental investigations have been completed at the properties. Mr. Foss stated that there are no environmental liens or conditions that have affected or may affect the sale or lease price of the property.

4615 and 4711 NW Camas Meadows Drive, Parcels 986025733 and 17297000: Mr. Hertrich indicated that Vanport has owned this property since the 1990s. Mr. Hertrich confirmed that the properties are connected to municipal sewer services and municipal water lines. Mr. Hertrich stated that there are no septic tanks, water wells, or drywells located on the properties. Mr. Hertrich confirmed that there are no underground storage tanks or underground heating oil tanks at the properties. Mr. Hertrich stated that no previous structures have occupied the site that are no longer standing. Mr. Hertrich indicated that the properties were historically used as farmland but that they were developed into build-ready lots during the 1990s or 2000s. Mr. Miller stated that no commercial agricultural crops have been cultivated at the site except for grass/hay. Mr. Hertrich confirmed that no pesticides or herbicides have been used at the properties and that weed control was formerly accomplished by mowing. Mr. Hertrich stated that a previous environmental investigation was completed for the properties in 1997 as part of the development of the Camas Meadows Corporate Center. Mr. Hertrich was not aware of any hazardous material spills or storage having occurred at the property. Mr. Hertrich stated that there are no environmental liens or conditions that have affected or may affect the sale or lease price of the property.

Aerial Photographs. Aerial photographs from Environmental Data Resources (EDR), Inc. were reviewed for this study. The available photographs reviewed include those taken in 1935, 1939, 1951, 1960, 1970, 1975, 1981, 1990, 2001, 2006, 2009, 2013, and 2017. A summary of conditions observed on the aerial photographs follows:

1935: The majority of the site is covered with dense forest except for the northwestern portion of the site which is covered with grassy fields that appear to be in use for hay production or as pasture land. No structures are visible at the site. Surrounding properties consist of agricultural fields, rural residential properties, and undeveloped forested areas.

1939: Little change from previous photograph.

1951: Little change at the site from previous photograph. Some of the forested areas have been cleared to the south of the site.

1960: Little change from previous photograph.

1970: Little change from previous photograph.

1975: Due to poor photograph quality, site features are difficult to discern.

1981: Little change from previous photograph.

1990: Little change from previous photograph.

2001: Due to poor photograph quality, site features are difficult to discern. NW Camas Meadows Drive has been constructed along the western and southern borders of the site. The golf course is visible on adjacent properties to the north and east.

2006: The forested areas have been partially cleared at the site and are now sparsely forested. The grassy area on the northwestern portion of the site no longer appears to be in use for any agricultural purpose. Commercial office buildings have been constructed across NW Camas Meadows Drive to the south of the site. A man made pond has been constructed on the north side of the golf course to the north of the site. A residential apartment building complex has been partially constructed to the north of the site.

2009: Little change from the previous photograph, an additional commercial office building has been constructed across NW Camas Meadows Drive to the south of the site.

2013: The site is becoming overgrown with brush and forest. Additional commercial office buildings have been constructed to the south and west of the site.

2017: Little change from the previous photograph.

Historic Maps. Fire insurance maps were developed for use by insurance companies to depict facilities, properties, and their uses for many locations throughout the United States. These maps provide prior land use history and assist in assessing whether there may be potential environmental contamination on or near the subject site. These maps, which have been periodically updated since the late 19th Century, often provide valuable insight into historical site uses. Certified Sanborn Maps were not available for the subject site.

GeoPacific reviewed historical topographic maps prepared by the U.S. Geological Survey. These maps show the site and surrounding areas as predominantly rural and undeveloped, becoming increasingly residential between the earliest map in 1918 and the most recent map dated 2013.

Historic Adjacent Land Use

The available aerial photographs and maps reviewed suggest that historic land use of the properties surrounding the site between 1918 and present were primarily rural and agricultural with most residential and commercial development occurring recently in the vicinity of the site. The Camas Meadows Golf Club appears to have been constructed in 2001 on the adjacent properties to the east and north. Commercial structures began being constructed on the south side of NW Camas Meadows Drive around 2004 or 2005.

ENVIRONMENTAL SETTING

Topography

Topography at the site is variable but is generally gently to moderately sloping toward the north and northeast. Elevation ranges from approximately 252 feet above mean sea level (MSL) along the southern border of the site to approximately 208 feet MSL in the northeastern corner of the site. There was no surface water and no visible drainages at the site.

Soils

A review of U.S. Department of Agriculture (USDA) Soil Conservation Service (SCS) mapping provided by the National Cooperative Soil Survey (NCSS) indicated that the subject property is underlain by soils classified as Powell Silt Loam. Powell Silt Loam soil units are classified according to the Soil Survey as "hydrologic group Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures."

Geology

The subject site is underlain by residual soils formed by weathering of the underlying basalt bedrock formation. The bedrock formation is mapped as Quaternary volcanic deposits that are late Pliocene to early Pleistocene Age (0.6 to 2 million years before present). The unit

consists of andesite flows, and associated breccias from local volcanic vents. The volcanic flows are expected to be moderately to deeply weathered.

Hydrogeology

Available hydrogeologic literature suggests that the near surface groundwater table is likely between 20-40 feet below the ground surface at the lower elevations of the property. We anticipate that based on the regional topography and geology, the regional groundwater gradient slopes down to the north and northeast toward Lacamas Creek and Lacamas Lake. It should be noted that site-specific subsurface soil and groundwater conditions can only be determined by performing subsurface explorations and a groundwater investigation, which is beyond the Phase I ESA scope of work.

Drinking Water Supplies and Water Wells

There are no known water wells located at the site. The EDR report includes the locations of known water wells within a 1-mile radius of the subject site. According to the EDR Radius Map report there are seventy five (75) recorded Federal USGS well, no Federal water supply system wells, and over 100 wells on the State database within a 1-mile radius. See the attached EDR report for additional information regarding these wells.

Previous Environmental Investigations

A Phase 1 ESA was completed for eastern portion of the site by Redmond Geotechnical Services (RGS) of Portland, Oregon, in January 2015. RGS provided a copy of this report at the request of GeoPacific. This Phase 1 ESA was completed for the site tax parcels 986035734, 172963000, 172973000 and 175980000. The Phase 1 ESA completed by RGS stated that no recognized environmental conditions (RECs) were revealed and no recommendations were made for any further investigation at the site.

REVIEW OF REGULATORY AGENCY RECORDS

Selected regulatory agency records from the Environmental Protection Agency (EPA) and the Oregon Department of Environmental Quality (DEQ) were researched to meet search requirements of the EPA *Standards and Practices for All Appropriate Inquiries* (40 CFR Part 312) and the ASTM *Standard Practice for Environmental Site Assessments* (E 1527-13).

The required searches and search distances from the site were conducted by Environmental Data Resources, Inc. (EDR), of Shelton, Connecticut. The findings of the research are summarized below. A complete copy of the EDR report with radius maps is attached. The search distances presented in the report and below are approximate distances from the site, as mapped by EDR.

Hazardous/Regulated Wastes

EPA Resource Conservation Recovery Act Generators. The Resource Conservation Recovery Act (RCRA) established a framework for the management and disposal of

hazardous waste. The U.S. Environmental Protection Agency (EPA) maintains a list of businesses regulated by the RCRA program. The latest EPA-RCRA list identifies companies that generate, store, treat, transport, and/or dispose of hazardous waste. Conditionally exempt small quantity generators (CESQG's) are facilities generating less than 100 kg/month of non-acutely hazardous waste. Small quantity generators (SQG's) are facilities generating between 100 and 1000 kg/month of non-acutely hazardous waste and large quantity generators (LQG's) are facilities generating more than 1000 kg/month of hazardous waste. The RCRA database also identifies businesses that do not generate hazardous wastes (NonGen), but may handle or receive hazardous waste. A review of the current RCRA lists identifies registered RCEA-CESQG, SQG, LQG and NonGen sites within ¼ mile from the target site.

- The site is not recorded on the EPA RCRA Program list as a RCRA-CESQG. No properties within ¼ mile of the site are listed as RCRA-CESQG.

- The site is not recorded on the EPA RCRA Program list as a RCRA-SQG. No properties within ¼ mile of the site are listed as RCRA-SQG.

- The site is not recorded on the EPA RCRA Program list as a RCRA-LQG. No properties within ¼ mile of the site are listed as RCRA-LQG.

- The site is not recorded on the EPA RCRA Program list as a RCRA-NonGen. No properties within ¼ mile of the site are listed as RCRA-NonGen.

Standard Environmental Records

Federal RCRA CORRACTS Facilities List. The CORRACTS corrective action report identifies hazardous waste handlers with RCRA corrective action activity.

- The site is not recorded on the CORRACTS facilities list. No properties within 1 mile of the site are listed on the CORRACTS list.

EPA Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) List. The Comprehensive Environmental Response, Compensation, and Liability Act Database List (CERCLIS) inventory maintained by the EPA, lists the status of known or suspected properties that have or may have a potential to become Superfund sites. The list is divided into three categories: active, pending, and no further action. EDR's review of the most recent CERCLIS list resulted in the following findings:

- The site is not recorded on the CERCLIS list. No properties within ½ mile are on the CERCLIS list.

EPA National Priorities List. The National Priorities List (NPL), maintained by the EPA, lists properties from the CERCLIS inventory that have been identified for high priority

cleanup under the Superfund Program by using the EPA Hazardous Ranking Scoring System. EDR's review of the most recent NPL list resulted in the following findings.

- The site is not recorded on the NPL list. No properties within 1 mile are on the federal NPL list.

Washington Department of Ecology (DOE) Leaking Underground Storage Tank (LUST) List. The LUST Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the Department of Ecology's LUST Site List. These records contain an inventory of reported leaking underground storage tank incidents and cleanup histories. EDR's review of the current LUST list indicates the following:

- The site and surrounding properties within ½ mile are not recorded on the LUST list.

Washington Department of Ecology (DOE) Underground Storage Tank (UST) Database: The UST database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the Department of Ecology's Statewide UST Site/Tank Report. EDR's review of the current UST list indicates the following:

- The site is not recorded on the UST database. No properties within 0.25 miles of the site are recorded on the UST list.

Emergency Response Notification System. The Emergency Response Notification System (ERNS) is a national database that contains information of hazardous substance releases submitted to the National Response Center since 1987.

- The site and surrounding properties within 1/8 mile are not listed on the most recent ERNS database.

HMIRS and SPILLS. The Hazardous Materials Incident Report System (HMIRS) contains hazardous material spill incidents reported to the United States Department of Transportation (DOT). In addition, the Spill Prevention, Preparedness and Response Division database (SPILLS) lists spill incidents reported to DOE.

- The site and the surrounding properties were not listed on the latest HMIRS and SPILLS databases.

Aboveground Storage Tanks (AST) Database. A listing of aboveground storage tank locations regulated by the DOEs Spill Prevention, Preparedness and Response Program.

- The site and surrounding properties within ¼ mile of the site are not recorded on the latest DOE AST database.

Voluntary Cleanup Program (VCP): Sites that have entered either the Voluntary Cleanup Program or its predecessor, the Independent Remedial Action Program. A review of the VCP list, as provided by EDR has revealed the following findings:

- The site is not recorded on the VCP list. No properties within 0.5 miles of the target site are recorded on the VCP list.

ALLSITES. Facility/Site identification system listing information on facilities and sites of interest to the Department of Ecology.

- The site is recorded on the ALLSITES list due to the NPDES permit issued for the site. A NPDES permit was issued for stormwater facilities for the proposed residential development that will include construction activities resulting in more than 1 acre of disturbed ground. It is our understanding the site will be divided into sixty residential lots with an associated public streets, stormwater facilities, and driveways.

- Sixteen properties within ½ mile of the site are recorded on the ALLSITES list. Five of these properties are located at equal or higher elevations than the target site. The closest three of these five properties located at equal or higher elevations are as follows:
  - NW Friberg Street NE Goodwin Road, NW Friberg Street, approximately 0.389 miles west southwest of the target site.
  - Larkspur Subdivision, 6215 NW Larkspur Street, approximately 0.415 miles southeast of the target site.
  - Camas Meadows Business Park, NW Camas Meadows Drive, approximately 0.438 miles west southwest of the target site.

CSCSL NFA: The data set contains information about sites previously on the Confirmed and Suspected Contaminated Sites list that have received a No Further Action (NFA) determination. Because it is necessary to maintain historical records of sites that have been investigated and cleaned up, sites are not deleted from the database when cleanup activities are completed. Instead a No Further Action code is entered based upon the type of NFA determination the site. EDR's review of the current CSCSL NFA list indicates the following:

- The site is not recorded on the CSCSL NFA list. No properties within 0.5 miles of the site are recorded on the CSCSL NFA list.

Closed and/or Permitted Landfills

Solid Waste Facilities/Landfill Sites (SWF/LF). DOE SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

- The site is not listed on the DOE SWF/LF list. No properties within ½ mile of the site are indicated on the SWF/LF list.

SUMMARY

The data and information reported herein are the result of a Level I ESA. After an evaluation of the information collected, GeoPacific has developed the following opinions and conclusions concerning the site:

1. The site is located on the north side of NW Camas Meadows Drive, approximately 160 feet northwest of the intersection of NW Camas Meadows Drive and NW Morgan Way in Camas, Clark County, Washington (Figures 1 and 2). The U.S. Geological Survey (USGS) topographic coordinates for the site are: Sections 28 and 29, Township 2 North, Range 3 East, Willamette Meridian. Google Earth gives coordinates near the center of the site as Latitude 45.630020 degrees, Longitude -122.456942 degrees.

2. The site consists of seven tax lots and is associated with the addresses 4525, 4555, 4615, and 4711 NW Camas Meadows Drive. The site is currently undeveloped with the exception of an existing parking lot on the southeastern corner of the site. The site is primarily forested with medium to large size conifer, deciduous trees, grasses, and undergrowth (Figure 2). The northwest portion of the site consists primarily of grassy fields, brush and shrubs. No structures are currently located at the site. Based upon review of preliminary plans, it is our understanding that a residential subdivision consisting of 60 building lots is proposed for the site, with associated stormwater management facilities, utilities, and public streets.

3. Topography at the site is variable but is generally gently to moderately sloping toward the north and northeast. Elevation ranges from approximately 252 feet above mean sea level (MSL) along the southern border of the site to approximately 208 feet MSL in the northeastern corner of the site. There was no surface water and no visible drainages at the site.

4. Our site reconnaissance did not reveal the obvious presence of any environmental hazardous material contamination sources on the site.

5. The site is bounded by Camas Meadows Golf Club to the east and north; and NW Camas Meadows Drive to the west and south (Figure 2). Limited visual observations of these properties did not reveal any indications of environmentally hazardous material sources or contamination.

6. Interviews were conducted with Michael Foss of iCap Equity and Martin Hertrich of Vanport Manufacturing Inc in December 2021. ICap Equity (iCap) owns property parcels 986035734, 172963000, 172973000 and 175980000, which are associated with the addresses 4525 and 4555 NW Camas Meadows Drive. Vanport Manufacturing Inc (Vanport) owns property parcels 986025733 and 17297000, which are associated with the addresses 4615 and 4711 NW Camas Meadows Drive. Please see Page 5 of this report for more details.

7. A review of the available aerial photographs, topographic maps and interviews suggest that historic land use of the site and surrounding properties between 1918 and present has been primarily rural and agricultural with most residential and commercial development occurring recently in the vicinity of the site.

8. Available hydrogeologic literature suggests that the near surface groundwater table is likely between 20-40 feet below the ground surface at the lower elevations of the property. We anticipate that based on the regional topography and geology, the regional groundwater gradient slopes down to the northeast toward Lacamas Creek and Lacamas Lake.

9. Review of available records indicates as follows: The site is recorded on the ALLSITES list due to the NPDES permit issued for the site. A NPDES permit was issued for stormwater facilities for the proposed residential development that will include construction activities resulting in more than 1 acre of disturbed ground. Sixteen properties within ½ mile of the site are recorded on the ALLSITES list. Details of these searches and their proximity to the target property can be found in the attached EDR environmental database report.

CONCLUSIONS AND RECOMMENDATIONS

GeoPacific has performed this Phase I environmental site assessment in general conformance with the scope and limitations of ASTM Standard E1527-13. The assessment presented in this document did not reveal evidence of recognized environmental conditions (RECs) in connection with the property.

Based on the environmental site assessment reported in this document, our current opinion is that additional environmental investigation is not necessary for this site. However, based on our current knowledge of the site, we recommend the following:

- Verify that the existing pad-mounted transformer located off the southeast corner of the asphalt parking area does not contain PCBs when it is removed from the site. If the transformer is found to contain PCBs, disposal should conform to applicable state and federal requirements.

If conditions should change, or you become aware of heretofore undisclosed information related to environmental issues, we should be advised at once so that we can observe and review these conditions and reconsider our recommendations where necessary.

LIMITATIONS

This report was prepared solely for the client and the information herein may be relied upon by the client and their representatives. This report should not be reproduced, except in full, without prior authorization from this office. The conclusions and opinions contained in this report are based on the data that were reasonably ascertainable within the scope of our work. The work performed was in general conformance with the ASTM E1527 guidelines; however, no practical study or procedure can or should be expected to discover all possible means of potential contamination. GeoPacific

believes that the information obtained from the records review and the interviews concerning the site is reliable. However, we cannot and do not warrant or guarantee that the information provided by these or other sources is accurate or complete.

Environmental impairment of property because of activities such as illicit or unreported dumping or spilling of hazardous or deleterious materials may not be readily apparent. The opinions and conclusions presented in this report are based on information readily available at the time of the assessment. The collection of quantitative information, such as data generated by the analysis of soil or water samples, was beyond the scope of this study. The Phase 1 ESA does not address the ASTM Phase 1 non-scope issues of asbestos, radon, lead-based paint, lead in drinking water, and wetlands. Other project specific limitations are presented in the appropriate sections of this report. The information contained in this report is time dependent, area conditions and available information may change as well as the due diligence standards. The report should not be considered current more than 90 days after the publication date.

We appreciate this opportunity to be of service.

Sincerely,

GEOPACIFIC ENGINEERING, INC.

Stephen Morris
Environmental Scientist

Attachments: Site Photographs
Figure 1 - Vicinity Map
Figure 2 – Site Map
EDR Environmental Database Search Results

Photo 1 – Parking lot on southeast portion of site

Photo 2 – Pad mounted transformer in brush on southeast side of parking area

Photo 3 – Utility poles in forest on southeast portion of site

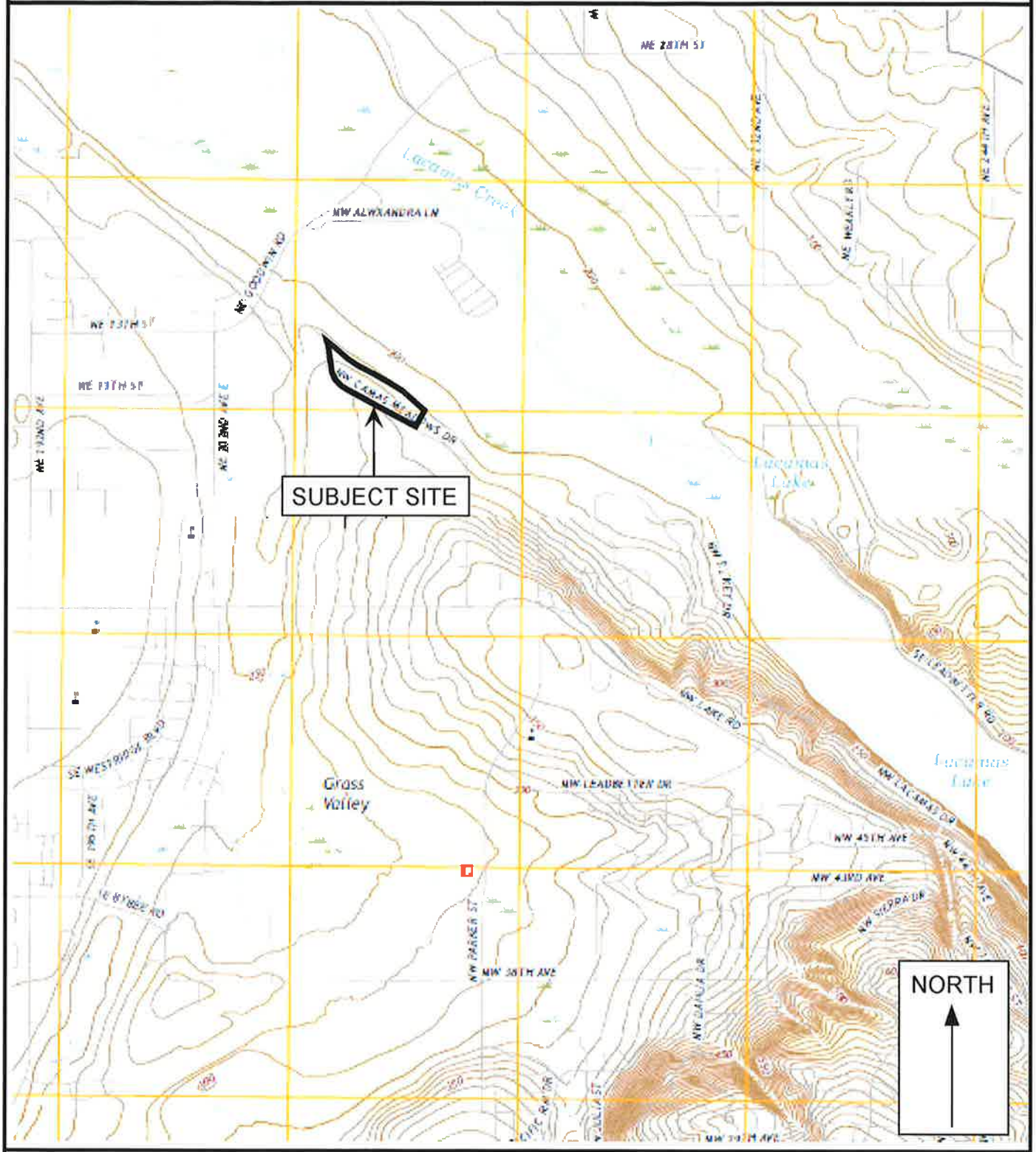
Photo 4 – Forest in central portion of site

Photo 5 – Grassy fields and brush on west side of site

Photo 6 – View of commercial office buildings across NW Camas Meadows Drive to the south

GeoPacific Engineering, Inc.
14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445 Fax: (503) 941-9281

VICINITY MAP



LEGEND

Approximate Scale 1 in = 2,000 ft

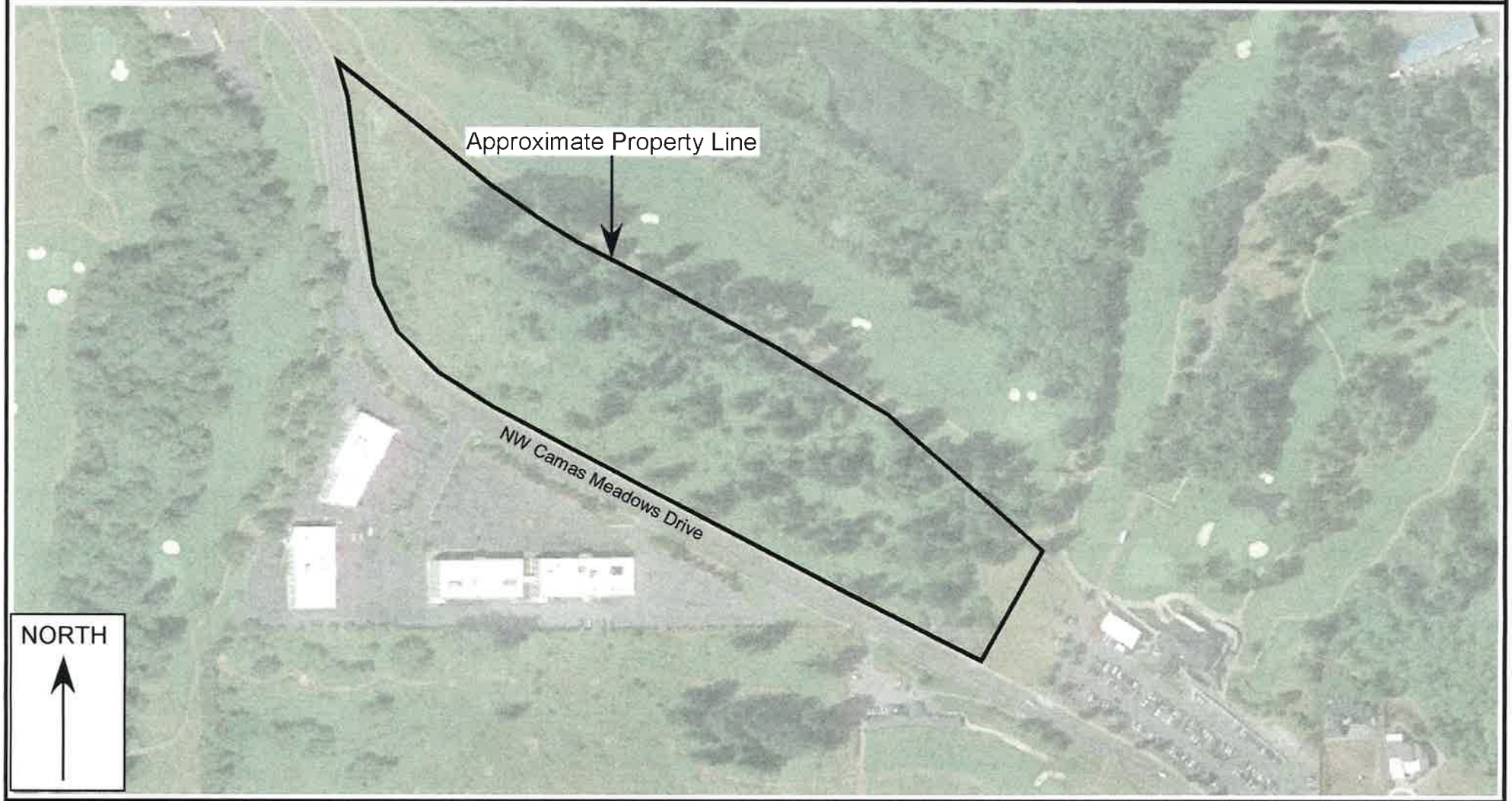
Date: 12/17/2021
Drawn by: SM

Base map: U.S. Geological Survey 7.5 minute Topographic Map Series, Camas and Lacamas Creek, Washington Quadrangles, 2017.

Project: Camas Meadows Subdivision Camas, Washington	Project No. 21-5946	FIGURE 1

GeoPacific Engineering, Inc.
14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445 Fax: (503) 941-9281

SITE MAP



LEGEND

0 500
Approximate Scale (Feet)

Date: 12/17/21
Drawn by: SM

Project: Camas Meadows Subdivision Camas, Washington	Project No. 21-5946	FIGURE 2

Camas Meadows Sub
4615 NW Camas Meadows Drive
Camas, WA 98607

Inquiry Number: 6759499.5
November 24, 2021

The EDR-City Directory Image Report

EDR® Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

TABLE OF CONTENTS

SECTION

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

RECORD SOURCES

EDR's Digital Archive combines historical directory listings from sources such as Cole Information and Dun & Bradstreet. These standard sources of property information complement and enhance each other to provide a more comprehensive report.

EDR is licensed to reproduce certain City Directory works by the copyright holders of those works. The purchaser of this EDR City Directory Report may include it in report(s) delivered to a customer. Reproduction of City Directories without permission of the publisher or licensed vendor may be a violation of copyright.

Data by
infoUSA®

RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

Year	Target Street	Cross Street	Source
2017	☑	☐	EDR Digital Archive
2014	☑	☐	EDR Digital Archive
2010	☑	☐	EDR Digital Archive
2005	☑	☐	EDR Digital Archive
2000	☐	☐	EDR Digital Archive
1995	☐	☐	EDR Digital Archive
1992	☐	☐	EDR Digital Archive
1987	☐	☐	Cole Criss-Cross Directory
1982	☐	☐	Cole Criss-Cross Directory
1977	☐	☐	Cole Criss-Cross Directory

FINDINGS

TARGET PROPERTY STREET

4615 NW Camas Meadows Drive
Camas, WA 98607

Year	*CD Image*	*Source*	
NW CAMAS MEADOWS DR			
2017	pg A1	EDR Digital Archive	
2014	pg A2	EDR Digital Archive	
2010	pg A3	EDR Digital Archive	
2005	pg A4	EDR Digital Archive	
2000	-	EDR Digital Archive	Street not listed in Source
1995	-	EDR Digital Archive	Street not listed in Source
1992	-	EDR Digital Archive	Street not listed in Source
1987	-	Cole Criss-Cross Directory	Street not listed in Source
1982	-	Cole Criss-Cross Directory	Street not listed in Source
1977	-	Cole Criss-Cross Directory	Street not listed in Source

FINDINGS

CROSS STREETS

No Cross Streets Identified

City Directory Images

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

NW CAMAS MEADOWS DR 2017

4102	CAMAS MEADOWS GOLF CLUB DRIVING RANG
4105	CAMAS MEADOWS GOLF CLUB
4600	BODY DESIGN FITNESS
	OREGON ICE CREAM
4800	INTELITECH GROUP
	LIGHTFLEET CORPORATION
	REALITY ENGINEERING
4900	PLEXSYS INTERFACE PRODUCTS INC
4901	INVESTIST
4910	BARRETT & COMPANY PLCC

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

NW CAMAS MEADOWS DR 2014

4102	CAMAS MEADOWS GOLF CLUB DRIVING RANG
4105	CAMAS MEADOWS GOLF CLUB
4600	BODY DESIGN FITNESS
4800	INTELITECH GROUP
	LIGHTFLEET CORPORATION
	REALITY ENGINEERING
4901	INVENTIST
4910	BARRETT & COMPANY PLCC

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

NW CAMAS MEADOWS DR 2010

4105	CAMAS MEADOWS GOLF CLUB
	LA CAMAS REALTY INC
4800	AFLAC
	DJT PROPERTIES LLC
	MEDVISOR
	REALITY ENGINEERING
4901	CHEN INSTRUMENT DESIGN INC

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

NW CAMAS MEADOWS DR 2005

4105	CAMAS MEADOWS GOLF CLUB
	CONAN ELLIOTTS TEACHER OF CHAMPIONS
	CONAN ELTS TCHR OF CHMPN
	LACAMAS SHORES DEVELOPERS
4845	CID INC
	INVENTIST INC

Camas Meadows Sub
4615 NW Camas Meadows Drive
Camas, WA 98607

Inquiry Number: 6759499.3
November 19, 2021

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

11/19/21

Site Name:

Camas Meadows Sub
4615 NW Camas Meadows Dri
Camas, WA 98607
EDR Inquiry # 6759499.3

Client Name:

Geopacific Engineering
14835 SW 72nd Ave
Tigard, OR 97224
Contact: Stephen Morris

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by Geopacific Engineering were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Certification # ADD2-47FA-8452

PO # NA

Project NA

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

Sanborn® Library search results

Certification #: ADD2-47FA-8452

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

The Sanborn Library LLC Since 1866™

Limited Permission To Make Copies

Geopacific Engineering (the client) is permitted to make up to FIVE photocopies of this Sanborn Map transmittal and each fire insurance map accompanying this report solely for the limited use of its customer. No one other than the client is authorized to make copies. Upon request made directly to an EDR Account Executive, the client may be permitted to make a limited number of additional photocopies. This permission is conditioned upon compliance by the client, its customer and their agents with EDR's copyright policy; a copy of which is available upon request.

Camas Meadows Sub
4615 NW Camas Meadows Drive
Camas, WA 98607

Inquiry Number: 6759499.4
November 19, 2021

EDR Historical Topo Map Report

with QuadMatch™

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

11/19/21

Site Name:

Camas Meadows Sub
4615 NW Camas Meadows Dri
Camas, WA 98607
EDR Inquiry # 6759499.4

Client Name:

Geopacific Engineering
14835 SW 72nd Ave
Tigard, OR 97224
Contact: Stephen Morris

EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by Geopacific Engineering were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

Search Results:

P.O.# NA

Project: NA

Coordinates:

Latitude:	45.63017 45° 37' 49" North
Longitude:	-122.456965 -122° 27' 25" West
UTM Zone:	Zone 10 North
UTM X Meters:	542327.70
UTM Y Meters:	5053101.57
Elevation:	247.54' above sea level

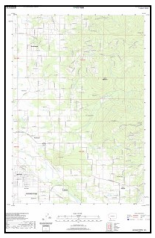
Maps Provided:

2020	1945
2017	1942
2013	1941
1995, 1996	1934
1975	1918
1970	
1961	
1954	

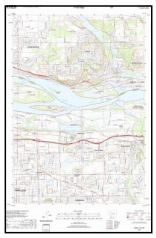
Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2020 Source Sheets

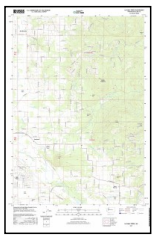


Lacamas Creek
2020
7.5-minute, 24000

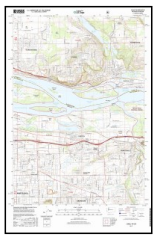


Camas
2020
7.5-minute, 24000

2017 Source Sheets



Lacamas Creek
2017
7.5-minute, 24000



Camas
2017
7.5-minute, 24000

2013 Source Sheets

Lacamas Creek
2013
7.5-minute, 24000

Camas
2013
7.5-minute, 24000

1995, 1996 Source Sheets

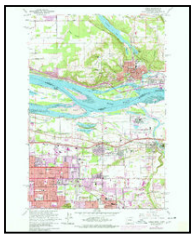
Lacamas Creek
1995
7.5-minute, 24000
Aerial Photo Revised 1990

Camas
1996
7.5-minute, 24000
Aerial Photo Revised 1993

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1975 Source Sheets



Camas
1975
7.5-minute, 24000
Aerial Photo Revised 1975

Lacamas Creek
1975
7.5-minute, 24000
Aerial Photo Revised 1970

1970 Source Sheets

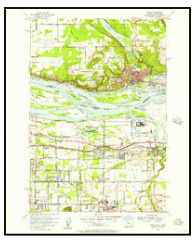
Camas
1970
7.5-minute, 24000
Aerial Photo Revised 1970

Lacamas Creek
1970
7.5-minute, 24000
Aerial Photo Revised 1970

1961 Source Sheets

Camas
1961
7.5-minute, 24000
Aerial Photo Revised 1960

1954 Source Sheets



Camas
1954
7.5-minute, 24000
Aerial Photo Revised 1951

Lacamas Creek
1954
7.5-minute, 24000
Aerial Photo Revised 1951

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

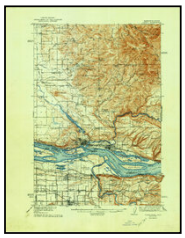
1945 Source Sheets

CAMAS
1945
15-minute, 50000

1942 Source Sheets

Camas
1942
15-minute, 62500

1941 Source Sheets



Camas
1941
15-minute, 62500

1934 Source Sheets

Troutdale
1934
15-minute, 48000

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

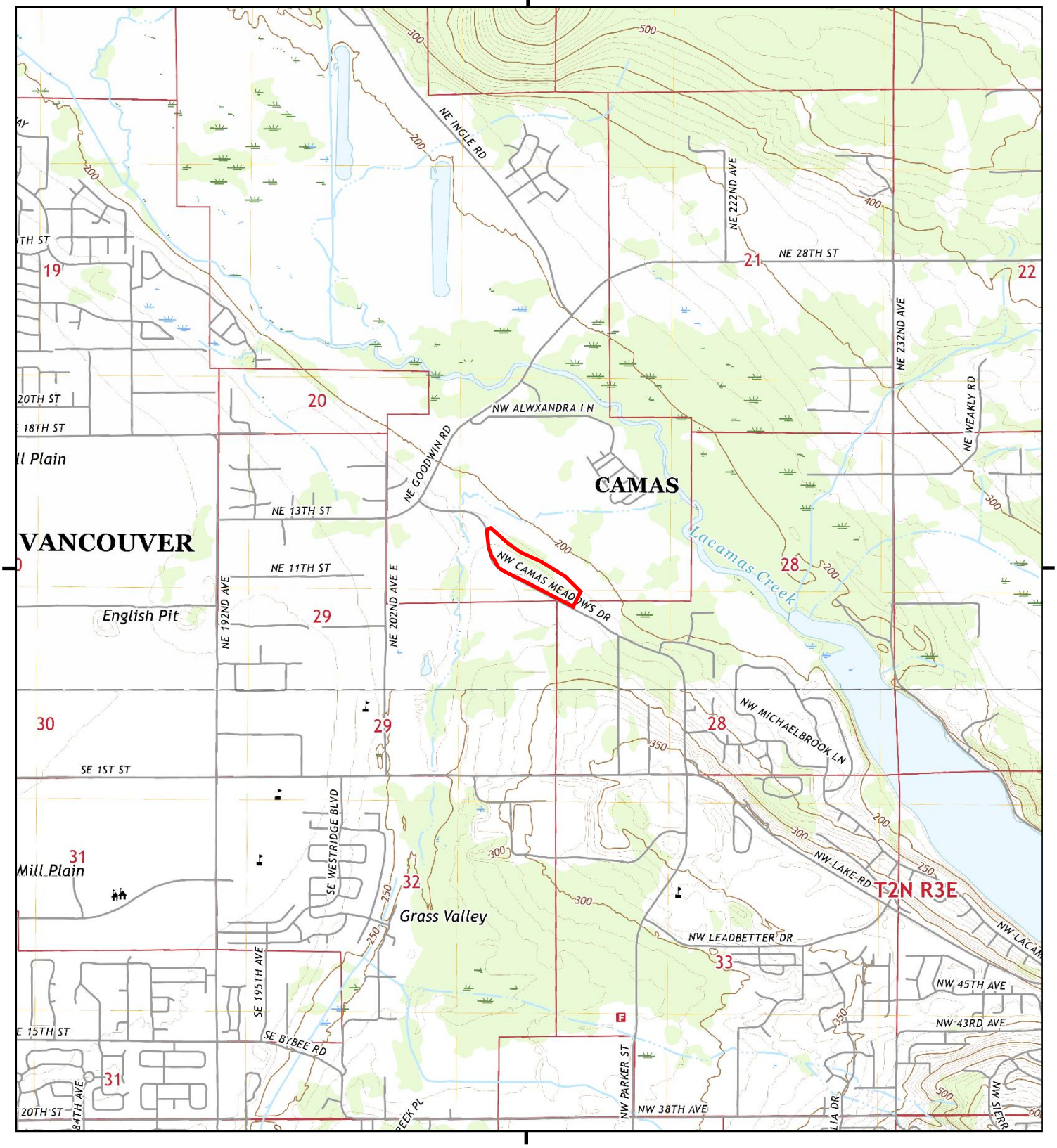
1918 Source Sheets

Troutdale
1918
15-minute, 62500

EDR

Historical Topo Map

2020



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Lacamas Creek, 2020, 7.5-minute
S, Camas, 2020, 7.5-minute

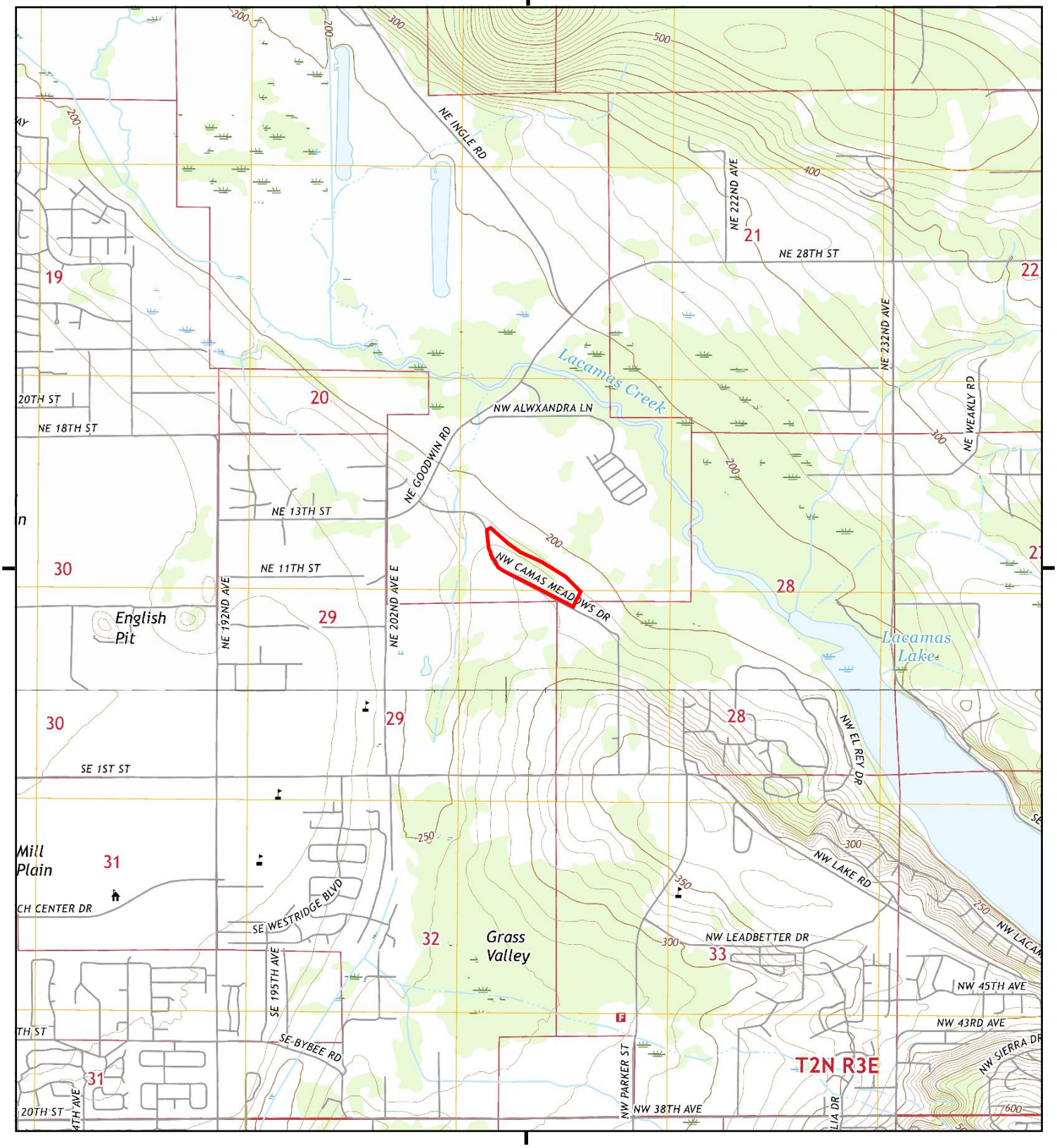
SITE NAME: Camas Meadows Sub
ADDRESS: 4615 NW Camas Meadows Drive
Camas, WA 98607
CLIENT: Geopacific Engineering

N

EDR

Historical Topo Map

2017



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

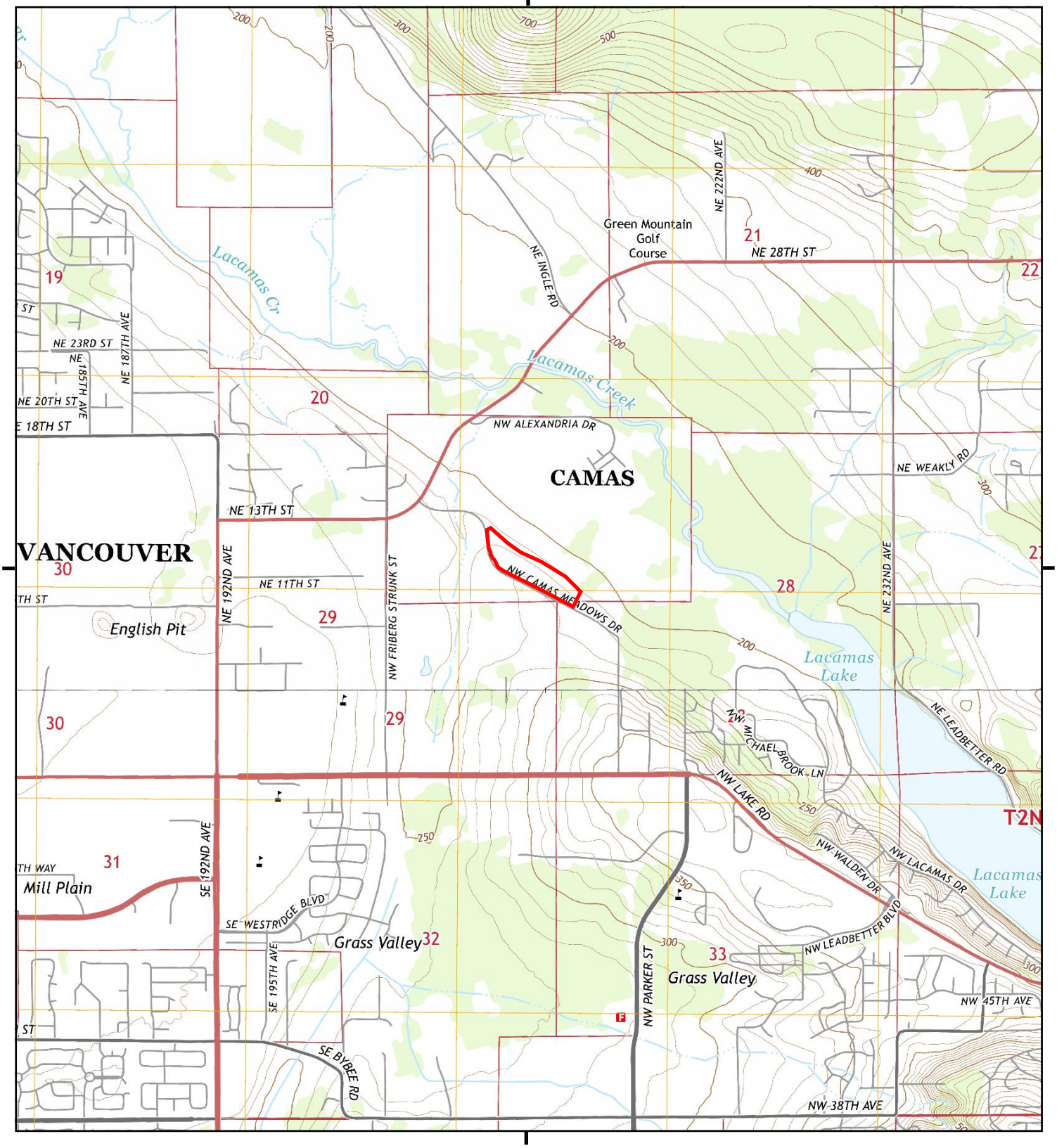
TP, Lacamas Creek, 2017, 7.5-minute
S, Camas, 2017, 7.5-minute

SITE NAME: Camas Meadows Sub
ADDRESS: 4615 NW Camas Meadows Drive
Camas, WA 98607
CLIENT: Geopacific Engineering

N

Historical Topo Map

2013



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Lacamas Creek, 2013, 7.5-minute
S, Camas, 2013, 7.5-minute

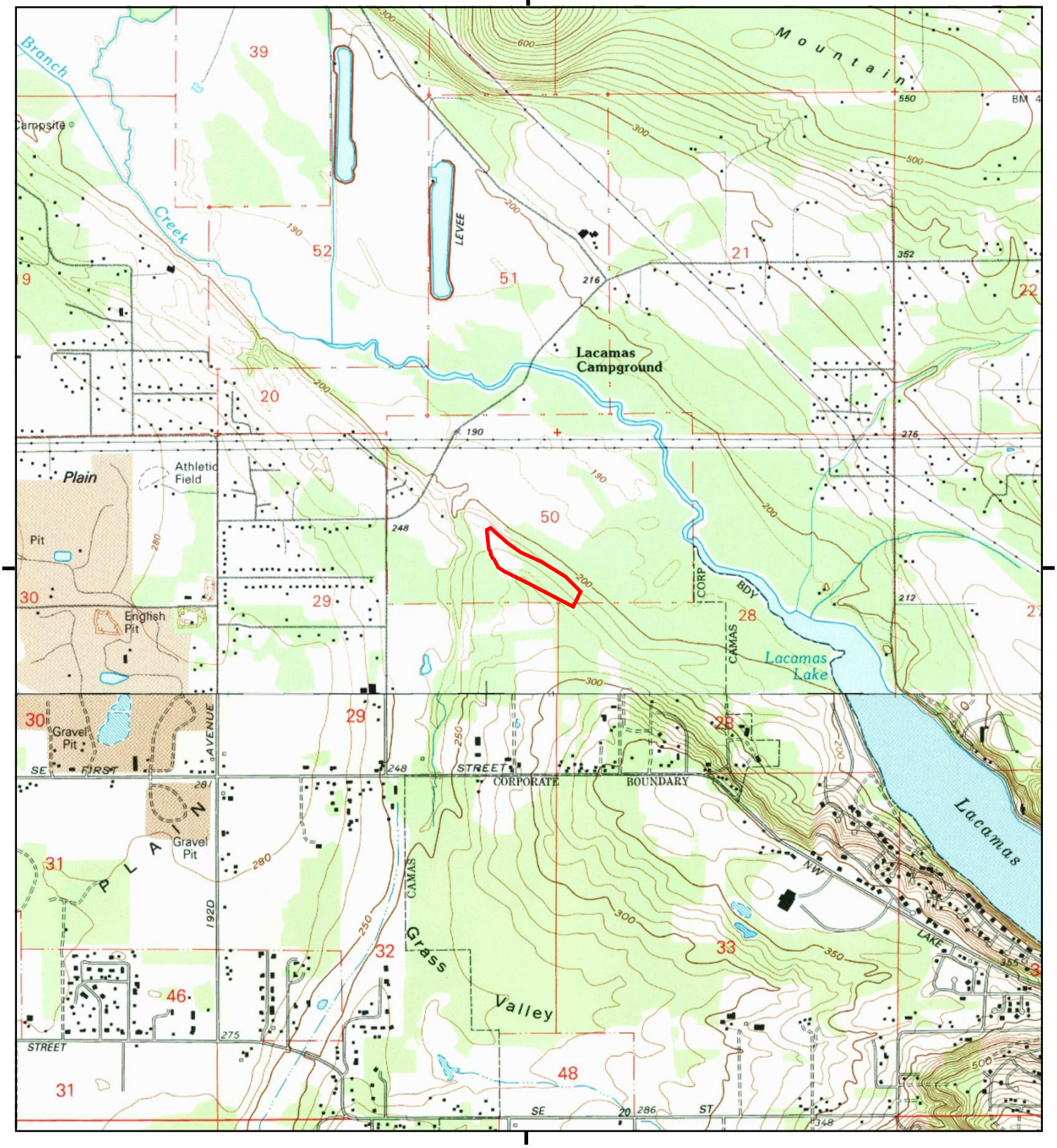
SITE NAME: Camas Meadows Sub
ADDRESS: 4615 NW Camas Meadows Drive
Camas, WA 98607
CLIENT: Geopacific Engineering

N

EDR

Historical Topo Map

1995, 1996



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Lacamas Creek, 1995, 7.5-minute
S, Camas, 1996, 7.5-minute

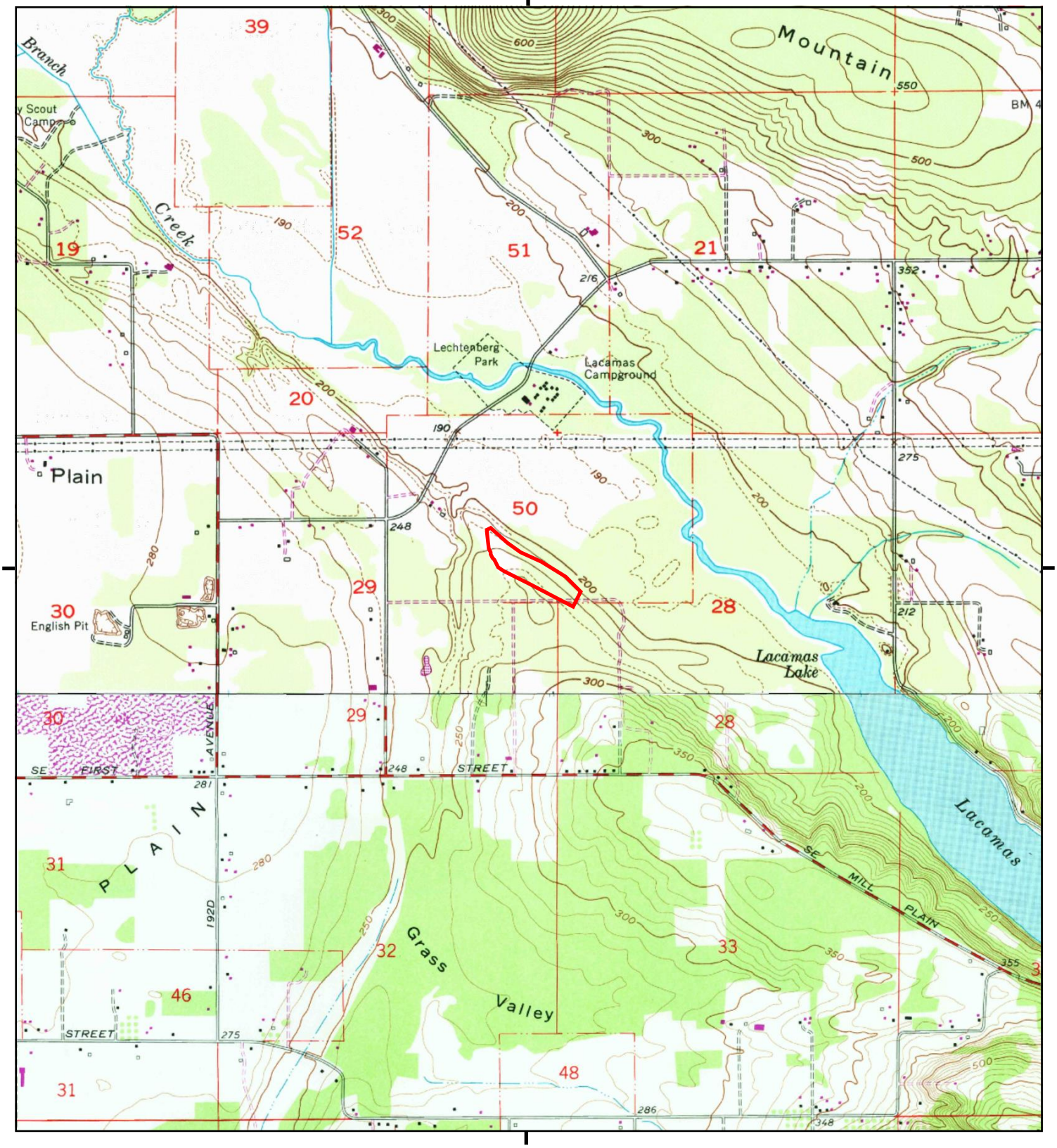
SITE NAME: Camas Meadows Sub
ADDRESS: 4615 NW Camas Meadows Drive
Camas, WA 98607
CLIENT: Geopacific Engineering

N

EDR

Historical Topo Map

1975



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Lacamas Creek, 1975, 7.5-minute
S, Camas, 1975, 7.5-minute

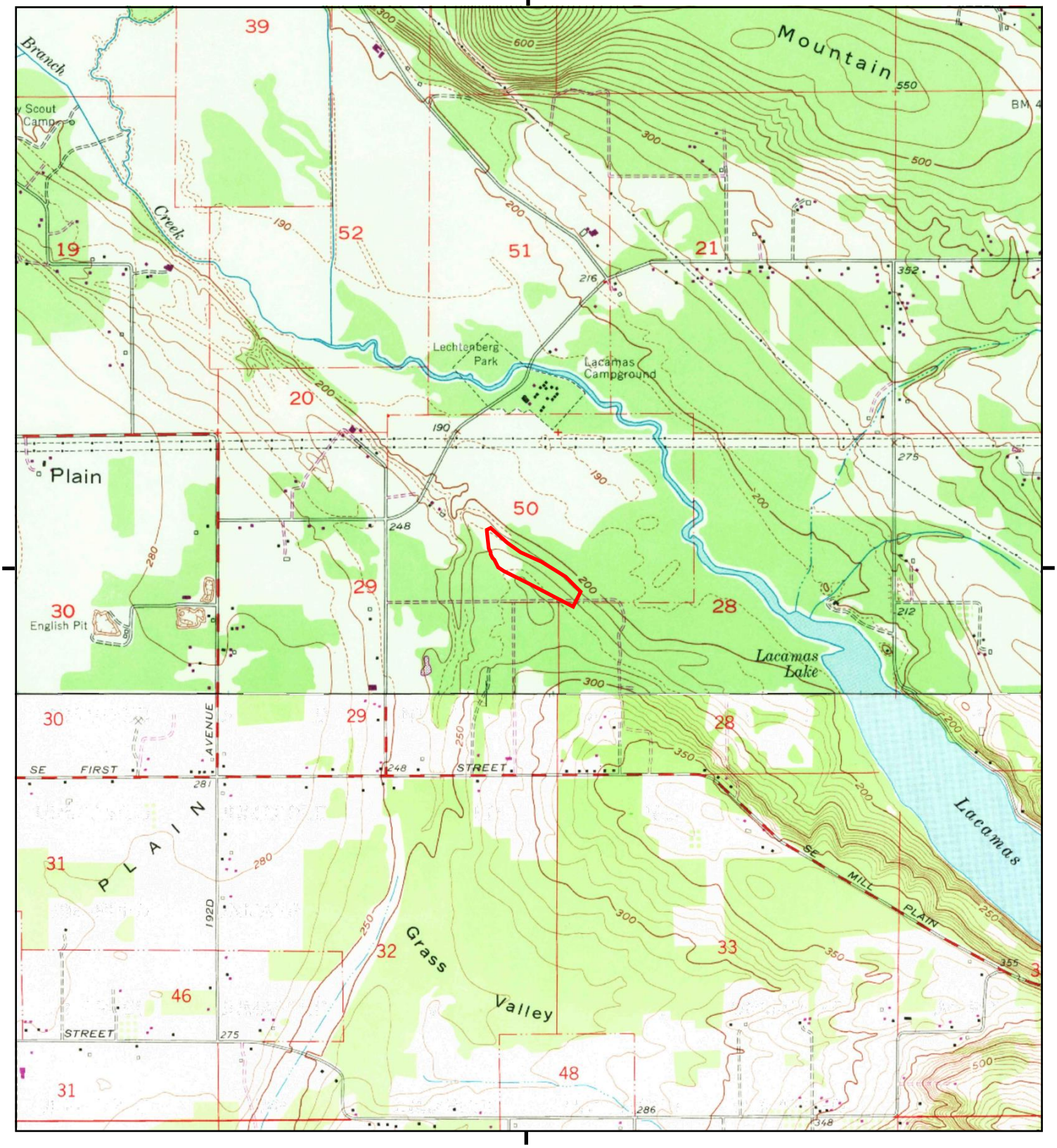
SITE NAME: Camas Meadows Sub
ADDRESS: 4615 NW Camas Meadows Drive
Camas, WA 98607
CLIENT: Geopacific Engineering

N

EDR

Historical Topo Map

1970



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Lacamas Creek, 1970, 7.5-minute
S, Camas, 1970, 7.5-minute

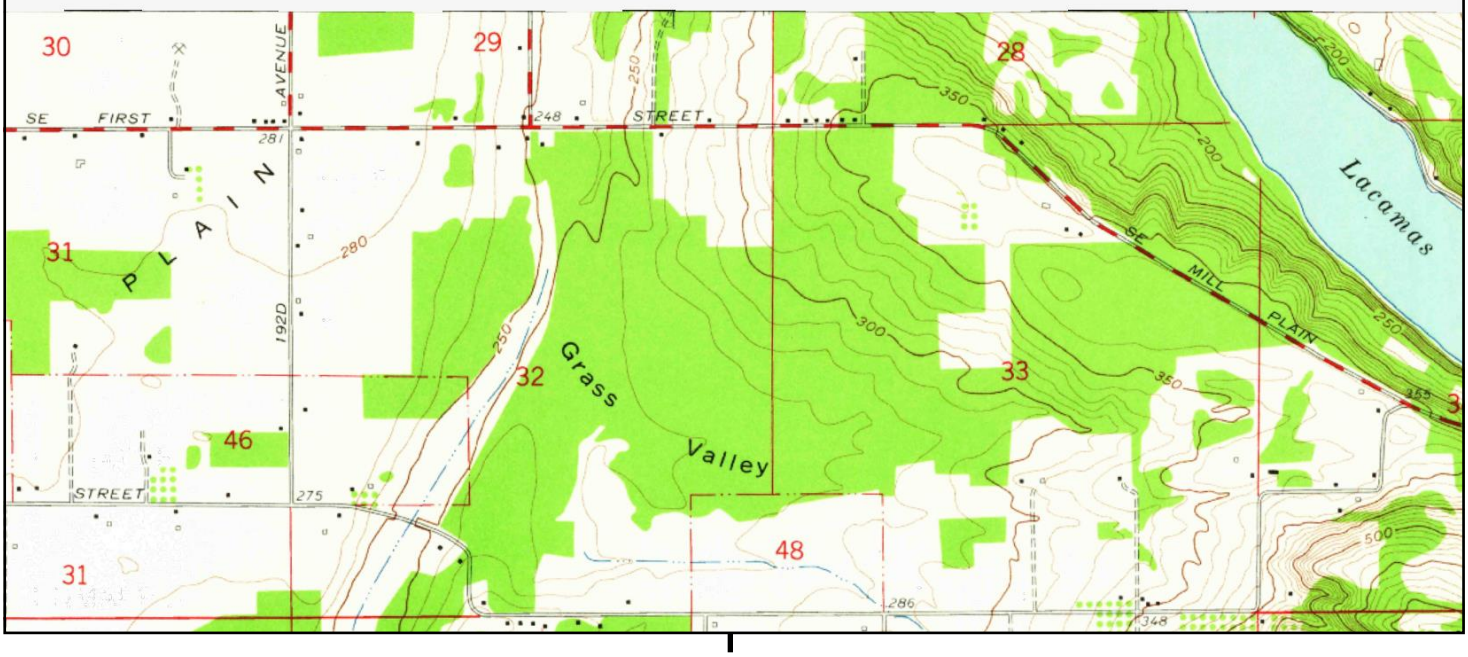
SITE NAME: Camas Meadows Sub
ADDRESS: 4615 NW Camas Meadows Drive
Camas, WA 98607
CLIENT: Geopacific Engineering

N

EDR

Historical Topo Map

1961



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

S, Camas, 1961, 7.5-minute

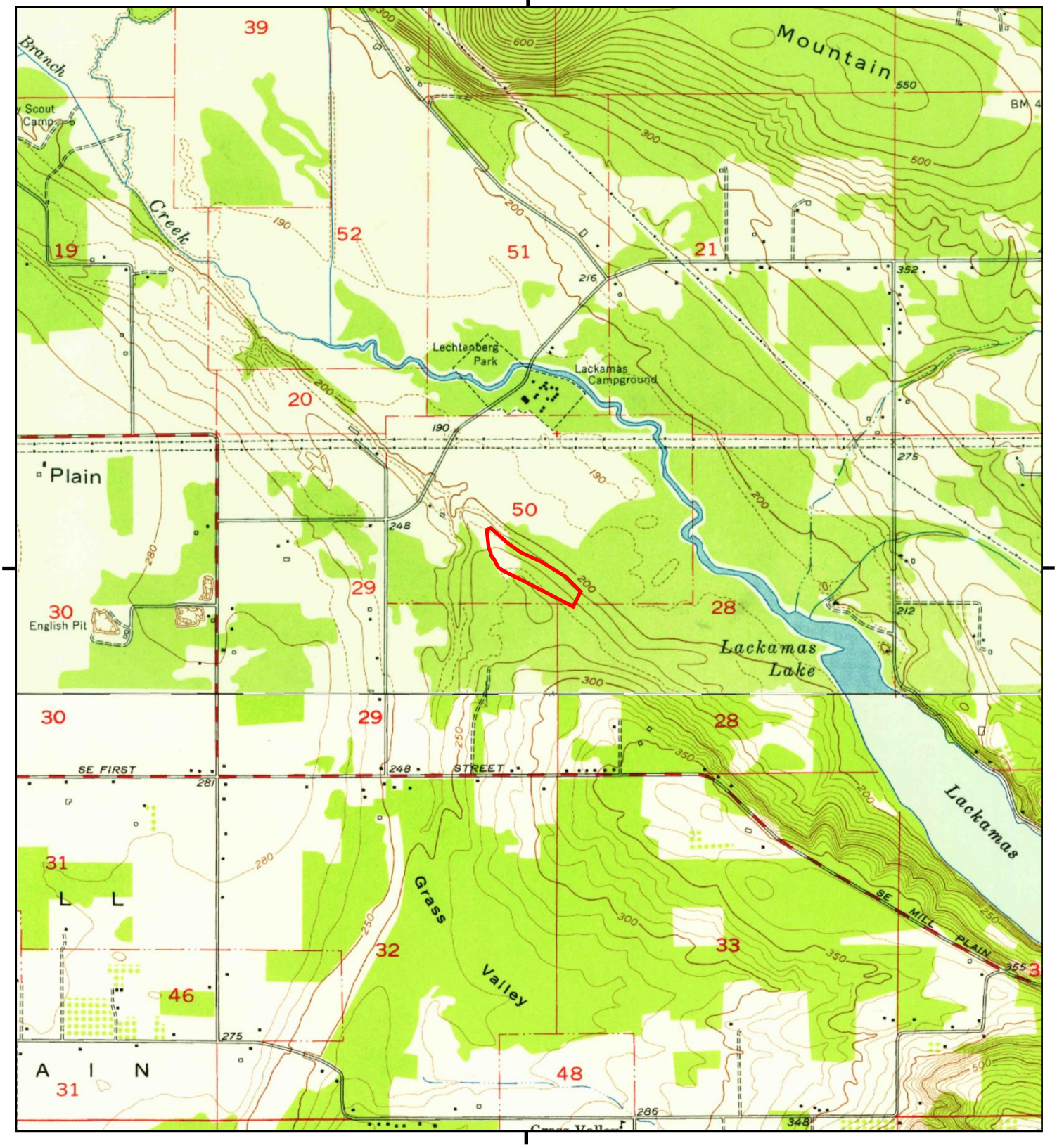
SITE NAME: Camas Meadows Sub
ADDRESS: 4615 NW Camas Meadows Drive
Camas, WA 98607
CLIENT: Geopacific Engineering

N

EDR

Historical Topo Map

1954



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Lacamas Creek, 1954, 7.5-minute
S, Camas, 1954, 7.5-minute

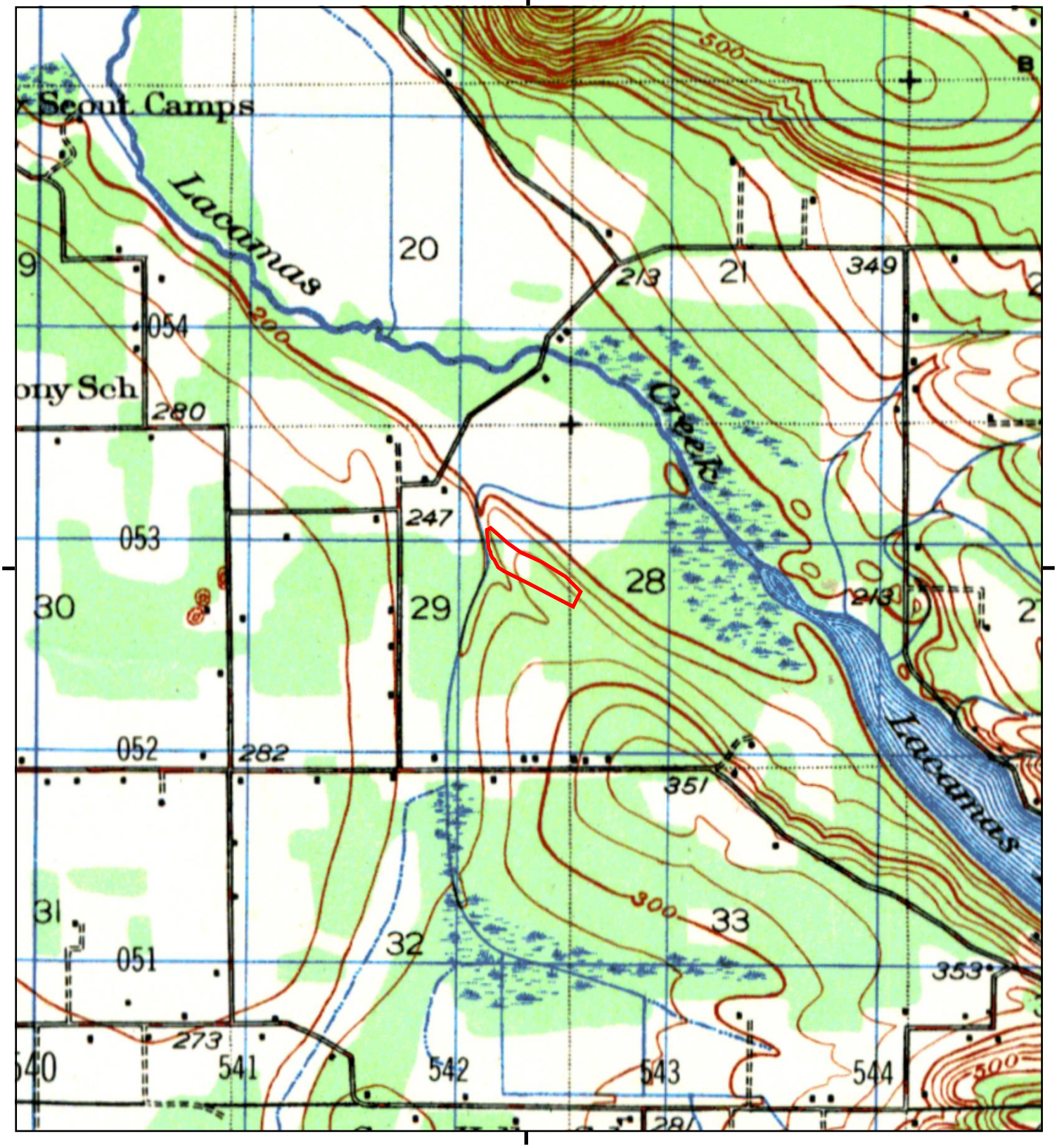
SITE NAME: Camas Meadows Sub
ADDRESS: 4615 NW Camas Meadows Drive
Camas, WA 98607
CLIENT: Geopacific Engineering

N

EDR

Historical Topo Map

1945



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, CAMAS, 1945, 15-minute

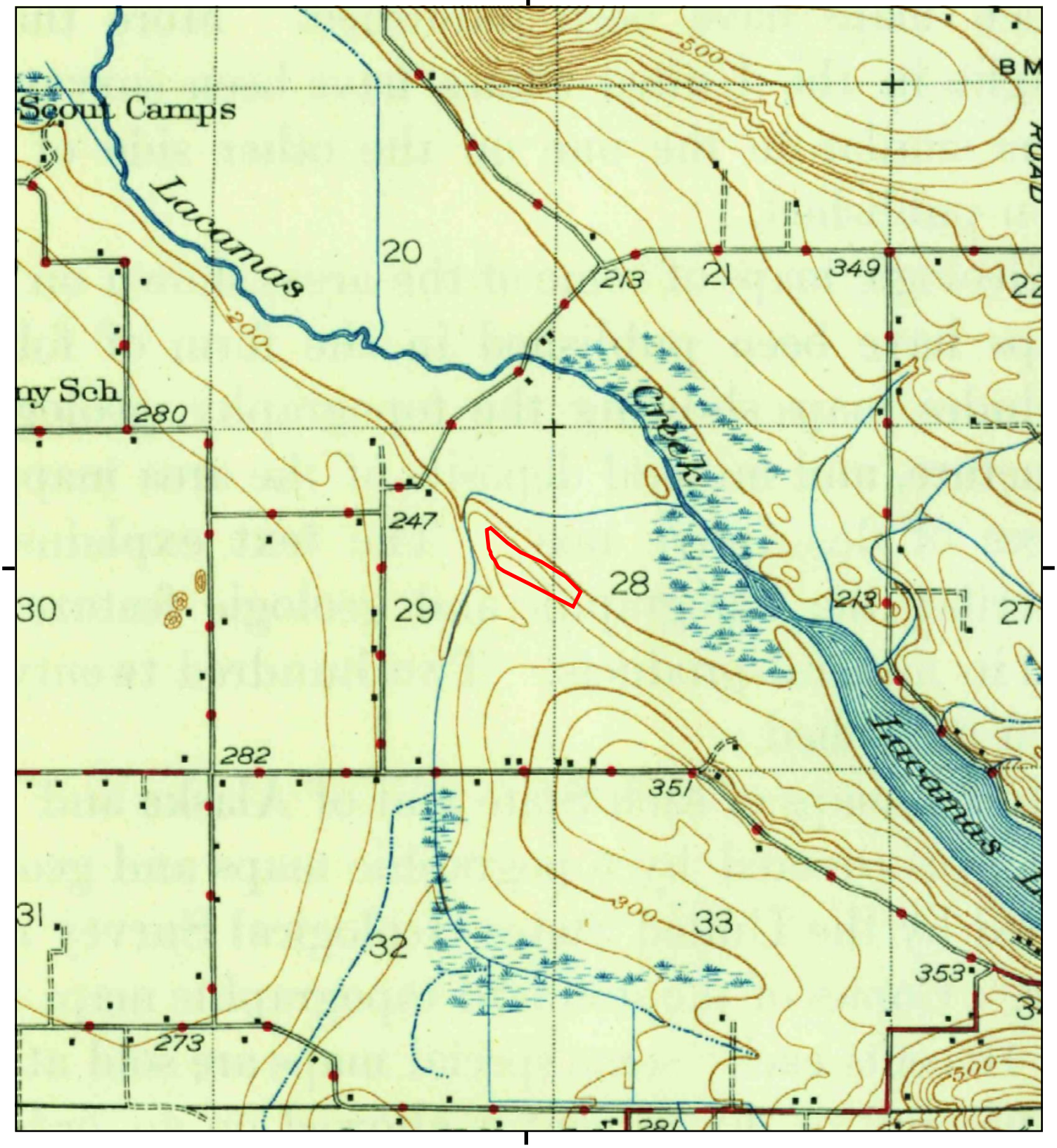
SITE NAME: Camas Meadows Sub
ADDRESS: 4615 NW Camas Meadows Drive
Camas, WA 98607
CLIENT: Geopacific Engineering

N

EDR

Historical Topo Map

1942



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Camas, 1942, 15-minute

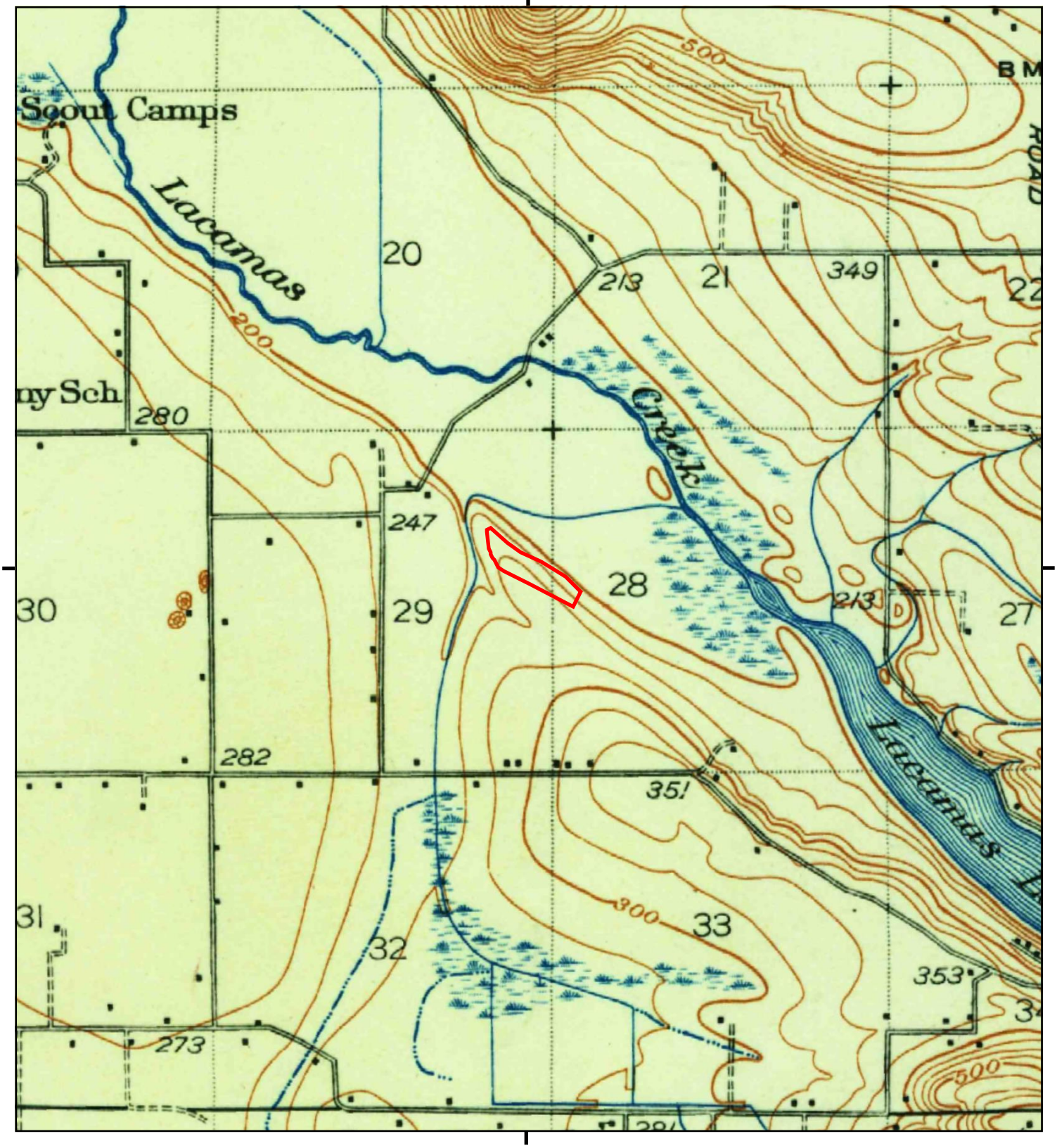
SITE NAME: Camas Meadows Sub
ADDRESS: 4615 NW Camas Meadows Drive
Camas, WA 98607
CLIENT: Geopacific Engineering

N

EDR

Historical Topo Map

1941



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Camas, 1941, 15-minute

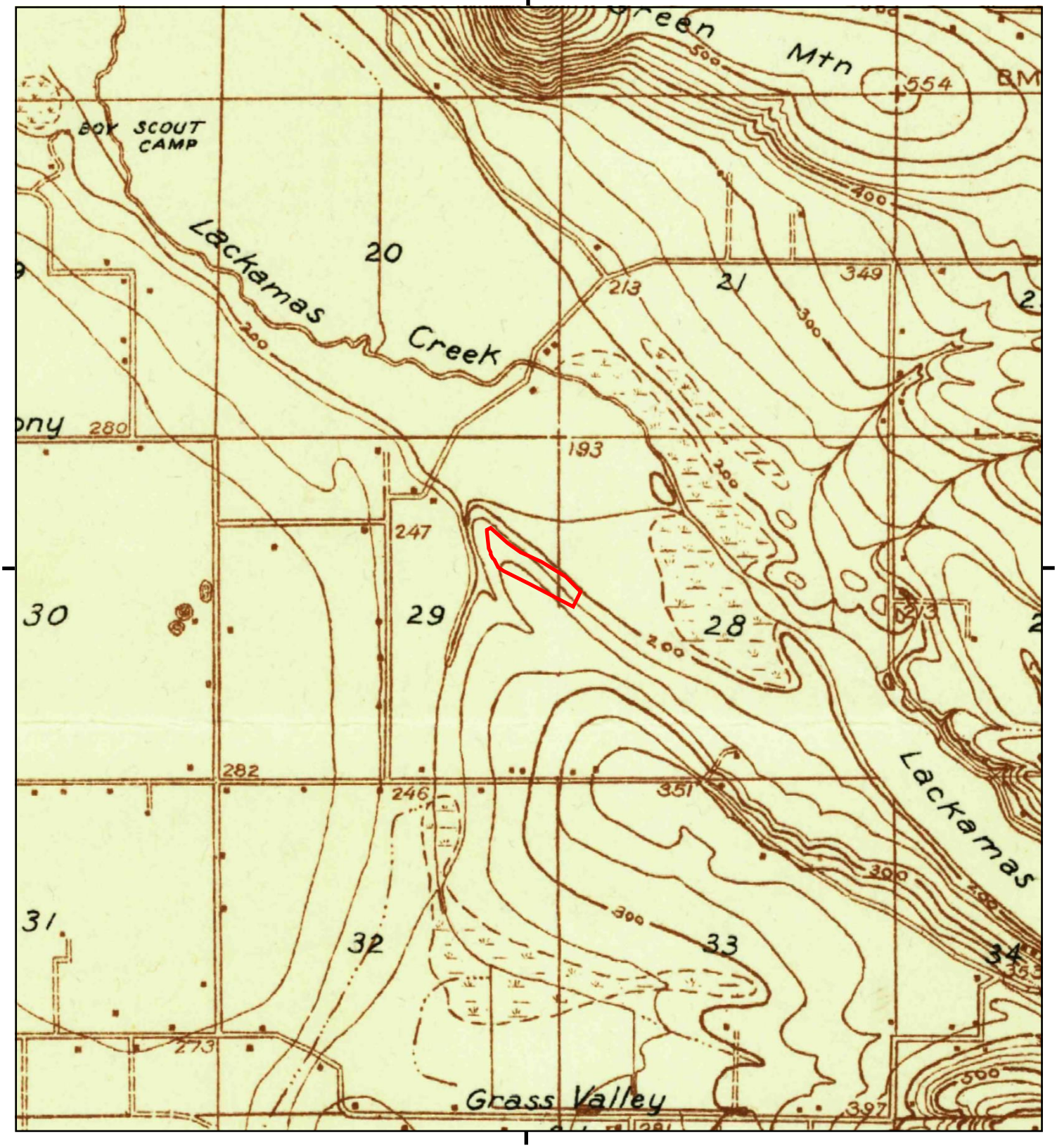
SITE NAME: Camas Meadows Sub
ADDRESS: 4615 NW Camas Meadows Drive
Camas, WA 98607
CLIENT: Geopacific Engineering

N

EDR

Historical Topo Map

1934



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Troutdale, 1934, 15-minute

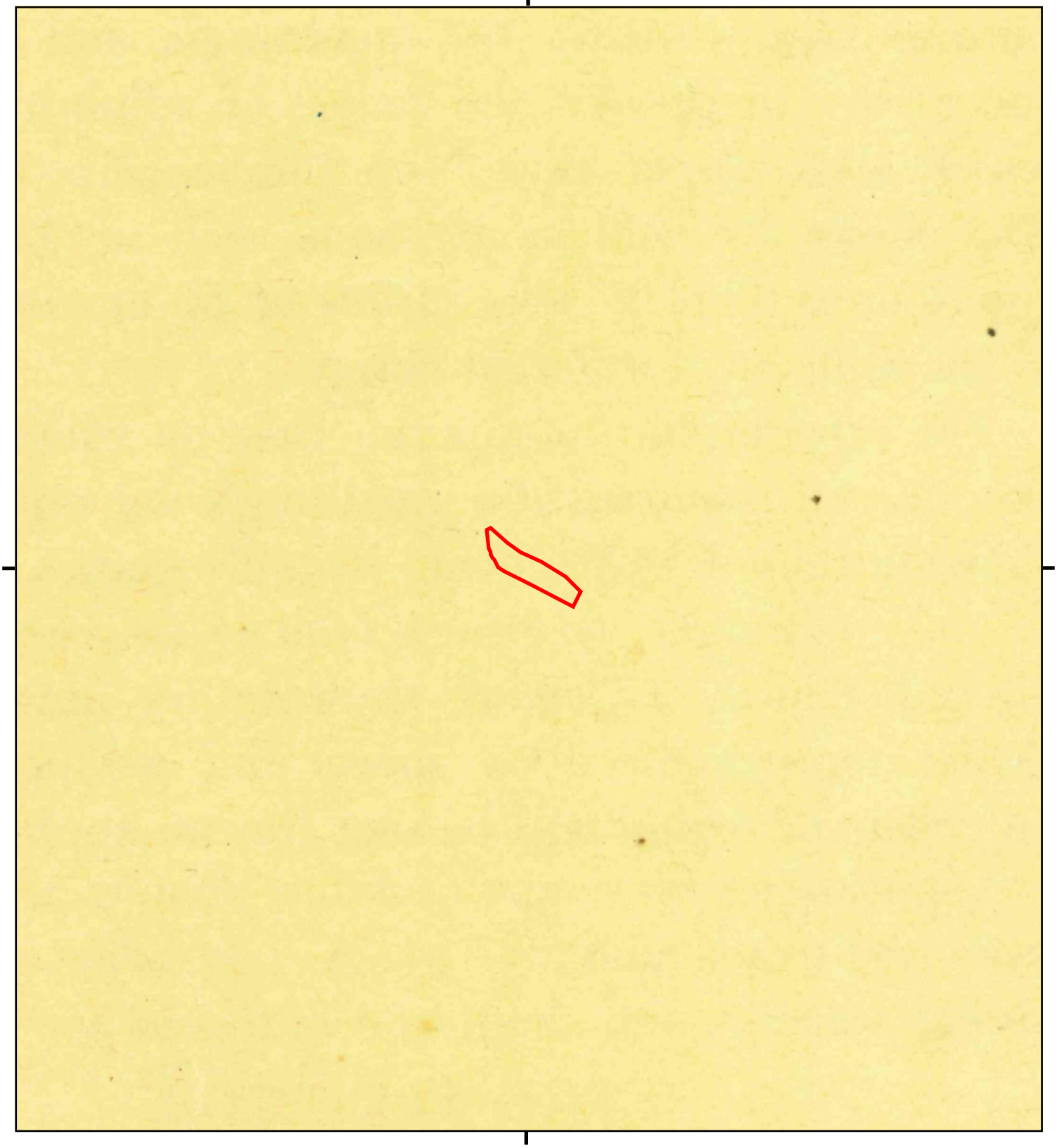
SITE NAME: Camas Meadows Sub
ADDRESS: 4615 NW Camas Meadows Drive
Camas, WA 98607
CLIENT: Geopacific Engineering

N

EDR

Historical Topo Map

1918



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Troutdale, 1918, 15-minute

SITE NAME: Camas Meadows Sub
ADDRESS: 4615 NW Camas Meadows Drive
Camas, WA 98607
CLIENT: Geopacific Engineering

N

Camas Meadows Sub

4615 NW Camas Meadows Drive

Camas, WA 98607

Inquiry Number: 6759499.8

November 19, 2021

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

11/19/21

Site Name:

Camas Meadows Sub
4615 NW Camas Meadows Dri
Camas, WA 98607
EDR Inquiry # 6759499.8

Client Name:

Geopacific Engineering
14835 SW 72nd Ave
Tigard, OR 97224
Contact: Stephen Morris

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

Search Results:

Year	*Scale*	*Details*	*Source*
2017	1"=500'	Flight Year: 2017	USDA/NAIP
2013	1"=500'	Flight Year: 2013	USDA/NAIP
2009	1"=500'	Flight Year: 2009	USDA/NAIP
2006	1"=500'	Flight Year: 2006	USDA/NAIP
2001	1"=500'	Flight Date: July 13, 2001	USGS
1990	1"=500'	Acquisition Date: July 15, 1990	USGS/DOQQ
1981	1"=500'	Flight Date: August 06, 1981	USDA
1975	1"=500'	Flight Date: September 19, 1975	USGS
1970	1"=500'	Flight Date: July 08, 1970	USGS
1960	1"=500'	Flight Date: July 18, 1960	USGS
1951	1"=500'	Flight Date: October 25, 1951	USGS
1939	1"=500'	Flight Date: May 11, 1939	ACOE
1935	1"=500'	Flight Date: January 01, 1935	ACOE

When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.


INQUIRY #: 6759499.8
YEAR: 2017
= 500'
N
EDR

INQUIRY #: 6759499.8

YEAR: 2013

= 500'

N

EDR


INQUIRY #: 6759499.8
YEAR: 2009
= 500'
N
EDR


INQUIRY #: 6759499.8
YEAR: 2006
= 500'
N
EDR

[redacted]

INQUIRY #: 6759499.8

YEAR: 2001

= 500'

N

EDR

INQUIRY #: 6759499.8

YEAR: 1990

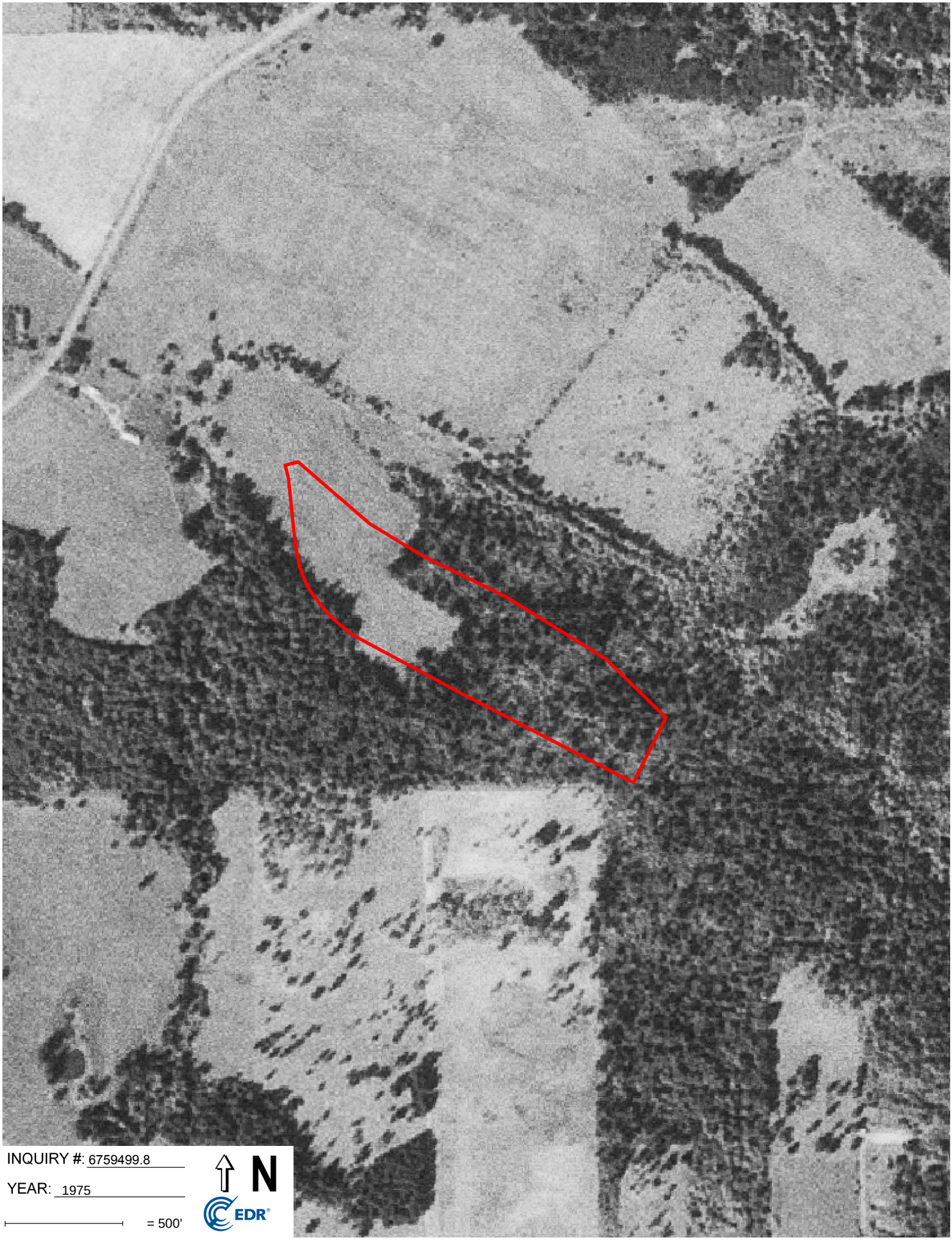
= 500'

N

EDR

Subject boundary not shown because it exceeds image extent or image is not georeferenced.


INQUIRY #: 6759499.8
YEAR: 1981
= 500'
N
EDR


INQUIRY #: 6759499.8
YEAR: 1975
= 500'
N
EDR


INQUIRY #: 6759499.8
YEAR: 1970
= 500'
N
EDR


INQUIRY #: 6759499.8
YEAR: 1960
= 500'
N
EDR


INQUIRY #: 6759499.8
YEAR: 1951
= 500'
N
EDR

INQUIRY #: 6759499.8

YEAR: 1939

= 500'

N

EDR


INQUIRY #: 6759499.8
YEAR: 1935
= 500'
N
EDR

Camas Meadows Sub
4615 NW Camas Meadows Drive
Camas, WA 98607

Inquiry Number: 6759499.2s
November 23, 2021

EDR Summary Radius Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E1527-21), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

4615 NW CAMAS MEADOWS DRIVE
CAMAS, WA 98607

COORDINATES

Latitude (North):	45.6301700 - 45ˆ 37' 48.61''
Longitude (West):	122.4569650 - 122ˆ 27' 25.07''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	542329.0
UTM Y (Meters):	5052884.0
Elevation:	248 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property:	TP
Source:	U.S. Geological Survey

Target Property:	S
Source:	U.S. Geological Survey

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20150728
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
4615 NW CAMAS MEADOWS DRIVE
CAMAS, WA 98607

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
1	THE LOFTS AT CAMAS M	4525 NW CAMAS MEADOW	ALLSITES		TP
2	LOFTS AT CAMAS MEADO	2545 NW CAMAS MEADOW	ALLSITES	Lower	1 ft.
3	THE BARRETT BUILDING	4910 NW CAMAS MEADOW	ALLSITES	Lower	371, 0.070, NW
4	PAYNE MEADOWS	CAMAS MEADOWS DR & P	ALLSITES	Lower	773, 0.146, SE
A5	THE VILLAGE AT CAMAS		ALLSITES	Lower	1120, 0.212, ESE
A6	THE VILLAGE AT CAMAS	NW MCMASTER DR & NW	ALLSITES, NPDES	Lower	1120, 0.212, ESE
A7	VILLAGE AT CAMAS MEA		ALLSITES, NPDES	Lower	1127, 0.213, ESE
8	PARKLANDS AT CAMAS M		ALLSITES	Lower	1555, 0.295, ESE
9	2 CREEKS AT CAMAS ME		ALLSITES	Lower	1699, 0.322, NE
10	CAMAS PROFESSIONAL B	3517 NW CAMAS MEADOW	ALLSITES, NPDES	Lower	1968, 0.373, ESE
11	NW FRIBERG STREET NE	NW FRIBERG ST	ALLSITES	Higher	2054, 0.389, WSW
12	LARKSPUR SUBDIVISION	6215 NW LARKSPUR ST	ALLSITES, NPDES	Higher	2192, 0.415, SE
13	CAMAS MEADOWS BUSINE	NW CAMAS MEADOW DR	ALLSITES	Higher	2311, 0.438, WSW
14	SAMSON SPORTS PHASE	4325 NW LAKE RD	ALLSITES	Higher	2519, 0.477, SSE
B15	GREEN MOUNTAIN PH2 G		ALLSITES	Lower	2574, 0.488, North
16	LARKSPUR STREET IMPR		ALLSITES	Higher	2577, 0.488, SE
B17	GREEN MOUNTAIN PH2 G		ALLSITES	Lower	2588, 0.490, North
18	NW LAKE ROAD SE 1ST		ALLSITES	Lower	2639, 0.500, SSW

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was identified in the following records. For more information on this property see page 8 of the attached EDR Radius Map report:

Site	Database(s)	EPA ID
THE LOFTS AT CAMAS M 4525 NW CAMAS MEADOW CAMAS, WA 98607	ALLSITES Facility Id: 17043	N/A

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.
ALLSITES: A review of the ALLSITES list, as provided by EDR, and dated 07/30/2021 has revealed that there are 17 ALLSITES sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
NW FRIBERG STREET NE Facility Id: 20592	NW FRIBERG ST	WSW 1/4 - 1/2 (0.389 mi.)	11	10
LARKSPUR SUBDIVISION Facility Id: 38893	***6215 NW LARKSPUR ST***	***SE 1/4 - 1/2 (0.415 mi.)***	***12***	***10***
CAMAS MEADOWS BUSINE Facility Id: 13738	NW CAMAS MEADOW DR	WSW 1/4 - 1/2 (0.438 mi.)	13	10
SAMSON SPORTS PHASE Facility Id: 15530	4325 NW LAKE RD	SSE 1/4 - 1/2 (0.477 mi.)	14	11
LARKSPUR STREET IMPR Facility Id: 29648		SE 1/4 - 1/2 (0.488 mi.)	16	11

Lower Elevation	Address	Direction / Distance	Map ID	Page
LOFTS AT CAMAS MEADO Facility Id: 4744	2545 NW CAMAS MEADOW	0 - 1/8 (0.000 mi.)	2	8
THE BARRETT BUILDING Facility Id: 7093	4910 NW CAMAS MEADOW	NW 0 - 1/8 (0.070 mi.)	3	8
PAYNE MEADOWS Facility Id: 3610	CAMAS MEADOWS DR & P	SE 1/8 - 1/4 (0.146 mi.)	4	8
THE VILLAGE AT CAMAS		ESE 1/8 - 1/4 (0.212 mi.)	A5	8

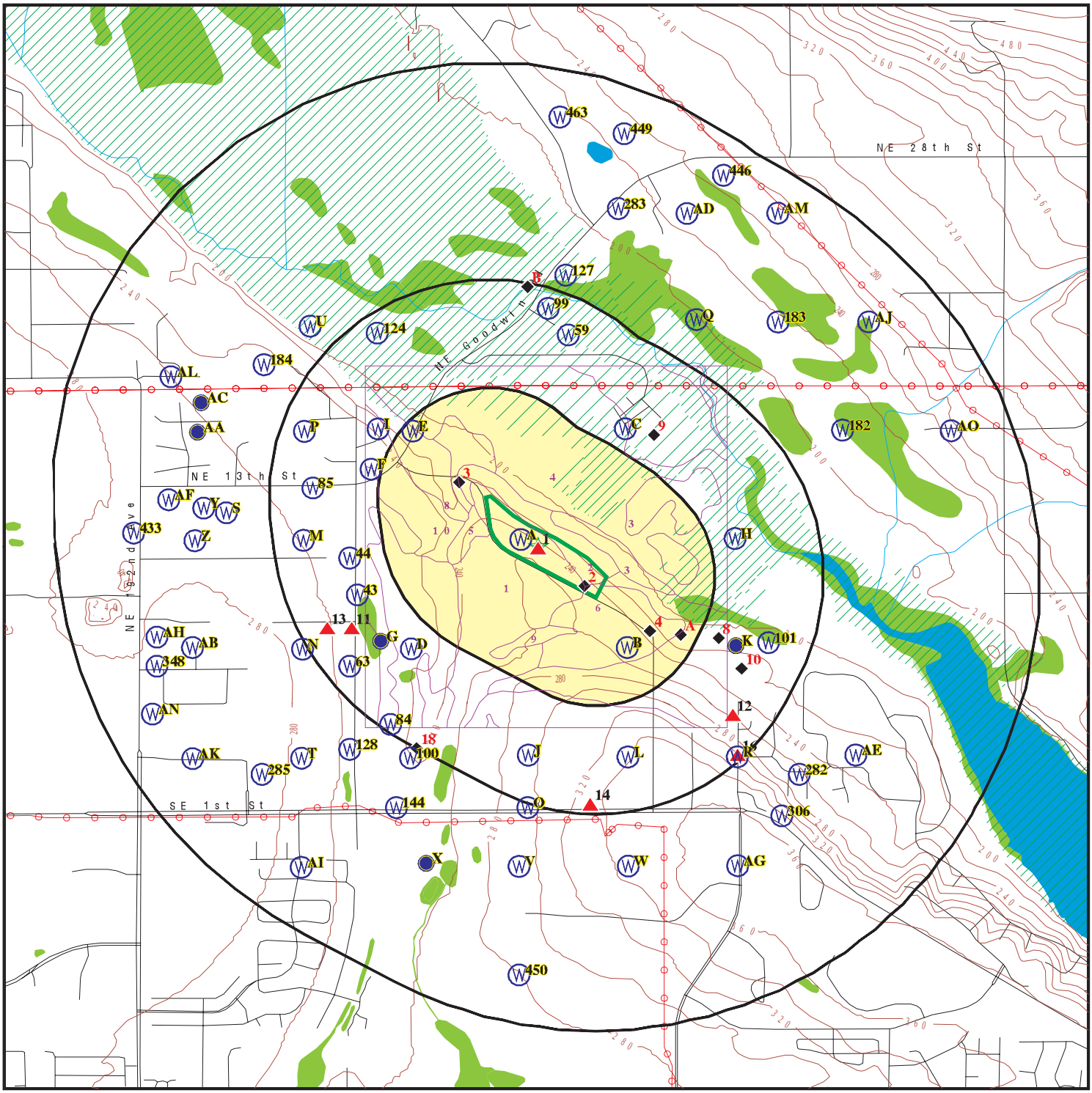
EXECUTIVE SUMMARY

Facility Id: 10690				
THE VILLAGE AT CAMAS Facility Id: 42995	***NW MCMASTER DR & NW***	***ESE 1/8 - 1/4 (0.212 mi.)***	***A6***	***9***
VILLAGE AT CAMAS MEA Facility Id: 74794		***ESE 1/8 - 1/4 (0.213 mi.)***	***A7***	***9***
PARKLANDS AT CAMAS M Facility Id: 14114		ESE 1/4 - 1/2 (0.295 mi.)	8	9
2 CREEKS AT CAMAS ME Facility Id: 8579		NE 1/4 - 1/2 (0.322 mi.)	9	9
CAMAS PROFESSIONAL B Facility Id: 25062	***3517 NW CAMAS MEADOW***	***ESE 1/4 - 1/2 (0.373 mi.)***	***10***	***10***
GREEN MOUNTAIN PH2 G Facility Id: 89294		N 1/4 - 1/2 (0.488 mi.)	B15	11
GREEN MOUNTAIN PH2 G Facility Id: 58687		N 1/4 - 1/2 (0.490 mi.)	B17	11
NW LAKE ROAD SE 1ST Facility Id: 17012		SSW 1/4 - 1/2 (0.500 mi.)	18	11

Count: 2 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
CAMAS	1023202267	LOFTS AT CAMAS MEADOWS	2545 NW CAMAS MEADOWS DRIVE	98607	FINDS
CAMAS	1016703401	CAMAS MEADOWS BUSINESS PARK	NW CAMAS MEADOW DR	98607	FINDS

OVERVIEW MAP - 6759499.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites

0 1/4 1/2 1 Miles

Indian Reservations BIA

Power transmission lines

Special Flood Hazard Area (1%)

0.2% Annual Chance Flood Hazard

National Wetland Inventory

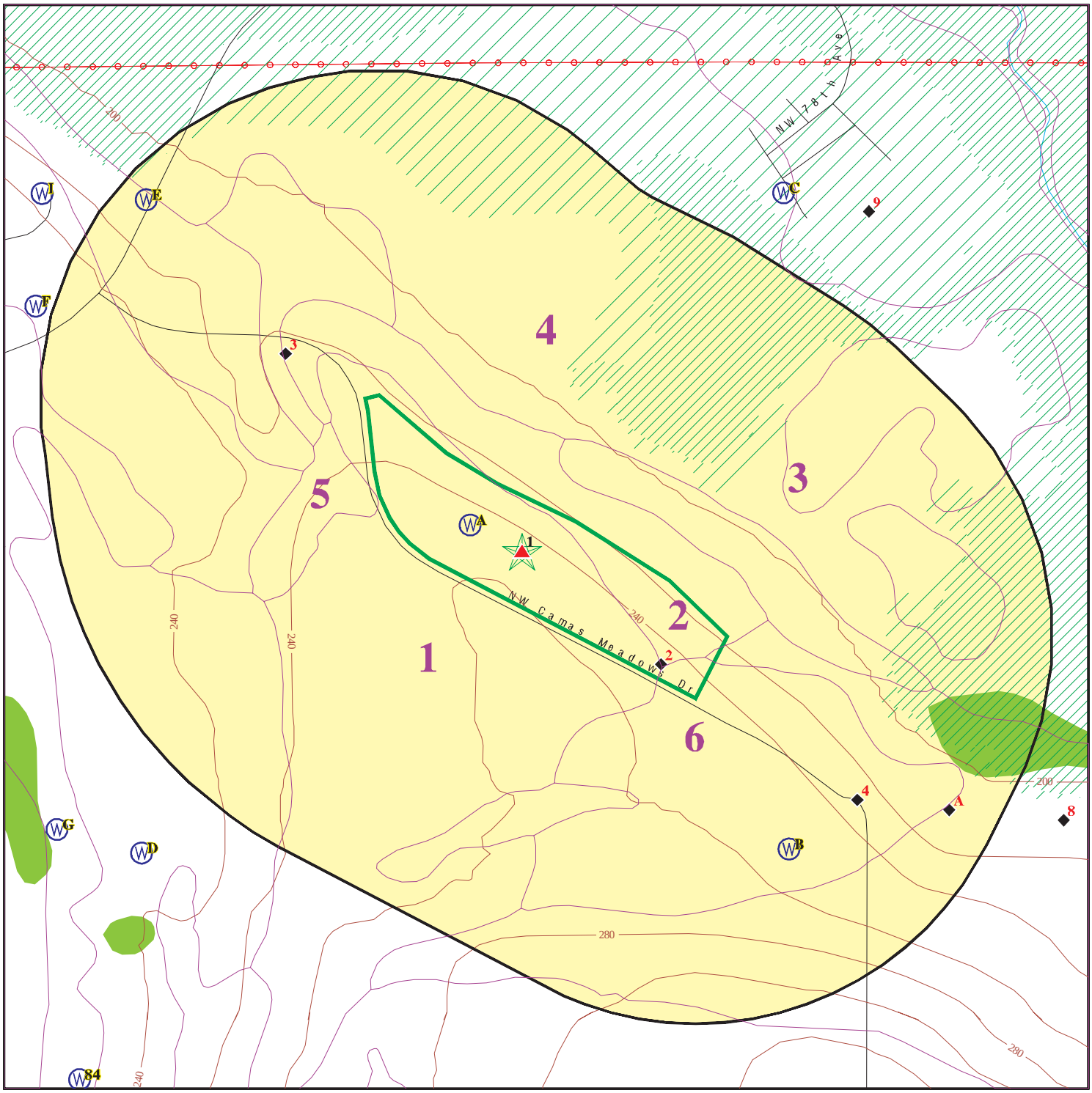
State Wetlands

N

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	Camas Meadows Sub	CLIENT:	Geopacific Engineering
ADDRESS:	4615 NW Camas Meadows Drive Camas WA 98607	CONTACT:	Stephen Morris
LAT/LONG:	45.63017 / 122.456965	INQUIRY #:	6759499.2s
		DATE:	November 23, 2021 2:57 pm

DETAIL MAP - 6759499.2S



Target Property
Sites at elevations higher than or equal to the target property
Sites at elevations lower than the target property
Manufactured Gas Plants
Sensitive Receptors
National Priority List Sites
Dept. Defense Sites

0 1/16 1/8 1/4 Miles

Indian Reservations BIA
Power transmission lines
Special Flood Hazard Area (1%)
0.2% Annual Chance Flood Hazard
National Wetland Inventory
State Wetlands

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	Camas Meadows Sub	CLIENT:	Geopacific Engineering
ADDRESS:	4615 NW Camas Meadows Drive Camas WA 98607	CONTACT:	Stephen Morris
LAT/LONG:	45.63017 / 122.456965	INQUIRY #:	6759499.2s
		DATE:	November 23, 2021 2:59 pm

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Lists of Federal NPL (Superfund) sites								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	1.000		0	0	0	0	NR	0
Lists of Federal Delisted NPL sites								
Delisted NPL	1.000		0	0	0	0	NR	0
Lists of Federal sites subject to CERCLA removals and CERCLA orders								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Lists of Federal CERCLA sites with NFRAP								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA facilities undergoing Corrective Action								
CORRACTS	1.000		0	0	0	0	NR	0
Lists of Federal RCRA TSD facilities								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA generators								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-VSQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROLS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	0.001		0	NR	NR	NR	NR	0
Lists of state- and tribal (Superfund) equivalent sites								
HSL	1.000		0	0	0	0	NR	0
Lists of state- and tribal hazardous waste facilities								
CSCSL	1.000		0	0	0	0	NR	0
Lists of state and tribal landfills and solid waste disposal facilities								
SWF/LF	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
Lists of state and tribal leaking storage tanks								
LUST	0.500		0	0	0	NR	NR	0
INDIAN LUST	0.500		0	0	0	NR	NR	0
Lists of state and tribal registered storage tanks								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal institutional control / engineering control registries								
INST CONTROL	0.500		0	0	0	NR	NR	0
Lists of state and tribal voluntary cleanup sites								
ICR	0.500		0	0	0	NR	NR	0
VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
PTAP	0.500		0	0	0	NR	NR	0
Lists of state and tribal brownfield sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
SWRCY	0.500		0	0	0	NR	NR	0
SWTIRE	0.500		0	0	0	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	0.001		0	NR	NR	NR	NR	0
ALLSITES	0.500	1	2	4	11	NR	NR	18
CDL	0.001		0	NR	NR	NR	NR	0
HIST CDL	0.001		0	NR	NR	NR	NR	0
CSCSL NFA	0.500		0	0	0	NR	NR	0
US CDL	0.001		0	NR	NR	NR	NR	0
PFAS	0.500		0	0	0	NR	NR	0
AQUEOUS FOAM	0.500		0	0	0	NR	NR	0
Local Land Records								
LIENS 2	0.001		0	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0
SPILLS	0.001		0	NR	NR	NR	NR	0
SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
TRIS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	0.001		0	NR	NR	NR	NR	0
ECHO	0.001		0	NR	NR	NR	NR	0
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
AIRS	0.001		0	NR	NR	NR	NR	0
ASBESTOS	0.001		0	NR	NR	NR	NR	0
COAL ASH	0.500		0	0	0	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
Financial Assurance	0.001		0	NR	NR	NR	NR	0
Inactive Drycleaners	0.250		0	0	NR	NR	NR	0
MANIFEST	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
NPDES	0.001		0	NR	NR	NR	NR	0
UIC	0.001		0	NR	NR	NR	NR	0
MINES MRDS	0.001		0	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA HWS	0.001		0	NR	NR	NR	NR	0
RGA LF	0.001		0	NR	NR	NR	NR	0
RGA LUST	0.001		0	NR	NR	NR	NR	0
- Totals --		1	2	4	11	0	0	18

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

MAP FINDINGS

Map ID / Direction / Distance / Elevation	Site	Database(s)	EDR ID Number / EPA ID Number
1 **Target Property**	**THE LOFTS AT CAMAS MEADOWS** **4525 NW CAMAS MEADOWS DRIVE** **CAMAS, WA 98607**	**ALLSITES**	**S118955285** **N/A**
Actual: **248 ft.**	**ALLSITES** Click here for full text details Facility Id 17043		
2 **< 1/8** **1 ft.**	**LOFTS AT CAMAS MEADOWS** **2545 NW CAMAS MEADOWS DRIVE** **CAMAS, WA 98607**	**ALLSITES**	**S118345091** **N/A**
Relative: **Lower**	Click here for full text details **ALLSITES** Facility Id 4744		
3 **NW** **< 1/8** **0.070 mi.** **371 ft.**	**THE BARRETT BUILDING** **4910 NW CAMAS MEADOWS DR** **CAMAS, WA 98607**	**ALLSITES**	**S111101784** **N/A**
Relative: **Lower**	Click here for full text details **ALLSITES** Facility Id 7093		
4 **SE** **1/8-1/4** **0.146 mi.** **773 ft.**	**PAYNE MEADOWS** **CAMAS MEADOWS DR & PAYNE RD** **CAMAS, WA 98607**	**ALLSITES**	**S116753642** **N/A**
Relative: **Lower**	Click here for full text details **ALLSITES** Facility Id 3610		
A5 **ESE** **1/8-1/4** **0.212 mi.** **1120 ft.**	**THE VILLAGE AT CAMAS MEADOWS** **CAMAS, WA 98607**	**ALLSITES**	**S118820788** **N/A**
Relative: **Lower**	Click here for full text details **ALLSITES** Facility Id 10690		

MAP FINDINGS

Map ID / Direction / Distance / Elevation	Site	Database(s)	EDR ID Number / EPA ID Number
A6 **ESE** **1/8-1/4** **0.212 mi.** **1120 ft.** **Relative: Lower**	**THE VILLAGE AT CAMAS MEADOWS HSR CAPITAL** **NW MCMASTER DR & NW CAMAS MEADOWS DR** **CAMAS, WA 98607** Click here for full text details **ALLSITES** Facility Id 42995 **NPDES** Permit ID WAR308903	**ALLSITES** **NPDES**	**S126107756** **N/A**
A7 **ESE** **1/8-1/4** **0.213 mi.** **1127 ft.** **Relative: Lower**	**VILLAGE AT CAMAS MEADOWS PHASE 2** **CAMAS, WA 98607** Click here for full text details **ALLSITES** Facility Id 74794 **NPDES** Permit ID WAR308485	**ALLSITES** **NPDES**	**S125442737** **N/A**
8 **ESE** **1/4-1/2** **0.295 mi.** **1555 ft.** **Relative: Lower**	**PARKLANDS AT CAMAS MEADOWS LLC** **CAMAS, WA 98607** Click here for full text details **ALLSITES** Facility Id 14114	**ALLSITES**	**S118820881** **N/A**
9 **NE** **1/4-1/2** **0.322 mi.** **1699 ft.** **Relative: Lower**	**2 CREEKS AT CAMAS MEADOWS** **CAMAS, WA 98607** Click here for full text details **ALLSITES** Facility Id 8579	**ALLSITES**	**S119162632** **N/A**

MAP FINDINGS

Map ID Direction Distance Elevation	Site	Database(s)	EDR ID Number EPA ID Number
10 **ESE** **1/4-1/2** **0.373 mi.** **1968 ft.** **Relative:** **Lower**	**CAMAS PROFESSIONAL BUILDING** **3517 NW CAMAS MEADOWS DR** **CAMAS, WA 98607** Click here for full text details **ALLSITES** Facility Id 25062 **NPDES** Permit ID WAR309958	**ALLSITES** **NPDES**	**S127350209** **N/A**
11 **WSW** **1/4-1/2** **0.389 mi.** **2054 ft.** **Relative:** **Higher**	**NW FRIBERG STREET NE GOODWIN ROAD** **NW FRIBERG ST** **CAMAS, WA 98607** Click here for full text details **ALLSITES** Facility Id 20592	**ALLSITES**	**S118640814** **N/A**
12 **SE** **1/4-1/2** **0.415 mi.** **2192 ft.** **Relative:** **Higher**	**LARKSPUR SUBDIVISION** **6215 NW LARKSPUR ST** **CAMAS, WA 98607** Click here for full text details **ALLSITES** Facility Id 38893 **NPDES** Permit ID WAR308484	**ALLSITES** **NPDES**	**S125442635** **N/A**
13 **WSW** **1/4-1/2** **0.438 mi.** **2311 ft.** **Relative:** **Higher**	**CAMAS MEADOWS BUSINESS PARK** **NW CAMAS MEADOW DR** **CAMAS, WA 98607** Click here for full text details **ALLSITES** Facility Id 13738	**ALLSITES**	**S110036606** **N/A**

MAP FINDINGS

Map ID / Direction / Distance / Elevation	Site	Database(s)	EDR ID Number / EPA ID Number
14 **SSE** **1/4-1/2** **0.477 mi.** **2519 ft.** **Relative: Higher**	**SAMSON SPORTS PHASE 2** **4325 NW LAKE RD** **CAMAS, WA 98607** Click here for full text details **ALLSITES** Facility Id 15530	**ALLSITES**	**S117804717** **N/A**
B15 **North** **1/4-1/2** **0.488 mi.** **2574 ft.** **Relative: Lower**	**GREEN MOUNTAIN PH2 G&H NORTH AREA CLB** **CAMAS, WA 98607** Click here for full text details **ALLSITES** Facility Id 89294	**ALLSITES**	**S123790335** **N/A**
16 **SE** **1/4-1/2** **0.488 mi.** **2577 ft.** **Relative: Higher**	**LARKSPUR STREET IMPROVEMENTS** **CAMAS, WA 98607** Click here for full text details **ALLSITES** Facility Id 29648	**ALLSITES**	**S122511520** **N/A**
B17 **North** **1/4-1/2** **0.490 mi.** **2588 ft.** **Relative: Lower**	**GREEN MOUNTAIN PH2 G NORTH AREA DR** **CAMAS, WA 98607** Click here for full text details **ALLSITES** Facility Id 58687	**ALLSITES**	**S126978646** **N/A**
18 **SSW** **1/4-1/2** **0.500 mi.** **2639 ft.** **Relative: Lower**	**NW LAKE ROAD SE 1ST ST ROAD IMPROVEMENTS WETLAND M** **CAMAS, WA** Click here for full text details **ALLSITES** Facility Id 17012	**ALLSITES**	**S118640731** **N/A**

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
WA	AIRS (EMI)	Washington Emissions Data System	Department of Ecology	12/31/2019	04/14/2021	06/29/2021
WA	ALLSITES	Facility/Site Identification System Listing	Department of Ecology	07/30/2021	08/03/2021	10/29/2021
WA	AQUEOUS FOAM	Firefighting Foam Incidents	Department of Ecology	07/01/2021	07/02/2021	09/29/2021
WA	ASBESTOS	Asbestos Notification Listing	Department of Labor & Industries	12/02/2020	12/03/2020	12/11/2020
WA	AST	Aboveground Storage Tank Locations	Department of Ecology	12/14/2015	02/02/2016	05/03/2016
WA	BROWNFIELDS	Brownfields Sites Listing	Department of Ecology	07/12/2021	07/13/2021	10/04/2021
WA	CDL	Clandestine Drug Lab Contaminated Site List	Department of Health	07/28/2021	07/28/2021	07/30/2021
WA	COAL ASH	Coal Ash Disposal Site Listing	Department of Ecology	06/03/2021	07/07/2021	09/28/2021
WA	CSCSL	Confirmed and Suspected Contaminated Sites List	Department of Ecology	07/12/2021	07/13/2021	10/04/2021
WA	CSCSL NFA	Confirmed and Contaminated Sites - No Further Action	Department of Ecology	07/12/2021	07/13/2021	10/04/2021
WA	DRYCLEANERS	Drycleaner List	Department of Ecology	07/19/2021	07/20/2021	10/12/2021
WA	Financial Assurance 1	Financial Assurance Information Listing	Department of Ecology	08/23/2021	08/24/2021	11/16/2021
WA	Financial Assurance 2	Financial Assurance Information Listing	Department of Ecology	08/18/2021	08/18/2021	11/12/2021
WA	Financial Assurance 3	Financial Assurance Information Listing	Department of Ecology	11/15/2017	11/20/2017	01/04/2018
WA	HIST CDL	List of Sites Contaminated by Clandestine Drug Labs	Department of Health	02/08/2007	06/26/2007	07/19/2007
WA	HSL	Hazardous Sites List	Department of Ecology	02/24/2021	03/04/2021	05/24/2021
WA	ICR	Independent Cleanup Reports	Department of Ecology	12/01/2002	01/03/2003	01/22/2003
WA	INACTIVE DRYCLEANERS	Inactive Drycleaners	Department of Ecology	07/19/2021	07/20/2021	10/12/2021
WA	INST CONTROL	Institutional Control Site List	Department of Ecology	07/12/2021	07/13/2021	10/04/2021
WA	LUST	Leaking Underground Storage Tanks Site List	Department of Ecology	08/09/2021	08/11/2021	11/05/2021
WA	NPDES	Water Quality Permit System Data	Department of Ecology	07/07/2021	07/14/2021	10/06/2021
WA	PFAS	PFAS Contamination Site Location Listing	Department of Ecology	07/13/2021	07/15/2021	10/06/2021
WA	PTAP	PTAP Site Listing	Department of Ecology	07/30/2021	07/30/2021	08/02/2021
WA	RGA HWS	Recovered Government Archive State Hazardous Waste Facilitie	Department of Ecology		07/01/2013	12/24/2013
WA	RGA LF	Recovered Government Archive Solid Waste Facilities List	Department of Ecology		07/01/2013	01/10/2014
WA	RGA LUST	Recovered Government Archive Leaking Underground Storage Tan	Department of Ecology		07/01/2013	12/24/2013
WA	SPILLS	Reported Spills	Department of Ecology	05/26/2021	06/02/2021	06/04/2021
WA	SPILLS 90	SPILLS90 data from FirstSearch	FirstSearch	05/23/2006	01/03/2013	03/06/2013
WA	SWF/LF	Solid Waste Facility Database	Department of Ecology	06/03/2021	07/07/2021	09/28/2021
WA	SWRCY	Recycling Facility List	Department of Ecology	05/19/2021	05/27/2021	08/19/2021
WA	SWTIRE	Solid Waste Tire Facilities	Department of Ecology	11/01/2005	03/16/2006	04/13/2006
WA	SWTIRE 2	Solid Waste Tire Facilities 2	Department of Ecology	03/04/2021	03/05/2021	05/26/2021
WA	UIC	Underground Injection Wells Listing	Department of Ecology	01/12/2021	01/13/2021	04/05/2021
WA	UST	Underground Storage Tank Database	Department of Ecology	08/09/2021	08/11/2021	11/05/2021
WA	VCP	Voluntary Cleanup Program Sites	Department of Ecology	07/12/2021	07/13/2021	10/06/2021
WA	WA MANIFEST	Hazardous Waste Manifest Data	Department of Ecology	12/31/2019	07/24/2020	10/13/2020
US	2020 COR ACTION	2020 Corrective Action Program List	Environmental Protection Agency	09/30/2017	05/08/2018	07/20/2018
US	ABANDONED MINES	Abandoned Mines	Department of Interior	06/15/2021	06/16/2021	08/17/2021
US	BRS	Biennial Reporting System	EPA/NTIS	12/31/2017	06/22/2020	11/20/2020
US	COAL ASH DOE	Steam-Electric Plant Operation Data	Department of Energy	12/31/2019	12/01/2020	02/09/2021
US	COAL ASH EPA	Coal Combustion Residues Surface Impoundments List	Environmental Protection Agency	01/12/2017	03/05/2019	11/11/2019
US	CONSENT	Superfund (CERCLA) Consent Decrees	Department of Justice, Consent Decree Library	06/30/2021	07/14/2021	07/16/2021
US	CORRACTS	Corrective Action Report	EPA	09/13/2021	09/15/2021	10/12/2021
US	DEBRIS REGION 9	Torres Martinez Reservation Illegal Dump Site Locations	EPA, Region 9	01/12/2009	05/07/2009	09/21/2009
US	DOCKET HWC	Hazardous Waste Compliance Docket Listing	Environmental Protection Agency	05/06/2021	05/21/2021	08/11/2021
US	DOD	Department of Defense Sites	USGS	12/31/2005	11/10/2006	01/11/2007
US	DOT OPS	Incident and Accident Data	Department of Transporation, Office of Pipeli	01/02/2020	01/28/2020	04/17/2020

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
US	Delisted NPL	National Priority List Deletions	EPA	07/29/2021	08/04/2021	08/31/2021
US	ECHO	Enforcement & Compliance History Information	Environmental Protection Agency	06/26/2021	07/01/2021	09/28/2021
US	EDR Hist Auto	EDR Exclusive Historical Auto Stations	EDR, Inc.			
US	EDR Hist Cleaner	EDR Exclusive Historical Cleaners	EDR, Inc.			
US	EDR MGP	EDR Proprietary Manufactured Gas Plants	EDR, Inc.			
US	EPA WATCH LIST	EPA WATCH LIST	Environmental Protection Agency	08/30/2013	03/21/2014	06/17/2014
US	ERNS	Emergency Response Notification System	National Response Center, United States Coast	06/14/2021	06/17/2021	08/17/2021
US	FEDERAL FACILITY	Federal Facility Site Information listing	Environmental Protection Agency	05/25/2021	06/24/2021	09/20/2021
US	FEDLAND	Federal and Indian Lands	U.S. Geological Survey	04/02/2018	04/11/2018	11/06/2019
US	FEMA UST	Underground Storage Tank Listing	FEMA	01/29/2021	02/17/2021	03/22/2021
US	FINDS	Facility Index System/Facility Registry System	EPA	05/05/2021	05/18/2021	08/17/2021
US	FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fu	EPA/Office of Prevention, Pesticides and Toxi	04/09/2009	04/16/2009	05/11/2009
US	FTTS INSP	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fu	EPA	04/09/2009	04/16/2009	05/11/2009
US	FUDS	Formerly Used Defense Sites	U.S. Army Corps of Engineers	08/10/2021	08/17/2021	10/22/2021
US	FUELS PROGRAM	EPA Fuels Program Registered Listing	EPA	08/13/2021	08/13/2021	10/22/2021
US	FUSRAP	Formerly Utilized Sites Remedial Action Program	Department of Energy	07/26/2021	07/27/2021	10/22/2021
US	HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing	Environmental Protection Agency	10/19/2006	03/01/2007	04/10/2007
US	HIST FTTS INSP	FIFRA/TSCA Tracking System Inspection & Enforcement Case Lis	Environmental Protection Agency	10/19/2006	03/01/2007	04/10/2007
US	HMIRS	Hazardous Materials Information Reporting System	U.S. Department of Transportation	09/12/2021	09/13/2021	09/28/2021
US	ICIS	Integrated Compliance Information System	Environmental Protection Agency	11/18/2016	11/23/2016	02/10/2017
US	IHS OPEN DUMPS	Open Dumps on Indian Land	Department of Health & Human Serivces, Indian	04/01/2014	08/06/2014	01/29/2015
US	INDIAN LUST R1	Leaking Underground Storage Tanks on Indian Land	EPA Region 1	04/28/2021	06/11/2021	09/07/2021
US	INDIAN LUST R10	Leaking Underground Storage Tanks on Indian Land	EPA Region 10	04/27/2021	06/11/2021	09/07/2021
US	INDIAN LUST R4	Leaking Underground Storage Tanks on Indian Land	EPA Region 4	05/28/2021	06/22/2021	09/20/2021
US	INDIAN LUST R5	Leaking Underground Storage Tanks on Indian Land	EPA, Region 5	04/06/2021	06/11/2021	09/07/2021
US	INDIAN LUST R6	Leaking Underground Storage Tanks on Indian Land	EPA Region 6	05/17/2021	06/11/2021	09/07/2021
US	INDIAN LUST R7	Leaking Underground Storage Tanks on Indian Land	EPA Region 7	06/01/2021	06/11/2021	09/07/2021
US	INDIAN LUST R8	Leaking Underground Storage Tanks on Indian Land	EPA Region 8	05/27/2021	06/11/2021	09/07/2021
US	INDIAN LUST R9	Leaking Underground Storage Tanks on Indian Land	Environmental Protection Agency	05/27/2021	06/11/2021	09/07/2021
US	INDIAN ODI	Report on the Status of Open Dumps on Indian Lands	Environmental Protection Agency	12/31/1998	12/03/2007	01/24/2008
US	INDIAN RESERV	Indian Reservations	USGS	12/31/2014	07/14/2015	01/10/2017
US	INDIAN UST R1	Underground Storage Tanks on Indian Land	EPA, Region 1	04/28/2021	06/11/2021	09/07/2021
US	INDIAN UST R10	Underground Storage Tanks on Indian Land	EPA Region 10	04/27/2021	06/11/2021	09/07/2021
US	INDIAN UST R4	Underground Storage Tanks on Indian Land	EPA Region 4	05/28/2021	06/22/2021	09/20/2021
US	INDIAN UST R5	Underground Storage Tanks on Indian Land	EPA Region 5	04/06/2021	06/11/2021	09/07/2021
US	INDIAN UST R6	Underground Storage Tanks on Indian Land	EPA Region 6	05/17/2021	06/11/2021	09/07/2021
US	INDIAN UST R7	Underground Storage Tanks on Indian Land	EPA Region 7	06/01/2021	06/11/2021	09/07/2021
US	INDIAN UST R8	Underground Storage Tanks on Indian Land	EPA Region 8	05/27/2021	06/11/2021	09/07/2021
US	INDIAN UST R9	Underground Storage Tanks on Indian Land	EPA Region 9	05/27/2021	06/11/2021	09/07/2021
US	INDIAN VCP R1	Voluntary Cleanup Priority Listing	EPA, Region 1	07/27/2015	09/29/2015	02/18/2016
US	INDIAN VCP R7	Voluntary Cleanup Priority Lisitng	EPA, Region 7	03/20/2008	04/22/2008	05/19/2008
US	LEAD SMELTER 1	Lead Smelter Sites	Environmental Protection Agency	07/29/2021	08/04/2021	08/31/2021
US	LEAD SMELTER 2	Lead Smelter Sites	American Journal of Public Health	04/05/2001	10/27/2010	12/02/2010
US	LIENS 2	CERCLA Lien Information	Environmental Protection Agency	07/29/2021	08/04/2021	08/31/2021
US	LUCIS	Land Use Control Information System	Department of the Navy	07/12/2021	08/06/2021	10/22/2021
US	MINES MRDS	Mineral Resources Data System	USGS	04/06/2018	10/21/2019	10/24/2019
US	MINES VIOLATIONS	MSHA Violation Assessment Data	DOL, Mine Safety & Health Admi	06/30/2021	07/01/2021	09/28/2021

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
US	MLTS	Material Licensing Tracking System	Nuclear Regulatory Commission	07/29/2021	08/24/2021	11/19/2021
US	NPL	National Priority List	EPA	07/29/2021	08/04/2021	08/31/2021
US	NPL LIENS	Federal Superfund Liens	EPA	10/15/1991	02/02/1994	03/30/1994
US	ODI	Open Dump Inventory	Environmental Protection Agency	06/30/1985	08/09/2004	09/17/2004
US	PADS	PCB Activity Database System	EPA	11/19/2020	01/08/2021	03/22/2021
US	PCB TRANSFORMER	PCB Transformer Registration Database	Environmental Protection Agency	09/13/2019	11/06/2019	02/10/2020
US	PCS	Permit Compliance System	EPA, Office of Water	07/14/2011	08/05/2011	09/29/2011
US	PCS ENF	Enforcement data	EPA	12/31/2014	02/05/2015	03/06/2015
US	PCS INACTIVE	Listing of Inactive PCS Permits	EPA	11/05/2014	01/06/2015	05/06/2015
US	PRP	Potentially Responsible Parties	EPA	12/30/2020	01/14/2021	03/05/2021
US	Proposed NPL	Proposed National Priority List Sites	EPA	07/29/2021	08/04/2021	08/31/2021
US	RAATS	RCRA Administrative Action Tracking System	EPA	04/17/1995	07/03/1995	08/07/1995
US	RADINFO	Radiation Information Database	Environmental Protection Agency	07/01/2019	07/01/2019	09/23/2019
US	RCRA NonGen / NLR	RCRA - Non Generators / No Longer Regulated	Environmental Protection Agency	09/13/2021	09/15/2021	10/12/2021
US	RCRA-LQG	RCRA - Large Quantity Generators	Environmental Protection Agency	09/13/2021	09/15/2021	10/12/2021
US	RCRA-SQG	RCRA - Small Quantity Generators	Environmental Protection Agency	09/13/2021	09/15/2021	10/12/2021
US	RCRA-TSDF	RCRA - Treatment, Storage and Disposal	Environmental Protection Agency	09/13/2021	09/15/2021	10/12/2021
US	RCRA-VSQG	RCRA - Very Small Quantity Generators (Formerly Conditionall	Environmental Protection Agency	09/13/2021	09/15/2021	10/12/2021
US	RMP	Risk Management Plans	Environmental Protection Agency	10/20/2021	11/05/2021	11/12/2021
US	ROD	Records Of Decision	EPA	07/29/2021	08/04/2021	08/31/2021
US	SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing	Environmental Protection Agency	01/01/2017	02/03/2017	04/07/2017
US	SEMS	Superfund Enterprise Management System	EPA	07/29/2021	08/04/2021	08/31/2021
US	SEMS-ARCHIVE	Superfund Enterprise Management System Archive	EPA	07/29/2021	08/04/2021	08/31/2021
US	SSTS	Section 7 Tracking Systems	EPA	07/19/2021	07/19/2021	10/12/2021
US	TRIS	Toxic Chemical Release Inventory System	EPA	12/31/2018	08/14/2020	11/04/2020
US	TSCA	Toxic Substances Control Act	EPA	12/31/2016	06/17/2020	09/10/2020
US	UMTRA	Uranium Mill Tailings Sites	Department of Energy	08/30/2019	11/15/2019	01/28/2020
US	US AIRS (AFS)	Aerometric Information Retrieval System Facility Subsystem (	EPA	10/12/2016	10/26/2016	02/03/2017
US	US AIRS MINOR	Air Facility System Data	EPA	10/12/2016	10/26/2016	02/03/2017
US	US BROWNFIELDS	A Listing of Brownfields Sites	Environmental Protection Agency	06/10/2021	06/10/2021	08/17/2021
US	US CDL	Clandestine Drug Labs	Drug Enforcement Administration	05/18/2021	05/18/2021	08/03/2021
US	US ENG CONTROLS	Engineering Controls Sites List	Environmental Protection Agency	08/23/2021	08/23/2021	11/12/2021
US	US FIN ASSUR	Financial Assurance Information	Environmental Protection Agency	09/13/2021	09/15/2021	09/28/2021
US	US HIST CDL	National Clandestine Laboratory Register	Drug Enforcement Administration	05/18/2021	05/18/2021	08/03/2021
US	US INST CONTROLS	Institutional Controls Sites List	Environmental Protection Agency	08/23/2021	08/23/2021	11/12/2021
US	US MINES	Mines Master Index File	Department of Labor, Mine Safety and Health A	08/09/2021	08/24/2021	11/19/2021
US	US MINES 2	Ferrous and Nonferrous Metal Mines Database Listing	USGS	05/06/2020	05/27/2020	08/13/2020
US	US MINES 3	Active Mines & Mineral Plants Database Listing	USGS	04/14/2011	06/08/2011	09/13/2011
US	UXO	Unexploded Ordnance Sites	Department of Defense	12/31/2018	07/02/2020	09/17/2020

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
CT	CT MANIFEST	Hazardous Waste Manifest Data	Department of Energy & Environmental Protecti	07/23/2021	08/10/2021	11/08/2021
NY	NY MANIFEST	Facility and Manifest Data	Department of Environmental Conservation	01/01/2019	04/29/2020	07/10/2020
PA	PA MANIFEST	Manifest Information	Department of Environmental Protection	06/30/2018	07/19/2019	09/10/2019
WI	WI MANIFEST	Manifest Information	Department of Natural Resources	05/31/2018	06/19/2019	09/03/2019
US	AHA Hospitals	Sensitive Receptor: AHA Hospitals	American Hospital Association, Inc.			
US	Medical Centers	Sensitive Receptor: Medical Centers	Centers for Medicare & Medicaid Services			
US	Nursing Homes	Sensitive Receptor: Nursing Homes	National Institutes of Health			
US	Public Schools	Sensitive Receptor: Public Schools	National Center for Education Statistics			
US	Private Schools	Sensitive Receptor: Private Schools	National Center for Education Statistics			
WA	Daycare Centers	Sensitive Receptor: Daycare Center Listing	Department of Social & Health Services			
US	Flood Zones	100-year and 500-year flood zones	Emergency Management Agency (FEMA)			
US	NWI	National Wetlands Inventory	U.S. Fish and Wildlife Service			
WA	State Wetlands	Wetland Inventory	Department of Ecology			
US	Topographic Map		U.S. Geological Survey			
US	Oil/Gas Pipelines		Endeavor Business Media			
US	Electric Power Transmission Line Data		Endeavor Business Media			

STREET AND ADDRESS INFORMATION

GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

CAMAS MEADOWS SUB
4615 NW CAMAS MEADOWS DRIVE
CAMAS, WA 98607

TARGET PROPERTY COORDINATES

Latitude (North):	45.63017 - 45ˆ 37’ 48.61’’
Longitude (West):	122.456965 - 122ˆ 27’ 25.07’’
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	542329.0
UTM Y (Meters):	5052884.0
Elevation:	248 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	14842103 LACAMAS CREEK, WA
Version Date:	2020
South Map:	14898322 CAMAS, WA
Version Date:	2020

EDR’s GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

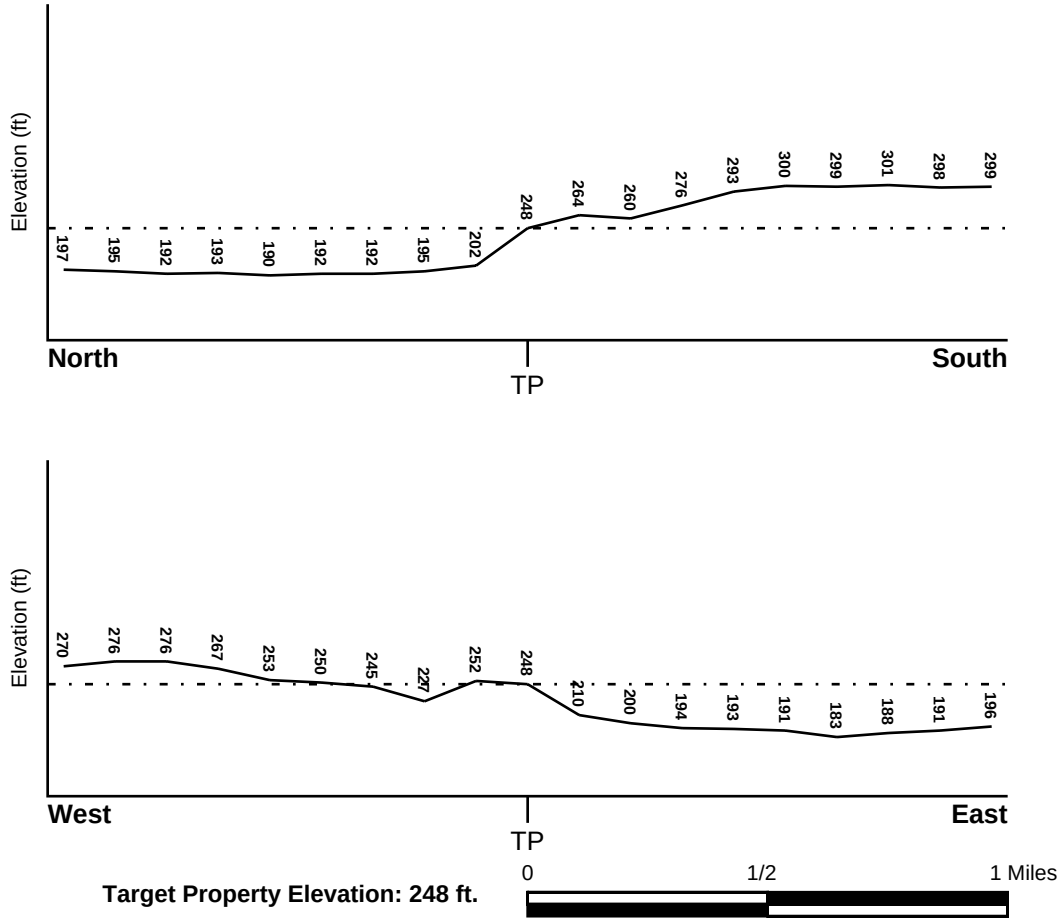
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General NNE

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
53011C0414D	FEMA FIRM Flood data

Additional Panels in search area:	FEMA Source Type
53011C0418D	FEMA FIRM Flood data
53011C0413D	FEMA FIRM Flood data
53011C0530D	FEMA FIRM Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
LACAMAS CREEK	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

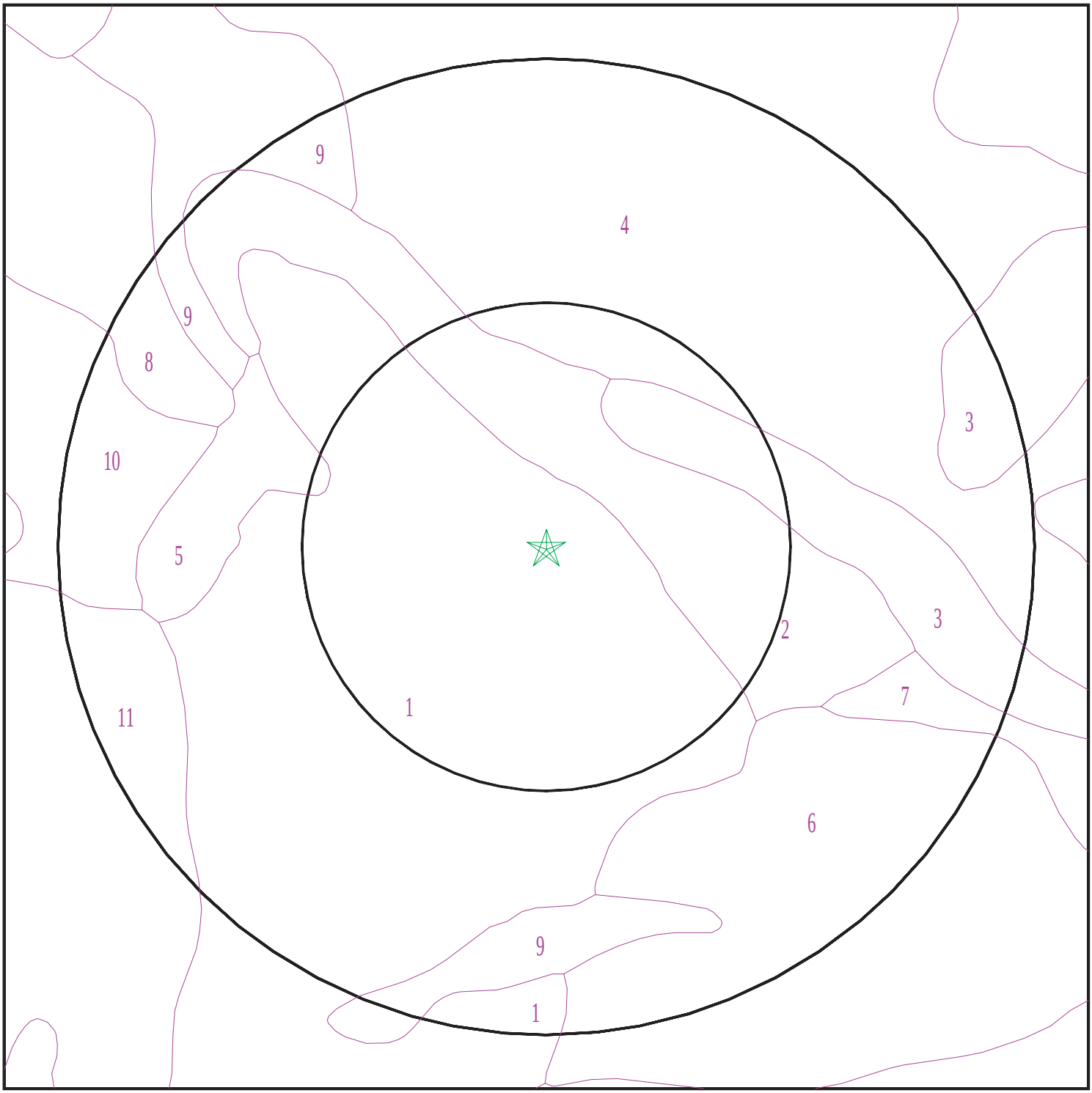
Era:	Cenozoic
System:	Tertiary
Series:	Pliocene
Code:	Tpc *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Continental Deposits

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 6759499.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME:	Camas Meadows Sub	CLIENT:	Geopacific Engineering
ADDRESS:	4615 NW Camas Meadows Drive Camas WA 98607	CONTACT:	Stephen Morris
		INQUIRY #:	6759499.2s
LAT/LONG:	45.63017 / 122.456965	DATE:	November 23, 2021 3:00 pm

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Powell

Soil Surface Texture: silt loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Moderately well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 54 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 1.4 Min: 0.42	Max: 6 Min: 5.1
2	7 inches	16 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 1.4 Min: 0.42	Max: 6 Min: 5.1
3	16 inches	59 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 1.4 Min: 0.42	Max: 6 Min: 5.1

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 2

Soil Component Name: Powell

Soil Surface Texture: silt loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Moderately well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 54 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	5 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 1.4 Min: 0.42	Max: 6 Min: 5.1
2	5 inches	14 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 1.4 Min: 0.42	Max: 6 Min: 5.1
3	14 inches	59 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 1.4 Min: 0.42	Max: 6 Min: 5.1

Soil Map ID: 3

Soil Component Name: Lauren

Soil Surface Texture: gravelly loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Somewhat excessively drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	5 inches	gravelly loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 6.1
2	5 inches	33 inches	very gravelly loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 6.1
3	33 inches	44 inches	very gravelly coarse sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 6.1
4	44 inches	59 inches	very gravelly loamy coarse sand	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 6.1

Soil Map ID: 4

Soil Component Name: Cove

Soil Surface Texture: silty clay loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Very poorly drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: All hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 15 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	3 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 1.4 Min: 0.42	Max: 7.3 Min: 6.1
2	3 inches	35 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 1.4 Min: 0.42	Max: 7.3 Min: 6.1
3	35 inches	59 inches	gravelly silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 1.4 Min: 0.42	Max: 7.3 Min: 6.1

Soil Map ID: 5

Soil Component Name: Hesson

Soil Surface Texture: clay loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 5.5 Min: 4.5
2	9 inches	59 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 5.5 Min: 4.5

Soil Map ID: 6

Soil Component Name: Hesson

Soil Surface Texture: clay loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 5.5 Min: 4.5

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	11 inches	59 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 5.5 Min: 4.5

Soil Map ID: 7

Soil Component Name: Hesson

Soil Surface Texture: clay loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 5.5 Min: 4.5
2	11 inches	59 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 5.5 Min: 4.5

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 8

Soil Component Name: Lauren

Soil Surface Texture: gravelly loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Somewhat excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	3 inches	gravelly loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 6.1
2	3 inches	31 inches	very gravelly loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 6.1
3	31 inches	44 inches	very gravelly coarse sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 6.1
4	44 inches	59 inches	very gravelly loamy coarse sand	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 6.1

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 9

Soil Component Name: Cove

Soil Surface Texture: silty clay loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Poorly drained

Hydric Status: All hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 15 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	14 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 1.4 Min: 0.42	Max: 7.3 Min: 6.6
2	14 inches	20 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 1.4 Min: 0.42	Max: 7.3 Min: 6.6
3	20 inches	59 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 1.4 Min: 0.42	Max: 7.3 Min: 6.6

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 10

Soil Component Name: Wind River variant

Soil Surface Texture: gravelly loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Somewhat excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	3 inches	gravelly loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 6.6
2	3 inches	24 inches	coarse sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 6.6
3	24 inches	59 inches	loamy coarse sand	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 6.6

Soil Map ID: 11

Soil Component Name: Dollar

Soil Surface Texture: loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Moderately well drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 69 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	5 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 0.42 Min: 0.01	Max: 5.5 Min: 4.5
2	5 inches	31 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 0.42 Min: 0.01	Max: 5.5 Min: 4.5
3	31 inches	59 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 0.42 Min: 0.01	Max: 5.5 Min: 4.5

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
F33	USGS40001207738	1/4 - 1/2 Mile WNW
F42	USGS40001207739	1/4 - 1/2 Mile WNW
44	USGS40001207659	1/4 - 1/2 Mile West
F45	USGS40001207734	1/4 - 1/2 Mile WNW
G56	USGS40001207627	1/4 - 1/2 Mile WSW
K60	USGS40001207626	1/2 - 1 Mile ESE
63	USGS40001207616	1/2 - 1 Mile WSW
84	USGS40001207150	1/2 - 1 Mile SW
99	USGS40001207821	1/2 - 1 Mile North
O114	USGS40001207551	1/2 - 1 Mile South
O115	USGS40001207552	1/2 - 1 Mile South
127	USGS40001207833	1/2 - 1 Mile North
128	USGS40001207584	1/2 - 1 Mile SW
144	USGS40001207553	1/2 - 1 Mile SSW
S145	USGS40001207677	1/2 - 1 Mile West
S146	USGS40001207678	1/2 - 1 Mile West
S147	USGS40001207687	1/2 - 1 Mile West
S148	USGS40001207676	1/2 - 1 Mile West
S149	USGS40001207686	1/2 - 1 Mile West
S150	USGS40001207694	1/2 - 1 Mile West
S151	USGS40001207685	1/2 - 1 Mile West
S152	USGS40001207692	1/2 - 1 Mile West
S153	USGS40001207693	1/2 - 1 Mile West
S154	USGS40001207715	1/2 - 1 Mile West
S155	USGS40001207704	1/2 - 1 Mile West
S156	USGS40001207705	1/2 - 1 Mile West
S157	USGS40001207714	1/2 - 1 Mile West
S158	USGS40001207716	1/2 - 1 Mile West
S159	USGS40001207725	1/2 - 1 Mile West
S160	USGS40001207726	1/2 - 1 Mile West
S161	USGS40001207717	1/2 - 1 Mile West
S162	USGS40001207724	1/2 - 1 Mile West
S165	USGS40001207672	1/2 - 1 Mile West
S175	USGS40001207688	1/2 - 1 Mile West
S176	USGS40001207679	1/2 - 1 Mile West
S177	USGS40001207680	1/2 - 1 Mile West
S178	USGS40001207695	1/2 - 1 Mile West
S179	USGS40001207707	1/2 - 1 Mile West
S180	USGS40001207706	1/2 - 1 Mile West
S181	USGS40001207689	1/2 - 1 Mile West
S202	USGS40001207690	1/2 - 1 Mile West

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
Y205	USGS40001207711	1/2 - 1 Mile West
Y206	USGS40001207718	1/2 - 1 Mile West
Y207	USGS40001207710	1/2 - 1 Mile West
Y208	USGS40001207708	1/2 - 1 Mile West
Y209	USGS40001207709	1/2 - 1 Mile West
Y210	USGS40001207727	1/2 - 1 Mile West
Y211	USGS40001207728	1/2 - 1 Mile West
Y212	USGS40001207721	1/2 - 1 Mile West
Y213	USGS40001207719	1/2 - 1 Mile West
Y214	USGS40001207720	1/2 - 1 Mile West
Y215	USGS40001207699	1/2 - 1 Mile West
Y216	USGS40001207697	1/2 - 1 Mile West
Y217	USGS40001207698	1/2 - 1 Mile West
Y218	USGS40001207696	1/2 - 1 Mile West
X219	USGS40001207534	1/2 - 1 Mile SSW
AA281	USGS40001207752	1/2 - 1 Mile WNW
282	USGS40001207579	1/2 - 1 Mile SE
283	USGS40001207861	1/2 - 1 Mile NNE
AA284	USGS40001207761	1/2 - 1 Mile WNW
285	USGS40001207565	1/2 - 1 Mile SW
306	USGS40001207548	1/2 - 1 Mile SE
AC316	USGS40001207768	1/2 - 1 Mile WNW
AF319	USGS40001207723	1/2 - 1 Mile West
AF320	USGS40001207722	1/2 - 1 Mile West
AF321	USGS40001207729	1/2 - 1 Mile West
AF322	USGS40001207730	1/2 - 1 Mile West
AC333	USGS40001207770	1/2 - 1 Mile WNW
AH334	USGS40001207630	1/2 - 1 Mile WSW
AH335	USGS40001207628	1/2 - 1 Mile WSW
348	USGS40001207617	1/2 - 1 Mile WSW
433	USGS40001207681	1/2 - 1 Mile West
446	USGS40001207873	1/2 - 1 Mile NNE
449	USGS40001207907	1/2 - 1 Mile NNE
463	USGS40001207914	1/2 - 1 Mile North

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A1	WALOG1000585262	0 - 1/8 Mile WNW
A2	WALOG1000585261	0 - 1/8 Mile WNW
A3	WALOG1000585263	0 - 1/8 Mile WNW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A4	WALOG1000586319	0 - 1/8 Mile WNW
A5	WALOG1000585264	0 - 1/8 Mile WNW
A6	WALOG1000585260	0 - 1/8 Mile WNW
A7	WALOG1000585257	0 - 1/8 Mile WNW
A8	WALOG1000585258	0 - 1/8 Mile WNW
A9	WALOG1000585256	0 - 1/8 Mile WNW
A10	WALOG1000585259	0 - 1/8 Mile WNW
A11	WALOG1000585255	0 - 1/8 Mile WNW
A12	WALOG1000647395	0 - 1/8 Mile WNW
A13	WALOG1000647402	0 - 1/8 Mile WNW
A14	WALOG1000647407	0 - 1/8 Mile WNW
A15	WALOG1000647387	0 - 1/8 Mile WNW
A16	WALOG1000627118	0 - 1/8 Mile WNW
A17	WALOG1000627216	0 - 1/8 Mile WNW
A18	WALOG1000627497	0 - 1/8 Mile WNW
B19	WALOG1000809256	1/4 - 1/2 Mile SE
B20	WALOG1000194855	1/4 - 1/2 Mile SE
C21	WALOG1000238873	1/4 - 1/2 Mile NE
C22	WALOG1000332604	1/4 - 1/2 Mile NE
D23	WALOG1000194995	1/4 - 1/2 Mile SW
D24	WALOG1000238876	1/4 - 1/2 Mile SW
D25	WALOG1000344798	1/4 - 1/2 Mile SW
E26	WALOG1000194928	1/4 - 1/2 Mile NW
E27	WALOG1000194929	1/4 - 1/2 Mile NW
E28	WALOG1000194927	1/4 - 1/2 Mile NW
E29	WALOG1000194925	1/4 - 1/2 Mile NW
E30	WALOG1000194926	1/4 - 1/2 Mile NW
E31	WALOG1000194947	1/4 - 1/2 Mile NW
E32	WALOG1000194970	1/4 - 1/2 Mile NW
G34	WALOG1000748002	1/4 - 1/2 Mile WSW
G35	WALOG1000759240	1/4 - 1/2 Mile WSW
G36	WALOG1000682698	1/4 - 1/2 Mile WSW
G37	WALOG1000194348	1/4 - 1/2 Mile WSW
G38	WALOG1000682689	1/4 - 1/2 Mile WSW
G39	WALOG1000759241	1/4 - 1/2 Mile WSW
G40	WALOG1000759243	1/4 - 1/2 Mile WSW
G41	WALOG1000759242	1/4 - 1/2 Mile WSW
43	WALOG1000194977	1/4 - 1/2 Mile WSW
H46	WALOG1000257923	1/4 - 1/2 Mile East
H47	WALOG1000257922	1/4 - 1/2 Mile East
I48	WALOG1000801491	1/4 - 1/2 Mile NW
I49	WALOG1000801490	1/4 - 1/2 Mile NW
I50	WALOG1000801487	1/4 - 1/2 Mile NW
I51	WALOG1000801486	1/4 - 1/2 Mile NW
I52	WALOG1000801489	1/4 - 1/2 Mile NW
I53	WALOG1000801488	1/4 - 1/2 Mile NW
I54	WALOG1000801497	1/4 - 1/2 Mile NW
I55	WALOG1000801492	1/4 - 1/2 Mile NW
J57	WA1100000028716	1/4 - 1/2 Mile South
J58	WALOG1000606261	1/4 - 1/2 Mile South
59	WA1100000022286	1/4 - 1/2 Mile North
K61	WALOG1000194871	1/2 - 1 Mile ESE

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
K62	WALOG1000194869	1/2 - 1 Mile ESE
L64	WALOG1000194857	1/2 - 1 Mile SSE
L65	WALOG1000194858	1/2 - 1 Mile SSE
L66	WALOG1000194859	1/2 - 1 Mile SSE
L67	WALOG1000194856	1/2 - 1 Mile SSE
L68	WALOG1000194852	1/2 - 1 Mile SSE
L69	WALOG1000194853	1/2 - 1 Mile SSE
L70	WALOG1000194854	1/2 - 1 Mile SSE
L71	WALOG1000194860	1/2 - 1 Mile SSE
L72	WALOG1000323625	1/2 - 1 Mile SSE
L73	WALOG1000306839	1/2 - 1 Mile SSE
L74	WALOG1000194872	1/2 - 1 Mile SSE
L75	WALOG1000363694	1/2 - 1 Mile SSE
L76	WALOG1000332838	1/2 - 1 Mile SSE
L77	WALOG1000326516	1/2 - 1 Mile SSE
L78	WALOG1000194865	1/2 - 1 Mile SSE
L79	WALOG1000194866	1/2 - 1 Mile SSE
L80	WALOG1000194863	1/2 - 1 Mile SSE
L81	WALOG1000194861	1/2 - 1 Mile SSE
L82	WALOG1000194862	1/2 - 1 Mile SSE
L83	WALOG1000194868	1/2 - 1 Mile SSE
85	WALOG1000194349	1/2 - 1 Mile WNW
M86	WALOG1000194958	1/2 - 1 Mile West
M87	WALOG1000194957	1/2 - 1 Mile West
M88	WALOG1000194964	1/2 - 1 Mile West
M89	WALOG1000194960	1/2 - 1 Mile West
M90	WALOG1000194942	1/2 - 1 Mile West
M91	WALOG1000194953	1/2 - 1 Mile West
M92	WALOG1000194889	1/2 - 1 Mile West
M93	WALOG1000194913	1/2 - 1 Mile West
M94	WALOG1000194965	1/2 - 1 Mile West
M95	WALOG1000194989	1/2 - 1 Mile West
M96	WALOG1000194992	1/2 - 1 Mile West
M97	WALOG1000194967	1/2 - 1 Mile West
M98	WALOG1000194969	1/2 - 1 Mile West
100	WALOG1000194962	1/2 - 1 Mile SSW
101	WA1100000015873	1/2 - 1 Mile ESE
N102	WA1100000002602	1/2 - 1 Mile WSW
N103	WA1100000000681	1/2 - 1 Mile WSW
N104	WALOG1000375673	1/2 - 1 Mile WSW
N105	WALOG1000389514	1/2 - 1 Mile WSW
N106	WALOG1000194951	1/2 - 1 Mile WSW
N107	WALOG1000194966	1/2 - 1 Mile WSW
N108	WALOG1000194901	1/2 - 1 Mile WSW
N109	WALOG1000194948	1/2 - 1 Mile WSW
N110	WALOG1000310618	1/2 - 1 Mile WSW
N111	WALOG1000328351	1/2 - 1 Mile WSW
N112	WALOG1000194984	1/2 - 1 Mile WSW
N113	WALOG1000310617	1/2 - 1 Mile WSW
P116	WALOG1000302074	1/2 - 1 Mile WNW
P117	WALOG1000600018	1/2 - 1 Mile WNW
P118	WALOG1000600019	1/2 - 1 Mile WNW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
P119	WALOG1000194985	1/2 - 1 Mile WNW
P120	WALOG1000194986	1/2 - 1 Mile WNW
P121	WALOG1000194987	1/2 - 1 Mile WNW
P122	WALOG1000600021	1/2 - 1 Mile WNW
P123	WALOG1000600020	1/2 - 1 Mile WNW
124	WALOG1000194346	1/2 - 1 Mile NW
Q125	WALOG1000194377	1/2 - 1 Mile NNE
Q126	WALOG1000194415	1/2 - 1 Mile NNE
Q129	WA1100000029399	1/2 - 1 Mile NE
Q130	WA1100000005384	1/2 - 1 Mile NE
R131	WA1100000021311	1/2 - 1 Mile SE
R132	WALOG1000002998	1/2 - 1 Mile SE
R133	WALOG1000002997	1/2 - 1 Mile SE
R134	WALOG1000002996	1/2 - 1 Mile SE
R135	WALOG1000002999	1/2 - 1 Mile SE
R136	WALOG1000194867	1/2 - 1 Mile SE
R137	WALOG1000194864	1/2 - 1 Mile SE
R138	WALOG1000194873	1/2 - 1 Mile SE
R139	WALOG1000194870	1/2 - 1 Mile SE
R140	WALOG1000003006	1/2 - 1 Mile SE
R141	WALOG1000003000	1/2 - 1 Mile SE
R142	WALOG1000003008	1/2 - 1 Mile SE
R143	WALOG1000003007	1/2 - 1 Mile SE
T163	WALOG1000194971	1/2 - 1 Mile SW
T164	WALOG1000194996	1/2 - 1 Mile SW
U166	WALOG1000200939	1/2 - 1 Mile NW
U167	WALOG1000239217	1/2 - 1 Mile NW
U168	WALOG1000296222	1/2 - 1 Mile NW
V169	WA1100000000467	1/2 - 1 Mile South
V170	WALOG1000405422	1/2 - 1 Mile South
V171	WALOG1000195089	1/2 - 1 Mile South
V172	WALOG1000405425	1/2 - 1 Mile South
V173	WALOG1000405424	1/2 - 1 Mile South
V174	WALOG1000405423	1/2 - 1 Mile South
182	WALOG1000194878	1/2 - 1 Mile ENE
183	WALOG1000194411	1/2 - 1 Mile NE
184	WA1100000029423	1/2 - 1 Mile NW
W185	WALOG1000438820	1/2 - 1 Mile SSE
W186	WALOG1000438821	1/2 - 1 Mile SSE
W187	WALOG1000195144	1/2 - 1 Mile SSE
W188	WALOG1000438819	1/2 - 1 Mile SSE
W189	WALOG1000438822	1/2 - 1 Mile SSE
W190	WALOG1000438829	1/2 - 1 Mile SSE
W191	WALOG1000438830	1/2 - 1 Mile SSE
W192	WALOG1000438827	1/2 - 1 Mile SSE
W193	WALOG1000438828	1/2 - 1 Mile SSE
W194	WALOG1000501185	1/2 - 1 Mile SSE
W195	WALOG1000501186	1/2 - 1 Mile SSE
W196	WALOG1000501183	1/2 - 1 Mile SSE
W197	WALOG1000501184	1/2 - 1 Mile SSE
W198	WALOG1000438825	1/2 - 1 Mile SSE
W199	WALOG1000438826	1/2 - 1 Mile SSE

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
W200	WALOG1000438823	1/2 - 1 Mile SSE
W201	WALOG1000438824	1/2 - 1 Mile SSE
X203	WA1100000022206	1/2 - 1 Mile SSW
X204	WA1100000022207	1/2 - 1 Mile SSW
Z220	WALOG1000194916	1/2 - 1 Mile West
Z221	WALOG1000194915	1/2 - 1 Mile West
Z222	WALOG1000194918	1/2 - 1 Mile West
Z223	WALOG1000194917	1/2 - 1 Mile West
Z224	WALOG1000194910	1/2 - 1 Mile West
Z225	WALOG1000194908	1/2 - 1 Mile West
Z226	WALOG1000194914	1/2 - 1 Mile West
Z227	WALOG1000194911	1/2 - 1 Mile West
Z228	WALOG1000194932	1/2 - 1 Mile West
Z229	WALOG1000194931	1/2 - 1 Mile West
Z230	WALOG1000194934	1/2 - 1 Mile West
Z231	WALOG1000194933	1/2 - 1 Mile West
Z232	WALOG1000194920	1/2 - 1 Mile West
Z233	WALOG1000194919	1/2 - 1 Mile West
Z234	WALOG1000194930	1/2 - 1 Mile West
Z235	WALOG1000194921	1/2 - 1 Mile West
Z236	WALOG1000194895	1/2 - 1 Mile West
Z237	WALOG1000194894	1/2 - 1 Mile West
Z238	WALOG1000194897	1/2 - 1 Mile West
Z239	WALOG1000194896	1/2 - 1 Mile West
Z240	WALOG1000194892	1/2 - 1 Mile West
Z241	WALOG1000194893	1/2 - 1 Mile West
Z242	WALOG1000194890	1/2 - 1 Mile West
Z243	WALOG1000194891	1/2 - 1 Mile West
Z244	WALOG1000194905	1/2 - 1 Mile West
Z245	WALOG1000194904	1/2 - 1 Mile West
Z246	WALOG1000194907	1/2 - 1 Mile West
Z247	WALOG1000194906	1/2 - 1 Mile West
Z248	WALOG1000194899	1/2 - 1 Mile West
Z249	WALOG1000194898	1/2 - 1 Mile West
Z250	WALOG1000194903	1/2 - 1 Mile West
Z251	WALOG1000194902	1/2 - 1 Mile West
Z252	WALOG1000194935	1/2 - 1 Mile West
Z253	WALOG1000194978	1/2 - 1 Mile West
Z254	WALOG1000194979	1/2 - 1 Mile West
Z255	WALOG1000194980	1/2 - 1 Mile West
Z256	WALOG1000194976	1/2 - 1 Mile West
Z257	WALOG1000194972	1/2 - 1 Mile West
Z258	WALOG1000194973	1/2 - 1 Mile West
Z259	WALOG1000194974	1/2 - 1 Mile West
Z260	WALOG1000194990	1/2 - 1 Mile West
Z261	WALOG1000194991	1/2 - 1 Mile West
Z262	WALOG1000484109	1/2 - 1 Mile West
Z263	WALOG1000194988	1/2 - 1 Mile West
Z264	WALOG1000194981	1/2 - 1 Mile West
Z265	WALOG1000194982	1/2 - 1 Mile West
Z266	WALOG1000194983	1/2 - 1 Mile West
Z267	WALOG1000194940	1/2 - 1 Mile West

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
Z268	WALOG1000194944	1/2 - 1 Mile West
Z269	WALOG1000194946	1/2 - 1 Mile West
Z270	WALOG1000194939	1/2 - 1 Mile West
Z271	WALOG1000194936	1/2 - 1 Mile West
Z272	WALOG1000194937	1/2 - 1 Mile West
Z273	WALOG1000194938	1/2 - 1 Mile West
Z274	WALOG1000194961	1/2 - 1 Mile West
Z275	WALOG1000194963	1/2 - 1 Mile West
Z276	WALOG1000194968	1/2 - 1 Mile West
Z277	WALOG1000194959	1/2 - 1 Mile West
Z278	WALOG1000194954	1/2 - 1 Mile West
Z279	WALOG1000194955	1/2 - 1 Mile West
Z280	WALOG1000194956	1/2 - 1 Mile West
AB286	WALOG1000194923	1/2 - 1 Mile WSW
AB287	WALOG1000194941	1/2 - 1 Mile WSW
AB288	WALOG1000194900	1/2 - 1 Mile WSW
AB289	WALOG1000194922	1/2 - 1 Mile WSW
AB290	WALOG1000195002	1/2 - 1 Mile WSW
AB291	WALOG1000277153	1/2 - 1 Mile WSW
AB292	WALOG1000194943	1/2 - 1 Mile WSW
AB293	WALOG1000194950	1/2 - 1 Mile WSW
AC294	WA1100000000376	1/2 - 1 Mile WNW
AA295	WALOG1000194949	1/2 - 1 Mile WNW
AA296	WALOG1000194952	1/2 - 1 Mile WNW
AA297	WALOG1000194975	1/2 - 1 Mile WNW
AA298	WALOG1000194909	1/2 - 1 Mile WNW
AA299	WALOG1000194945	1/2 - 1 Mile WNW
AA300	WALOG1000194924	1/2 - 1 Mile WNW
AA301	WALOG1000194912	1/2 - 1 Mile WNW
AA302	WALOG1000265220	1/2 - 1 Mile WNW
AA303	WALOG1000586069	1/2 - 1 Mile WNW
AA304	WALOG1000347278	1/2 - 1 Mile WNW
AA305	WALOG1000302075	1/2 - 1 Mile WNW
AC307	WA1100000000377	1/2 - 1 Mile WNW
AB308	WA1100000004379	1/2 - 1 Mile WSW
AC309	WA1100000000375	1/2 - 1 Mile WNW
AD310	WALOG1000194379	1/2 - 1 Mile NNE
AD311	WALOG1000194403	1/2 - 1 Mile NNE
AD312	WALOG1000444428	1/2 - 1 Mile NNE
AD313	WALOG1000632762	1/2 - 1 Mile NNE
AD314	WALOG1000635203	1/2 - 1 Mile NNE
AD315	WALOG1000635943	1/2 - 1 Mile NNE
AE317	WALOG1000301638	1/2 - 1 Mile SE
AE318	WALOG1000194887	1/2 - 1 Mile SE
AG323	WALOG1000778338	1/2 - 1 Mile SSE
AG324	WALOG1000778337	1/2 - 1 Mile SSE
AG325	WALOG1000778339	1/2 - 1 Mile SSE
AG326	WALOG1000791228	1/2 - 1 Mile SSE
AG327	WALOG1000778347	1/2 - 1 Mile SSE
AG328	WALOG1000195123	1/2 - 1 Mile SSE
AG329	WALOG1000195140	1/2 - 1 Mile SSE
AG330	WALOG1000195141	1/2 - 1 Mile SSE

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
AG331	WALOG1000778336	1/2 - 1 Mile SSE
AG332	WALOG1000195142	1/2 - 1 Mile SSE
AE336	WA1100000022233	1/2 - 1 Mile ESE
AI337	WALOG1000109129	1/2 - 1 Mile SW
AI338	WALOG1000195113	1/2 - 1 Mile SW
AI339	WALOG1000195088	1/2 - 1 Mile SW
AI340	WALOG1000204073	1/2 - 1 Mile SW
AI341	WALOG1000321238	1/2 - 1 Mile SW
AI342	WALOG1000321237	1/2 - 1 Mile SW
AI343	WALOG1000195067	1/2 - 1 Mile SW
AI344	WALOG1000195066	1/2 - 1 Mile SW
AI345	WALOG1000195070	1/2 - 1 Mile SW
AI346	WALOG1000195072	1/2 - 1 Mile SW
AI347	WALOG1000195071	1/2 - 1 Mile SW
AJ349	WALOG1000194400	1/2 - 1 Mile NE
AJ350	WALOG1000194390	1/2 - 1 Mile NE
AK351	WALOG1000457871	1/2 - 1 Mile WSW
AK352	WALOG1000457870	1/2 - 1 Mile WSW
AK353	WALOG1000457873	1/2 - 1 Mile WSW
AK354	WALOG1000457872	1/2 - 1 Mile WSW
AK355	WALOG1000457869	1/2 - 1 Mile WSW
AK356	WALOG1000457866	1/2 - 1 Mile WSW
AK357	WALOG1000457865	1/2 - 1 Mile WSW
AK358	WALOG1000457868	1/2 - 1 Mile WSW
AK359	WALOG1000457867	1/2 - 1 Mile WSW
AK360	WALOG1000457874	1/2 - 1 Mile WSW
AK361	WALOG1000457881	1/2 - 1 Mile WSW
AK362	WALOG1000457880	1/2 - 1 Mile WSW
AK363	WALOG1000457883	1/2 - 1 Mile WSW
AK364	WALOG1000457882	1/2 - 1 Mile WSW
AK365	WALOG1000457879	1/2 - 1 Mile WSW
AK366	WALOG1000457876	1/2 - 1 Mile WSW
AK367	WALOG1000457875	1/2 - 1 Mile WSW
AK368	WALOG1000457878	1/2 - 1 Mile WSW
AK369	WALOG1000457877	1/2 - 1 Mile WSW
AK370	WALOG1000457852	1/2 - 1 Mile WSW
AK371	WALOG1000457851	1/2 - 1 Mile WSW
AK372	WALOG1000457854	1/2 - 1 Mile WSW
AK373	WALOG1000457853	1/2 - 1 Mile WSW
AK374	WALOG1000457850	1/2 - 1 Mile WSW
AK375	WALOG1000194994	1/2 - 1 Mile WSW
AK376	WALOG1000194993	1/2 - 1 Mile WSW
AK377	WALOG1000457849	1/2 - 1 Mile WSW
AK378	WALOG1000457848	1/2 - 1 Mile WSW
AK379	WALOG1000457855	1/2 - 1 Mile WSW
AK380	WALOG1000457862	1/2 - 1 Mile WSW
AK381	WALOG1000457861	1/2 - 1 Mile WSW
AK382	WALOG1000457864	1/2 - 1 Mile WSW
AK383	WALOG1000457863	1/2 - 1 Mile WSW
AK384	WALOG1000457860	1/2 - 1 Mile WSW
AK385	WALOG1000457857	1/2 - 1 Mile WSW
AK386	WALOG1000457856	1/2 - 1 Mile WSW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

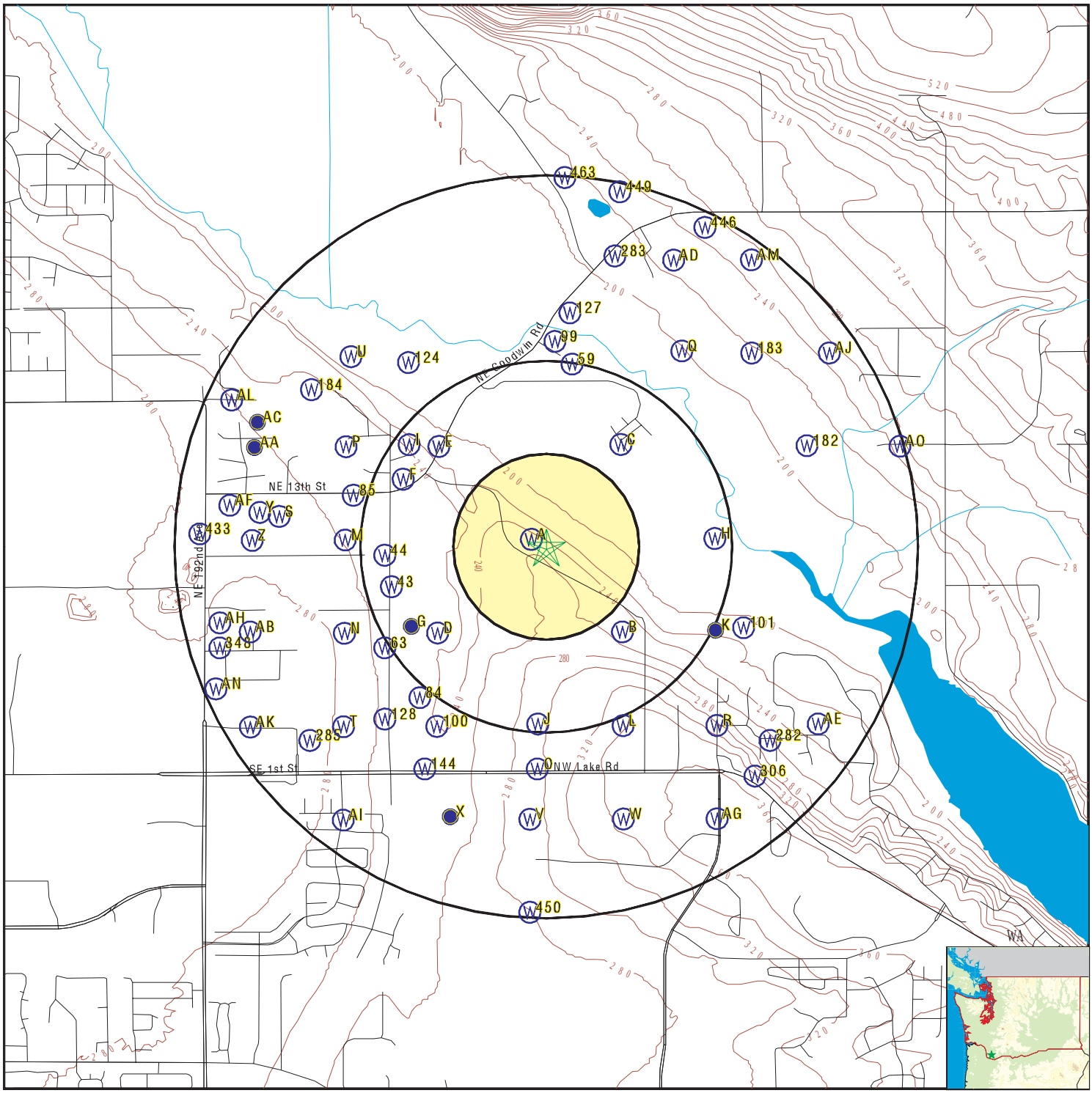
MAP ID	WELL ID	LOCATION FROM TP
AK387	WALOG1000457859	1/2 - 1 Mile WSW
AK388	WALOG1000457858	1/2 - 1 Mile WSW
AK389	WALOG1000457884	1/2 - 1 Mile WSW
AK390	WALOG1000480476	1/2 - 1 Mile WSW
AK391	WALOG1000480475	1/2 - 1 Mile WSW
AK392	WALOG1000480477	1/2 - 1 Mile WSW
AK393	WALOG1000480479	1/2 - 1 Mile WSW
AK394	WALOG1000480478	1/2 - 1 Mile WSW
AK395	WALOG1000480454	1/2 - 1 Mile WSW
AK396	WALOG1000480453	1/2 - 1 Mile WSW
AK397	WALOG1000480455	1/2 - 1 Mile WSW
AK398	WALOG1000480457	1/2 - 1 Mile WSW
AK399	WALOG1000480456	1/2 - 1 Mile WSW
AK400	WALOG1000488568	1/2 - 1 Mile WSW
AK401	WALOG1000801518	1/2 - 1 Mile WSW
AK402	WALOG1000801532	1/2 - 1 Mile WSW
AK403	WALOG1000801517	1/2 - 1 Mile WSW
AK404	WALOG1000801513	1/2 - 1 Mile WSW
AK405	WALOG1000801515	1/2 - 1 Mile WSW
AK406	WALOG1000498705	1/2 - 1 Mile WSW
AK407	WALOG1000494739	1/2 - 1 Mile WSW
AK408	WALOG1000498706	1/2 - 1 Mile WSW
AK409	WALOG1000500980	1/2 - 1 Mile WSW
AK410	WALOG1000500978	1/2 - 1 Mile WSW
AK411	WALOG1000458133	1/2 - 1 Mile WSW
AK412	WALOG1000457891	1/2 - 1 Mile WSW
AK413	WALOG1000457890	1/2 - 1 Mile WSW
AK414	WALOG1000457892	1/2 - 1 Mile WSW
AK415	WALOG1000457894	1/2 - 1 Mile WSW
AK416	WALOG1000457893	1/2 - 1 Mile WSW
AK417	WALOG1000457888	1/2 - 1 Mile WSW
AK418	WALOG1000457889	1/2 - 1 Mile WSW
AK419	WALOG1000457887	1/2 - 1 Mile WSW
AK420	WALOG1000457885	1/2 - 1 Mile WSW
AK421	WALOG1000457886	1/2 - 1 Mile WSW
AK422	WALOG1000457895	1/2 - 1 Mile WSW
AK423	WALOG1000457902	1/2 - 1 Mile WSW
AK424	WALOG1000457901	1/2 - 1 Mile WSW
AK425	WALOG1000457903	1/2 - 1 Mile WSW
AK426	WALOG1000457905	1/2 - 1 Mile WSW
AK427	WALOG1000457904	1/2 - 1 Mile WSW
AK428	WALOG1000457897	1/2 - 1 Mile WSW
AK429	WALOG1000457896	1/2 - 1 Mile WSW
AK430	WALOG1000457898	1/2 - 1 Mile WSW
AK431	WALOG1000457900	1/2 - 1 Mile WSW
AK432	WALOG1000457899	1/2 - 1 Mile WSW
AL434	WALOG1000194356	1/2 - 1 Mile WNW
AL435	WALOG1000194361	1/2 - 1 Mile WNW
AL436	WALOG1000600851	1/2 - 1 Mile WNW
AL437	WALOG1000194355	1/2 - 1 Mile WNW
AL438	WALOG1000194351	1/2 - 1 Mile WNW
AL439	WALOG1000194347	1/2 - 1 Mile WNW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
AL440	WALOG1000194354	1/2 - 1 Mile WNW
AL441	WALOG1000194352	1/2 - 1 Mile WNW
AL442	WALOG1000600852	1/2 - 1 Mile WNW
AM443	WALOG1000194405	1/2 - 1 Mile NE
AM444	WALOG1000194418	1/2 - 1 Mile NE
AM445	WALOG1000194370	1/2 - 1 Mile NE
AN447	WA1100000028715	1/2 - 1 Mile WSW
AN448	WA1100000028714	1/2 - 1 Mile WSW
450	WALOG1000195074	1/2 - 1 Mile South
AO451	WALOG1000194880	1/2 - 1 Mile ENE
AO452	WALOG1000194881	1/2 - 1 Mile ENE
AO453	WALOG1000194883	1/2 - 1 Mile ENE
AO454	WALOG1000194882	1/2 - 1 Mile ENE
AO455	WALOG1000194875	1/2 - 1 Mile ENE
AO456	WALOG1000194874	1/2 - 1 Mile ENE
AO457	WALOG1000194879	1/2 - 1 Mile ENE
AO458	WALOG1000194876	1/2 - 1 Mile ENE
AO459	WALOG1000194886	1/2 - 1 Mile ENE
AO460	WALOG1000194888	1/2 - 1 Mile ENE
AO461	WALOG1000194884	1/2 - 1 Mile ENE
AO462	WALOG1000194885	1/2 - 1 Mile ENE

PHYSICAL SETTING SOURCE MAP - 6759499.2s



County Boundary
Major Roads
Contour Lines
Earthquake epicenter, Richter 5 or greater
Water Wells
Public Water Supply Wells
Cluster of Multiple Icons

0 1/4 1/2 1 Miles

Groundwater Flow Direction
GI Indeterminate Groundwater Flow at Location
GV Groundwater Flow Varies at Location
HD Closest Hydrogeological Data
Oil, gas or related wells

N

SITE NAME:	Camas Meadows Sub	CLIENT:	Geopacific Engineering
ADDRESS:	4615 NW Camas Meadows Drive Camas WA 98607	CONTACT:	Stephen Morris
LAT/LONG:	45.63017 / 122.456965	INQUIRY #:	6759499.2s
		DATE:	November 23, 2021 3:00 pm

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
A1 **WNW** **0 - 1/8 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000585262**
A2 **WNW** **0 - 1/8 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000585261**
A3 **WNW** **0 - 1/8 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000585263**
A4 **WNW** **0 - 1/8 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000586319**
A5 **WNW** **0 - 1/8 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000585264**
A6 **WNW** **0 - 1/8 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000585260**
A7 **WNW** **0 - 1/8 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000585257**
A8 **WNW** **0 - 1/8 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000585258**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
A9 **WNW** **0 - 1/8 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000585256**
A10 **WNW** **0 - 1/8 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000585259**
A11 **WNW** **0 - 1/8 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000585255**
A12 **WNW** **0 - 1/8 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000647395**
A13 **WNW** **0 - 1/8 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000647402**
A14 **WNW** **0 - 1/8 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000647407**
A15 **WNW** **0 - 1/8 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000647387**
A16 **WNW** **0 - 1/8 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000627118**
A17 **WNW** **0 - 1/8 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000627216**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
A18 **WNW** **0 - 1/8 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000627497**
B19 **SE** **1/4 - 1/2 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000809256**
B20 **SE** **1/4 - 1/2 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194855**
C21 **NE** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WALOG1000238873**
C22 **NE** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WALOG1000332604**
D23 **SW** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WALOG1000194995**
D24 **SW** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WALOG1000238876**
D25 **SW** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WALOG1000344798**
E26 **NW** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WALOG1000194928**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
E27 **NW** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WALOG1000194929**
E28 **NW** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WALOG1000194927**
E29 **NW** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WALOG1000194925**
E30 **NW** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WALOG1000194926**
E31 **NW** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WALOG1000194947**
E32 **NW** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WALOG1000194970**
F33 **WNW** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**FED USGS**	**USGS40001207738**
G34 **WSW** **1/4 - 1/2 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000748002**
G35 **WSW** **1/4 - 1/2 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000759240**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
G36 **WSW** **1/4 - 1/2 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000682698**
G37 **WSW** **1/4 - 1/2 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194348**
G38 **WSW** **1/4 - 1/2 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000682689**
G39 **WSW** **1/4 - 1/2 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000759241**
G40 **WSW** **1/4 - 1/2 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000759243**
G41 **WSW** **1/4 - 1/2 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000759242**
F42 **WNW** **1/4 - 1/2 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207739**
43 **WSW** **1/4 - 1/2 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194977**
44 **West** **1/4 - 1/2 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207659**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
F45 **WNW** **1/4 - 1/2 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207734**
H46 **East** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WALOG1000257923**
H47 **East** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WALOG1000257922**
I48 **NW** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WALOG1000801491**
I49 **NW** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WALOG1000801490**
I50 **NW** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WALOG1000801487**
I51 **NW** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WALOG1000801486**
I52 **NW** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WALOG1000801489**
I53 **NW** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WALOG1000801488**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
I54 **NW** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WALOG1000801497**
I55 **NW** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WALOG1000801492**
G56 **WSW** **1/4 - 1/2 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207627**
J57 **South** **1/4 - 1/2 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WA1100000028716**
J58 **South** **1/4 - 1/2 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000606261**
59 **North** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WA1100000022286**
K60 **ESE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**FED USGS**	**USGS40001207626**
K61 **ESE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WALOG1000194871**
K62 **ESE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WALOG1000194869**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
63 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207616**
L64 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194857**
L65 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194858**
L66 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194859**
L67 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194856**
L68 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194852**
L69 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194853**
L70 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194854**
L71 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194860**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
L72 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000323625**
L73 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000306839**
L74 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194872**
L75 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000363694**
L76 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000332838**
L77 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000326516**
L78 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194865**
L79 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194866**
L80 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194863**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
L81 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194861**
L82 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194862**
L83 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194868**
84 **SW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207150**
85 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194349**
M86 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194958**
M87 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194957**
M88 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194964**
M89 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194960**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
M90 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194942**
M91 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194953**
M92 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194889**
M93 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194913**
M94 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194965**
M95 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194989**
M96 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194992**
M97 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194967**
M98 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194969**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
99 **North** **1/2 - 1 Mile** **Lower**	Click here for full text details	**FED USGS**	**USGS40001207821**
100 **SSW** **1/2 - 1 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WALOG1000194962**
101 **ESE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WA1100000015873**
N102 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WA1100000002602**
N103 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WA1100000000681**
N104 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000375673**
N105 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000389514**
N106 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194951**
N107 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194966**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
N108 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194901**
N109 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194948**
N110 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000310618**
N111 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000328351**
N112 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194984**
N113 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000310617**
O114 **South** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207551**
O115 **South** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207552**
P116 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000302074**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
P117 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000600018**
P118 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000600019**
P119 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194985**
P120 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194986**
P121 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194987**
P122 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000600021**
P123 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000600020**
124 **NW** **1/2 - 1 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WALOG1000194346**
Q125 **NNE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WALOG1000194377**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
Q126 **NNE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WALOG1000194415**
127 **North** **1/2 - 1 Mile** **Lower**	Click here for full text details	**FED USGS**	**USGS40001207833**
128 **SW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207584**
Q129 **NE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WA1100000029399**
Q130 **NE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WA1100000005384**
R131 **SE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WA1100000021311**
R132 **SE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000002998**
R133 **SE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000002997**
R134 **SE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000002996**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
R135 **SE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000002999**
R136 **SE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194867**
R137 **SE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194864**
R138 **SE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194873**
R139 **SE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194870**
R140 **SE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000003006**
R141 **SE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000003000**
R142 **SE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000003008**
R143 **SE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000003007**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
144 SSW 1/2 - 1 Mile Lower	Click here for full text details	**FED USGS**	**USGS40001207553**
S145 West 1/2 - 1 Mile Higher	Click here for full text details	**FED USGS**	**USGS40001207677**
S146 West 1/2 - 1 Mile Higher	Click here for full text details	**FED USGS**	**USGS40001207678**
S147 West 1/2 - 1 Mile Higher	Click here for full text details	**FED USGS**	**USGS40001207687**
S148 West 1/2 - 1 Mile Higher	Click here for full text details	**FED USGS**	**USGS40001207676**
S149 West 1/2 - 1 Mile Higher	Click here for full text details	**FED USGS**	**USGS40001207686**
S150 West 1/2 - 1 Mile Higher	Click here for full text details	**FED USGS**	**USGS40001207694**
S151 West 1/2 - 1 Mile Higher	Click here for full text details	**FED USGS**	**USGS40001207685**
S152 West 1/2 - 1 Mile Higher	Click here for full text details	**FED USGS**	**USGS40001207692**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
S153 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207693**
S154 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207715**
S155 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207704**
S156 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207705**
S157 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207714**
S158 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207716**
S159 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207725**
S160 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207726**
S161 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207717**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
S162 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207724**
T163 **SW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194971**
T164 **SW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194996**
S165 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207672**
U166 **NW** **1/2 - 1 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WALOG1000200939**
U167 **NW** **1/2 - 1 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WALOG1000239217**
U168 **NW** **1/2 - 1 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WALOG1000296222**
V169 **South** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WA1100000000467**
V170 **South** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000405422**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
V171 **South** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000195089**
V172 **South** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000405425**
V173 **South** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000405424**
V174 **South** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000405423**
S175 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207688**
S176 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207679**
S177 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207680**
S178 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207695**
S179 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207707**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
S180 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207706**
S181 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207689**
182 **ENE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WALOG1000194878**
183 **NE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WALOG1000194411**
184 **NW** **1/2 - 1 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WA1100000029423**
W185 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000438820**
W186 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000438821**
W187 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000195144**
W188 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000438819**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
W189 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000438822**
W190 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000438829**
W191 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000438830**
W192 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000438827**
W193 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000438828**
W194 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000501185**
W195 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000501186**
W196 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000501183**
W197 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000501184**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
W198 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000438825**
W199 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000438826**
W200 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000438823**
W201 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000438824**
S202 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207690**
X203 **SSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WA1100000022206**
X204 **SSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WA1100000022207**
Y205 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207711**
Y206 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207718**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
Y207 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207710**
Y208 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207708**
Y209 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207709**
Y210 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207727**
Y211 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207728**
Y212 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207721**
Y213 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207719**
Y214 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207720**
Y215 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207699**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
Y216 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207697**
Y217 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207698**
Y218 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207696**
X219 **SSW** **1/2 - 1 Mile** **Lower**	Click here for full text details	**FED USGS**	**USGS40001207534**
Z220 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194916**
Z221 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194915**
Z222 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194918**
Z223 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194917**
Z224 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194910**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
Z225 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194908**
Z226 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194914**
Z227 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194911**
Z228 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194932**
Z229 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194931**
Z230 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194934**
Z231 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194933**
Z232 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194920**
Z233 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194919**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
Z234 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194930**
Z235 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194921**
Z236 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194895**
Z237 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194894**
Z238 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194897**
Z239 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194896**
Z240 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194892**
Z241 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194893**
Z242 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194890**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
Z243 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194891**
Z244 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194905**
Z245 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194904**
Z246 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194907**
Z247 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194906**
Z248 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194899**
Z249 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194898**
Z250 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194903**
Z251 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194902**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
Z252 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194935**
Z253 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194978**
Z254 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194979**
Z255 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194980**
Z256 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194976**
Z257 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194972**
Z258 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194973**
Z259 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194974**
Z260 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194990**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
Z261 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194991**
Z262 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000484109**
Z263 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194988**
Z264 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194981**
Z265 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194982**
Z266 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194983**
Z267 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194940**
Z268 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194944**
Z269 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194946**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
Z270 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194939**
Z271 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194936**
Z272 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194937**
Z273 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194938**
Z274 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194961**
Z275 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194963**
Z276 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194968**
Z277 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194959**
Z278 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194954**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
Z279 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194955**
Z280 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194956**
AA281 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207752**
282 **SE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207579**
283 **NNE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**FED USGS**	**USGS40001207861**
AA284 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207761**
285 **SW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207565**
AB286 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194923**
AB287 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194941**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
AB288 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194900**
AB289 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194922**
AB290 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000195002**
AB291 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000277153**
AB292 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194943**
AB293 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194950**
AC294 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WA1100000000376**
AA295 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194949**
AA296 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194952**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
AA297 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194975**
AA298 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194909**
AA299 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194945**
AA300 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194924**
AA301 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194912**
AA302 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000265220**
AA303 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000586069**
AA304 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000347278**
AA305 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000302075**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
306 **SE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207548**
AC307 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WA1100000000377**
AB308 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WA1100000004379**
AC309 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WA1100000000375**
AD310 **NNE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WALOG1000194379**
AD311 **NNE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WALOG1000194403**
AD312 **NNE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WALOG1000444428**
AD313 **NNE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WALOG1000632762**
AD314 **NNE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WALOG1000635203**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
AD315 **NNE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WALOG1000635943**
AC316 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207768**
AE317 **SE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WALOG1000301638**
AE318 **SE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WALOG1000194887**
AF319 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207723**
AF320 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207722**
AF321 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207729**
AF322 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207730**
AG323 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000778338**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
AG324 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000778337**
AG325 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000778339**
AG326 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000791228**
AG327 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000778347**
AG328 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000195123**
AG329 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000195140**
AG330 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000195141**
AG331 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000778336**
AG332 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000195142**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
AC333 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207770**
AH334 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207630**
AH335 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207628**
AE336 **ESE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**WA WELLS**	**WA1100000022233**
AI337 **SW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000109129**
AI338 **SW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000195113**
AI339 **SW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000195088**
AI340 **SW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000204073**
AI341 **SW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000321238**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
AI342 **SW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000321237**
AI343 **SW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000195067**
AI344 **SW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000195066**
AI345 **SW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000195070**
AI346 **SW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000195072**
AI347 **SW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000195071**
348 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207617**
AJ349 **NE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194400**
AJ350 **NE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194390**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
AK351 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457871**
AK352 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457870**
AK353 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457873**
AK354 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457872**
AK355 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457869**
AK356 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457866**
AK357 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457865**
AK358 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457868**
AK359 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457867**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
AK360 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457874**
AK361 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457881**
AK362 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457880**
AK363 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457883**
AK364 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457882**
AK365 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457879**
AK366 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457876**
AK367 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457875**
AK368 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457878**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
AK369 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457877**
AK370 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457852**
AK371 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457851**
AK372 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457854**
AK373 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457853**
AK374 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457850**
AK375 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194994**
AK376 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194993**
AK377 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457849**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
AK378 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457848**
AK379 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457855**
AK380 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457862**
AK381 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457861**
AK382 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457864**
AK383 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457863**
AK384 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457860**
AK385 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457857**
AK386 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457856**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
AK387 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457859**
AK388 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457858**
AK389 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457884**
AK390 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000480476**
AK391 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000480475**
AK392 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000480477**
AK393 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000480479**
AK394 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000480478**
AK395 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000480454**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
AK396 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000480453**
AK397 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000480455**
AK398 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000480457**
AK399 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000480456**
AK400 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000488568**
AK401 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000801518**
AK402 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000801532**
AK403 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000801517**
AK404 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000801513**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
AK405 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000801515**
AK406 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000498705**
AK407 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000494739**
AK408 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000498706**
AK409 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000500980**
AK410 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000500978**
AK411 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000458133**
AK412 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457891**
AK413 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457890**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
AK414 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457892**
AK415 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457894**
AK416 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457893**
AK417 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457888**
AK418 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457889**
AK419 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457887**
AK420 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457885**
AK421 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457886**
AK422 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457895**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
AK423 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457902**
AK424 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457901**
AK425 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457903**
AK426 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457905**
AK427 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457904**
AK428 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457897**
AK429 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457896**
AK430 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457898**
AK431 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457900**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
AK432 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000457899**
433 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207681**
AL434 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194356**
AL435 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194361**
AL436 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000600851**
AL437 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194355**
AL438 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194351**
AL439 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194347**
AL440 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194354**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
AL441 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194352**
AL442 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000600852**
AM443 **NE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194405**
AM444 **NE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194418**
AM445 **NE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194370**
446 **NNE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40001207873**
AN447 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WA1100000028715**
AN448 **WSW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WA1100000028714**
449 **NNE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**FED USGS**	**USGS40001207907**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
450 **South** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000195074**
AO451 **ENE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194880**
AO452 **ENE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194881**
AO453 **ENE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194883**
AO454 **ENE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194882**
AO455 **ENE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194875**
AO456 **ENE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194874**
AO457 **ENE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194879**
AO458 **ENE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194876**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
AO459 **ENE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194886**
AO460 **ENE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194888**
AO461 **ENE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194884**
AO462 **ENE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**WA WELLS**	**WALOG1000194885**
463 **North** **1/2 - 1 Mile** **Lower**	Click here for full text details	**FED USGS**	**USGS40001207914**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

Federal EPA Radon Zone for CLARK County: 1

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 98607

Number of sites tested: 5

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	1.420 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Ecology
Telephone: 360-407-6121

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Wells
Source: Department of Health
Telephone: 360-236-3148
Group A and B well locations.

Water Well Listing
Source: Public Utility District
Telephone: 206-779-7656
A listing of water well locations in Kitsap County.

Ecology Well Logs
Source: Department of Ecology
Telephone: 360-407-7294
Point geodatabase with a record for each Ecology well report. Points are located by quarter quarter section centroid. Points contain all well report types including water wells, resource protection wells, and decommissioned wells.

OTHER STATE DATABASE INFORMATION

Oil and Gas Well Listing
Source: Department of Natural Resources
Telephone: 360-902-1450
Locations that represent oil and gas test well sites in Washington State from 1890 to present.

RADON

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary faultlines, prepared in 1975 by the United State Geological Survey

STREET AND ADDRESS INFORMATION

Real-World Geotechnical Solutions
Investigation • Design • Construction Support

Geotechnical Engineering Report

Project Information:	Camas Meadows Subdivision, Phase 1 & 2 GeoPacific Project No. 21-5938 & 21-5939 December 28, 2021
Site Location:	4525, 4555 & 4615 NW Camas Meadows Dr. Camas, Washington 97217 Property IDs. 175980-000, 172973-000, 172963-000, 986035-734, 986035-733, 172970-000, & 986036-906
Client:	Kess Romano Romano Development 4660 NE 77th Avenue, Suite 200 Vancouver, WA 98662

14835 SW 72nd Avenue
Portland, Oregon 97224
Tel (503) 598-8445
Fax (503) 941-9281

TABLE OF CONTENTS

List of Appendices

List of Figures

Geotechnical Engineering Report
Project No. 21-5939, Camas Meadows Subdivision 1 & 2, Camas, Washington

1.0 PROJECT INFORMATION

This report presents the results of a geotechnical engineering study conducted by GeoPacific Engineering, Inc. (GeoPacific) for the above-referenced project. The purpose of our investigation was to evaluate subsurface conditions at the site, assess potential geologic hazards at the property, and to provide geotechnical recommendations for site development. This geotechnical study was performed in accordance with GeoPacific Proposal No. P-7920B, dated November 8, 2021, and your subsequent authorization of our proposal and *General Conditions for Geotechnical Services*.

2.0 SITE AND PROJECT DESCRIPTION

As indicated on Figures 1 through 3, the subject site is located at 4525-4615 NW Camas Meadows Drive in the City of Camas, Washington. The site is approximately 8.88 acres in size and consists of Clark County Properties 175980-000, 172973-000, 172963-000, 986035-734, 986035-733, 172970-000, & 986036-906. The properties are currently undeveloped with exception to an existing parking lot on the southeastern portion of the site. The site is primarily forested with medium to large size conifer, deciduous trees, grasses, and undergrowth. Topography onsite gently to moderately slopes down to the northwest with short slopes as steep as 30 percent near the northern property boundary.

Based on a preliminary site plan provided by AKS Engineering and Forestry, the proposed development will consist of approximately 60 lots with associated streets, stormwater management facilities and underground utilities, and the construction of associated underground utilities. A grading plan has not yet been provided for our review. However, we anticipate cuts and fills to be less than 10 feet.

3.0 REGIONAL GEOLOGIC SETTING

The *Geologic Map of the Lacamas Creek Quadrangle, Clark County, Washington, (*U.S. Department of the Interior, U.S. Geological Survey, 1998, Russell C. Evarts, 2006*)*, indicates that the site is underlain by late Pliocene to early Pleistocene-aged unconsolidated to semi-consolidated, thick-bedded, pebble to boulder conglomerate with matrix of volcanic lithic to micaceous, quartzo-feldspathic sand (QTc). Clasts are largely comprised of volcanic rocks eroded from the western Cascade Range and the Columbia River Basalt group (Qbgm).

According to the geologic mapping, the site lies near the contact of three other geologic units. To the north of the site, to the northwest of Lacamas Lake is comprised of Pliocene to Miocene-aged massive to crudely stratified, pebbly and cobble conglomerate, commonly referred to as the Troutdale Formation (Ttfc). The conglomerates are largely comprised of arkosic to basaltic sandstone, containing clasts of basalt, granit, and quartzo-feldspathic metamorphic rocks. To the east of the site, the Pliocene to Miocene-aged Hyaoclastic Sandstone Formation is present (Ttfh). The sandstone formation is commonly correlated with the upper portion of the Troutdale Formation, and is composed of indurated, coarse-grained sandstone and conglomerate composed largely of glassy to lithic basaltic debris. The area to the northeast of the site is comprised of a Quaternary-aged Gravel Facies (Qfg). The facies consists of unconsolidated peddle- to cobble-sized gravel which underlies Lacamas Creek Valley to the northwest of Lacamas Lake. Based on the geologic mapping, and our subsurface investigation at the site, it appears that the Pleistocene-aged conglomerates identified near ground surface (QTc) are likely underlain by the Troutdale Formation.

4.0 REGIONAL SEISMIC SETTING

At least three major fault zones capable of generating damaging earthquakes are thought to exist in the vicinity of the subject site. These include the Lacamas Creek/Sandy River Fault Zone, The Grant Butte and Damascus-Trickle Creek Fault Zone, and the Cascadia Subduction Zone.

4.1 Lacamas Creek / Sandy River Fault Zone

The northwest trending Lacamas Creek Fault intersects the northeast trending Sandy River Fault north of Camas, Washington at Lacamas Lake, approximately 0.5 miles northeast of the subject site. According to the USGS Earthquake Hazards Program the fault has been mapped as a normal fault with down-to-the-southwest displacement, and has also been described as a steeply northeast or southwest-dipping, oblique, right-lateral, slip-fault. The trace of the Lacamas Lake fault is marked by the very linear lower reach of Lacamas Creek. No fault scarps on Quaternary surficial deposits have been described. The Lacamas Lake fault offsets Pliocene-aged sedimentary conglomerates generally identified as the Troutdale formation, and Pliocene to Pleistocene aged basalts generally identified as the Boring Lava formation. Recent seismic reflection data across the probable trace of the fault under the Columbia River yielded no unequivocal evidence of displacement underlying the Missoula flood deposits, however, recorded mild seismic activity during the recent past indicates this area may be potentially seismogenic.

4.2 Grant Butte and Damascus-Trickle Creek Fault Zone

The Grant Butte fault zone was mapped along the north side of Mt. Scott and Powell Butte by Madin (1990). The fault is approximately 5.4 miles south of the subject site and extends eastward to Grant Butte on the basis of mapping by CH2M Hill and others (1991) and informally named the Grant Butte fault (Cornforth and Geomatrix, 1992). The Damascus-Trickle Creek fault zone displaces Pliocene and possibly Pleistocene sediments in the vicinity of Boring, Oregon (Madin,1992; Lite, 1992). Relatively short faults define a 17-km-long fault zone that is apparently linked to the Grant Butte fault on the basis of stratigraphic relationships showing middle and late Pleistocene activity. Geomatrix (1995) assigns a probability of 0.5 for activity on structures within these fault zones.

4.3 Cascadia Subduction Zone

The Cascadia Subduction Zone is a 680-mile-long zone of active tectonic convergence where oceanic crust of the Juan de Fuca Plate is subducting beneath the North American continent at a rate of 4 cm per year (Goldfinger et al., 1996). A growing body of geologic evidence suggests that prehistoric subduction zone earthquakes have occurred (Atwater, 1992; Carver, 1992; Peterson et al., 1993; Geomatrix Consultants, 1995). This evidence includes: (1) buried tidal marshes recording episodic, sudden subsidence along the coast of northern California, Oregon, and Washington, (2) burial of subsided tidal marshes by tsunami wave deposits, (3) paleoliquefaction features, and (4) geodetic uplift patterns on the Oregon coast. Radiocarbon dates on buried tidal marshes indicate a recurrence interval for major subduction zone earthquakes of 250 to 650 years with the last event occurring 300 years ago (Atwater, 1992; Carver, 1992; Peterson et al., 1993; Geomatrix Consultants, 1995). The inferred seismogenic portion of the plate interface lies approximately along the Oregon Coast at depths of between 20 and 40 kilometers below the surface.

5.0 FIELD EXPLORATION AND SUBSURFACE CONDITIONS

Our subsurface explorations for this report were conducted on December 1, 2021. A total of ten test pits (TP-1 through TP-10) were excavated at the site using a track-mounted excavator to a maximum depth of 11 feet bgs. Explorations were conducted under the full-time observation of a GeoPacific engineering staff member. During the explorations pertinent information including soil sample depths, stratigraphy, soil engineering characteristics, and groundwater occurrence was recorded. Soils were classified in accordance with the Unified Soil Classification System (USCS). Soil samples obtained from the explorations were placed in relatively air-tight plastic bags. At the completion of each test, the test pits were loosely backfilled with onsite soils. The approximate locations of the explorations are indicated on Figures 2 and 3.

It should be noted that exploration locations were located in the field by pacing or taping distances from apparent property corners and other site features shown on the plans provided. As such, the locations of the explorations should be considered approximate. Summary exploration logs are attached. The stratigraphic contacts shown on the individual test pit logs represent the approximate boundaries between soil types. The actual transitions may be more gradual. The soil and groundwater conditions depicted are only for the specific dates and locations reported, and therefore, are not necessarily representative of other locations and times. Soil and groundwater conditions encountered in the explorations are summarized below.

5.1 Soil Descriptions

Topsoil Horizon: Underlying the ground surface at the location of test pits TP-1 through TP-10, we encountered a topsoil horizon that consisted of dark brown, very moist, soft, moderately organic SILT (ML-OL). The topsoil horizon ranged from approximately 6 to 12 inches deep, and contained fine to medium-sized roots. The depth of organic soils will increase where trees are present.

Catastrophic Flood Deposits: Underlying the topsoil horizon at the location of our explorations, we encountered fine-grained catastrophic flood deposits. These soils generally consisted of medium stiff to very stiff, brown, Clayey SILT and SILTY CLAY (CL-ML) with Sand. The flood deposits generally extended to a depth of 2 to 6 feet below the ground surface.

Conglomerate: Underlying the flood deposits at the location of our explorations, we encountered conglomerate. These soils generally consisted of medium dense to very dense subrounded gravel (GC) with clayey silt to silty clay matrix or stiff to very stiff. In test pits TP-1 through TP-3, TP-5, and TP-6, a 1-3-foot-thick layer of medium dense Silty Sand (SM) with trace subrounded gravel was encountered below the flood deposits. The conglomerate was partially cemented and extended beyond the maximum depth of exploration within our test pits (6 to 11 feet). Practical refusal with a medium sized excavator was not encountered. However, very slow digging was encountered at depths ranging from 4.5 to 8.5 feet below the ground surface.

5.2 Shrink-Swell Potential

Low plasticity fine-grained soils were encountered near the ground surface within subsurface explorations conducted at the site. Based upon the results of our observations, laboratory testing, and our local experience with the soil layers in the vicinity of the subject site, the shrink-swell potential of the soil types is considered to be low. Special design measures are not considered necessary to

minimize the risk of uncontrolled damage of foundations as a result of potential soil expansion at this site.

5.3 Groundwater and Soil Moisture

On December 1, 2021 observed soil moisture conditions were generally very moist to wet. Static groundwater was not observed within our test pit explorations, and light groundwater seepage was observed in thin layers within test pit TP-3, TP-5 through TP-7, and TP-9 at the approximate contact with very dense conglomerate. According to *Clark County Maps Online*, the static groundwater table in the vicinity of the subject site is expected to be present at depths ranging from 10 to 40 feet bgs. It is anticipated that groundwater conditions will vary depending on the season, local subsurface conditions, changes in site utilization, and other factors. Perched groundwater may be encountered in localized areas. Seeps and springs may exist in areas not explored and may become evident during site grading.

5.4 Infiltration Testing

GeoPacific conducted soil infiltration testing within test pit TP-3 using the single-ring, encased falling head permeability test method in general accordance with the Clark County Stormwater Manual. Where encased falling-head testing was conducted, the infiltration tests were prepared by carefully inserting rigid standpipe into undisturbed soil or hollow stem augers at the target depths. Prior to conducting the infiltration test, a pre-saturation period of two hours was conducted before recorded measurements and allowing the soil at the bottom of the tests to become fully saturated. In-situ soil moisture contents were generally observed to be near full saturation at the time of testing. Following the saturation period, the infiltration tests were conducted. During testing the water level was measured to the nearest tenth of an inch with reference to the ground surface. Tests were continued until three successive measurements did not vary by more than 1/10th of an inch. Using Equation 1 of the Clark County Stormwater Manual, Appendix 1-C, Page C-2, Infiltration Test Methods (Darcy's Law), the hydraulic conductivity of the soils was calculated at each test location:

$$k = \frac{L}{t} \ln \frac{\mathrm{h1}}{\mathrm{h2}}$$

k = coefficient of permeability (inches per hour)
L = length of flow (inches)
t = time (hours)
h_1 = initial head (inches)
h_2 = final head (inches)

Infiltration rates are presented in Table 1 as a hydraulic conductivity (k) in inches per hour, and have been reported without applying a factor of safety. Soils at the test locations were observed and sampled in order to characterize the subsurface profile. Soil type descriptions are based upon laboratory analysis and visual assessment of collected samples, and are presented in the attached exploration logs. Exploration locations are indicated on Figures 2 & 3.

Table 1. Summary of Infiltration Test Results

Infiltration Test	Test Location	Depth (feet bgs)	Soil Type	Infiltration Rate (*k*) (in/hr)
IT-1	TP-3	4	SM	0.2

6.0 CONCLUSIONS AND RECOMMENDATIONS

Our site investigation indicates that the proposed construction appears to be geotechnically feasible, provided that the recommendations of this report are incorporated into the design and construction phases of the project. The primary geotechnical constraints to development as proposed include the presence of dense to very dense conglomerate which may present difficult or slow excavating conditions for deep cuts and excavation of utility trenches. The depth and location where dense to very dense conglomerate was observed during our site investigation is presented on Figures 2 and 3.

The following report sections provide recommendations for site development and construction in accordance with the current applicable codes and local standards of practice.

6.1 Site Preparation Recommendations

Areas of proposed construction and areas to receive fill should be cleared of any organic and inorganic debris, and loose stockpiled soils. Inorganic debris and organic materials from clearing should be removed from the site. Organic-rich soils and root zones should then be stripped from construction areas of the site or where engineered fill is to be placed. Depth of stripping of existing organic topsoil is estimated to be approximately 6 to 18 inches at the site and will be deepest where trees are present. Following removal of topsoil, the existing ground surface should be aerated, scarified and recompacted.

The final depth of soil removal should be determined by the geotechnical engineer or designated representative during site inspection while stripping/excavation is being performed. Stripped topsoil should be removed from areas proposed for placement of engineered fill and structures. Any remaining topsoil should be stockpiled only in designated areas and stripping operations should be observed and documented by the geotechnical engineer or his representative.

Where/if encountered, undocumented fills and any subsurface structures (dry wells, basements, driveway and landscaping fill, old utility lines, septic leach fields, etc.) should be completely removed and the excavations backfilled with engineered fill. Although we did not observe any undocumented fill within our test pit explorations, several feet of undocumented fill should be anticipated in the vicinity of the existing parking lot.

Site earthwork may be impacted by wet weather conditions. Stabilization of subgrade soils may require aeration and re-compaction. If subgrade soils are found to be difficult to stabilize, over-excavation, placement of granular soils, or cement treatment of subgrade soils may be feasible options. GeoPacific should be onsite to observe preparation of subgrade soil conditions prior to placement of engineered fill.

6.2 Engineered Fill

All grading for the proposed development should be performed as engineered grading in accordance with the applicable building code at time of construction with the exceptions and additions noted herein. Proper test frequency and earthwork documentation usually requires daily observation and testing during stripping, rough grading, and placement of engineered fill. Imported fill material must be approved by the geotechnical engineer before being imported to the site. Oversize material greater than 6 inches in size should not be used within 3 feet of foundation footings, and material greater than 12 inches in diameter should not be used in engineered fill.

Engineered fill should be compacted in horizontal lifts not exceeding 8 inches using standard compaction equipment. We recommend that engineered fill be compacted to at least 95% of the maximum dry density determined by ASTM D698 (Standard Proctor) or equivalent. Field density testing should conform to ASTM D2922 and D3017, or D1556. All engineered fill should be observed and tested by the project geotechnical engineer or their representative. Typically, one density test is performed for at least every 2 vertical feet of fill placed or every 500 yd^3, whichever requires more testing. Because testing is performed on an on-call basis, we recommend that the earthwork contractor be held contractually responsible for test scheduling and frequency.

Onsite native soils appear to be suitable for use as engineered fill. Soils containing greater than 5 percent organic content should not be used as structural fill. Imported fill material must be approved by the geotechnical engineer prior to being imported to the site. Oversize material greater than 6 inches in size should not be used within 3 feet of foundation footings, and material greater than 12 inches in diameter should not be used in engineered fill.

Site earthwork may be impacted by shallow groundwater, soil moisture and wet weather conditions. Earthwork in wet weather would likely require extensive use of additional crushed aggregate, cement or lime treatment, or other special measures, at considerable additional cost compared to earthwork performed under dry-weather conditions.

6.3 Keyways and Benching for Engineered Fill on Slopes

Engineered fill to be placed in sloping areas inclining steeper than 20% grade should be constructed on a keyway and benches in accordance with the typical design shown in Figure 4. Keyways should have a minimum depth of 2 feet and minimum width of 10 feet. Additional removals of potentially unstable soils may be required depending on conditions observed during construction. Both benches and keyways should be roughly horizontal in the down slope direction, but may slope up to 20% grade along topographic contour. Keyways sloping more than 20% grade along topographic contour should be benched.

The keyway should include a subdrain consisting of a minimum 3-inch-diameter, ADS Heavy Duty grade (or equivalent), perforated plastic pipe enveloped in a minimum of 3 cubic feet per lineal foot of 2”- ½”, open-graded gravel drain rock wrapped with geotextile filter fabric (Mirafi 140N or equivalent). GeoPacific should inspect keyways, subdrains and benching prior to fill placement. Areas of potential seepage observed during construction may require a rock blanket drain in the keyway bottom.

We recommend that permanent fill and cut slopes be constructed no steeper than 2H:1V (50% grade). Fill slopes should be overbuilt a minimum of 3 feet horizontally beyond finish grade and then trimmed back to finish grade as shown in figure in order to achieve a well compacted slope face.

6.4 Excavating Conditions and Utility Trench Backfill

We anticipate that onsite soils can generally be excavated using conventional heavy equipment. Bedrock was not encountered within our subsurface explorations which extended to a maximum depth of 11 feet bgs. However, dense to very dense conglomerate was encountered at depths between 2 and 8.5 feet below the ground surface which may present difficult or slow excavating conditions during deep cuts or during utility trench excavation. The depth and location where dense to very dense conglomerate was observed during our site investigation is presented on Figures 2 and 3.

All temporary cuts in excess of 4 feet in height should be sloped in accordance with U.S. Occupational Safety and Health Administration (OSHA) regulations (29 CFR Part 1926) or be shored. The existing native fine-grained soils classify as Type B Soil and temporary excavation side slope inclinations as steep as 1H:1V may be assumed for planning purposes, and the existing native coarse-grained soils classify as Type C soil and temporary excavation side slope inclinations as steep as 1.5H:1V may be assumed for planning purposes. This cut slope inclination is applicable to excavations above the water table only. Maintenance of safe working conditions, including temporary excavation stability, is the responsibility of the contractor. Actual slope inclinations at the time of construction should be determined based on safety requirements and actual soil and groundwater conditions.

Saturated soils and groundwater may be encountered in utility trenches, particularly during the wet season. We anticipate that dewatering systems consisting of ditches, sumps and pumps would be adequate for control of perched groundwater. Regardless of the dewatering system used, it should be installed and operated such that in-place soils are prevented from being removed along with the groundwater.

Vibrations created by traffic and construction equipment may cause some caving and raveling of excavation walls. In such an event, lateral support for the excavation walls should be provided by the contractor to prevent loss of ground support and possible distress to existing or previously constructed structural improvements.

PVC pipe should be installed in accordance with the procedures specified in ASTM D2321. We recommend that trench backfill be compacted to at least 95% of the maximum dry density obtained by Standard Proctor ASTM D698 or equivalent. Initial backfill lift thickness for a ¾”-0 crushed aggregate base may need to be as great as 4 feet to reduce the risk of flattening underlying flexible pipe. Subsequent lift thickness should not exceed 1 foot. If imported granular fill material is used, then the lifts for large vibrating plate-compaction equipment (e.g. hoe compactor attachments) may be up to 2 feet, provided that proper compaction is being achieved and each lift is tested. Use of large vibrating compaction equipment should be carefully monitored near existing structures and improvements due to the potential for vibration-induced damage.

Adequate density testing should be performed during construction to verify that the recommended relative compaction is achieved. Typically, one density test is taken for every 4 vertical feet of backfill on each 200-lineal-foot section of trench.

6.5 Erosion Control Considerations

During our field exploration program, we did not observe soil and topographic conditions which are considered highly susceptible to erosion. In our opinion, the primary concern regarding erosion potential will occur during construction in areas that have been stripped of vegetation. Erosion at the site during construction can be minimized by implementing the project erosion control plan, which should include judicious use of straw waddles, fiber rolls, and silt fences. If used, these erosion control devices should remain in place throughout site preparation and construction.

Erosion and sedimentation of exposed soils can also be minimized by quickly re-vegetating exposed areas of soil, and by staging construction such that large areas of the project site are not denuded and exposed at the same time. Areas of exposed soil requiring immediate and/or temporary protection against exposure should be covered with either mulch or erosion control netting/blankets. Areas of exposed soil requiring permanent stabilization should be seeded with an approved grass seed mixture, or hydroseeded with an approved seed-mulch-fertilizer mixture.

6.6 Wet Weather Earthwork

Soils underlying the site are likely to be moisture sensitive and will be difficult to handle or traverse with construction equipment during periods of wet weather. Earthwork is typically most economical when performed under dry weather conditions. Earthwork performed during the wet-weather season will require expensive measures such as cement treatment or imported granular material to compact areas where fill may be proposed to the recommended engineering specifications. If earthwork is to be performed or fill is to be placed in wet weather or under wet conditions when soil moisture content is difficult to control, the following recommendations should be incorporated into the contract specifications.

- Earthwork should be performed in small areas to minimize exposure to wet weather. Excavation or the removal of unsuitable soils should be followed promptly by the placement and compaction of clean engineered fill. The size and type of construction equipment used may have to be limited to prevent soil disturbance. Under some circumstances, it may be necessary to excavate soils with a backhoe to minimize subgrade disturbance caused by equipment traffic;
- The ground surface within the construction area should be graded to promote run-off of surface water and to prevent the ponding of water;
- Material used as engineered fill should consist of clean, granular soil containing less than 5 percent passing the No. 200 sieve. The fines should be non-plastic. Alternatively, cement treatment of on-site soils may be performed to facilitate wet weather placement;
- The ground surface within the construction area should be sealed by a smooth drum vibratory roller, or equivalent, and under no circumstances should be left uncompacted and exposed to moisture. Soils which become too wet for compaction should be removed and replaced with clean granular materials;

- Excavation and placement of fill should be observed by the geotechnical engineer to verify that all unsuitable materials are removed and suitable compaction and site drainage is achieved; and
- Geotextile silt fences, straw wattles, and fiber rolls should be strategically located to control erosion.

If cement or lime treatment is used to facilitate wet weather construction, GeoPacific should be contacted to provide additional recommendations and field monitoring.

6.7 Spread Foundations

GeoPacific understands that development at the site will include demolition of the existing home and development of residential building lots supporting construction of new single-family residential homes. We expect the homes to be constructed with typical spread foundations incorporating continuous strip footings, and square column footings, with post and beam wood-framing above.

The proposed structures may be supported on shallow foundations bearing on stiff, native soils and/or engineered fill, appropriately designed and constructed as recommended in this report. Foundation design, construction, and setback requirements should conform to the applicable building code at the time of construction. For maximization of bearing strength and protection against frost heave, spread footings should be embedded at a minimum depth of 18 inches below exterior grade. If soft soil conditions are encountered at footing subgrade elevation, they should be removed and replaced with compacted crushed aggregate.

The anticipated allowable soil bearing pressure is 2,000 lbs/ft^2 for footings bearing on competent, native soil and/or engineered fill. The recommended maximum allowable bearing pressure may be increased by 1/3 for short-term transient conditions such as wind and seismic loading. For loads heavier than 35 kips, the geotechnical engineer should be consulted. If heavier loads than described above are proposed, it may be necessary to over-excavate point load areas and replace with additional compacted crushed aggregate to achieve a higher allowable bearing capacity. The coefficient of friction between on-site soil and poured-in-place concrete may be taken as 0.42, which includes no factor of safety. The maximum anticipated total and differential footing movements (generally from soil expansion and/or settlement) are 1 inch and ¾ inch over a span of 20 feet, respectively. We anticipate that the majority of the estimated settlement will occur during construction, as loads are applied. Excavations near structural footings should not extend within a 1H:1V plane projected downward from the bottom edge of footings.

Footing excavations should penetrate through topsoil and any disturbed soil to competent subgrade that is suitable for bearing support. All footing excavations should be trimmed neat, and all loose or softened soil should be removed from the excavation bottom prior to placing reinforcing steel bars. Due to the moisture sensitivity of on-site native soils, foundations constructed during the wet weather season may require over-excavation of footings and backfill with compacted, crushed aggregate.

Our recommendations are for residential construction incorporating raised wood floors and conventional spread footing foundations. After site development, a Final Soil Engineer's Report should either confirm or modify the above recommendations.

6.8 Concrete Slabs-on-Grade

Preparation of areas beneath concrete slab-on-grade floors should be performed as described in Section 6.1, *Site Preparation Recommendations* and Section 6.6, *Spread Foundations*. Care should be taken during excavation for foundations and floor slabs, to avoid disturbing subgrade soils. If subgrade soils have been adversely impacted by wet weather or otherwise disturbed, the surficial soils should be scarified to a minimum depth of 8 inches, moisture conditioned to within about 3 percent of optimum moisture content and compacted to engineered fill specifications. Alternatively, disturbed soils may be removed, and the removal zone backfilled with additional crushed rock.

For evaluation of the concrete slab-on-grade floors using the beam on elastic foundation method, a modulus of subgrade reaction of 150 kcf (87 pci) should be assumed for the stiff, fine -grained soils anticipated to be present at foundation subgrade elevation following adequate site preparation as described above. This value assumes the concrete slab system is designed and constructed as recommended herein, with a minimum thickness of 8 inches of 1½"-0 crushed aggregate beneath the slab. The total thickness of crushed aggregate will be dependent on the subgrade conditions at the time of construction and should be verified visually by proof-rolling. Under-slab aggregate should be compacted to at least 95 percent of its maximum dry density as determined by ASTM D1557 (Modified Proctor) or equivalent.

In areas where moisture will be detrimental to floor coverings or equipment inside the proposed structure, appropriate vapor barrier and damp-proofing measures should be implemented. A commonly applied vapor barrier system consists of a 10-mil polyethylene vapor barrier placed directly over the capillary break material. Other damp/vapor barrier systems may also be feasible. Appropriate design professionals should be consulted regarding vapor barrier and damp proofing systems, ventilation, building material selection and mold prevention issues, which are outside GeoPacific's area of expertise.

6.9 Footing and Roof Drains

Construction should include typical measures for controlling subsurface water beneath the structures, including positive crawlspace drainage to an adequate low-point drain exiting the foundation, visqueen covering the exposed ground in the crawlspace, and crawlspace ventilation (foundation vents). The client should be informed and educated that some slow flowing water in the crawlspaces is considered normal and not necessarily detrimental to the structures given these other design elements incorporated into construction. Appropriate design professionals should be consulted regarding crawlspace ventilation, building material selection and mold prevention issues, which are outside GeoPacific's area of expertise.

Down spouts and roof drains should collect roof water in a system separate from the footing drains to reduce the potential for clogging. Roof drain water should be directed to an appropriate discharge point and storm system well away from structural foundations. Grades should be sloped downward and away from buildings to reduce the potential for ponded water near structures.

Perimeter footing drains may be eliminated at the discretion of the geotechnical engineer based on soil conditions encountered at the site and experience with standard local construction practices. Where it is desired to reduce the potential for moist crawl spaces, footing drains may be installed. If

concrete slab-on-grade floors are used, perimeter footing drains should be installed as recommended below.

Where deemed necessary, perimeter footing drains should consist of 3 or 4-inch diameter, perforated plastic pipe embedded in a minimum of 1 ft^3 per lineal foot of clean, free-draining drain rock. The drain-pipe and surrounding drain rock should be wrapped in non-woven geotextile (Mirafi 140N, or approved equivalent) to minimize the potential for clogging and/or ground loss due to piping. A minimum 0.5 percent fall should be maintained throughout the drain and non-perforated pipe outlet. In our opinion, footing drains may outlet at the curb, or on the back sides of lots where sufficient fall is not available to allow drainage to meet the street.

6.10 Permanent Below-Grade Walls

Lateral earth pressures against below-grade retaining walls will depend upon the inclination of any adjacent slopes, type of backfill, degree of wall restraint, method of backfill placement, degree of backfill compaction, drainage provisions, and magnitude and location of any adjacent surcharge loads. At-rest soil pressure is exerted on a retaining wall when it is restrained against rotation. In contrast, active soil pressure will be exerted on a wall if its top is allowed to rotate or yield a distance of roughly 0.001 times its height or greater.

If the subject retaining walls will be free to rotate at the top, they should be designed for an active earth pressure equivalent to that generated by a fluid weighing 35 pcf for level backfill against the wall. For restrained wall, an at-rest equivalent fluid pressure of 55 pcf should be used in design, again assuming level backfill against the wall. These values assume that the recommended drainage provisions are incorporated, hydrostatic pressures are not allowed to develop against the wall, and walls are backfilled with engineered fill. Additional fluid pressures for different sloping conditions are presented on Table 2 below.

Table 2: Retaining Wall Pressures

Backslope	Active Pressure (psf)	At Rest (psf)
Level	35	55
3H:1V	45	65
2H:1V	55	75

During a seismic event, lateral earth pressures acting on below-grade structural walls will increase by an incremental amount that corresponds to the earthquake loading. Based on the Mononobe-Okabe equation and peak horizontal accelerations appropriate for the site location, seismic loading should be modeled using the active or at-rest earth pressures recommended above, plus an incremental rectangular-shaped seismic load of magnitude 6.5H, where H is the total height of the wall. Additional seismic loading for different sloping conditions is presented on Table 5 below.

Table 3: Seismic Load for Retaining Walls

Backslope	Mononobe Okabe
Level	6.5H
3H:1V	8H
2H:1V	10H

We assume relatively level ground surface below the base of the walls. As such, we recommend passive earth pressure of 320 pcf for use in design, assuming wall footings are cast against competent native soils or engineered fill. If the ground surface slopes down and away from the base of any of the walls, a lower passive earth pressure should be used and GeoPacific should be contacted for additional recommendations.

A coefficient of friction of 0.45 may be assumed along the interface between the base of the wall footing and subgrade soils. The recommended coefficient of friction and passive earth pressure values do not include a safety factor, and an appropriate safety factor should be included in design. The upper 12 inches of soil should be neglected in passive pressure computations unless it is protected by pavement or slabs on grade.

The above recommendations for lateral earth pressures assume that the backfill behind the subsurface walls will consist of properly compacted structural fill, and no adjacent surcharge loading. If the walls will be subjected to the influence of surcharge loading within a horizontal distance equal to or less than the height of the wall, the walls should be designed for the additional horizontal pressure. For uniform surcharge pressures, a uniformly distributed lateral pressure of 0.3 times the surcharge pressure should be added. Traffic surcharges may be estimated using an additional vertical load of 250 psf (2 feet of additional fill), in accordance with local practice.

The recommended equivalent fluid densities assume a free-draining condition behind the walls so that hydrostatic pressures do not build-up. This can be accomplished by placing a 12- to 18-inch wide zone of sand and gravel containing less than 5 percent fines against the walls. A 3-inch minimum diameter perforated, plastic drain pipe should be installed at the base of the walls and connected to a suitable discharge point to remove water in this zone of sand and gravel. The drain pipe should be wrapped in filter fabric (Mirafi 140N or other as approved by the geotechnical engineer) to minimize clogging.

GeoPacific should be contacted during construction to verify subgrade strength in wall keyway excavations, to verify that backslope soils are in accordance with our assumptions, and to take density tests on the wall backfill materials.

Structures should be located a horizontal distance of at least 1.5H away from the back of the retaining wall, where H is the total height of the wall. GeoPacific should be contacted for additional foundation recommendations where structures are located closer than 1.5H to the top of any wall. The upper 12 inches of soil should be neglected in passive pressure computations unless it is protected by pavement or slabs on grade.

The above recommendations for lateral earth pressures assume that the backfill behind the subsurface walls will consist of properly compacted structural fill, and no adjacent surcharge loading. If the walls will be subjected to the influence of surcharge loading within a horizontal distance equal to or less than the height of the wall, the walls should be designed for the additional horizontal pressure. For uniform surcharge pressures, a uniformly distributed lateral pressure of 0.3 times the surcharge pressure should be added. Traffic surcharges may be estimated using an additional vertical load of 250 psf (2 feet of additional fill), in accordance with local practice.

The recommended equivalent fluid densities assume a free-draining condition behind the walls so that hydrostatic pressures do not build-up. This can be accomplished by placing a 12 to 18-inch wide zone of sand and gravel containing less than 5 percent passing the No. 200 sieve against the walls. A 3-inch minimum diameter perforated, plastic drain-pipe should be installed at the base of the walls and connected to a suitable discharge point to remove water in this zone of sand and gravel. The drain-pipe should be wrapped in filter fabric (Mirafi 140N or other as approved by the geotechnical engineer) to minimize clogging.

Wall drains are recommended to prevent detrimental effects of surface water runoff on foundations – not to dewater groundwater. Drains should not be expected to eliminate all potential sources of water entering a basement or beneath a slab-on-grade. An adequate grade to a low point outlet drain in the crawlspace is required by code. Underslab drains are sometimes added beneath the slab when placed over soils of low permeability and shallow, perched groundwater.

Water collected from the wall drains should be directed into the local storm drain system or other suitable outlet. A minimum 0.5 percent fall should be maintained throughout the drain and non-perforated pipe outlet. Down spouts and roof drains should not be connected to the wall drains in order to reduce the potential for clogging. The drains should include clean-outs to allow periodic maintenance and inspection. Grades around the proposed structure should be sloped such that surface water drains away from the building.

GeoPacific should be contacted during construction to verify subgrade strength in wall keyway excavations, to verify that backslope soils are in accordance with our assumptions, and to take density tests on the wall backfill materials.

7.0 Flexible Pavement Design

We understand that new flexible pavement sections will be constructed at the subdivision which may include construction of a new streets providing access to the new homes.

7.1 Flexible Pavement Design: Private Streets, 20-Year Criteria

As indicated on Figure 3, we understand new interior street construction will consist of construction of private streets throughout the subdivision. For analysis and design purposes, we conservatively assume that the native subgrade soils will exhibit a resilient modulus of 6,000 psi under saturated conditions, which correlates to a CBR value of 4.

We assume that the streets will be subjected to vehicle traffic primarily consisting of light duty passenger vehicles, weekly trash trucks, and occasional fire trucks weighing up to 75,000 lbs. Based upon the anticipated traffic, we calculated an anticipated 18-kip ESAL count of approximately 56,322 over 20 years (through 2041). Table 4 presents our flexible pavement design input parameters and required structural number based on the anticipated traffic impacts to the roadways over a 20-year period. Table 5 presents our recommended minimum dry-weather pavement section supporting 20 years of vehicle traffic per Clark County standards.

Table 4: Flexible Pavement Section Design Input Parameters

Input Parameter	Design Value
18-kip ESAL Initial Performance Period (20 Years)	56,322
Initial Serviceability	4.2
Terminal Serviceability	2.5
Reliability Level	90 Percent
Overall Standard Deviation	0.5
Roadbed Soil Resilient Modulus (PSI)	6,000
Structural Number	**2.41**

Table 5: Recommended Minimum Dry-Weather Pavement Section: Private Streets

Material Layer	Section Thickness (in.)	Structural Coefficient	Compaction Standard
Asphaltic Concrete (AC)	3 in.	.42	91%/ 92% of Rice Density AASHTO T-209
Crushed Aggregate Base ¾"-0 (leveling course)	2 in.	.10	95% of Modified Proctor AASHTO T-180
Crushed Aggregate Base 1½"-0	10 in.	.10	95% of Modified Proctor AASHTO T-180
Subgrade	12 in.	6,000 PSI	95% of Standard Proctor AASHTO T-99 or equivalent
Total Calculated Structural Number		**2.46**	

7.2 Subgrade Preparation

Roadway subgrade soils should be compacted and inspected by GeoPacific prior to the placement of crushed aggregate base for pavement. Typically, a proofroll with a fully loaded water or haul truck is conducted by travelling slowly across the grade and observing the subgrade for rutting, deflection, or movement. Any pockets of organic debris or loose fill encountered during ripping or tilling should be removed and replaced with engineered fill (see Section 6.1, *Site Preparation Recommendations*). In order to verify subgrade strength, we recommend proof-rolling directly on subgrade with a loaded dump truck during dry weather and on top of base course in wet weather. Soft areas that pump, rut, or weave should be stabilized prior to paving.

If pavement areas are to be constructed during wet weather, the subgrade and construction plan should be reviewed by the project geotechnical engineer at the time of construction so that condition specific recommendations can be provided. The moisture sensitive subgrade soils make the site a difficult wet weather construction project. General recommendations for wet weather pavement sections are provided below.

During placement of pavement section materials, density testing should be performed to verify compliance with project specifications. Generally, one subgrade, one base course, and one asphalt compaction test is performed for every 100 to 200 linear feet of paving.

7.3 Wet Weather Construction Pavement Section

This section presents our recommendations for wet weather pavement sections and construction for new pavement sections at the project. These wet weather pavement section recommendations are intended for use in situations where it is not feasible to compact the subgrade soils to project requirements, due to wet subgrade soil conditions, and/or construction during wet weather. Based on our site review, we recommend a wet weather section with a minimum subgrade deepening of 6 to 12 inches to accommodate a working subbase of additional 1½"-0 crushed rock. Geotextile fabric, Mirafi 500x or equivalent, should be placed on subgrade soils prior to placement of base rock.

In some instances, it may be preferable to use a subbase material in combination with over-excavation and increasing the thickness of the rock section. GeoPacific should be consulted for additional recommendations regarding use of additional subbase in wet weather pavement sections if it is desired to pursue this alternative. Cement treatment of the subgrade may also be considered instead of over-excavation. For planning purposes, we anticipate that treatment of the onsite soils would involve mixing cement powder to approximately 6 percent cement content and a mixing depth on the order of 12 to 18 inches.

With implementation of the above recommendations, it is our opinion that the resulting pavement section will provide equivalent or greater structural strength than the dry weather pavement section currently planned. However, it should be noted that construction in wet weather is risky and the performance of pavement subgrades depend on a number of factors including the weather conditions, the contractor's methods, and the amount of traffic the road is subjected to. There is a potential that soft spots may develop even with implementation of the wet weather provisions recommended in this letter. If soft spots in the subgrade are identified during roadway excavation, or develop prior to paving, the soft spots should be over-excavated and backfilled with additional crushed rock.

During subgrade excavation, care should be taken to avoid disturbing the subgrade soils. Removals should be performed using an excavator with a smooth-bladed bucket. Truck traffic should be limited until an adequate working surface has been established. We suggest that the crushed rock be spread using bulldozer equipment rather than dump trucks, to reduce the amount of traffic and potential disturbance of subgrade soils. Care should be taken to avoid over-compaction of the base course materials, which could create pumping, unstable subgrade soil conditions. Heavy and/or vibratory compaction efforts should be applied with caution. Following placement and compaction of the crushed rock to project specifications (95 percent of Modified Proctor), a finish proof-roll should be performed before paving.

The above recommendations are subject to field verification. GeoPacific should be on-site during construction to verify subgrade strength and to take density tests on the engineered fill, base rock and asphaltic pavement materials.

8.0 SEISMIC DESIGN

Structures should be designed to resist earthquake loading in accordance with the methodology described in the 2018 International Building Code (IBC). We recommend Site Class C be used for design per the OSSC, and as defined in ASCE 7. Design values determined for the site using the

ATC (Applied Technology Council) *ASCE 7-16 Hazards by Location online Tool* website are summarized in Table 6 and are based upon existing soil conditions.

Table 6: Recommended Earthquake Ground Motion Parameters (ASCE-7-16)

Parameter	Value
Location (Lat, Long), degrees	45.744, -123.633
Probabilistic Ground Motion Values, 2% Probability of Exceedance in 50 yrs	
Peak Ground Acceleration PGA_M	0.445 g
Short Period, S_s	0.796 g
1.0 Sec Period, S_1	0.369 g
Soil Factors for Site Class C:	
F_a	1.182
F_v	1.931
$SD_s = 2/3 \times F_a \times S_s$	0.627 g
$SD_1 = 2/3 \times F_v \times S_1$	0.475 g
Seismic Design Category	D

8.1 Soil Liquefaction

Soil liquefaction is a phenomenon wherein saturated soil deposits temporarily lose strength and behave as a liquid in response to ground shaking caused by strong earthquakes. Soil liquefaction is generally limited to loose, sands and granular soils located below the water table, and fine-grained soils with a plasticity index less than 15. Static groundwater was not encountered in explorations which extended to a maximum depth of 11 feet below the ground surface. According to *Clark County Maps Online*, the static groundwater table in the vicinity of the subject site is expected to be present at depths ranging from 10 to 40 feet bgs, and the site is being mapped as being in an area considered to be at low risk to very low risk for soil liquefaction.

The subsurface profile observed within our explorations and our experience with geologic conditions in the site vicinity indicate that the site is underlain by fine-grained, clayey soils, and very dense conglomerate below the water table which are not considered to be at risk for liquefaction. Based on the results of our subsurface investigation and our understanding of the geologic conditions in the site vicinity, it is our opinion that the risk of liquefaction at the site is very low.

9.0 UNCERTAINTIES AND LIMITATIONS

We have prepared this report for the owner and their consultants for use in design of this project only. This report should be provided in its entirety to prospective contractors for bidding and estimating purposes; however, the conclusions and interpretations presented in this report should not be construed as a warranty of the subsurface conditions. Experience has shown that soil and groundwater conditions can vary significantly over small distances. Inconsistent conditions can occur between explorations that may not be detected by a geotechnical study. If, during future site operations, subsurface conditions are encountered which vary appreciably from those described herein, GeoPacific should be notified for review of the recommendations of this report, and revision of such if necessary.

Sufficient geotechnical monitoring, testing and consultation should be provided during construction to confirm that the conditions encountered are consistent with those indicated by explorations. The checklist attached to this report outlines recommended geotechnical observations and testing for the project. Recommendations for design changes will be provided should conditions revealed during construction differ from those anticipated, and to verify that the geotechnical aspects of construction comply with the contract plans and specifications.

Within the limitations of scope, schedule and budget, GeoPacific attempted to execute these services in accordance with generally accepted professional principles and practices in the fields of geotechnical engineering and engineering geology at the time the report was prepared. No warranty, expressed or implied, is made. The scope of our work did not include environmental assessments or evaluations regarding the presence or absence of wetlands or hazardous or toxic substances in the soil, surface water, or groundwater at this site.

We appreciate this opportunity to be of service.

Sincerely,

GEOPACIFIC ENGINEERING, INC.

Thomas J. Torkelson
Engineering Staff

James D. Imbrie, P.E.
Principal Engineer

REFERENCES

ATC Hazards by Location, (https://hazards.atcouncil.org).

Atwater, B.F., 1992, Geologic evidence for earthquakes during the past 2,000 years along the Copalis River, southern coastal Washington: Journal of Geophysical Research, v. 97, p. 1901-1919.

Carver, G.A., 1992, Late Cenozoic tectonics of coastal northern California: American Association of Petroleum Geologists-SEPM Field Trip Guidebook, 1992.

Gannet, Marshall W., and Caldwell, Rodney R., Generalized Geologic Map of the Willamette Lowland, U.S. Department of the interior, U.S. Geological Survey, 1998.

Goldfinger, C., Kulm, L.D., Yeats, R.S., Appelgate, B, MacKay, M.E., and Cochrane, G.R., 1996, Active strike-slip faulting and folding of the Cascadia Subduction-Zone plate boundary and forearc in central and northern Oregon: in Assessing earthquake hazards and reducing risk in the Pacific Northwest, v. 1: U.S. Geological Survey Professional Paper 1560, P. 223-256.

Ma, L., Madin, I.P., Duplantis, S., and Williams, K.J., 2012, Lidar-based Surficial Geologic Map and Database of the Greater Portland, Oregon, Area, Clackamas, Columbia, Marion, Multnomah, Washington, and Yamhill Counties, Oregon, and Clark County, Washington, DOGAMI Open-File Report O-12-02

Mabey, M.A., Madin, I.P., and Black G.L., 1996, Relative Earthquake Hazard Map of the Lake Oswego Quadrangle, Clackamas, Multnomah and Washington Counties, Oregon: Oregon Department of Geology and Mineral Industries

Madin, I.P., 1990, Earthquake hazard geology maps of the Portland metropolitan area, Oregon: Oregon Department of Geology and Mineral Industries Open-File Report 0-90-2, scale 1:24,000, 22 p.

Oregon Department of Geology and Mineral Industries, Statewide Geohazards Viewer, www.oregongeology.org/hazvu.

Peterson, C.D., Darioenzo, M.E., Burns, S.F., and Burris, W.K., 1993, Field trip guide to Cascadia paleoseismic evidence along the northern California coast: evidence of subduction zone seismicity in the central Cascadia margin: Oregon Geology, v. 55, p. 99-144.

Preliminary Geologic Map of the Buxton 7.5' Quadrangle, Washington County, Oregon Dinterman, Philip A., and Duvall, Allison, R., U.S. Department of the Interior, U.S. Geological Survey, Open File Report 2009-1186, 2009.

United States Geological Survey, USGS Earthquake Hazards Program Website (earthquake.usgs.gov).

Unruh, J.R., Wong, I.G., Bott, J.D., Silva, W.J., and Lettis, W.R., 1994, Seismotectonic evaluation: Scoggins Dam, Tualatin Project, Northwest Oregon: unpublished report by William Lettis and Associates and Woodward Clyde Federal Services, Oakland, CA, for U. S. Bureau of Reclamation, Denver CO (in Geomatrix Consultants, 1995).

Web Soil Survey, Natural Resources Conservation Service, United States Department of Agriculture *2015 website.*

(http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm.).

Werner, K.S., Nabelek, J., Yeats, R.S., Malone, S., 1992, The Mount Angel fault: implications of seismic-reflection data and the Woodburn, Oregon, earthquake sequence of August, 1990: Oregon Geology, v. 54, p. 112-117.

Wong, I. Silva, W., Bott, J., Wright, D., Thomas, P., Gregor, N., Li., S., Mabey, M., Sojourner, A., and Wang, Y., 2000, Earthquake Scenario and Probabilistic Ground Shaking Maps for the Portland, Oregon, Metropolitan Area; State of Oregon Department of Geology and Mineral Industries; Interpretative Map Series IMS-16

Yeats, R.S., Graven, E.P., Werner, K.S., Goldfinger, C., and Popowski, T., 1996, Tectonics of the Willamette Valley, Oregon: in Assessing earthquake hazards and reducing risk in the Pacific Northwest, v. 1: U.S. Geological Survey Professional Paper 1560, P. 183-222, 5 plates, scale 1:100,000.

Yelin, T.S., 1992, An earthquake swarm in the north Portland Hills (Oregon): More speculations on the seismotectonics of the Portland Basin: Geological Society of America, Programs with Abstracts, v. 24, no. 5, p. 92.

CHECKLIST OF RECOMMENDED GEOTECHNICAL TESTING AND OBSERVATION

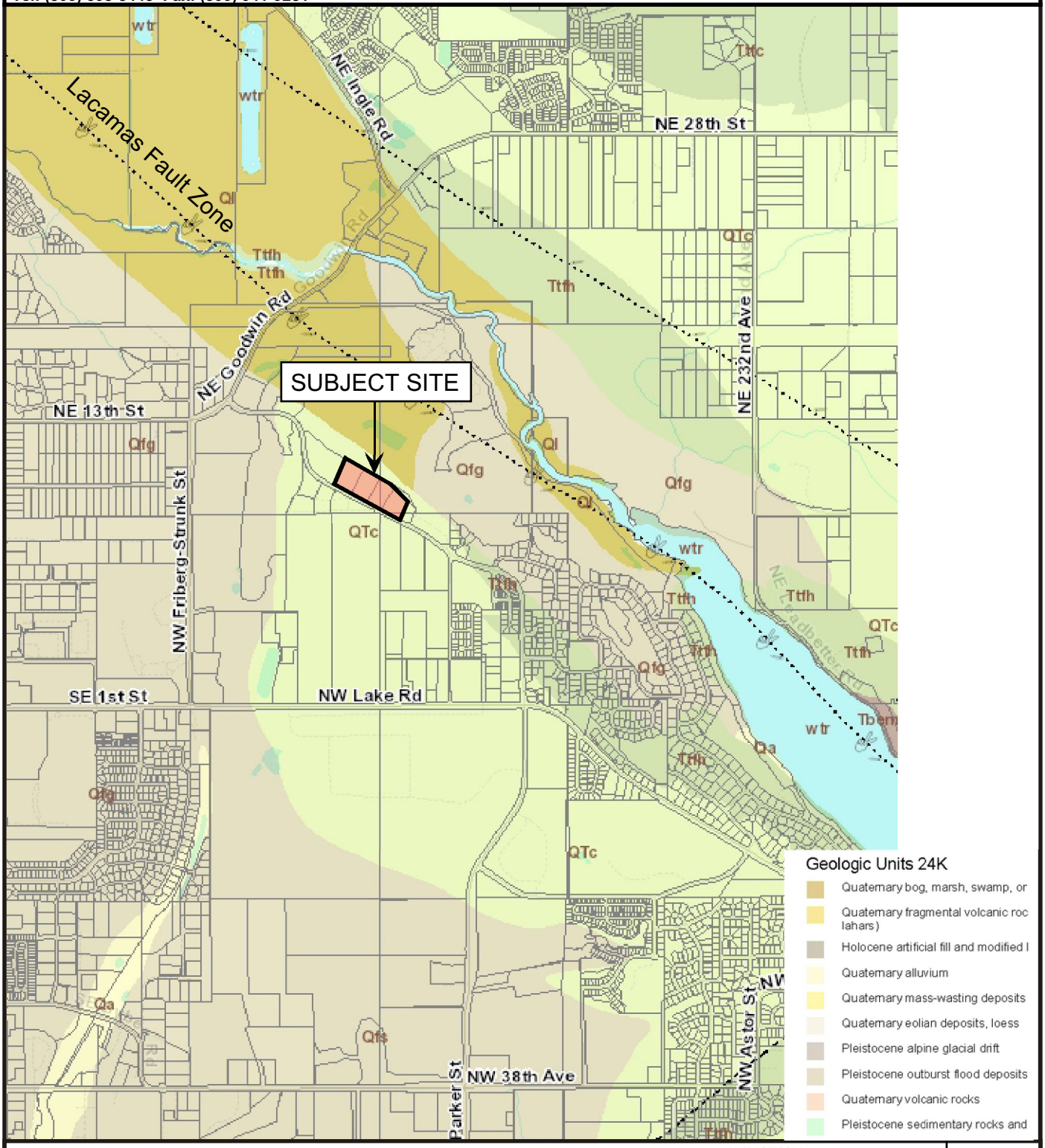
Item No.	Procedure	Timing	By Whom	Done
1	Preconstruction meeting	Prior to beginning site work	Contractor, Developer, Civil and Geotechnical Engineers	
2	Fill removal from site or sorting and stockpiling	Prior to mass stripping	Soil Technician/ Geotechnical Engineer	
3	Stripping, aeration, and root-picking operations	During stripping	Soil Technician	
4	Compaction testing of engineered fill (95% of Standard Proctor)	During filling, tested every 2 vertical feet	Soil Technician	
5	Foundation Subgrade Compaction (95% of Modified Proctor)	During Foundation Preparation, Prior to Placement of Reinforcing Steel	Soil Technician/ Geotechnical Engineer	
6	Compaction testing of trench backfill (95% of Standard Proctor)	During backfilling, tested every 4 vertical feet for every 200 linear feet	Soil Technician	
7	Street Subgrade Inspection (95% of Standard Proctor)	Prior to placing base course	Soil Technician	
8	Base course compaction (95% of Modified Proctor)	Prior to paving, tested every 200 linear feet	Soil Technician	
9	Asphalt Compaction (92% Rice Value)	During paving, tested every 100 linear feet	Soil Technician	
10	Final Geotechnical Engineer's Report	Completion of project	Geotechnical Engineer	

GEOPACIFIC
Real-World Geotechnical Solutions
Investigation • Design • Construction Support

FIGURES

GEOPACIFIC
14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445 Fax: (503) 941-9281

SITE VICINITY MAP



Base map: Clark County Maps Online, Accessed 12.21.2021
Date: 12/21/2020
Drawn by: TJT

1:24,000
0 0.13 0.25 0.5 mi
0 0.23 0.45 0.9 km

North

Project: Camas Meadows Subdivision, Phase 1 & 2 Camas, Oregon	Project No. 21-5939	FIGURE 1

GEOPACIFIC
14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445

SITE AERIAL AND EXPLORATION LOCATIONS

TP-1 Test Pit Designation and Approximate Location

(1.5') Approximate Depth of Observed Undocumented Fill or Topsoil, Feet

(1.5') Approximate Depth of Dense to Very Dense Conglomerate, Feet

Legend: Base Map Obtained From Google Earth 2021

APPROXIMATE SCALE (FEET)
90 0 90 180

Drawn by: TJT
Date: 12/23/2021

North

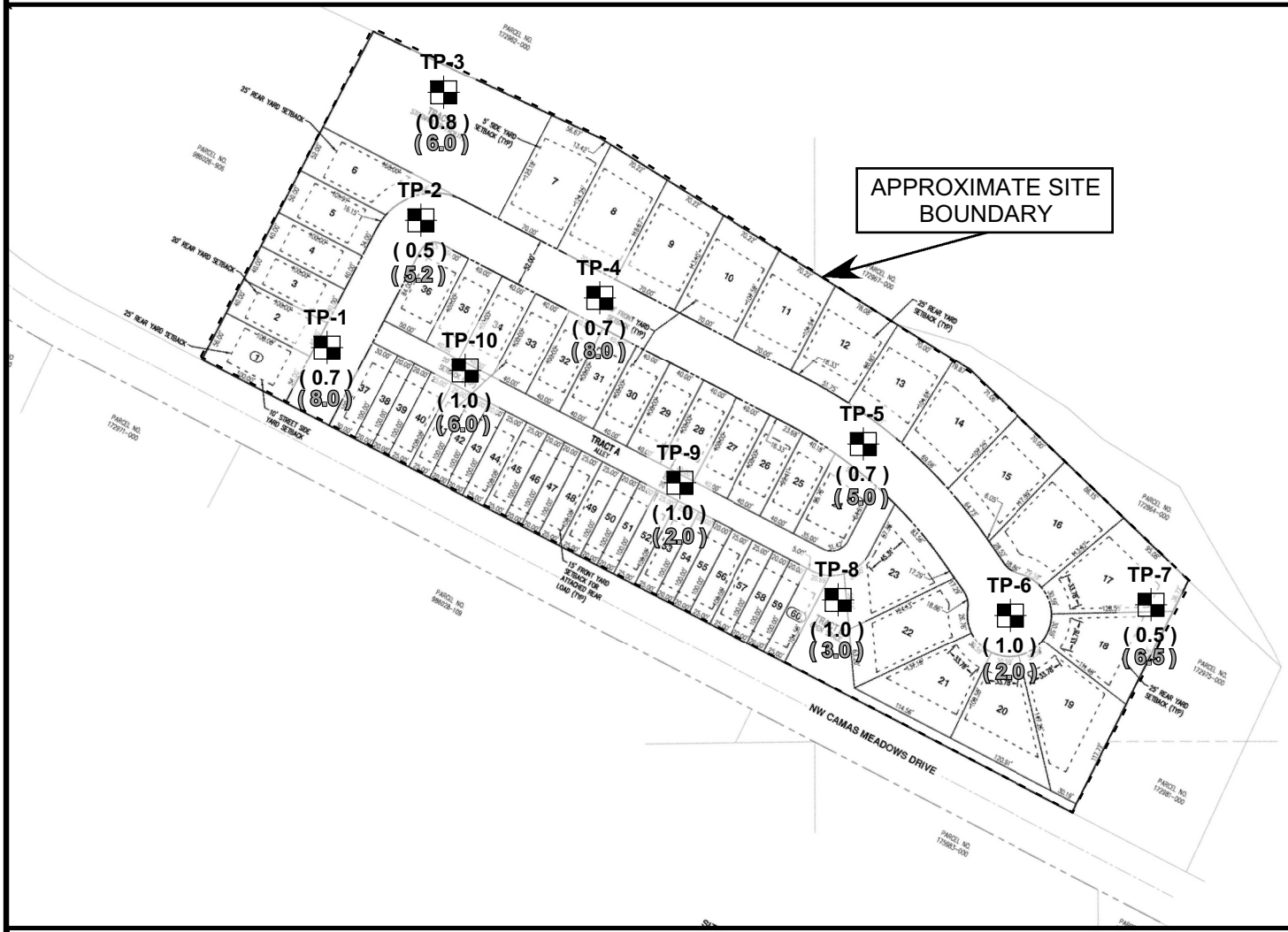
Project: Camas Meadows Subdivision, Phase 1 & 2
Camas, Washington 98607

Project No. 21-5939

FIGURE 2

GEOPACIFIC
14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445

SITE PLAN AND EXPLORATION LOCATIONS



TP-1 Test Pit Designation and Approximate Location

(1.0) Approximate Depth of Observed Undocumented Fill or Topsoil, Feet

(1.5') Approximate Depth of Dense to Very Dense Conglomerate, Feet

Legend: Preliminary Site Plan Provided by AKS Engineering and Forestry

APPROXIMATE SCALE (FEET)

90 0 90 180

Drawn by: TJT

Date: 12/23/2021

North

Project: Camas Meadows Subdivision, Phase 1 & 2
Camas, Washington 98607

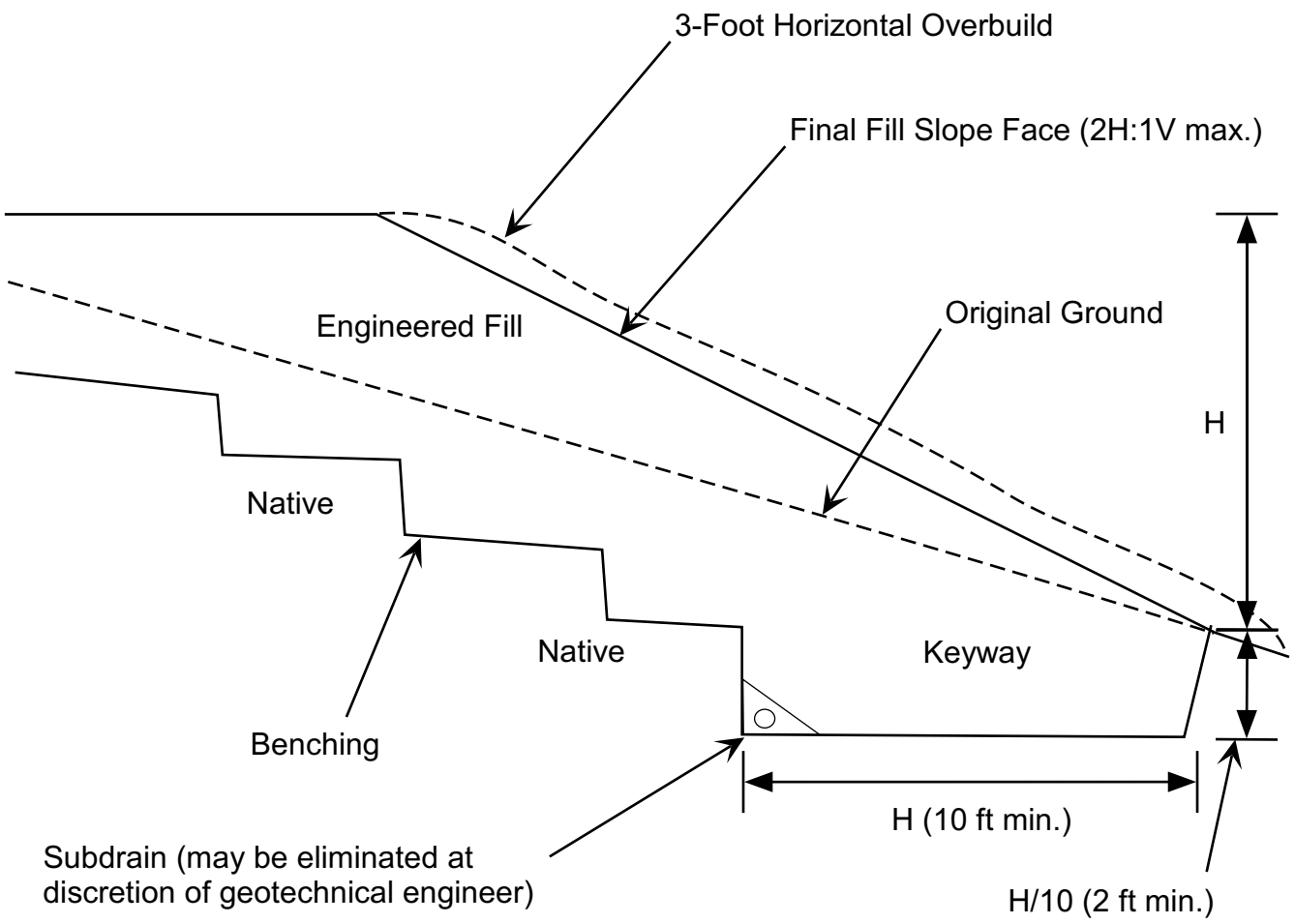
Project No. 21-5939

FIGURE 3

GEOPACIFIC
14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445 Fax: (503) 941-9281

FILL SLOPE DETAIL

TYPICAL KEYWAY, BENCHING & FILL SLOPE DETAIL



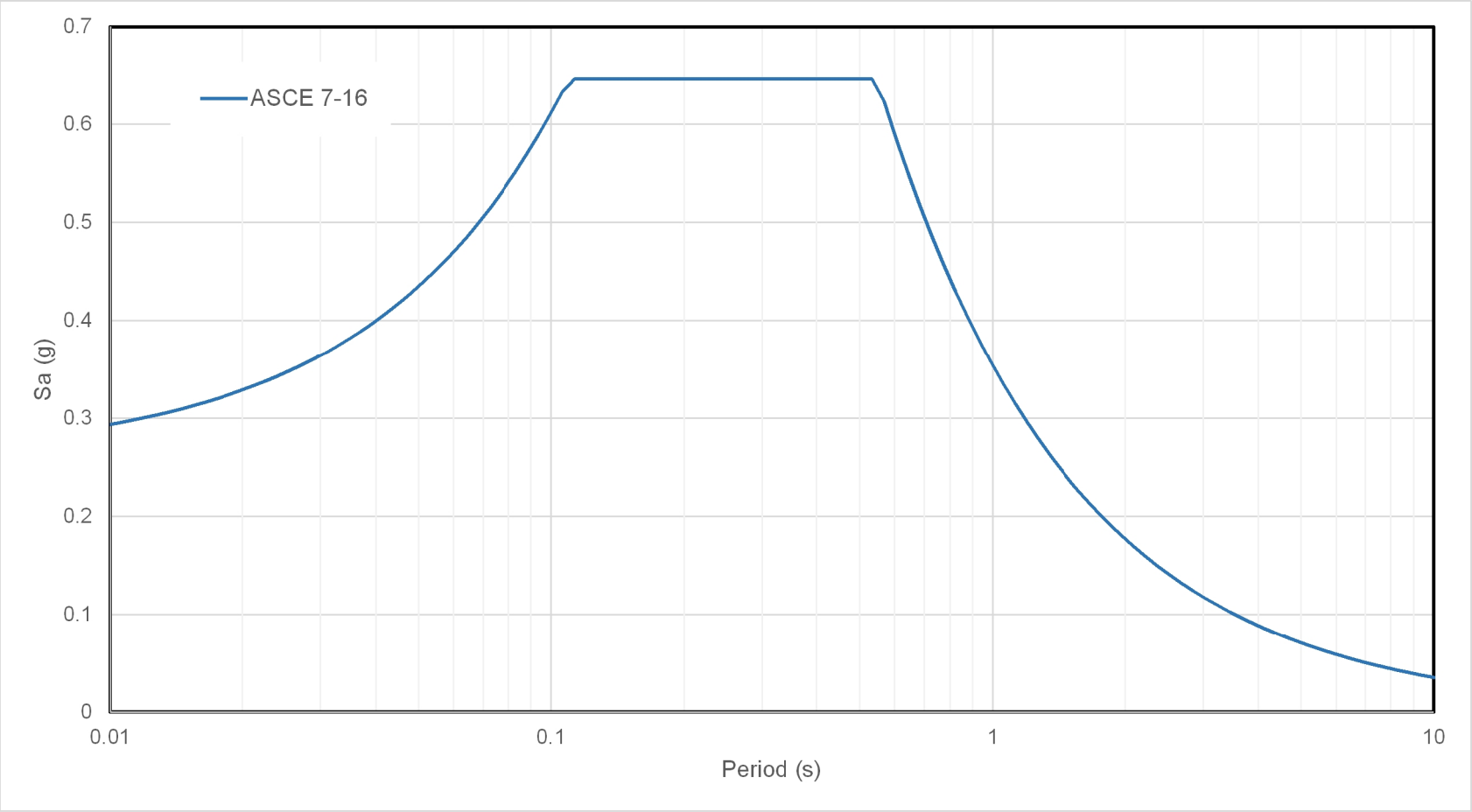
Recommended subdrain is minimum 3-inch-diameter ADS Heavy Duty grade (or equivalent), perforated plastic pipe enveloped in a minimum of 3 cubic feet per lineal foot of 2" to 1/2" open-graded gravel drain rock wrapped with geotextile filter fabric (Mirafi 140N or equivalent).

Project: Camas Meadows Subdivision, 1 & 2 Camas, Washington	Project No. 21-5939	FIGURE 4

GEOPACIFIC
14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445

HORIZONTAL DESIGN RESPONSE SPECTRUM
ASCE 7-16

SITE CLASS C



Note: Where MCE_R spectrum is required, it shall be determined by multiplying the design response spectrum by 1.5. ASCE 7-16 section 11.4.7.

DATE: 12/15/21
DRAWN BY: TJT

PROJECT: Camas Meadows Subdivision, 1 &2 Camas, Washingotn	Project No. 21-5939	**FIGURE 5**

GEOPACIFIC
Real-World Geotechnical Solutions
Investigation • Design • Construction Support

EXPLORATION LOGS

GEOPACIFIC
14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445

EXPLORATION LOGS

Project: Camas Meadows Subdivision, Ph. 1&2
Camas, Washington 98607

Project No. 21-5939

Exploration No. **TP-1**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	Fines Content (%)	Moisture Content (%)	Water Bearing Zone	Material Description
1	1.0					Moderately Organic SILT (ML-OL), dark brown, with fine- to medium-sized roots, 8-inches-thick, disturbed texture, soft, very moist. (Topsoil).
2	2.5					Silty CLAY (CL-ML), brown, micaceous, low plasticity, medium stiff, very moist.
3	3.5					Grades to very stiff below 2 feet bgs.
4	3.5					Grades to moist below 3 feet bgs.
5						
6						Silty SAND (SM), brown, sand is fine- to medium-grained, with trace pieces of weathered basalt and rounded sedimentary rock, with clay, low plasticity to non-plastic, cemented, medium dense, moist.
7						
8						Clayey GRAVEL (GC), brown and reddish brown, matrix consists of reddish brown clay with fine- to coarse-grained sand, gravel is highly weathered basalt and rounded sedimentary rock, non-plastic, with orange and yellow mottling, cemented, medium dense, moist.
9						
10						
11						Test pit terminated at 11 feet bgs. No caving encountered. No groundwater or seepage observed.
12						
13						
14						
15						
16						
17						

LEGEND

Bag Sample

Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 12/01/2021

Logged By: Thomas T.

Surface Elevation:

GEOPACIFIC
14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445

EXPLORATION LOGS

Project: Camas Meadows Subdivision, Ph. 1&2
Camas, Washington 98607

Project No. 21-5939

Exploration No. **TP-2**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	Fines Content (%)	Moisture Content (%)	Water Bearing Zone	Material Description
1	1.5					Moderately Organic SILT (ML-OL), dark brown, with fine- to medium-sized roots, 6-inches-thick, disturbed texture, soft, very moist. (Topsoil).
2	2.0					Clayey SILT with Sand (ML-CL), brown, micaceous, low plasticity, stiff, very moist.
3	4.5					Grades to very stiff and with trace rounded rock below 2.5 feet bgs.
4	3.5	100 to 1,000 g	28.7	38.7		Silty SAND (SM), brown and reddish brown, with clay, low plasticity, micaceous, sand is fine- to coarse-grained, medium dense, very moist. [Liquid Limit = 35.1%, Plasticity Index = 9.3%]
5						
6						Clayey GRAVEL (GC), brown and reddish brown, matrix consists of reddish brown clay with fine- to coarse-grained sand, gravel is weathered angular basalt and rounded sedimentary rock, non-plastic, with orange and yellow mottling, cemented, medium dense, very moist.
7		100 to 1,000 g		39.1		
8						Grades to very dense and more gravel below 8 feet bgs, very slow digging.
9		100 to 1,000 g		40.3		Test pit terminated at 9 feet bgs. No caving encountered. No groundwater or seepage observed.
10						
11						
12						
13						
14						
15						
16						
17						

LEGEND

Bag Sample

Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 12/01/2021

Logged By: Thomas T.

Surface Elevation:

GEOPACIFIC
14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445

EXPLORATION LOGS

Project: Camas Meadows Subdivision, Ph. 1&2
Camas, Washington 98607

Project No. 21-5939

Exploration No. **TP-3**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	Fines Content (%)	Moisture Content (%)	Water Bearing Zone	Material Description
1	1.5					Moderately Organic SILT (ML-OL), dark brown, with fine- to medium-sized roots, 10-inches-thick, disturbed texture, soft, very moist. (Topsoil).
2	2.5					Silty CLAY (CL-ML), brown, micaceous, low plasticity, stiff, very moist.
3	2.5					
4	4.0	100 to 1,000 g	44.2	28.0		Silty SAND (SM), brown and reddish brown, with clay, low plasticity, micaceous, sand is fine- to coarse-grained, medium dense, very moist. Infiltration conducted at 4 feet bgs. Infiltration rate = 0.2 in/hr.
5						
6						Clayey GRAVEL (GC), brown and reddish brown, matrix consists of reddish brown clay with fine- to coarse-grained sand, gravel is weathered angular basalt and rounded sedimentary rock, with cobble-sized rock, with orange and yellow mottling, cemented, medium dense, moist.
7						
8						Light seepage observed between 8 and 8.5 feet bgs. Grades to very dense and more gravel below 8.5 feet bgs, very slow digging.
9		100 to 1,000 g				
10						Test pit terminated at 9.5 feet bgs. No caving encountered. Light seepage observed between 8 and 8.5 feet bgs.
11						
12						
13						
14						
15						
16						
17						

LEGEND

Bag Sample

Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 12/01/2021

Logged By: Thomas T.

Surface Elevation:

GEOPACIFIC
14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445

EXPLORATION LOGS

Project: Camas Meadows Subdivision, Ph. 1&2
Camas, Washington 98607

Project No. 21-5939

Exploration No. **TP-4**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	Fines Content (%)	Moisture Content (%)	Water Bearing Zone	Material Description
1	3.0					Moderately Organic SILT (ML-OL), dark brown, with fine- to medium-sized roots, 8-inches-thick, disturbed texture, soft, very moist. (Topsoil).
2	4.0					Clayey SILT with Sand (ML-CL), brown, micaceous, sand is fine- to medium-grained, low plasticity, very stiff, very moist.
3	4.5					
4	4.5					Clayey GRAVEL (GC), brown and reddish brown, matrix consists of reddish brown clay with fine- to coarse-grained sand, gravel is weathered angular basalt and rounded sedimentary rock, with cobble-sized rock, with orange and yellow mottling, cemented, medium dense, very moist.
5						Trace sub-rounded, boulder-sized rock encountered below 5 feet bgs.
6						
7						
8						Grades to very dense and more gravel below 8 feet bgs, very slow digging.
9						Test pit terminated at 9 feet bgs. No caving encountered. No groundwater or seepage observed.
10						
11						
12						
13						
14						
15						
16						
17						

LEGEND

Bag Sample

Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 12/01/2021

Logged By: Thomas T.

Surface Elevation:

GEOPACIFIC
14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445

EXPLORATION LOGS

Project: Camas Meadows Subdivision, Ph. 1&2
Camas, Washington 98607

Project No. 21-5939

Exploration No. **TP-5**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	Fines Content (%)	Moisture Content (%)	Water Bearing Zone	Material Description
1	1.5					Moderately Organic SILT (ML-OL), dark brown, with fine- to medium-sized roots, 8-inches-thick, disturbed texture, soft, very moist. (Topsoil).
2	2.5					Clayey SILT with Sand (ML-CL), brown, micaceous, sand is fine- to medium-grained, low plasticity, stiff, very moist.
3	2.5					
4	3.0	100 to 1,000 g				Silty SAND (SM), brown and reddish brown, with clay, low plasticity, micaceous, sand is fine- to medium-grained, medium dense, very moist.
5						Clayey GRAVEL (GC), brown and reddish brown, matrix consists of reddish brown clay with fine- to coarse-grained sand, gravel is weathered angular basalt and rounded sedimentary rock, with cobble-sized rock, with orange and yellow mottling, cemented, medium dense, very moist.
6						Light groundwater seepage between 6 and 7 feet bgs.
7						Grades to very dense and more gravel below 7 feet bgs, very slow digging.
8						
9		100 to 1,000 g				
10						Test pit terminated at 10 feet bgs. No caving encountered. Light seepage observed between 6 and 7 feet bgs.
11						
12						
13						
14						
15						
16						
17						

LEGEND

Bag Sample

Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 12/01/2021

Logged By: Thomas T.

Surface Elevation:

GEOPACIFIC
14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445

EXPLORATION LOGS

Project: Camas Meadows Subdivision, Ph. 1&2
Camas, Washington 98607

Project No. 21-5939

Exploration No. **TP-6**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	Fines Content (%)	Moisture Content (%)	Water Bearing Zone	Material Description
1	1.0					Moderately Organic SILT (ML-OL), dark brown, with fine- to medium-sized roots, 12-inches-thick, disturbed texture, soft, very moist. (Topsoil).
2	1.0					Clayey SILT with Sand (ML-CL), brown, micaceous, sand is fine-grained, low plasticity, with medium-sized roots to 2.5 feet bgs, medium stiff, very moist.
3	3.0					Grades to stiff below 2.5 feet bgs.
4	2.5					
5						Silty SAND (SM), brown and reddish brown, with clay, low plasticity, micaceous, sand is fine- to medium-grained, medium dense, very moist.
6						
7						Clayey GRAVEL (GC), brown and reddish brown, matrix consists of reddish brown clay with fine- to coarse-grained sand, gravel is weathered angular basalt and rounded sedimentary rock, with cobble-sized rock, with orange and yellow mottling, cemented, medium dense, very moist.
8						Light groundwater seepage between 7.5 and 8.5 feet bgs.
9						Grades to very dense and more gravel below 8.5 feet bgs, very slow digging.
10						Test pit terminated at 10 feet bgs.
11						No caving encountered. Light seepage observed between 7.5 and 8.5 feet bgs.
12						
13						
14						
15						
16						
17						

LEGEND

Bag Sample

Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 12/01/2021

Logged By: Thomas T.

Surface Elevation:

GEOPACIFIC
14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445

EXPLORATION LOGS

Project: Camas Meadows Subdivision, Ph. 1&2
Camas, Washington 98607

Project No. 21-5939

Exploration No. **TP-7**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	Fines Content (%)	Moisture Content (%)	Water Bearing Zone	Material Description
1	1.5					Moderately Organic SILT (ML-OL), dark brown, with fine- to medium-sized roots, 6-inches-thick, disturbed texture, soft, very moist. (Topsoil).
2	1.5					Silty CLAY with Sand (CL-ML), brown, micaceous, sand is fine-grained, low plasticity stiff, very moist.
3	4.0					Clayey GRAVEL (GC), brown and reddish brown, matrix consists of reddish brown clay with fine- to coarse-grained sand, gravel is weathered angular basalt and rounded sedimentary rock, with cobble-sized rock, with orange, gray, and yellow mottling, cemented, medium dense, very moist.
4	4.0					Moderate groundwater seepage between 3.5 and 4.0 feet bgs.
5						Grades to very dense and more gravel below 4.5 feet bgs, very slow digging.
6						
7						Test pit terminated at 7.0 feet bgs. No caving encountered. Moderate seepage observed between 3.5 and 4.0 feet bgs.
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						

LEGEND

Bag Sample

Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 12/01/2021

Logged By: Thomas T.

Surface Elevation:

GEOPACIFIC
14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445

EXPLORATION LOGS

Project: Camas Meadows Subdivision, Ph. 1&2
Camas, Washington 98607

Project No. 21-5939

Exploration No. **TP-8**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	Fines Content (%)	Moisture Content (%)	Water Bearing Zone	Material Description
1	1.0					Moderately Organic SILT (ML-OL), dark brown, with fine- to medium-sized roots, 12-inches-thick, disturbed texture, soft, very moist. (Topsoil).
2	1.5					Silty CLAY with Sand (CL-ML), brown, micaceous, sand is fine-grained, low plasticity stiff, very moist.
3	2.5					
4	4.5+	100 to 1,000 g				Clayey GRAVEL (GC), brown and reddish brown, matrix consists of reddish brown clay with fine- to coarse-grained sand, gravel is weathered angular basalt and rounded sedimentary rock, with cobble-sized rock, basalt is vesicular, with orange, dark gray, and yellow mottling, cemented, medium dense, very moist.
5						Grades to very dense and more weathered rock below 5.0 feet bgs, very slow digging, matrix contains trace gray clay of moderate plasticity.
6						
7		100 to 1,000 g				
8						
9		100 to 1,000 g				Test pit terminated at 9.0 feet bgs. No caving encountered. No seepage observed.
10						
11						
12						
13						
14						
15						
16						
17						

LEGEND

100 to 1,000 g — Bag Sample
5 Gal. Bucket — Bucket Sample
Shelby Tube Sample
Seepage
Water Bearing Zone
Water Level at Abandonment

Date Excavated: 12/01/2021

Logged By: Thomas T.

Surface Elevation:

GEOPACIFIC
14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445

EXPLORATION LOGS

Project: Camas Meadows Subdivision, Ph. 1&2
Camas, Washington 98607

Project No. 21-5939

Exploration No. **TP-9**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	Fines Content (%)	Moisture Content (%)	Water Bearing Zone	Material Description
1	3.0					Moderately Organic SILT (ML-OL), dark brown, with fine- to medium-sized roots, 12-inches-thick, disturbed texture, soft, very moist. (Topsoil).
2	2.5					Silty CLAY with Sand (CL-ML), brown, micaceous, sand is fine-grained, low plasticity stiff, wet. Light seepage encountered between 1 and 2 feet bgs.
3	4.5+					Clayey GRAVEL (GC), brown and reddish brown, matrix consists of reddish brown clay with fine- to coarse-grained sand, gravel is weathered angular basalt and rounded sedimentary rock, with trace cobble-sized rock, basalt is vesicular, with orange, dark gray, and yellow mottling, cemented, medium dense, wet.
4	4.5+					Grades to very dense and more weathered rock below 3.0 feet bgs, very slow digging, moist.
5						
6						Test pit terminated at 6.0 feet bgs. No caving encountered. Light seepage observed between 1 and 2 feet bgs.
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						

LEGEND

Bag Sample

Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 12/01/2021

Logged By: Thomas T.

Surface Elevation:

GEOPACIFIC
14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445

EXPLORATION LOGS

Project: Camas Meadows Subdivision, Ph. 1&2
Camas, Washington 98607

Project No. 21-5939

Exploration No. **TP-10**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	Fines Content (%)	Moisture Content (%)	Water Bearing Zone	Material Description
1	1.5					Moderately Organic SILT (ML-OL), dark brown, with fine- to medium-sized roots, 12-inches-thick, disturbed texture, soft, very moist. (Topsoil).
2	1.5					Silty CLAY (CL-ML), brown, micaceous, low plasticity stiff, very moist.
3	2.5					
4	3.5					
5						
6						Clayey GRAVEL (GC), brown and reddish brown, matrix consists of reddish brown clay with fine- to coarse-grained sand, gravel is weathered angular basalt and rounded sedimentary rock, with trace cobble-sized rock, basalt is vesicular, dark gray, and red, with orange, dark gray, and yellow mottling, cemented, medium dense, very moist.
7						
8						Grades to very dense and more weathered rock below 8.5 feet bgs, very slow digging, moist.
9						
10						Test pit terminated at 10.0 feet bgs. No caving encountered. No Seepage Observed.
11						
12						
13						
14						
15						
16						
17						

LEGEND

Bag Sample

Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 12/01/2021

Logged By: Thomas T.

Surface Elevation:

GEOPACIFIC
Real-World Geotechnical Solutions
Investigation • Design • Construction Support

LABORATORY TESTING RESULTS

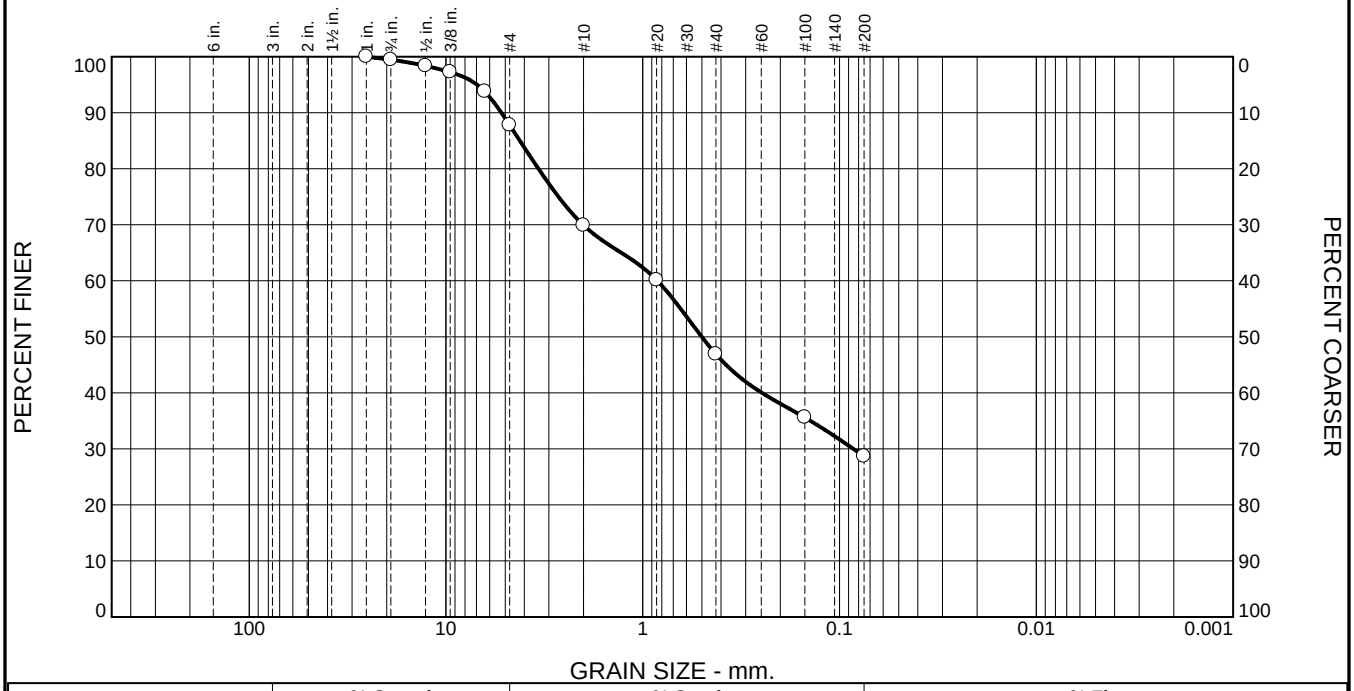
Project Name: Camas Meadow Subdivision Phase 2
Client: Romano Development
Date Sampled: 12/1/2021
Sampled By: TJT

Project No.: 21-5939
Date Tested: 12/6/2021
Tested By: SJC

Moisture Content

Sample ID:	**S21-319**
Location:	**TP-2**
Depth (ft.):	4'
Tare #:	62
Tare (g):	685.0
Tare + Wet (g):	1857.9
Tare + Dry (g):	1530.7
Moisture (%):	**38.7**
Sample ID:	**S21-320**
Location:	**TP-2**
Depth:	7'
Tare #:	9
Tare (g):	266.0
Tare + Wet (g):	729.4
Tare + Dry (g):	599.2
Moisture (%):	**39.1**
Sample ID:	**S21-321**
Location:	**TP-2**
Depth:	9'
Tare #:	10
Tare (g):	265.4
Tare + Wet (g):	679.4
Tare + Dry (g):	560.4
Moisture (%):	**40.3**
Sample ID:	**S21-322**
Location:	**TP-3**
Depth:	4'
Tare #:	1
Tare (g):	682.4
Tare + Wet (g):	1066.0
Tare + Dry (g):	982.2
Moisture (%):	**28.0**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.6	11.6	17.9	23.0	18.2	28.7	

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1	100.0		
.75	99.4		
.5	98.4		
.375	97.2		
.25	93.8		
#4	87.8		
#10	69.9		
#20	60.1		
#40	46.9		
#100	35.6		
#200	28.7		

* (no specification provided)

Material Description

Silty Sand

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=** NP

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-2-4(0)

Coefficients

D_{90}= 5.2304 D_{85}= 4.2136 D_{60}= 0.8424
D_{50}= 0.5015 D_{30}= 0.0851 D_{15}=
D_{10}= C_u= C_c=

Remarks

Moisture 38.7%

Date Received: _____ **Date Tested:** 12/7/2021

Tested By: SJC

Checked By: _____

Title: _____

Location: TP-2
Sample Number: S21-319 **Depth:** 4'

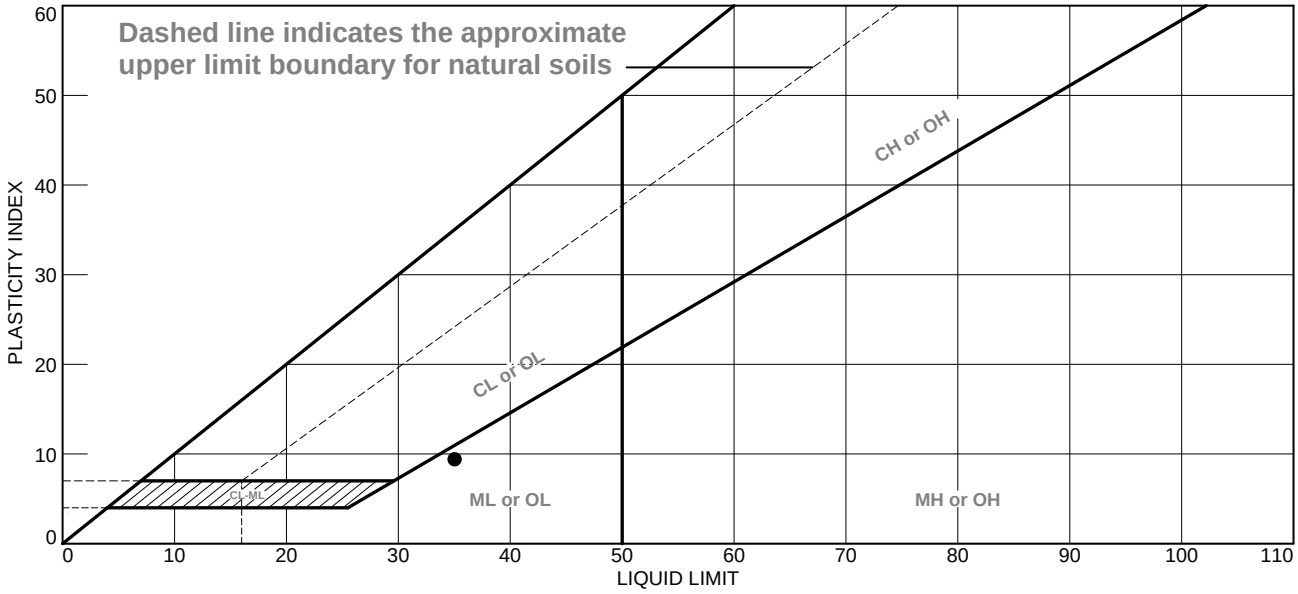
Date Sampled: 12/1/2021

GEOPACIFIC ENGINEERING, INC.

Client: Romano Development
Project: Camas Meadows Subdivision Phase 2

Project No: 21-5939 **Figure**

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Silty Sand	35.1	25.8	9.3	85.7	44.2	SM

Project No. 21-5939 **Client:** Romano Development

Project: Camas Meadows Subdivision Phase 2

Location: TP-3
Sample Number: S21-322 **Depth:** 4'

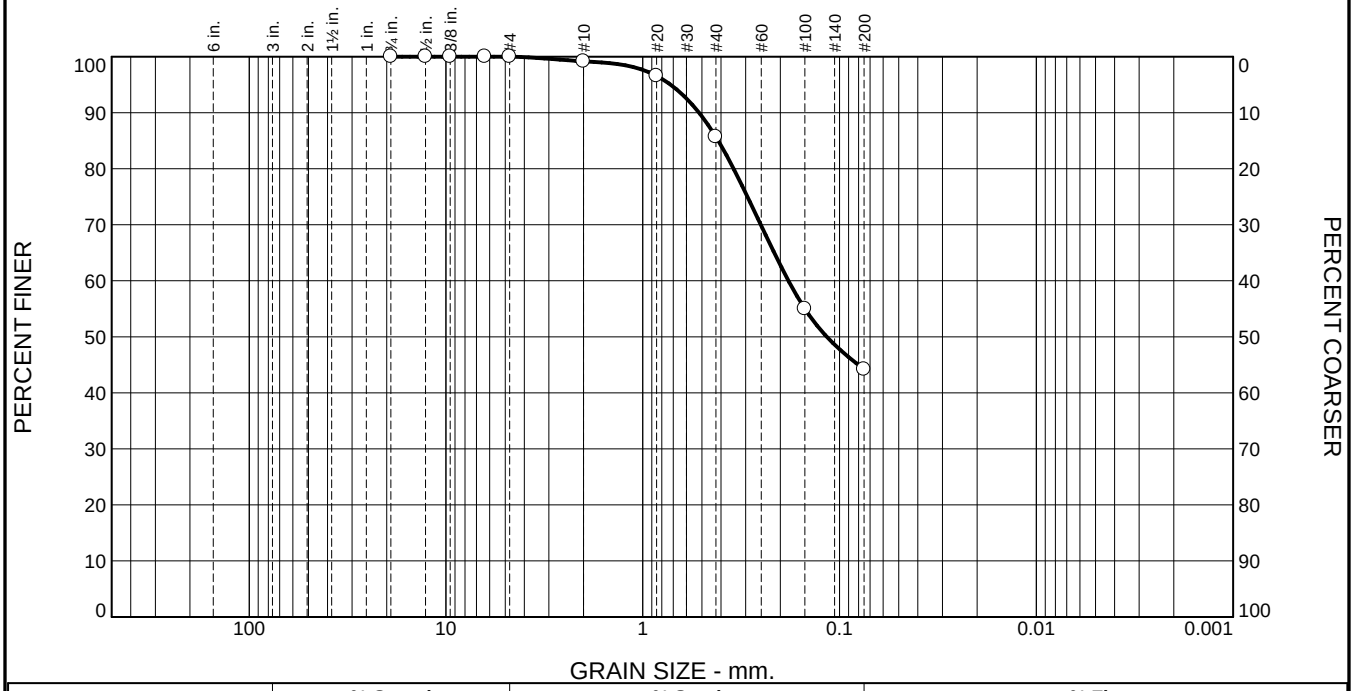
Remarks:

GEOPACIFIC ENGINEERING, INC.

Figure

Tested By: SJC

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.8	13.5	41.5	44.2	

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.75	100.0		
.5	100.0		
.375	100.0		
.25	100.0		
#4	100.0		
#10	99.2		
#20	96.6		
#40	85.7		
#100	55.0		
#200	44.2		

* (no specification provided)

Material Description

Silty Sand

Atterberg Limits (ASTM D 4318)

PL= 25.8 **LL=** 35.1 **PI=** 9.3

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-4(1)

Coefficients

D_{90}= 0.5174 D_{85}= 0.4135 D_{60}= 0.1818
D_{50}= 0.1161 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Remarks

Moisture 28.0%

Date Received: _____ **Date Tested:** 12/7/2021

Tested By: SJC

Checked By: _____

Title: _____

Location: TP-3
Sample Number: S21-322 **Depth:** 4'

Date Sampled: 12/1/2021

GEOPACIFIC ENGINEERING, INC.

Client: Romano Development
Project: Camas Meadows Subdivision Phase 2

Project No: 21-5939 **Figure**

SOIL DESCRIPTION AND CLASSIFICATION GUIDELINES

Particle-Size Classification

COMPONENT	ASTM/USCS		AASHTO	
	size range	sieve size range	size range	sieve size range
Cobbles	> 75 mm	greater than 3 inches	> 75 mm	greater than 3 inches
Gravel	75 mm – 4.75 mm	3 inches to No. 4 sieve	75 mm – 2.00 mm	3 inches to No. 10 sieve
Coarse	75 mm – 19.0 mm	3 inches to 3/4-inch sieve	-	-
Fine	19.0 mm – 4.75 mm	3/4-inch to No. 4 sieve	-	-
Sand	4.75 mm – 0.075 mm	No. 4 to No. 200 sieve	2.00 mm – 0.075 mm	No. 10 to No. 200 sieve
Coarse	4.75 mm – 2.00 mm	No. 4 to No. 10 sieve	2.00 mm – 0.425 mm	No. 10 to No. 40 sieve
Medium	2.00 mm – 0.425 mm	No. 10 to No. 40 sieve	-	-
Fine	0.425 mm – 0.075 mm	No. 40 to No. 200 sieve	0.425 mm – 0.075 mm	No. 40 to No. 200 sieve
Fines (Silt and Clay)	< 0.075 mm	Passing No. 200 sieve	< 0.075 mm	Passing No. 200 sieve

Consistency for Cohesive Soil

CONSISTENCY	SPT N-VALUE (BLOWS PER FOOT)	POCKET PENETROMETER (UNCONFINED COMPRESSIVE STRENGTH, tsf)
Very Soft	2	less than 0.25
Soft	2 to 4	0.25 to 0.50
Medium Stiff	4 to 8	0.50 to 1.0
Stiff	8 to 15	1.0 to 2.0
Very Stiff	15 to 30	2.0 to 4.0
Hard	30 to 60	greater than 4.0
Very Hard	greater than 60	-

Relative Density for Granular Soil

RELATIVE DENSITY	SPT N-VALUE (BLOWS PER FOOT)
Very Loose	0 to 4
Loose	4 to 10
Medium Dense	10 to 30
Dense	30 to 50
Very Dense	more than 50

Moisture Designations

TERM	FIELD IDENTIFICATION
Dry	No moisture. Dusty or dry.
Damp	Some moisture. Cohesive soils are usually below plastic limit and are moldable.
Moist	Grains appear darkened, but no visible water is present. Cohesive soils will clump. Sand will bulk. Soils are often at or near plastic limit.
Wet	Visible water on larger grains. Sand and silt exhibit dilatancy. Cohesive soil can be readily remolded. Soil leaves wetness on the hand when squeezed. Soil is much wetter than optimum moisture content and is above plastic limit.

AASHTO SOIL CLASSIFICATION SYSTEM

TABLE 1. Classification of Soils and Soil-Aggregate Mixtures

General Classification	Granular Materials (35 Percent or Less Passing .075 mm)				Silt-Clay Materials (More than 35 Percent Passing 0.075)		
Group Classification	A-1	A-3	A-2	A-4	A-5	A-6	A-7
Sieve analysis, percent passing:							
2.00 mm (No. 10)	-	-	-				
0.425 mm (No. 40)	50 max	51 min	-	-	-	-	-
0.075 mm (No. 200)	25 max	10 max	35 max	36 min	36 min	36 min	36 min
Characteristics of fraction passing 0.425 mm (No. 40)							
Liquid limit				40 max	41 min	40 max	41 min
Plasticity index	6 max	N.P.		10 max	10 max	11 min	11 min
General rating as subgrade	Excellent to good			Fair to poor			

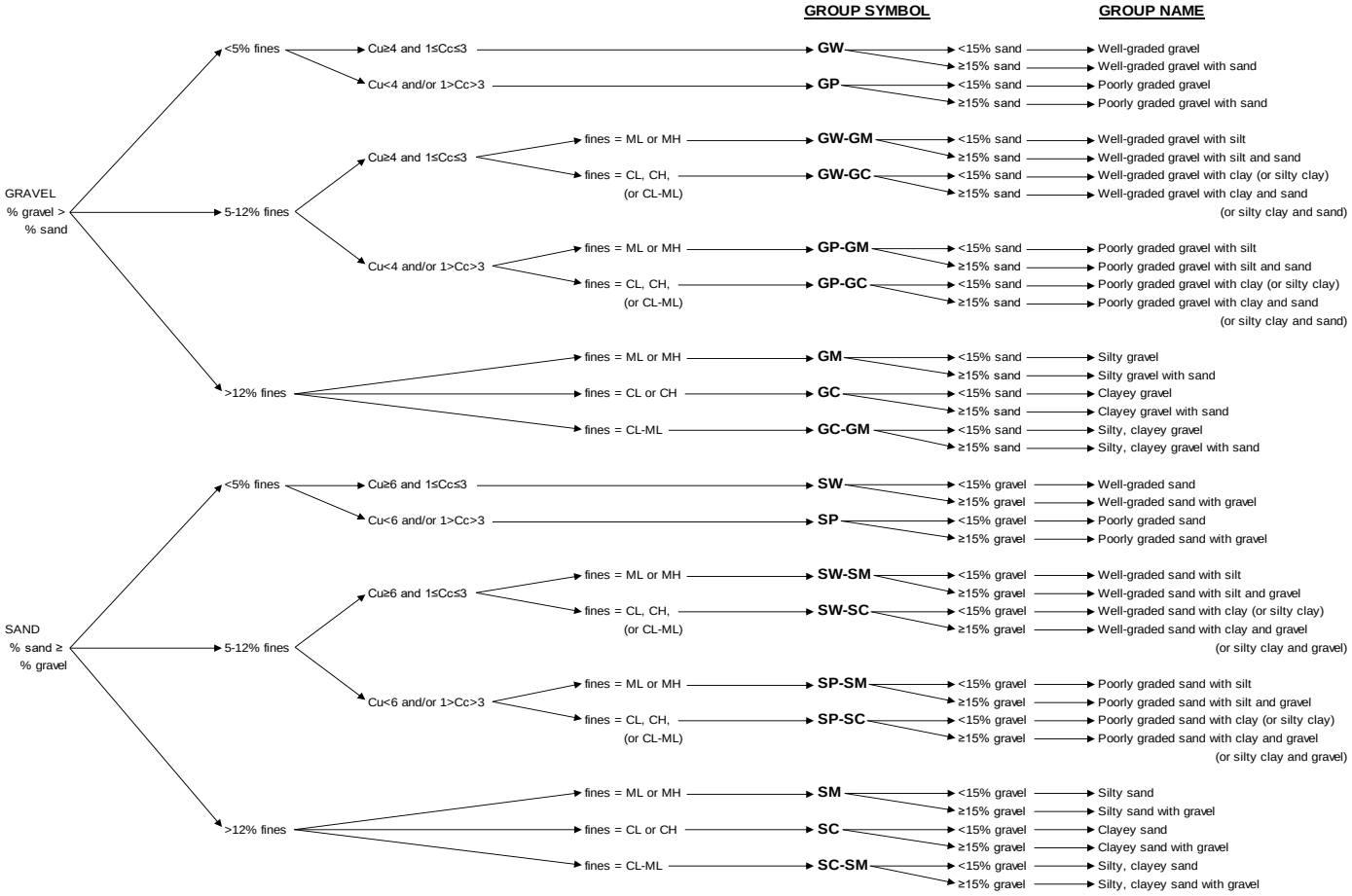
Note: The placing of A-3 before A-2 is necessary in the "left to right elimination process" and does not indicate superiority of A-3 over A-2.

TABLE 2. Classification of Soils and Soil-Aggregate Mixtures

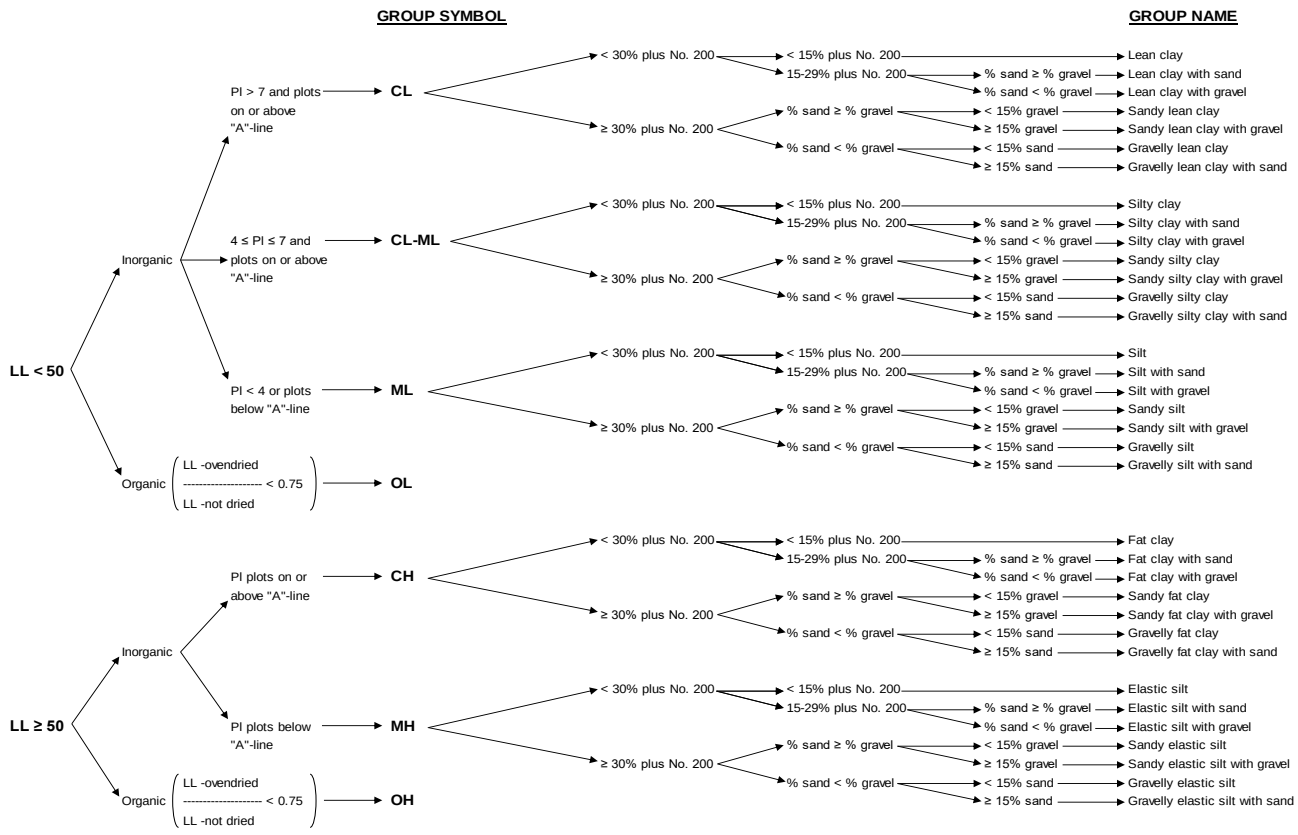
General Classification	Granular Materials (35 Percent or Less Passing 0.075 mm)							Silt-Clay Materials (More than 35 Percent Passing 0.075 mm)			
	A-1			A-2							A-7
Group Classification	A-1-a	A-1-b	A-3	A-2-4	A-2-5	A-2-6	A-2-7	A-4	A-5	A-6	A-7-5, A-7-6
Sieve analysis, percent passing:											
2.00 mm (No. 10)	50 max	-	-	-	-	-	-	-	-	-	-
0.425 mm (No. 40)	30 max	50 max	51 min	-	-	-	-	-	-	-	-
0.075 mm (No. 200)	15 max	25 max	10 max	35 max	35 max	35 max	35 max	36 min	36 min	36 min	36 min
Characteristics of fraction passing 0.425 mm (No. 40)											
Liquid limit				40 max	41 min	40 max	41 min	40 max	41 min	40 max	41 min
Plasticity index	6 max		N.P.	10 max	10 max	11 min	11 min	10 max	10 max	11 min	11min
Usual types of significant constituent materials	Stone fragments, gravel and sand		Fine sand	Silty or clayey gravel and sand				Silty soils		Clayey soils	
General ratings as subgrade	Excellent to Good							Fair to poor			

Note: Plasticity index of A-7-5 subgroup is equal to or less than LL minus 30. Plasticity index of A-7-6 subgroup is greater than LL minus 30 (see Figure 2).

AASHTO = American Association of State Highway and Transportation Officials



Flow Chart for Classifying Coarse-Grained Soils (More Than 50% Retained on No. 200 Sieve)



Flow Chart for Classifying Fine-Grained Soil (50% or More Passes No. 200 Sieve)

GEOPACIFIC
Real-World Geotechnical Solutions
Investigation • Design • Construction Support

INFILTRATION TESTING CALCULATIONS

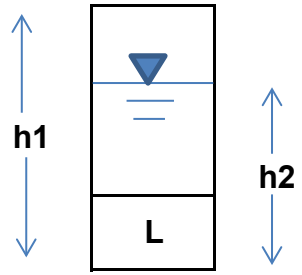
Infiltration Testing

Camas Meadows Subdivision
Project. #: 21-5939

$$K = \frac{2.3*La}{At} * Log_{10}\frac{h1}{h2}$$

Calculations for Hydraulic Conductivity (K_v)
(single-ring, falling head method)

where:
L = soil embedment
t = drop time
h1 = total tube length
h2= water level drop at time (t)



Test Number: IT-1.1
Test Depth: -4
Location: TP-3
Soil Series: SM
Date: 12/1/2021
USCS: SM

drop	L (in)	t (min)	t (hr)	h1 (in)	h2 (in)	K_v in/hr
0.68	6	120	2	13.52	12.84	0.2
				AVG	**0.2**	**0.31**	**0.00010923**
				units:	**inches per hour**	**ft/day**	**cm/s**

Note: Measurements taken after presoak

GEOPACIFIC
Real-World Geotechnical Solutions
Investigation • Design • Construction Support

SITE RESEARCH

Hazards by Location

Search Information

Address: 4200 NW Camas Meadows Dr
USA

Coordinates: 45.62923259999999 -122.4564079

Elevation: 252 ft

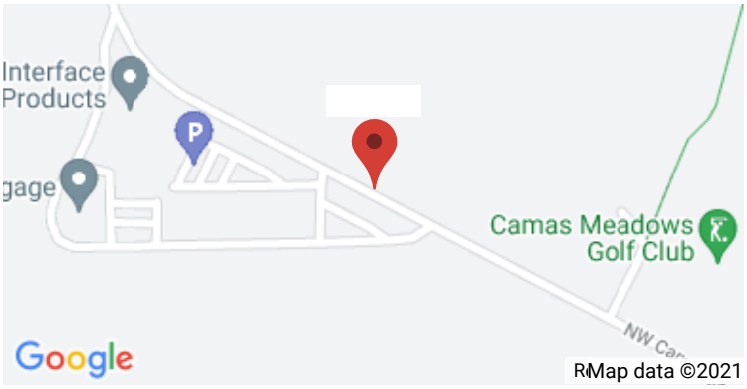
Timestamp: 2021-12-22T17:36:05.263Z

Hazard Type: Seismic

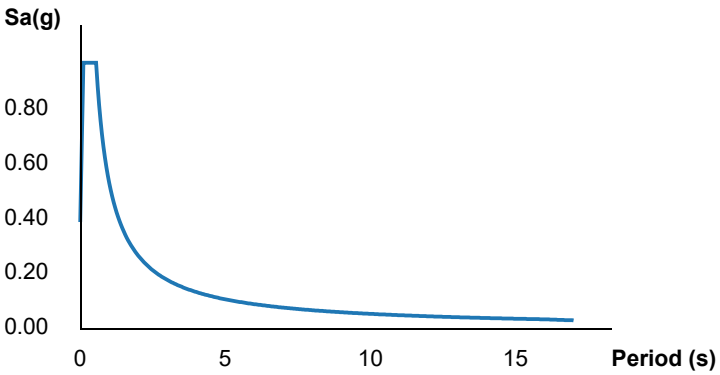
Reference Document: ASCE7-16

Risk Category: II

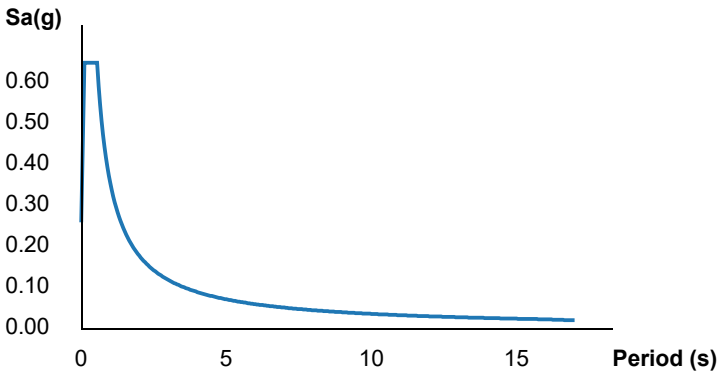
Site Class: C



MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	0.807	MCE_R ground motion (period=0.2s)
S_1	0.354	MCE_R ground motion (period=1.0s)
S_{MS}	0.969	Site-modified spectral acceleration value
S_{M1}	0.53	Site-modified spectral acceleration value
S_{DS}	0.646	Numeric seismic design value at 0.2s SA
S_{D1}	0.354	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	D	Seismic design category
F_a	1.2	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s

CR_S	0.888	Coefficient of risk (0.2s)
CR_1	0.866	Coefficient of risk (1.0s)
PGA	0.362	MCE_G peak ground acceleration
F_{PGA}	1.2	Site amplification factor at PGA
PGA_M	0.435	Site modified peak ground acceleration
T_L	16	Long-period transition period (s)
SsRT	0.807	Probabilistic risk-targeted ground motion (0.2s)
SsUH	0.909	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	1.5	Factored deterministic acceleration value (0.2s)
S1RT	0.354	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.408	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.6	Factored deterministic acceleration value (1.0s)
PGAd	0.533	Factored deterministic acceleration value (PGA)

The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

Disclaimer

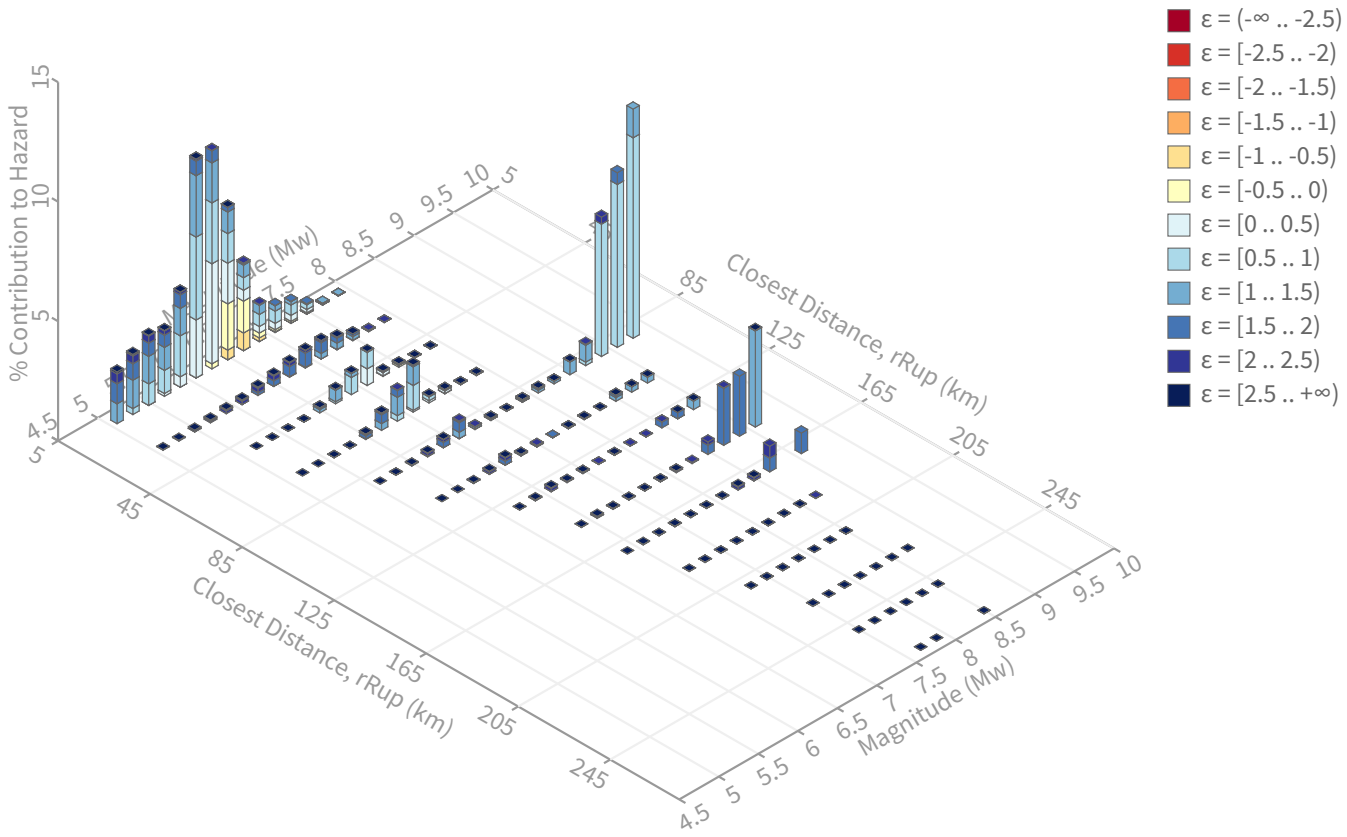
Hazard loads are provided by the U.S. Geological Survey Seismic Design Web Services.

While the information presented on this website is believed to be correct, ATC and its sponsors and contributors assume no responsibility or liability for its accuracy. The material presented in the report should not be used or relied upon for any specific application without competent examination and verification of its accuracy, suitability and applicability by engineers or other licensed professionals. ATC does not intend that the use of this information replace the sound judgment of such competent professionals, having experience and knowledge in the field of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the results of the report provided by this website. Users of the information from this website assume all liability arising from such use. Use of the output of this website does not imply approval by the governing building code bodies responsible for building code approval and interpretation for the building site described by latitude/longitude location in the report.

Deaggregation

Component

Total



Summary statistics for, Deaggregation: Total

Deaggregation targets

Return period: 2475 yrs
Exceedance rate: 0.0004040404 yr^{-1}
PGA ground motion: 0.37808623 g

Recovered targets

Return period: 2510.9085 yrs
Exceedance rate: 0.00039826222 yr^{-1}

Totals

Binned: 100 %
Residual: 0 %
Trace: 0.48 %

Mean (over all sources)

m: 7.35
r: 55.66 km
ε_0: 1.02 σ

Mode (largest m-r bin)

m: 9.34
r: 92.68 km
ε_0: 0.72 σ
Contribution: 9.58 %

Mode (largest m-r-ε_0 bin)

m: 9.34
r: 92.68 km
ε_0: 0.62 σ
Contribution: 8.39 %

Discretization

r: min = 0.0, max = 1000.0, Δ = 20.0 km
m: min = 4.4, max = 9.4, Δ = 0.2
ε: min = -3.0, max = 3.0, Δ = 0.5 σ

Epsilon keys

ε0: [-∞ .. -2.5)
ε1: [-2.5 .. -2.0)
ε2: [-2.0 .. -1.5)
ε3: [-1.5 .. -1.0)
ε4: [-1.0 .. -0.5)
ε5: [-0.5 .. 0.0)
ε6: [0.0 .. 0.5)
ε7: [0.5 .. 1.0)
ε8: [1.0 .. 1.5)
ε9: [1.5 .. 2.0)
ε10: [2.0 .. 2.5)
ε11: [2.5 .. +∞]

Deaggregation Contributors

Source Set ↳ Source	Type	r	m	ε_0	lon	lat	az	%
sub0_ch_bot.in	Interface							22.30
Cascadia Megathrust - whole CSZ Characteristic		92.68	9.11	0.84	123.599°W	45.501°N	261.25	22.30
Geologic Model Small Mag	Fault							13.47
Grant Butte 50		11.43	6.19	0.78	122.431°W	45.498°N	172.18	7.65
Grant Butte 35		8.67	6.19	0.43	122.431°W	45.498°N	172.18	4.43
sub0_ch_mid.in	Interface							8.55
Cascadia Megathrust - whole CSZ Characteristic		143.01	8.93	1.57	124.330°W	45.489°N	264.53	8.55
coastalOR_deep.in	Slab							6.42
WUSmap_2014_fixSm.ch.in (opt)	Grid							5.15
noPuget_2014_fixSm.ch.in (opt)	Grid							5.15
WUSmap_2014_fixSm.gr.in (opt)	Grid							4.97
noPuget_2014_fixSm.gr.in (opt)	Grid							4.97
Geologic Model Partial Rupture	Fault							2.67
Lacamas Lake		2.37	6.58	-0.33	122.514°W	45.684°N	323.48	2.05
Zeng Model Small Mag	Fault							2.11
Grant Butte 50		11.43	6.19	0.78	122.431°W	45.498°N	172.18	1.20
Geologic Model Full Rupture	Fault							2.02
Lacamas Lake		0.94	6.62	-0.39	122.514°W	45.684°N	323.48	1.62
sub0_ch_top.in	Interface							1.75
Cascadia Megathrust - whole CSZ Characteristic		161.51	8.84	1.86	124.549°W	45.485°N	265.07	1.75
WUSmap_2014_fixSm_M8.in (opt)	Grid							1.61
noPuget_2014_fixSm_M8.in (opt)	Grid							1.61
noPuget_2014_adSm.ch.in (opt)	Grid							1.18
WUSmap_2014_adSm.ch.in (opt)	Grid							1.18
noPuget_2014_adSm.gr.in (opt)	Grid							1.15
WUSmap_2014_adSm.gr.in (opt)	Grid							1.14
coastalOR_deep.in	Slab							1.09
coastalOR_deep.in	Slab							1.05

GEOPACIFIC
Real-World Geotechnical Solutions
Investigation • Design • Construction Support

PHOTOGRAPHIC LOG

GEOPACIFIC
Real-World Geotechnical Solutions
Investigation • Design • Construction Support

View of Site from NW Camas Meadows Drive, Facing North

Test Pit TP-8, Facing North

Dense Conglomerate in Test Pit TP-8

Conglomerate Soils Excavated from Test Pit TP-8

GEOPACIFIC
Real-World Geotechnical Solutions
Investigation • Design • Construction Support

Test Pit TP-7, Facing North

Medium-Sized Roots within Test Pit TP-6