

**EXHIBIT A –SCOPE OF WORK
WALLIS ENGINEERING**

**LACAMAS CREEK SEWER PUMP STATION IMPROVEMENTS
CITY OF CAMAS**

JUNE 2018
WE#1460A

PROJECT DESCRIPTION

The existing Lacamas Creek Pump Station was constructed in 1958 and is located just east of 1642 NE 3rd Avenue in Camas, WA on the west shoreline of Lacamas Creek. The pump station is nearing its design capacity, and many of the components have reached their useful life. The City of Camas has selected the Wallis Engineering team to design and permit a new Lacamas Creek pump station, and a nearby satellite pump station at Baz Park to serve homes and businesses in the NE 3rd Loop area.

Components of the proposed project include inlet and discharge piping to serve each new pump station, demolition of the existing pump station and existing piping across Lacamas Creek, a park restroom facility, and grading of the larger Lacamas Creek Trailhead Park. Environmental permitting includes local Critical Areas and Substantial Development Shorelines, WDFW-HPA, DOE Construction Stormwater with SWPPP, and USACE with NMFS consultation. Work will occur on properties that border Lacamas Creek and the Washougal River, which is an area that has a high potential for pre-European artifacts, and archeological/cultural resources permitting is also included.

The project is being divided into three phases:

- Phase I: 30% design including environmental and archeological permitting.
- Phase II: Land use permitting, easement acquisition, preparation of contract documents, and bidding
- Phase III: Construction services

This contract is for Phase I services only.

CONTRACT DURATION

Contract term shall be from the date contract is fully executed until June 30, 2019.

DESIGN TEAM

Firm	Role	Task(s)
Wallis Engineering (WE)	Project Management, Pump Station and Pipeline Engineering, Site Engineering	1, 2, 3, 5, 7
Ecological Land Services (ELS)	Environmental Permitting	2, 6
Archaeological Services of Clark County (ASCC)	Cultural/Archaeological Investigations and Permitting	2, 7
GreenWorks (GW)	Park Design, Landscape Architecture	2, 3
R&W Engineering (R&W)	Electrical Engineering	2, 3
Geotechnical Resources Inc. (GRI)	Geotechnical Engineering	5
KC Development (KC)	Surveying	4
MWA Architects (MWA)	Architectural Design	1, 3

Firm	Role	Task(s)
Kramer Gehlen & Associates (KGA)	Structural Design	1, 3
Universal Field Services (UFS)	Easement Acquisition	(future phases)

PHASE I: 30% DESIGN INCLUDING ENVIRONMENTAL AND ARCHEOLOGICAL PERMITTING

TASK 1 PROJECT MANAGEMENT

1.1 Project Management and Quality Control. Provide ongoing coordination with all team members and City staff for the duration of the project. Provide technical and financial management to ensure the schedule and budget are met, management of subconsultants, monthly progress reports, and single point of contact for City staff. This task includes:

- Preparation and ongoing monitoring of a project budget and schedule.
- Quality assurance/ quality control (QA/ QC).
- Scope change management.
- Coordinate between tasks and team members.
- Manage quality control review of all work activities and project deliverables.
- Monthly progress reports to be submitted with billings.

1.2 Project Meetings. Facilitate project meetings, providing materials, agenda, and minutes as appropriate, and record key discussions and action items. Specific project meetings included in the subtask are:

- A project kick-off meeting to introduce the team players and discuss roles, review scope, schedule, lines of communication, City staff expectations and goals, and confirm that all parties are in agreement prior to proceeding.
- Project team meetings at Wallis' office throughout the project duration at appropriate intervals based upon design activities.
- Project update meetings or conference calls with the client project manager.

Task 1 Assumptions:

- Up to six (6) project team meetings.
- Up to six (6) project update meetings with client.

Task 1 Deliverables:

- Project schedule and budget
- Project meeting agendas and minutes
- Monthly progress and status reports
- Monthly invoices
- Updated project schedules

TASK 2 CONCEPTUAL DESIGN

2.1 Restroom and Pump Station Siting Alternatives. Wallis Engineering will coordinate with City staff and GreenWorks to develop concept plans for Lacamas Trailhead Park. Items will include the internal pedestrian and vehicular circulation, parking lot layout, restroom location at Lacamas Park, trailhead location including kiosk and trail connections, park amenities including benches, picnic tables, bike racks, landscape plantings and storm water plantings.

- 2.2 Identify the Area of Potential Impact (APE).** Using the siting information from **Task 2.1**, Wallis Engineering will work with ASCC, ELS and GreenWorks to prepare a map showing the Area of Potential Impact (APE). This will be the starting point for the environmental assessments and archaeological investigations.
- 2.3 Parks Board Meeting.** Attend a Parks Board meeting and present the alternative concept plans for Lacamas Creek Trailhead Park.

Task 2 Assumptions:

- Up to two site alternatives will be developed for Lacamas Trailhead Park.
- Site evaluation will include an option for a combined pump station/restroom building.

Task 2 Deliverables:

- Concept site plans for Lacamas Creek Trailhead Park (up to two).
- Architectural site renderings on boards for presentation at the open house (up to two)
- Map of APE
- Memorandum summarizing critical areas within project vicinity

TASK 3 SURVEY AND MAPPING

- 3.1 Topographic and Boundary Survey.** KC Development will order utility locates, provide detailed mapping of features, and prepare a topographic and boundary survey base map for the project. The survey base map will be updated as necessary to include locations of archeological, wetland, and geotechnical flagging. The topographic and boundary survey will include the following areas:
- Lacamas Trailhead Park
 - Baz Park
 - NE 3rd Loop between Baz Park and NE 3rd Ave
 - NE 3rd Ave between the east side of the Crown Road/3rd Loop intersection and the west boundary of Lacamas Trailhead Park
 - The existing pump station site including the access drive, an area approximately 100-feet wide between the existing Lacamas Creek Pump Station and NE 3rd Ave, and the alignment of the existing force main and influent pipes between the pump station at 1st Ave.
 - E 1st Ave/Joy St. along the proposed force main alignment, from NE 3rd Ave to NE 2nd Ave, approximately 1,550 feet from curb-to-curb.
- 3.2 Base Mapping.** KCD will prepare a complete base map for use in preparing pump station, force main, and park plans. The base map will encompass the surveyed areas noted above. The map will include:
- Existing improvements
 - Contours at 1-foot elevations with active surface in Civil 3D 2016
 - Utilities with inverts for sanitary sewer and storm structures
 - Utility locates will be accomplished via One-Call
 - Utility as-builts will be compiled, compared and resolved with locates
 - All lot and right-of-way corners, including research of existing monuments
 - Right-of-way and centerline locations
 - Location of environmental areas as identified by others
 - Geotechnical boring and piezometer locations
- Site Specific Mapping:**
- Lacamas Creek Trailhead
 - Trees 6" diameter and larger
 - West lot line
 - Trees 6" diameter and larger
 - Existing Pump Station and Access Road

- All lot and easement lines
- Boundary of private property adjacent to pump station site
- Baz Park
 - Trees 6" diameter and larger

Task 3 Assumptions:

- Vertical datum will be Clark County.
- Horizontal datum will be Washington South

Task 3 Deliverables:

- Base map in AutoCAD Civil 3D and PDF

TASK 4 GEOTECHNICAL INVESTIGATION

4.1 Soil Borings. To characterize subsurface soil and groundwater conditions, a total of seven soil borings are planned for this project. The following table summarizes the location and anticipated depth of each of these borings.

<i>Location/Project Feature</i>	<i>Anticipated Depth, ft</i>	<i>Number of Borings</i>
Lacamas Creek Pump Station	45	1
Baz Park Pump Station	35	1
Jacking and Receiving Pit for NE 3 rd Avenue Trenchless Crossing	35	1
Gravity Main on NE 3 rd Avenue and across Lacamas Creek	20	1
Gravity Main into Baz Park Substation	15	1
Force Main along East 1 st Avenue	6	2

The available geotechnical and geological information for the project area indicate that cobble and boulders are present within the planned depths of excavation. Fill is reportedly present at the location of NE 3rd Loop and at Baz Park and along the embankment of Lacamas Creek. It has been our experience that hollow-stem auger or mud-rotary drill methods are not able to penetrate into soil that contains appreciable amounts of cobbles and boulders. Accordingly, we propose to complete the explorations using a track-mounted Rotosonic drill rig equipped with 6-in. diameter casing. Rotosonic drilling combines high-frequency vibrations, downward pressure, and relatively slow rotations to advance a dual string of drill pipe which is used to sample and advance the hole. Nearly continuous core samples are collected as the boring is advanced. Photographs of the core samples will be collected at the time of the field exploration program. In addition to the core samples, disturbed split-spoon samples will be obtained from the borings at 5-ft intervals of depth. The Standard Penetration Test will be conducted while the disturbed split-spoon samples are being taken. The Rotosonic borings will be subcontracted to Holt Services, Inc. who is experienced in drilling and sampling soils for engineering purposes. The drilling and sampling will be accomplished under the direction of an experienced geotechnical engineering staff from GRI who will maintain a detailed log of the materials and conditions uncovered during the course of the work. After the completion of drilling and sampling, the boreholes will be decommissioned in accordance with all Washington State

regulations. At the locations where the borings are advanced through the paved right-of-way, the pavement will be patched with quick setting concrete or permanent cold-patch asphalt.

An exploration work plan will be submitted to the City of Camas prior to the completion of the field exploration program. The exploration work plan will include a brief narrative of the work, a figure showing the location of the proposed explorations, and a suggested traffic control plan for borings completed in the paved right-of-way.

A request to the Utility Notification Center will be made at least 48 hours prior to the start of the field exploration program. A private utility locator will also be retained to further evaluate the presence of underground utilities at each of the boring locations.

- 4.2 Vibrating Wire Piezometers.** Vibrating-wire piezometers with data loggers will be installed to measure the depth to groundwater and the seasonal variation. The vibrating-wire piezometers will allow for near-continuous measurement of the groundwater, which will be useful for evaluating the need for construction dewatering. Data from the data loggers will be collected by GRI personnel on a three-month interval for a period of one year after drilling.
- 4.3 Geotechnical Laboratory Testing.** Laboratory testing will be completed for classification purposes and to provide data on the important physical characteristics of the subsoils. The laboratory testing will include standard classification tests, such as natural water content, unit weight determinations, grain size, and Atterberg limits testing.
- 4.4 Geotechnical Engineering Analyses.** Engineering studies and analyses will be completed, resulting in recommendations concerning: (1) earthwork, including cut and fill slopes, wet-weather construction considerations, suitability of on-site soils for use as structural fill, and import fill criteria; (2) trenching conditions and considerations, including temporary shoring and construction dewatering; (3) the trenchless crossing of NE 3rd Avenue; and (4) design criteria for the pump stations and restroom building, including allowable bearing pressures, settlement estimates, lateral earth pressures, buoyant uplift forces, and an assessment of slope stability and set back criteria at the Baz Park site.
- 4.5 Geotechnical Engineering Report.** A draft report will be prepared that discusses the work accomplished and presents of the various tests and office studies. A final report will be prepared within one week after receipt of comments from the design team.

Task 4 Assumptions:

- The geotechnical approach is based primarily on the February 20, 2018 *Gray & Osborne's Final Alternatives Evaluation Technical Memorandum*.
- The base of the Lacamas Lake and Baz Park Pump Station are each estimated to be at elevation 17 ft. The trenchless crossing of NE 3rd Avenue will be at about elevation 24 ft. The depth of the new sanitary sewer gravity main along the north side of NE 3rd Avenue and over Lacamas Creek will be less than 15 ft.
- The invert elevation for the new gravity main into the Baz Park Pump Station and for the replacement force mains will be less than 10 ft.
- ASCC will be onsite during drilling to review the samples for archaeological purposes.
- All property access approvals will be coordinated and completed by others.
- It is assumed that petroleum products or other potentially hazardous materials will not be encountered during our subsurface explorations. If petroleum products or other potentially hazardous materials are encountered during the subsurface explorations, drilling will immediately stop until Engineer is notified and next steps are discussed. Cuttings from the borings will be placed in 55-gallon drums and disposed of by the drilling subcontractor.
- City of Camas will obtain the right-of-way permit to complete the borings at the current rate. Consultant will pay the fee.
- Traffic control will consist of an arrow board, traffic cones, and advance warning signs.

Task 4 Deliverables:

- Exploration work plan
- Draft and Final Geotechnical Reports

TASK 5 PRELIMINARY DESIGN

5.1 Review and Update Flow and Sizing Recommendations. Complete review of the flow projections and facility sizing presented in the *Alternatives Evaluation Technical Memorandum*.

- Review pump station service areas and assess status of development prospects in the service areas.
- Review existing flow projections, including the City's General Sewer Plan Amendment and *Alternatives Evaluation Technical Memorandum*.
- Review sizing recommendations for wetwells, pumps, force mains, and gravity sewers.
- Confirm or provide recommend revisions to sizing recommendations for wetwell, pumps, and piping.

5.2 Surge Analysis. We will perform a preliminary surge analysis of the pump station and force main systems utilizing commercially available software, with conservative assumptions regarding transient conditions. *This analysis will consist of a power failure pump shutdown scenario under maximum flow conditions to determine the potential surge pressures associated with the pipeline system.* This work will include the following:

- Create a computer model of the pump station and force main system
- Establish initial non-transient hydraulic grade line elevations for pump power failure and start-up analysis under initial and future flow conditions.
- Perform simulations for pump power failure and start-up of the pump station under initial and future flow conditions.
- Review the results of the analysis and provide preliminary recommendations for sizes and locations of air/vacuum facilities, and/or other mitigating measures if necessary for protection from surge conditions.

5.3 Thirty Percent Design. Preliminary design and estimate will be completed to approximately 30% completion levels. This will include site plans for pump stations and parks, pump station electrical and mechanical plans, and pipeline plans.

5.3.1 Civil and Site Design

Preliminary civil and site design will include the following activities.

- Confirm adequacy of topographical and boundary mapping. Evaluate legal, ownership, permitting and zoning constraints. Identify environmentally sensitive areas such as wetlands, flood plains, known hazardous waste areas, etc.
- Coordinate with geotechnical engineer on boring locations; record boring locations on-site drawings.
- Prepare preliminary stormwater calculations.
- Develop preliminary stormwater control concepts (swales, curb, and gutter).
- Meet with City and stormwater control agency to determine permitting requirements.
- Set preliminary finished floor levels for new structures. Establish preliminary finished grades; overall major surfaces, road profiles, etc. Iterate preliminary surfaces and structures to optimize earthwork if necessary.
- Develop preliminary utility plans for the Lacamas Creek Pump Station, Baz Park Pump Station, and Lacamas Trailhead Park.

5.3.2 Pipelines

Existing utility locations and environmental information will be reviewed, and pipeline alignments will be adjusted to avoid utility conflicts and environmental areas where possible. Topographic considerations and surge analysis will dictate the size and quantity of combined air release/vacuum valves. Preliminary pipeline design will include:

- Preliminary pipeline sizing.

- Pipe materials.
- Vertical and horizontal alignments.

5.3.3 Mechanical

Preliminary mechanical design will include the following:

- Selection and sizing of major equipment including pumps. Prepare sizing calculations and obtain review. Establish level of redundancy required for all equipment.
- Prepare equipment list with sizing for major equipment. Coordinate with the City on preferences of equipment manufacturer and processes.
- Prepare preliminary drawings for equipment arrangements.

5.3.4 Odor Control

Preliminary odor control design will include the following:

- Select type of ventilation system to be used in pump station and other structures.
- Determine force main odor control requirements and select odor control facility, coordinating with City on preferences.
- Determine overall potable water requirements for the project. Confirm adequate quantity and pressure can be obtained from the local potable water supply utility.

5.3.5 Electrical

Preliminary design work for electrical will include the following:

- Preliminary sizing of electrical services.
- Preliminary sizing of generators (one for each pump station).
- SCADA communications from pump stations to City's central monitoring site.
- Preliminary contact with Clark Public Utilities (CPU) to discuss electrical services options for pump station. Include discussions of possible dual-service feeders from separate sub-stations for redundant power in lieu of or possibly in addition to local standby generators.
- Prepare narrative for electrical portions of preliminary report, including potential service options.
- A cellular communications link will be used with provisions for a future fiber optic cable connection.

5.3.6 Structural

Schematic design work for structural will include the following:

- Preliminary sizing of foundations.

5.3.7 Parks

GreenWorks will develop site plans for Lacamas Park and Baz Park based on the preferred concept resolved in Task 2. GreenWorks will research and determine the best structure for the restroom and coordinate with MWA Architects on the materials for consistency between the pump station and the restroom at Lacamas Park.

- Site plans showing preliminary location for the circulation, parking lot layout, trailhead, planting areas, park amenities and stormwater facilities.

5.3.8 Architectural

Schematic design work for architectural will include the following:

- Security discussions with City for restroom facility.
- Floor plan, elevations for restroom building (two alternatives).
- Sketch-up of floor plan, elevations for pump stations building (two alternatives for review of style).
- CAD drawings (plans and elevations) for pump station buildings (one for each pump station).

- 5.4 Easement Assessment.** The *Alternatives Evaluation Technical Memorandum* did not anticipate any required property acquisition or easements. However, it appears that there are two properties south of 3rd Avenue that may be affected. We will confirm the easement needs and contact the property owners to ascertain the likelihood of obtaining an easement; if one is required.
- 5.5 Public Meeting #1.** Facilitate and attend a public open house, to be held at a location to be determined. Presentation material would include architectural renderings of the site alternatives developed in Task 2.4. Studies and reports will be available for reference during discussions with interested parties.
- 5.6 Predesign Report and Workshop.** We will summarize the results of subtasks 5.1 through 5.3 in a draft predesign report and submit to the City. A report will be prepared that documents the approach and findings of the preliminary design. The report will be reviewed at a meeting with City staff and will be finalized following the meeting.
- 5.7 Department of Ecology Meeting.** Facilitate and attend a meeting with the Department of Ecology in Olympia to discuss the design report.
- 5.8 City of Camas Pre-Application Conference.** Using 30% design, prepare application material and attend a land use pre-application conference at the City of Camas.

Task 5 Assumptions:

- Downstream analysis for the Lacamas Creek Pump Station force main will be limited to reviewing the modeling results from the current General Sewer Plan and confirming whether adequate capacity is available.
- Any required drawing standards will be provided by the City.
- No retaining walls are required.
- Specifications will not be required for the 30% design effort.
- For the public meeting, City will prepare and mail meeting notices and schedule the meeting facilities.

Task 5 Deliverables:

- Draft and final design standards memorandum.
- Draft and Final Predesign Report.
- Material/color board for pump station and restroom buildings.
- Memorandum summarizing discussions with property owners.
- Written summary of comments heard during the open house.
- 30% cost estimate.
- 30% design drawings, approximated as follows:
 - Cover Sheet - 1 Sheet
 - General Notes and Legend - 1 Sheet
 - Overall Project/Sheet Location – 1 Sheet
 - Demolition Plan – 3 Sheets
 - Pipeline Plan and Profiles – 3 Sheets
 - Pump Station Design Criteria – 1 Sheet
 - Layout, Grading, Material and Planting Plans for Lacamas Cr. Trailhead Park – 5 Sheets
 - Stormwater Management Plan for Lacamas Trailhead Park – 2 Sheets
 - Stormwater Management Plan for Baz Park Pump Station – 2 Sheets
 - Pump Station Site Plans – 2 Sheets
 - Pump Station Mechanical Plans– 4 Sheets
 - Equipment Shelter Plans – 2 Sheets
 - Restroom Architectural Plan and Elevations – 1 Sheet
 - Pump Station Architectural Plan and Elevations – 2 Sheets
 - Electrical One-Line Diagrams – 2 Sheets
 - Electrical Site Plans – 2 Sheets

- Electrical Layout Plans – 2 Sheets
- Process and Instrumentation Diagrams (P&ID's) – 2 Sheets
- PLC I/O Lists – 2 Sheets

TASK 6 ENVIRONMENTAL SERVICES

- 6.1 Stream and Wetland Field Review.** ELS will complete a stream and wetland field review to facilitate preliminary design. All streams (OHWM) and wetlands will be reviewed and delineated for potential project impacts to Waters of the United States. The Ordinary High Water Marks will be determined to identify the extent of shoreline jurisdiction. For this subtask ELS will:
- Flag the OHWM of streams and limits of associated wetlands beyond the OHWM
 - Conduct office work and field work to complete a functional assessment and categorize wetlands.
- 6.2 City of Camas Permitting Coordination and Critical Areas Report.** A Critical Areas report will be required to address impacted resources (wetlands, critical aquifer recharge areas, frequently flooded areas, geologically hazardous areas, and fish and wildlife habitat conservation areas). Expected permits include a Shoreline Substantial Development Permit and a City Critical Areas Permit. ELS will coordinate with City staff to review the project and discuss concerns or recommendations regarding critical area issues.
- 6.3 Joint Aquatic Resources Permit Application (JARPA) and Clean Water Act (CWA) Coordination.** A JARPA application will be required to initiate the permit processes for impacts to critical areas regulated by the US Army Corps of Engineers, the Washington Department of Fish and Wildlife, and the Washington Department of Ecology. However, there is some uncertainty whether an ACOE Nationwide Permit (NWP) will be required for removing the pipe over Lacamas Creek and the existing pump station, resulting in uncertainty as to the lead agency for archeological permitting. To determine whether a NWP permit will be required, ELS will coordinate with USACE and attend a pre-application meeting to review the project and discuss concerns or recommendations.
- 6.4 Biological Evaluation .** Biological Evaluation will be required for gravity sewer removal over Lacamas Creek and removal of the pump station. ELS will coordinate with the WDFW for work beneath the ordinary high water mark of Lacamas Creek.

Task 6 Assumptions:

- USACE will confirm at the pre-application meeting that a NWP is/is not required.
- Removal of old pipes and pump station will be considered self-mitigation by local, state, and federal agencies.

Task 6 Deliverables:

- Critical Areas Report
- Shorelines Substantial Development Permit
- SEPA checklist
- JARPA for Washington Department of Fish and Wildlife Hydraulic Project Approval Permit
- JARPA and Mitigation Plan for work in the waters of the US
- Biological Evaluation for removal of pipe and pump station in Lacamas Creek

TASK 7 CULTURAL AND HISTORICAL RESOURCE ASSESSMENTS

This task will be performed by ASCC to address Section 106 of the National Historic Preservation Act. ASCC's role is to facilitate the USACE's compliance with Section 106 and the City's compliance with local cultural resource ordinances within the project's Area of Potential Effect (APE), and will include the following tasks.

- 7.1 Consultation and Agency Coordination / APE Delineation.** Early and on-going consultation and coordination between the USACE, the Washington Department of Archaeology and Historic

Preservation (DAHP), project engineers, and the City of Camas will be carried out throughout the life of the project. ASCC will facilitate an initial discussion between the parties in order to establish an appropriate APE.

This task will include the preparation of APE maps and a scoping letter for the USACE to distribute to interested parties justifying the APE. Given the largely subterranean nature of the project, ASCC anticipates that for much of the APE, the only potential effects will be to below-ground resources (i.e. archaeological deposits) rather than above-ground properties (i.e. historic structures).

7.2 Background Review. Historic-period maps, such as early USGS quadrangles and General Land Office maps, will be reviewed. Areas where previous archaeological or historic resource studies have been conducted and where archaeological and historic resources have been recorded will be identified and shown on project maps. Previous studies that meet current standards and need no additional fieldwork will be identified. ASCC will contact selected Tribes to assess whether ethnographic sites may be within the project.

7.3 Site Reconnaissance. A site reconnaissance of the project will be conducted. Goals for this reconnaissance include identifying areas where there is no need for pedestrian survey or shovel testing, and to verify the coverage of previous field studies.

Since the project alignment will be within or adjacent to road prisms for much of its length, it will be important to determine if there are areas that do not need archaeological study because they are deeply cut or filled. These include:

- Portions of the project where impacts are within roads-especially in road cuts that are well below grade-may need no additional exploration as impacts may occur in geologic layers deposited well before the time people were in the area.
- Determining whether the project-related ground disturbance will be within native soils, have potential for an archaeological site, or will be entirely in fill or bedrock, for example, is likely to reduce the risk of encountering archaeological resources in some areas.

The Site Reconnaissance subtask will include monitoring geo-technical investigations in order to assist in determining the origin of the soils likely to be impacted during project activities and to assess their archaeological potential. This is particularly relevant at the Baz Park locale where it appears that the current ground surface is comprised of imported fill material.

7.4 Resource Surveys. After the reconnaissance is done, pedestrian surveys will be conducted, followed by shovel testing of areas where archaeological sites are deemed likely. Archaeological and historic resources will be documented during the survey.

Archaeological Survey and Shovel Testing. ASCC will carry out a cultural resources survey in order to inventory and record any archaeological materials within the APE. The specific scale and scope of the investigation will necessarily depend on the results of the background research, agency consultation, and the site reconnaissance effort.

- Outside the boundaries of previously recorded sites, ASCC will survey for subsurface archaeological materials by excavating a series of shovel test probes (STPs) within the areas slated for ground disturbance, screening all excavated soils through 1/8-inch (3-mm) mesh. Given the project's alluvial setting and the potential for deeply buried deposits, ASCC may use a hand auger to excavate below the reach of a shovel in select areas, reaching final depths of up to three meters (10 feet) below ground surface, where possible.
- Areas along roads that are considered likely could be approached by investigating the shoulder areas and considering those areas to be a proxy for the undisturbed area under the road bed; a constraint may be the narrowness of road right of way.

- It may not be feasible to adequately test for buried archaeological resources in some high risk areas, and monitoring may be appropriate for those areas; however, this is not the preferred situation.
- If deeply buried soils with the potential to contain archaeological materials are encountered during the geotechnical testing, ASCC will work with project engineers and interested parties to formulate a plan to safeguard against damage to any potentially significant cultural deposits. This could entail the mechanical stripping of overburden to access those deposits for closer examination, or construction monitoring. The specific scope of this work would depend on the proposed impacts at that location, and the depth and the nature of the deposits.

Historic Resource Field Inventory. As previously mentioned, ASCC is anticipating that only a small portion of the APE will require above-ground resource documentation, given the project's largely subterranean nature. However, there may be portions of the APE associated with above-ground elements of the project that will have the potential for indirect effects (i.e. visual) that will require historic resource documentation. In these areas, historic-period buildings and structures – those constructed more than 45 years ago will be inventoried and a preliminary evaluation of significance assessed. At this time, one previously identified resource that is likely to be impacted by the project is the current pump station, which appears to be over 45 years in age.

Other historic resources that are within the APE also will be identified and included in the inventory of historic resources. Historic resources will need to be documented on the DAHP's current inventory forms and the forms appended to the report. A preliminary evaluation will need to be provided as part of the documentation.

7.5 Cultural Resources Report. A report will be prepared to meet the survey-level standards of the City's archaeological ordinance, given the strong likelihood of an archaeological site within the APE and to meet SEPA review. The report will document the work performed to the level that will meet the standards for review by the USACE.

The report will provide a project description and information on the environmental and historical/cultural setting of the project, summarize the background review and fieldwork, provide information about areas where additional survey may be needed, and provide an evaluation of resources. A preliminary Finding of Effect will be recommended. Forms for identified archaeological and historic resources will be appended to the report, and maps will note areas where the study has been completed as well as where resources are located and show where additional effort, such as monitoring during construction, may be recommended.

Task 7 Deliverables:

- APE maps and scoping letter for USACE to distribute to interested parties, if needed.
- Draft and final cultural resources survey report and associated resource forms.

Task 7 Assumptions:

- This scope of work only addresses the survey-level investigation and assumes the project will either avoid or not pose an adverse effect to NRHP-eligible properties.
- Preliminary research shows that portions of the APE overlap two known archaeological sites (45CL10 and 45CL654) along with a number of previous archaeological survey areas (including recent routes for the Camas water line, Washougal River Trail, and STEP sewer transmission main projects). This previous work has revealed a pattern of pre-contact habitation in the project vicinity, particularly in the bottomlands to the south of NE 3rd Loop. Boundaries for several sites (including 45CL654) are not fully delineated, and the location of at least one site (45CL9) is somewhat disputed. In short, the project setting is culturally sensitive, and the potential for encountering archaeological deposits is high.

- The existing pipeline crossing Lacamas Creek passes through a previously-recorded archaeological site (45CL10)
- The proposed force main and gravity systems along NE 3rd Loop are adjacent to the current boundary of site 45CL654, which has been determined eligible for listing on the NRHP.
- The project's regulatory context regarding cultural resources will be Section 106 of the NHPA and the City of Camas's archaeological ordinance (Chapter 16.31).
- The DAHP database will be a main source of background information.
- ASCC's library will be used to identify reports written prior to the start of the database compilation in the late 1990s.
- The project will be reviewed by the City of Camas.
- The archaeological fieldwork will include a pedestrian survey using transects spaced 33 to 50 feet (10 to 15 meters).
- Up to 40 shovel tests will be excavated at high probability areas, where the surface visibility is inadequate to determine whether an archaeological site is present. The shovel tests will also be used to delineate resource boundaries.
- Shovel tests will be 30 centimeters at the surface and excavated at least 50 centimeters deep, to meet the City of Camas archaeological ordinance. (County standards require 50-centimeter diameter shovel tests.)
- Soils will be screened using 1/8-inch mesh hardware cloth. No artifacts will be collected.
- The study and report will be done to meet the "survey-level" of the City's archaeological ordinance; the report also will be prepared to meet standards of DAHP for a survey, so that it will meet standards of the Corps of Engineers, if needed.
- After review of the draft report and acceptance by the project team and the City, the draft report will be finalized for submittal to the City of Camas for its review under the City's archaeological ordinance and SEPA.
- Copies of the report will be sent to seven Tribes and DAHP via certified mail, to meet the City's ordinance.
- If resources are found that appear to be eligible for listing in the NRHP, and if impacts or adverse effects cannot be avoided, additional study may be needed.
- Archaeological sites that cannot be avoided and that may be significant may need additional testing / evaluation. If the project is being done to meet Section 106, no permit from the DAHP would be needed for evaluation excavations or for mitigation excavation for sites found to be eligible for listing in the NRHP that cannot be avoided. By identifying these resources early in the project design, it may be possible to find avoidance measures. Alternately, non-excavation mitigation measures may be formulated to off-set the impacts to NRHP-eligible sites. These efforts would be carried out through consultation with the USACE, DAHP, project proponents, and interested parties.
- An additional site evaluation or mitigation report would be prepared to present the information from additional phases of work, if this work is needed, it will be carried out under a separate scope of work.

Agreement Exhibit B - Fee Estimate City of Camas - Lacamas Creek Sewer Pump Station Improvements WE #1460A June 2018												
TASK		Wallis	Wallis Expenses	Subconsultants								Total Cost
				ELS	ASCC	GW	R&W	GRI	KC	MWA	KGA	
Task 1	Project Management											
1.1	Project Management and QC	\$19,359.00										\$ 19,359.00
1.2	Project Meetings	\$13,072.80	\$300 (M)	\$ 2,750.00	\$ 2,165.00	\$ 4,073.00	\$ 1,954.00	\$ 2,112.00		\$ 2,222.00		\$ 28,648.80
	TASK 1 SUBTOTAL	\$32,431.80	\$300	\$ 2,750.00	\$ 2,165.00	\$ 4,073.00	\$ 1,954.00	\$ 2,112.00	\$ -	\$ 2,222.00	\$ -	\$ 48,007.80
Task 2	Conceptual Design											
2.1	Restroom and Pump Station Siting Alternatives	\$7,619.20				\$ 5,484.00	\$ 698.00					\$ 13,801.20
2.2	Identify the Area of Potential Impact (APE)	\$2,152.40				\$ 2,486.00						\$ 4,638.40
2.3	Present Concept Designs to Parks Board	\$670.00				\$ 694.00						\$ 1,364.00
	TASK 2 SUBTOTAL	\$10,441.60	\$0	\$ -	\$ -	\$ 8,664.00	\$ 698.00	\$ -	\$ -	\$ -	\$ -	\$ 19,803.60
Task 3	Survey and Mapping											
3.1 & 3.2	Topographic and Boundary Survey, Base Mapping	\$2,223.40							\$ 23,650.00			\$ 25,873.40
	TASK 3 SUBTOTAL	\$2,223.40	\$0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 23,650.00	\$ -	\$ -	\$ 25,873.40
Task 4	Geotechnical Investigation											
4.1	Soil Borings	\$0.00						\$ 25,229				\$ 25,229.00
4.2	Vibrating Wire Piezometers	\$0.00						\$ 3,856				\$ 3,856.00
4.3	Geotechnical Laboratory Testing	\$0.00						\$ 2,486				\$ 2,486.00
4.4	Geotechnical Engineering Analyses	\$0.00						\$ 7,574				\$ 7,574.00
4.5	Geotechnical Engineering Reporting	\$2,822.40						\$ 9,378				\$ 12,200.40
	TASK 4 SUBTOTAL	\$2,822.40	\$0	\$ -	\$ -	\$ -	\$ -	\$ 48,523.00	\$ -	\$ -	\$ -	\$ 51,345.40
Task 5	Preliminary Design											
5.1	Review and Update Flow and Sizing Recommendations	\$5,948.60										\$ 5,948.60
5.2	Surge Analysis	\$4,297.60	\$1,400 (O)									\$ 5,697.60
5.3	30% Design	\$44,487.60	\$100 (M)			\$ 14,960.00	\$ 15,044.00			\$ 20,783.00	\$ 5,500.00	\$ 100,874.60
	Stormwater Report	\$3,880.20										\$ 3,880.20
5.4	Easement Assessment	\$2,988.40										\$ 2,988.40
5.5	Public meeting #1	\$1,446.00				\$ 5,514.00						\$ 6,960.00
5.6	Predesign Report and Workshop	\$15,567.60	\$100 (P)			\$ 688.00	\$ 2,403.00			\$ 2,085.00		\$ 20,843.60
5.7	Department of Ecology Meeting	\$2,266.40	\$100 (M)									\$ 2,366.40
5.8	Pre-Application Conference	\$2,242.00	\$327 (O)									\$2,569.00
	TASK 5 SUBTOTAL	\$83,124.40	\$2,027	\$ -	\$ -	\$ 21,162.00	\$ 17,447.00	\$ -	\$ -	\$ 22,868.00	\$ 5,500.00	\$ 152,128.40
Task 6	Environmental Services											
6.1	Stream and Wetland Field Review	\$0.00		\$ 4,400.00								\$ 4,400.00
6.2	City of Camas Permitting Coordination and Critical Areas Report	\$1,243.70										\$ 1,243.70
	Critical Areas Permits	\$335.00		\$ 3,300.00								\$ 3,635.00
	Shoreline Substantial Development Permit	\$670.00		\$ 6,600.00								\$ 7,270.00
6.3	Joint Aquatic Resources Permit Application (JARPA) and Clean Water Act (CWA) Coordination	\$502.50										\$ 502.50
	JARPA Permit	\$502.50		\$ 5,500.00								\$ 6,002.50
	ACOE Permit	\$1,340.00		\$ 7,150.00								\$ 8,490.00
6.4	Biological Evaluation	\$167.50		\$ 9,900.00								\$ 10,067.50
	TASK 6 SUBTOTAL	\$4,761.20	\$0	\$ 36,850.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 41,611.20
Task 7	Cultural and Historical Resource Assessment											
7.1	Consultation and Agency Coordination / APE Delineation	\$0.00			\$ 2,886.00							\$ 2,886.00
7.2	Background Review	\$0.00			\$ 1,563.00							\$ 1,563.00
7.3	Site Reconnaissance	\$0.00			\$ 1,962.00							\$ 1,962.00
7.4	Resource Surveys	\$0.00			\$ 7,924.00							\$ 7,924.00
7.5	Cultural Resources Report	\$1,411.20			\$ 6,673.00							\$ 8,084.20
	TASK 7 SUBTOTAL	\$1,411.20	\$0	\$ -	\$ 21,008.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 22,419.20
	GRAND TOTAL	\$137,216.00	\$2,327	\$ 39,600.00	\$ 23,173.00	\$ 33,899.00	\$ 20,099.00	\$ 50,635.00	\$ 23,650.00	\$ 25,090.00	\$ 5,500.00	\$ 361,189.00

FEE SUMMARY			
Staff	Hours	Rate	Fees
SE - Senior Engineer	38	\$ 182.70	\$ 6,942.60
E1- Engineer 1 (PM)	244	\$ 167.50	\$ 40,870.00
E2 - Engineer 2	120	\$ 155.30	\$ 18,636.00
E3 - Engineer 3	0	\$ 133.00	\$ -
E4 - Engineer 4	236	\$ 115.80	\$ 27,328.80
E5- Engineer 5	230	\$ 99.50	\$ 22,885.00
E6 -Engineer 6	0	\$ 89.40	\$ -
Inspector	0	\$ 96.50	\$ -
T1 - Technician 1	168	\$ 101.50	\$ 17,052.00
TW- Technical Writer	4	\$ 93.40	\$ 373.60
C1 - Clerical 1	40	\$ 78.20	\$ 3,128.00
Total Fees from Staff			\$ 137,216.00
Subconsultant			Fees
ELS			\$ 39,600.00
ASCC			\$ 23,173.00
GW			\$ 33,899.00
R&W			\$ 20,099.00
GRI			\$ 50,635.00
KC			\$ 23,650.00
MWA			\$ 25,090.00
KGA			\$ 5,500.00
Total Fees from Subconsultants			\$ 221,646.00
NOTE: Fee includes 10% markup			
Expenses			Cost
Printing (P)			\$ 100.00
Other (O)			\$ 1,727.00
Mileage (M)			\$ 500.00
Total Fees from Expenses			\$ 2,327.00
TOTAL BUDGET			\$ 361,189.00

Depending on availability, actual staff usage may not match the above estimated hours breakdown. Billing rates for all staff are listed in the Fee Summary.