

**CITY COUNCIL AGENDA ITEM**  
CITY OF SHORELINE, WASHINGTON

<b>AGENDA TITLE:</b>	Authorize the City Manager to Execute a Contract with the Louis Berger Group, Inc., for \$1,256,930 for Design of the 25 <sup>th</sup> Avenue NE Flood Reduction Project
<b>DEPARTMENT:</b>	Public Works
<b>PRESENTED BY:</b>	Tricia Juhnke, City Engineer
<b>ACTION:</b>	<input type="checkbox"/> Ordinance <input type="checkbox"/> Resolution <input checked="" type="checkbox"/> Motion <input type="checkbox"/> Discussion <input type="checkbox"/> Public Hearing

**PROBLEM/ISSUE STATEMENT:**

The recently-completed Lyon Creek Basin Plan identified the 25<sup>th</sup> Avenue NE Flood Reduction project as a high priority project. During high flows in Ballinger Creek, a portion of 25<sup>th</sup> Avenue NE between Brugger's Bog Park and NE 195<sup>th</sup> Street can become impassable due to high water. Adjacent public and private properties have flooded, including the City's North Maintenance Facility property, on which the new maintenance facility is scheduled for construction in 2017-2018. This project will reduce Ballinger Creek flooding by improving 625 feet of an inadequate piped stream conveyance system and installing other flood reduction and related improvements. The culverts and pipes to be addressed are located along 25<sup>th</sup> Avenue NE between Brugger's Bog Park and NE 195<sup>th</sup> Street. The new stream conveyance system shall be designed to pass peak flood flows and provide other improvements as needed.

**RESOURCE/FINANCIAL IMPACT:**

The adopted 2016-2021 CIP includes a budget of \$4,145,000 for the 25<sup>th</sup> Avenue NE Flood Reduction project. This consultant services contract is budgeted for a total of \$1,256,930. At the completion of the first phase of the project, the total project budget will be reviewed and assessed. The project is budgeted in the Surface Water Capital Fund.

**RECOMMENDATION**

Staff recommends that Council move to authorize the City Manager to execute an agreement with the Louis Berger Group, Inc., for \$1,256,930 to provide engineering, environmental, and other consultant services for the 25<sup>th</sup> Avenue NE Flood Reduction project.

Approved By:            City Manager **DT**    City Attorney **MK**

## **BACKGROUND**

A summary of the results of the McAleer Creek and Lyon Creek Surface Water Basin Plans were presented to Council as a discussion item on February 8, 2016. The presentation included a brief overview of the flooding issues associated 25<sup>th</sup> Avenue NE in the vicinity of Brugger's Bog Park. The staff report for this discussion can be found at the following link:

<http://cosweb.ci.shoreline.wa.us/uploads/attachments/cck/council/staffreports/2016/staffreport020816-9a.pdf>.

The existing Ballinger Creek piped stream conveyance system downstream of Brugger's Bog Park includes 550 feet of culverts and pipes along 25<sup>th</sup> Avenue NE and a 75-foot culvert crossing under NE 195<sup>th</sup> Street, which range in size from 24- to 36-inches in diameter. The Lyon Creek Basin Plan analysis determined that this system appears to flood during a 2-year recurrence flood event. The preliminary analysis completed as part of the basin plan determined that a 72 inch diameter pipe (or another conveyance configuration with equivalent capacity, such as daylighted channel with box culverts) would be sufficient to pass a 100-year event peak flow.

The NE 195<sup>th</sup> Street culvert, which contributes to the flooding, is completely within the neighboring City of Lake Forest Park and Washington State Department of Transportation (WSDOT) right-of-way. However, the City has proposed improvements to this culvert as part of this project. Coordination between the City of Shoreline and the City of Lake Forest Park and WSDOT will be a major component in planning and implementing this project. Addressing with capacity restriction created by NE 195<sup>th</sup> Street is a critical component of relieving the flooding issues along 25<sup>th</sup> Avenue NE upstream of this location. Both WSDOT and Lake Forest Park have been notified of this project and have shown preliminary support for it: an initial meeting with Lake Forest Park occurred on July 1, 2015; an initial meeting with WSDOT took place on February 25, 2016.

The specific extent and configuration of flood reduction improvements will be determined during pre-design and design efforts, which will accommodate input from a wide array of stakeholders including permitting and other regulatory agencies, neighbors, the general public, utilities, and other public and private entities. Coordination with regulatory agencies, including a likely emphasis on fish-passable and other habitat restoration-oriented improvements, is expected to be a major component of project work.

## **ALTERNATIVE ANALYSIS**

On December 9, 2015, the City issued a Request for Qualifications (RFQ) for the 25<sup>th</sup> Avenue NE Flood Reduction project. Statements of Qualification (SOQs) were received from three consultant teams:

- EA
- Louis Berger Group, Inc.
- Osborn

The selection committee (including a City of Lake Forest Park representative) reviewed the consultant SOQs and selected Louis Berger Group, Inc. and Osborn for interviews held in February of this year. While both teams were found to be highly qualified for this project, the selection committee chose the Louis Berger team as the most qualified for this project.

There are two primary alternatives regarding the award of this contract:

1. Award the contract to the selected consultant (recommended).
2. Do not award the contract.

While awarding the contract allows the project to move forward, conversely, not awarding the contract would stop it. Given that the project will address a high priority flooding issue within the City, and will potentially impact the adjacent new North Maintenance Facility, this alternative is not recommended.

The contract will be completed in two phases: Preliminary Design (Phase 1) and Permitting and Final Design (Phase 2). Phase 1 will focus on a thorough analysis of the flooding problems and potential solutions, gathering input from various stakeholders and accounting for conceptual-level design elements, estimated costs, and other relevant considerations. Phase 1 will culminate in selection of a preferred design approach. Phase 2 would proceed with development of the selected design for use in permitting and construction.

Project kickoff will commence with pre-design activities, to begin once the consultant is under contract, currently expected no later than May 1, 2016. Phase 1 is scheduled to be completed within one year. The proposed scope of work and budget are provided as Attachment A.

### **COUNCIL GOAL(S) ADDRESSED**

This project supports Council Goal #2 to improve Shoreline's utility, transportation, and environmental infrastructure. This project will address the Surface Water Utility's stated Goal #1, which is Flood Reduction.

### **RESOURCE/FINANCIAL IMPACT**

The total 2016-2021 CIP budget for the 25<sup>th</sup> Avenue NE Flood Reduction project is \$4,145,000. This consultant services contract is budgeted for up to \$1,256,930 of this amount. The total cost is budgeted for in the Surface Water Capital Fund.

The Phase 1 budget is not to exceed \$443,062; the Phase 2 budget is currently estimated at \$813,868, which will be reviewed and revised upon completion of Phase 1 and selection of the recommended design alternative.

The 2016-2021 project budget and revenue sources are as follows:

## **EXPENDITURES**

Project Administration:	
Staff and other Direct Expenses	\$120,000
<b><i>Consultant Design Contract</i></b>	<b>\$1,256,930</b>
Construction	TBD

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Total Project Cost	\$1,376,930
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## **REVENUE**

Surface Water Capital Fund	\$4,145,000
Total Revenue	<b>\$4,145,000</b>

## **RECOMMENDATION**

Staff recommends that Council authorize the City Manager to execute an agreement with the Louis Berger Group, Inc., for \$1,256,930 to provide engineering, environmental, and other consultant services for the 25<sup>th</sup> Avenue NE Flood Reduction project.

## **ATTACHMENTS**

Attachment A: 25<sup>th</sup> Avenue NE Flood Reduction Project Consulting Contract Scope of Work and Budget

**City of Shoreline**

**25th Avenue NE Flood Reduction Project**

**Scope of Work**

March 18, 2016

**Introduction:**

Significant recurrent flooding exists along Ballinger Creek from approximately the City of Shoreline (City) corporate limits at NE 195<sup>th</sup> Street, north to the crossing of 25<sup>th</sup> Avenue NE, and into Brugger's Bog Park, including portions of the proposed City North Maintenance Facility (NMF). This problem was previously studied as part of the City of Shoreline Lyon Creek Basin Plan (Oct. 2015). The basin plan concluded that the existing approximately 550-foot-long pipe system crossing 25<sup>th</sup> Avenue NE and extending south has inadequate capacity. In addition, it concluded that the 74-foot-long culvert crossing of NE 195<sup>th</sup> Street, located just downstream of the 25<sup>th</sup> Avenue NE pipe system, is also undersized, and contributes to the upstream flooding. The basin plan recommended conveyance system upgrades to both systems in order to increase the level of flood protection. These were identified as #Ba-CIP-1a (NE 195<sup>th</sup> Street culvert) and #Ba-CIP-1b (25<sup>th</sup> Avenue NE system) in the basin plan.

The objective of this project is to perform preliminary design, permitting and final design for the replacements of both the 25<sup>th</sup> Avenue NE pipe system and the NE 195<sup>th</sup> Street culvert in order to improve the level of flood protection in this area. The schedule for the project is important because the City is in the process of redeveloping the NMF and the two projects need to be coordinated.

The project work will be phased. Phase 1 includes completing technical investigations that are needed beyond what the basin plan had completed as well as performing a detailed alternatives evaluation in order to select the preferred alternative. It will also include stakeholder meetings. Phase 2 includes developing 30% design drawings that may be used for grant applications, preparing permit applications, and final design of the recommended improvements. Phase 2 will also include coordination with multiple stakeholders. The design for Phase 2 is assumed to be in two separate design packages: one for 195<sup>th</sup> Street and one for 25<sup>th</sup> Avenue NE (this assumption will be revisited upon the completion of Phase 1). Two packages will provide the City with the flexibility to implement one or both of the packages as financing allows. The work effort required for Phase 1 is well understood and the budget is specified. The work effort required for Phase 2 has some uncertainty because the extent of improvements may vary depending on the alternative selected. Therefore, a preliminary scope and budget has been established for Phase 2, with the understanding that the Consultant and City will review and refine the Phase 2 scope and budget upon completion of Phase 1.

The City will award both phases as a single contract, but authorize Notice To Proceed separately for each phase.

## Assumptions:

- City of Shoreline (City) to provide rights of entry.
- City of Lake Forest Park (LFP) to provide rights of entry (downstream properties) – as coordinated by City of Shoreline.
- City to assist in scheduling meetings with stakeholders
- City pays for all permit application fees.
- Project will be held to City stormwater requirements as listed in the City's EDM, which generally adheres to the Ecology SWMMWW. Small volumes of detention and WQ treatment may likely be required.
- Traffic control requirements and detailed temporary traffic control design will be included in the project plans and specifications.
- Dewatering requirements will be included in the project specifications and the Contractor will be responsible for detailed dewatering design.
- Utilities: For franchise and other utilities, see assumptions under Phase 2 (Task 2.6)
- Easements or land acquisition, if needed, will be the City's responsibility. Consultant will assist in this effort by preparing exhibits as needed.
- Project mitigation will likely be required for downstream flow mitigation. The location of mitigation may be at the project site, upstream or downstream.
- Temporary irrigation requirements will be included in the project specifications and the Contractor will be responsible for detailed temporary irrigation design.
- City provides previous hydrologic and hydraulic models.
- City will provide GIS data/aerial photos as requested.

## **Phase 1 Tasks**

**1.1. Project Management.** Project Management will include the following activities:

- 1.1.1. Project Administration (preparing subconsultant agreements, monitoring progress of subconsultants, and project filing).
- 1.1.2. Monthly Progress Reports: Provide Progress Reports with invoices to include the following:
  - a. Progress-to-date since last invoice.
  - b. Anticipated upcoming tasks.
  - c. Budget summary status for the project / percent complete, including:
    - 1. Spent and remaining budgets by task
    - 2. Estimate of percent complete by task. This will be used to assess whether remaining budget will be sufficient to complete tasks (and bring to City PM's attention if not)
  - d. Anticipated schedule delays or other problems. If schedule is delayed, provide an updated schedule
  - e. Other issues and concerns
  - f. Invoice for tasks accomplished
- 1.1.3. Communication and Meetings
  - a. Miscellaneous communications with consulting team and City

- b. Up to three (3) Team meetings (not associated with specific technical tasks); meetings may be held at Louis Berger office depending on number of City staff to attend.
- 1.1.4. Updating and finalizing Phase 2 work plan (based on outcome of Phase 1).
- 1.1.5. Quality Assurance/Quality Control.
- a. Consultant will perform quality control reviews of client deliverables. Quality control reviews will be done by senior staff personnel. Consultant shall keep a log of QA/QC reviews that may be provide to the City upon request.

Task 1.1 Assumptions:

- Phase 1 Project Management will be up to 1 year. Project Management beyond this one year will be included in Phase 2.

Task 1.1 Deliverables:

- Monthly invoices and project status reports.
- Up to three (3) team meetings attended by up to two Louis Berger staff.
- QA/QC log

## **1.2. Data Gathering**

Gather and review background information including information used in basin planning (CIP, modeling, environmental sections, drainage complaints, etc.), City GIS mapping, recent aerial photo, topographic maps of the site, as-built drawings of existing pipes and drainage structures, observations and/or data regarding fish usage of Ballinger Creek upstream and downstream of the project area, and available photographs of or anecdotal information regarding flood events (e.g., high water marks).

Task 1.2 Assumptions:

- Data will be provided by the City.

Task 1.2 Deliverables:

- Listed summary of the items reviewed and available to support the project development.

## **1.3. Survey and Base Map Development**

The intent of this survey is to provide accurate basemapping over the area depicted on attached Exhibit A-1: "Project Area", preparatory to the design of storm drainage improvements to alleviate flooding along 25th Avenue NE. Survey will be performed by a Subconsultant (Perteet Engineering). The right-of-way alignment and margins will be computed based on available public records, existing street control monuments and if necessary information contained within title reports to be acquired by the City of Shoreline. Consultant's (Perteet's) work plan includes research of public records and published survey control monumentation, use of that research for recovery and precise location of available survey control monuments, establishment of secondary survey control for use in topographic and right-of-way determination surveying and finally the preparation of basemaps in AutoCAD Civil 3D. The services of a professional sub-surface utility location company will be procured prior to commencement of topographic surveying in order to

mark the surface with lines indicating the presence of such utilities for inclusion on basemapping. Survey includes the following subtasks:

- 1.3.1 Survey and Utility Locate Project Management. This work includes survey team administrative staff to set the project up in accounting system in order to track schedule and budget, set up utility locator and potholer agreements, and progress reporting. This task also includes QA/QC of survey deliverables
- 1.3.2 Research and Survey Control. Research of public records and published survey control data will be undertaken in order to identify and locate controlling monumentation for use in establishing a horizontal and vertical base for topographic surveying, specifically Washington State Plane Coordinate System (WSPCS), North Zone (NAD 83/91) horizontal datum and North American Vertical Datum (NAVD 88). Existing survey control monumentation will be recovered and auxiliary control established as necessary in order to survey topographic features within the subject survey limits. A minimum of two horizontal and vertical control points will be established and depicted with appropriate references on basemapping. In addition, approximate parcel lines, tax parcel numbers and property owners of record will be identified for inclusion on basemaps.
- 1.3.3 Right-of-Way Survey. Existing street monumentation recovered during Task 3.2 will be used to compute the right-of-way alignment of those portions of 25th Avenue NE, NE 195th Street and NE Ballinger Way within the survey limits. Available public records will be examined and if necessary supplemented with information contained within current title reports in order to determine right-of-way margin widths.
- 1.3.4 Topographic Field Survey. Ground-based topographic surveying will be performed to generate basemaps and prepare DTM generated 1-foot contours and spot elevations for the area outlined in attached Exhibit A-1: "Project Area". Portions of the project area may extend beyond the right-of-way along Ballinger Way in order to accurately depict drainage characteristics. Features to be located include but are not necessarily limited to the following:
  - curb and gutter including existing curb cuts, curb ramps and driveways
  - sidewalks and paths
  - rockeries and walls, including gabion wall along Ballinger Way
  - steps/stairs
  - existing structures and buildings
  - pavement edges
  - fences
  - luminaires
  - landscaping
  - water meters, valves, hydrants and irrigation control valves
  - measure down to top actuator nut of water valves
  - electrical transformers, vaults, poles and hand-holes
  - telecommunication risers, vaults, poles, junction boxes and hand-holes
  - gas valves and meters
  - storm drain manhole lids with pipe sizes, invert elevations and material composition
  - catch basin rims with pipe sizes, invert elevations and material composition
  - sanitary sewer manhole lids with pipe sizes, invert elevations and material composition



- culverts with associated pipe sizes, invert elevations and material composition
  - grade breaks, localized depressions, ditches, ridges and other surface grades
  - street signs
  - street trees over 4-inch caliper with size, type and dripline noted
  - channelization
  - sub-surface utility paint marks delineated by a professional utility location service
- 1.3.5 Topographic Survey Basemap. Topographic survey mapping will be prepared at a convenient scale with a 1 foot vertical contour interval and spot elevations in digital AutoCAD format, using APWA standard layering, symbology and attribute conventions. Final digital files will be contiguous at a 1 to 1 scale in model space. Point data blocks will include number identifier, elevations and descriptors. Mapping is to be planimetric with digital terrain modeling. The mapping will comply with the National Map Accuracy Standards for 1" = 20' scale mapping, 1-foot contour interval.
- 1.3.6 Extended Sanitary Sewer and Storm Drainage Investigation Beyond Project Area. In addition to sanitary sewer details picked up within the project area, further surveying of the sanitary sewer system will be performed to a distance of 500 feet east of said survey limits along NE 195th Street. Similarly, storm drainage details surveyed within the project area will be supplemented with additional survey data in the area of the downstream culvert crossing under Ballinger Way and finish floor elevations of structures within Ballinger Estates Apartments located at 2609 NE 195th in Lake Forest Park. This will also include up to two cross sections between the NE 195th Street and the next downstream culvert (through a wetland area that provides flood storage).
- 1.3.7 Utility Potholing. Consultant (Perteet) will coordinate utility potholing with a professional utility location service and will survey the location and reference elevation of resulting potholes. This includes retaining a potholing service and potholing up to 10 utility potholes. The utility potholing service will obtain necessary street use permits and if required, traffic control. Potholes will be restored in accordance with City standards.
- 1.3.8 Critical Area Location Surveys. Once critical area features have been identified by the team's environmental staff, Consultant field crews will survey their locations for inclusion on basemaps, except for Brugger's Park which has been previously surveyed. The thalweg of Ballinger Creek will be surveyed as well.
- 1.3.9 Topographic Survey of Southeast Corner of Brugger's Park. A topographic survey of the southeast corner of Brugger's Park will be performed and will include three cross-sections within the park area, perpendicular to Ballinger Creek, as well as landscaping, trees, ditches, swales, grade breaks, depressions, ridges and other surface features. Basemapping will be prepared at a convenient scale with a 1 foot vertical contour interval and spot elevations in digital AutoCAD format, using APWA standard layering, symbology and attribute conventions.

Task 1.3 Assumptions:

- Subconsultant (Perteet) will coordinate traffic control with the City and will use appropriate signage, cones and safety apparel while working within the right-of-way.
- City shall provide current title reports with supporting documentation if necessary for determination of right-of-way alignment or margins.

- City shall secure permission for survey crews to enter subject premises prior to commencement of surveying services.
- Consultant personnel are not certified for confined space entry thus all sanitary sewer and storm drainage pipe inverts within control structures will be measured from the rim of catch basins and manholes.

Task 1.3 Deliverables:

- Draft survey map in AutoCAD Civil 3D
- Final survey map in AutoCAD Civil 3D
- Tabular results of utility potholing

**1.4. Geotechnical Investigations**

This task includes providing geotechnical investigations to support evaluation of proposed project improvements. Geotechnical investigations will be performed by a subconsultant (Terracon Consultants, Inc.). The effort will include review of existing geotechnical information followed by field explorations, soil laboratory testing, engineering analysis, and preparation of a preliminary draft geotechnical report. It will include the following activities:

- 1.4.1 Existing Data Review and Site Reconnaissance. Existing geotechnical data was compiled by Consultant (Terracon) for geotechnical services on the NMF. Consultant will review this data for application to the 25th Avenue NE project and incorporate other relevant data as appropriate. Consultant will also conduct a site reconnaissance with the project team with specific focus on the existing downstream condition and conditions at the NE 195th Street culvert.
- 1.4.2 Field Exploration Program. Implement a field exploration program that includes four, 20 - 30-foot deep borings below the existing ground surface. All four of the borings would include installation of a 2-inch diameter monitoring well. The wells would be used to obtain groundwater depth information, and to perform field slug testing in order to assess hydraulic parameters of the aquifer. An engineering geologist or geotechnical engineer would log the borings and collect the soil samples in general accordance with the Standard Penetration Test method of sampling. Consultant would collect soil samples at roughly 2.5 to 5-foot intervals for the entire depth the boring.

Samples obtained from the drilling process will be stored in moisture tight containers, and sent to Consultant's (Terracon) laboratory for further analyses. The subcontracted driller will barrel the excess soil cuttings and haul the barrels of cuttings from the site. The borings will be backfilled in general accordance with State regulations prior to leaving the site. The ground surface at the boring / monitoring well location will be patched with concrete encasing the monitoring well surface casing.

The scope of services includes field monitoring for volatile organic compounds with a portable photo-ionization detector and obtaining two groundwater samples for purposes of water quality characterization. The groundwater samples will be analyzed for total petroleum hydrocarbons and metals at an environmental analytical laboratory. It is assumed that all field services may be performed under safety level D personal protective procedures.

Consultant will contact the public one-call Washington Utility Notification Center prior to performing the field exploration in order to have documented, underground service utilities located. It is assumed Consultant will not be responsible for damaging utilities that are not brought to Consultant's attention or are not able to be located.

Consultant will subcontract with a traffic control service to prepare traffic control plans for purposes of obtaining a City of Shoreline/Lake Forest Park Street Use Permits. Consultant assumes that the permits will be granted by the City at no cost to the consultant. The traffic control service will also implement traffic control during Consultants field activities including drilling, field slug testing, and groundwater sampling.

- 1.4.3 Geotechnical Laboratory Testing. Select samples will be tested in Consultant's laboratory to determine index properties of the soil. Depending on conditions encountered in the borings, lab testing is assumed to include visual classification, moisture content, and grain size analysis.
- 1.4.4 Engineering Analysis and Geotechnical Report. The results of the field and laboratory programs will be evaluated by a professional geotechnical engineer licensed in the State of Washington. A draft preliminary geotechnical report will be prepared that includes the following:
  - a. Boring location plan
  - b. Boring logs for this project and other nearby relevant information with soil stratification based on visual soil classification
  - c. Groundwater elevation data and aquifer hydraulic properties gained from the field slug tests
  - d. Subsurface exploration procedures
  - e. Soil laboratory testing procedures and results
  - f. Groundwater quality results and comparison to surface water discharge criteria
  - g. A summary of soil and groundwater conditions encountered and how they may impact design and construction;
  - h. Assess the downstream channel and the potential need to protect the existing WSDOT (Ballinger Way) gabion basket wall
  - i. Develop and evaluate a conceptual dewatering model in order to provide conceptual recommendations for construction dewatering and provide estimates of potential flow discharge rates (it is assumed that actual dewatering system design and construction will be done by the construction contractor)
  - j. Preliminary recommendations for excavations, shoring, pipe bedding and foundation preparation for pipes and culverts, protection of the existing SPU Tolt water supply line in 195th Street NE, and considerations for daylighting along 25th Avenue NE
  - k. Comparison of and input related to design alternatives from a geotechnical perspective
  - l. Recommendations for later final design and construction observation services.

Task 1.4 Assumptions:

- City of Shoreline pays for any street use permits for both the City of Shoreline and City of Lake Forest Park.

**Task 1.4 Deliverables:**

- Draft geotechnical report summarizing investigations and recommendations.

**1.5. Hydrologic/Hydraulic Modeling**

The Consultant will review and update City provided hydrologic and hydraulic models to support the evaluation of potential flood reduction alternatives and assess fish passage requirements. The hydrologic model is the HSPF model originally developed by Otak. The hydraulic model is HEC-RAS and was developed as part of the Lyon's Creek Basin Plan. The updated models will then be used during the Phase 2 design work to support final design. Elements of the hydrologic and hydraulic modeling include:

**1.5.1 Review and Update Existing Condition Model.**

- a. Update existing conditions models (for due diligence, so that flows are well understood, and mitigation required is not overstated).
- b. Review model parameters and configuration for appropriateness/reasonableness
- c. Extend existing HEC-RAS to include system to downstream side of first Ballinger Way culvert downstream of project area
- d. Update existing HEC-RAS with survey information
- e. Divide basins in HSPF to represent flow into the Bog/into the 25th culvert/ into the 195th culvert, into the Ballinger Way culvert and the Ballinger Creek open area (5 subbasins).
- f. For the new subbasins, develop appropriate land use input data (i.e., impervious acres, forest, lawn) based on apportioning by area from prior modeling input and review of aerial photographs.
- g. Update Ks factor in HSPF
- h. Correct prior rainfall data reference discrepancy (note currently using Everett Rainfall).
- i. Extend rainfall record from 2007 to the year currently (where both rainfall and evapotranspiration data available).
- j. Create Ftables for HSPF model using RAS model outputs (Note that there appeared to be a discrepancy in storage volume within project area in the models provided, HSPF had 2.4 ac-ft, HEC-RAS showed 10.5 ac-ft).
- k. Input updated Ftables into HSPF
- l. Perform frequency analysis on HSPF results to determine the existing 2-year, 25-year and 100-year, seasonal flows for fish passage, and seasonal construction flows to size temporary bypass systems.
- m. Run HEC-RAS return period flows for existing conditions return period flows.
- n. Provide to team summary of modeling results of existing conditions modeling such as flows and elevations.

- 1.5.2 Alternative analysis H&H to support Task 1.7 Alternative Analysis. For each of the 3 alternatives:
- Update HEC-RAS model with the improvements for the alternative.
  - Use 1 or 2-year (to be determined with City input)) to help determine bankfull width for channel restoration option.
  - Use HEC-RAS to create Ftables
  - Input Ftables in the HSPF and run HSPF
  - Perform frequency analysis on HSPF flow results to determine 2-year, 25-year and 100-year peak flows
  - Input peak flows into HEC-RAS to determine flood reduction performance and downstream impacts
  - Refine alternatives as need to achieve flood reduction performance and downstream impacts desired.
  - Use flows to size streambed material that will stay within the culverts and will be stable in the open channel sections
  - Provide data to support fish passage analysis
  - Provide to team summary of modeling results of alternative conditions modeling such as flows and elevations.

**Task 1.5 Assumptions:**

- Digital model files are provided by the City.
- Documentation of the project hydrologic/hydraulic modeling will included as a chapter in the Task 1.7 pre-design report.

**Task 1.5 Deliverables:**

- Summary results for existing conditions and alternative conditions such as peak flows, and water surface elevations.
- Draft Chapter of Predesign report summarizing the hydrologic and hydraulic modeling effort and results (in Task 1.7).
- Final Chapter of Predesign report summarizing the hydrologic and hydraulic modeling effort and results (in Task 1.7).

**1.6. Preliminary Environmental Review/Investigations**

- 1.6.1 Critical Areas Analysis. The Critical Areas analysis will be performed by a subconsultant (Herrera Environmental Consultants). The work will include:
- Team biologists will conduct necessary field surveys and prepare a Critical Area Report in accordance with Chapter 20.80 of the Shoreline Municipal Code (SMC) and Chapter 16.16 of the Lake Forest Park Municipal Code (LFPMC). This report will establish baseline environmental conditions, and provide information necessary to assess impacts of the alternatives, support permit acquisition in Phase 2, and determine potential mitigation that may be required for each alternative. The Critical Areas Report will be finalized in Phase 2.
  - Field Investigations: Biologists will conduct a site visit to assess existing habitat conditions and ecological functions provided at the project site, delineate wetlands, and identify the ordinary high water mark (OHWM) of Ballinger Creek.

Biologists will delineate the boundaries of identified wetlands located within the project site limits as shown on attached Exhibit A-1: "Project Area". Consultant will also estimate wetland conditions within 225 feet of the project site limits to determine if buffers associated with off-site wetlands will be affected by the project. The wetland determination and delineation will be conducted using the routine determination method outlined in the U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual, and the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region. Delineated wetlands will be classified according to U.S. Fish and Wildlife Service (USFWS) and hydrogeomorphic classification systems, and typed in accordance with the SMC and Washington State Department of Ecology (Ecology) Washington State Wetland Rating System for Western Washington. The functions of wetlands will be assessed using the Ecology rating system. The SMC and LFPMC will be used to identify the regulated buffer widths of the wetlands. Biologists will flag the boundaries of the wetlands and all test plots. The OHWM will be determined using the definition set forth in WAC 173-22-030(11). This involves using sequentially numbered flags to identify the OHWM as evidenced by abrupt changes in topography, dominance of perennial vegetation, sediment deposits, drift lines, and signs of scouring. Biologists will flag the boundaries of the OHWM. The SMC and LFPMC will be used to type Ballinger Creek and determine the regulated buffer width.

- c. Report: Consultant will prepare a critical areas report that summarizes the methods and results of the critical areas delineations and assessment. In accordance with SMC Chapter 20.80 and LFPMC Chapter 16.16, the critical areas report will present the classification of delineated critical areas and regulated buffer widths. The technical memorandum will also present federal, state, and local regulatory implications that pertain to the preferred project alternative. Consultant will characterize and quantify temporary impacts on critical areas based on the preferred alternative and present proposed mitigation (avoidance, minimization, and restoration measures). The draft report will be finalized in Phase 2 (Task 2.2.1) and used for permit applications.

#### 1.6.2 Fish Passage Analysis.

- a. Consultant will perform a fish passage analysis using Washington Department of Fish and Wildlife (WDFW) and National Marine Fisheries Service (NMFS) fish passage criteria (from guidance documents published by these agencies) for the preliminary design alternatives being contemplated (culverts/pipes, open channel, and combination). To ensure that the proper criteria are used, and in coordination with the City, Consultant (Herrera) will contact WDFW, NMFS, and the Muckleshoot Indian Tribe Fisheries Division Habitat Program to coordinate regarding best design criteria to use. This coordination includes determining whether passage criteria for cutthroat trout and/or juvenile salmon upstream passage should be considered in the design. The analysis will evaluate each section of the project length for fish passage and present findings (under Task 1.7) for team review and suitable for sharing with WDFW, resulting in recommendations for project design.



- b. Review modeled frequency analysis results for the existing 2-year, 25-year and 100-year and fish passage flows (to be performed in Task 1.5).
- c. Review existing information on fish habitat (if any) use upstream and downstream of project area.
- d. Perform field reconnaissance to assess existing fish habitat conditions downstream and upstream of the project area.
- e. Provide fish passage criteria and considerations to support Task 1.5 and Task 1.7 work. For each of the three alternatives, analyze the following:
  - 1. Necessary size of streambed material within the channel and culverts
  - 2. Expected water depths and flow velocities given the range of flows during adult salmon spawning migration (September-October?) and other times of the year if cutthroat trout (February-March?) is to be considered in the design
  - 3. Effects of attraction and distraction flows originating from stormwater discharge pipes
- f. Summarize fish passage analysis results in the technical memorandum to be prepared under Task 1.7.
- g. Attend up to 5 team meetings as applicable to discuss critical area findings and fish passage analysis methods and results.

**Task 1.6 Assumptions:**

- The Cities will obtain rights of entry for surveys to be conducted on private property
- Critical areas assessed as part of this task will include wetlands, streams, fish and wildlife habitat conservation areas, and associated buffers
- Wetland boundary, test plot, and OHWM flags will be surveyed as part of Task 1.3 work
- Wetland and OHWM delineations will be limited to properties with approved access obtained by the City
- Herrera will confirm the OHWM and wetland delineations and wetland ratings within Brugger's Bog Park completed by The Watershed Company for the North Maintenance Facility (2013; reference number 100503)
- The OHWM and wetland data from The Watershed Company's report (2013) will be available (in CAD and/or GIS format) for field confirmation, reporting, and design for this project
- The Watershed Company's revised rating of wetlands within Brugger's Bog Park will be made available for further analysis and reporting for this project
- Herrera will delineate the OHWM of Ballinger Creek within the open channel between 25th Avenue NE and NE 195th Street and 300 feet downstream of the NE 195th Street culvert outlet
- Herrera will delineate wetlands south of Brugger's Bog Park along 25th Avenue NE, within the open channel between 25th Avenue NE and NE 195th Street, and 300 feet downstream of the NE 195th Street culvert outlet
- The Critical Areas Report will be finalized during Phase 2 as part of Task 2.2.

- Fish passage criteria and considerations to support Task 1.5 and Task 1.7 work will be provided as email communication.
- The results of the fish passage analysis will be included in the alternatives analysis and presented in the Pre-Design Memorandum prepared as part of Task 1.7.

Task 1.6 Deliverables:

- Draft Critical Areas Report

**1.7. Alternatives Analysis and Pre-Design Memorandum**

The objective of this task is to utilize the findings of the prior work task and evaluate potential alternatives in order to select the best alternative that meets the City's objectives and that then can be advanced for permitting and design. This work includes the following:

- 1.7.1. Alternative Identification. Based on findings and input from team and City, Consultant will identify a range of feasible options for the major elements of the project, including:
- NE 195th St culvert replacement options
  - 25th Avenue NE conveyance system (including fish passage) options
  - Brugger's Bog Floodplain storage options
  - Other flood-proofing options, including interim/short-term
  - Other potential options (habitat or flood control mitigation) outside of initial project limits

Consultant will initially prepare brief written descriptions of the options and summarize them in the form of a matrix and plan view sketch showing approximate location and extent. It shall include a rationale for having them be considered as alternatives. Upon City approval, Consultant will prepare conceptual sketches of each, including plan view and cross section(s). Because the hydraulic performances of the project elements are interdependent, the Consultant will work with the City to develop modeling scenarios, which include the combination of various project elements for analysis. Consultant shall also discuss how the range of options between the major project elements may work together (i.e., do certain options for one project element work better or worse with other project elements) and assist in defining the modeling scenarios. It is assumed that up to six (6) scenarios will be evaluated in addition to up to two (2) interim flood-proofing options.

- 1.7.2. Strategic Early Stakeholder Feedback. Consultant will meet with the City (Herrera and Louis Berger) to review project elements and options being considered to assess where it would be beneficial to seek out early coordination and input from stakeholders. This may include certain key stakeholders listed in Task 1.8, or other additional strategic stakeholders that may be identified by the City during the Phase 1 planning work. The goal would be to seek out early vetting where it is anticipated to be important so that the design team is not overly speculative about the feasibility of options being considered.
- 1.7.3. Alternative Evaluation. For each the project alternatives, cost estimates will be prepared; advantages and disadvantages of the alternatives will be contrasted. Factors to be considered in addition to cost include flood reduction performance, downstream impacts, fish passage performance, impacts to critical areas, permitting



complexity, likely mitigation requirements and other permitting/ environmental considerations, geotechnical considerations, constructability issues (such as crossing Tolt River pipeline, traffic impacts, access, dewatering), property impacts, utility conflicts, utility relocation, property acquisition needs, potential maintenance considerations, opportunities and advantages of phasing, and likelihood of obtaining grant funds. Construction sequencing and construction approach would be described, in particular for the Tolt River pipeline crossing, including conceptual traffic control and detour approach. For this task, Consultant and City may elect to combine options in the various project areas to create overall corridor alternatives that are consistent with the modeling scenarios, or keep them as separate project element options.

- 1.7.4. For each alternative anticipated habitat and flood mitigation will be described in terms of approach and objectives, location and extent, cost, and potential risks of implementation.
- 1.7.5. Draft Pre-design Memorandum. The draft pre-design memorandum will summarize the effort and results of the preceding technical task products and preliminary alternatives analysis discussion. It will include a preliminary alternative and phasing recommendation that can be presented to stakeholders under Task 1.8.
- 1.7.6. Final Pre-design Memorandum that will incorporate input received from stakeholders and City staff. It would include final recommendations for preferred alternative and phasing. It would identify any additional data/investigations needed to complete permit applications and/or design in Phase 2.

#### Task 1.7 Deliverables:

- Preliminary alternative identification narrative
- Draft Alternative Analysis Chapter (to feed into design report)
- Draft Pre-design Report
- Final Design Report

### **1.8. Stakeholder Involvement/Outreach**

This task includes stakeholder involvement and outreach to support the project implementation through Phase 1. It includes a stakeholder implementation and documentation plan as well as a listing of the anticipated stakeholders and the type and extent of outreach and communications for each. Work of this task will occur throughout Phase 1 to provide input to the alternatives analysis and Pre-Design Memorandum (Task 1.7). Additional stakeholder involvement and outreach would extend into Phase 2 (Task 2.9). Anticipated stakeholder involvement and outreach includes the following:

- 1.8.1. Stakeholder implementation and documentation plan. Consultant will develop brief memorandum to describe the stakeholder and outreach plan for the project. It will include standard formats for agendas, telephone logs, and meeting minutes. It will also briefly outline preliminary timeframes for beginning coordination with involvement approach (who, why, how) for each.
- 1.8.2. Lake Forest Park (LFP). LFP is an important stakeholder in terms of potential downstream impact issues; design, permitting, and construction requirements of project improvements; as the owner of the sewer and stormwater utilities within

LFP; and as the current owner of the NE 195th Street culvert. Anticipated efforts include:

- a. An initial site visit meeting with LFP representative
  - b. Two additional team meetings with LFP
  - c. Team conference call with LFP every other month
- 1.8.3. North Maintenance Facility Team (NMF). It will be important to coordinate with the NMF team (coordinate scheduling and interface of site improvements such as grading, drainage, and road improvements). Anticipated effort includes:
  - a. Initial team meeting with key NMF team
  - b. Brief team conference call every other month
- 1.8.4. Seattle Public Utilities (SPU). It will be important to coordinate the proposed culvert under the 66-inch diameter Tolt River Pipeline water crossing. Anticipated effort includes:
  - a. Phone/email SPU representative to inform them of the project and determine their coordination requirements for the crossing
  - b. Provide copy of draft pre-design memorandum for input
  - c. Invite input on specifications for construction around Tolt River pipeline during final design development
- 1.8.5. Environmental Regulatory Agencies. It will be important to seek input on alternatives so that recommended alternative will be able to obtain regulatory permits. Anticipated effort includes:
  - a. Consultant (Herrera) will coordinate with representatives from the USACE, WDFW, and the Muckleshoot Indian Tribe Fisheries Division Habitat Program regarding the existing environmental conditions and proposed project. Consultant will invite the representatives to meet onsite for a pre-application meeting to review project alternatives and proposed mitigation options and solicit input for project design, mitigation for impacts, and permitting approach
  - b. Consultant (Herrera) will follow up with agency representatives with telephone conversations and meeting(s) as needed as design development proceeds
- 1.8.6. Franchise utilities (including North City Water District, Ronald Wastewater District, Puget Sound Energy, Seattle City Light and telecommunications/cable providers). It will be important to understand requirements and timing for utility relocations, where needed. Anticipated effort includes:
  - a. Phone contact to inform them of project, obtain any applicable information (in particular is there a critical Overhead line that would take a long time to relocate if needed).
- 1.8.7. City of Shoreline Parks Department, Recreational and Cultural Services Board and other Parks staff. It will be important to coordinate with Parks, in particular if any project work directly affects the Brugger's Bog Park and/or other Parks areas. Anticipated effort includes:
  - a. Present alternatives being considered at one meeting each (for Parks Department and Board)

- 1.8.8. City of Shoreline Planning Department. Coordination with the Planning Department will be important, particularly relating to permitting the project and potential specific issues, such as understanding the future development options at the Aldercrest Annex school district property. (Parallel efforts will be required with the LFP Planning Department with regard to permitting and any other special issues). Anticipated effort includes:
- Meet with City planning staff to specifically understand school district property redevelopment status and land development options
  - Meet regarding permitting obligations for the project areas within the City of Shoreline
- 1.8.9. Ballinger/Lyon Creek Community, general public, and citizen organizations. Anticipated effort includes:
- Present recommended project at community meeting.
- 1.8.10. Shoreline School District. Coordination with the School District may be important, particularly if one of the conveyance alternatives affects school district property. Anticipated effort includes:
- Prepare a brief written synopsis of the project and what the City is doing (so that they may determine the best contact)
  - Meet with school district representatives to follow up written synopsis (get initial read on whether easement for improvements is a potential option)
  - Have second meeting when all alternatives are laid out. Ask for input and flexibility of District.
- 1.8.11. WSDOT. It will be important to coordinate the NE 195th culvert replacement with WSDOT because they approve the design and will also assume maintenance and ownership responsibility for the culvert after construction. Anticipated effort includes:
- Review of current WSDOT plans to perform maintenance at 195th culvert.
  - Coordination with regard to temporary and permanent traffic impacts,
  - Coordination with regard to providing 60%, 90%, and final design for WSDOT review.

**Task 1.8 Assumptions:**

- City will set up meetings.
- City will provide summary minutes of meetings in standard format
- City will keep a log of all stakeholder involvement.

**Task 1.8 Deliverables:**

- Draft and Final Stakeholder implementation and documentation plan
- Review of meeting agenda and minutes

**1.9. Grant Application Support**

Grant application support will be provided by a subconsultant (Herrera). It will include the following work:

1. Prepare an initial list of potential grant funding sources, application/award time frames, and related information

2. Participate in one conference call with City of Shoreline staff to discuss potential grant sources in light of project alternatives being considered
3. Consultant (Herrera) will solicit input from potential grant agencies as applicable to support alternatives analysis, coordinated with grant funding pursuits for the City of Shoreline's Hidden Lake project
4. Prepare up to two grant applications
5. Consultant (Herrera) will complete an EZ-1 form to submit to the Washington State Department of Archaeology and Historic Preservation (DAHP) to determine if there are cultural or historic resources within the project area for compliance with the National Historic Preservation Act.

**Task 1.9 Assumptions:**

- Grant applications will be developed for the 25th Avenue NE project.

**Task 1.9 Deliverables:**

- List of potential grant funding sources and relevant information
- EZ-1 form
- Two draft and final grant applications

**1.10. Phase 1 Management Reserve**

A Phase 1 Management Reserve is established (\$40,000) and may be used by the City to have the Consultant perform additional work beyond this scope of work if needed. These funds may only be used by the Consultant with prior written authorization.

## **Phase 2 – Permitting and Final Design**

### **2.1 Phase 2 Project Management**

- 2.1.1. Phase 2 Project Administration (preparing subconsultant amendments, monitoring progress of subconsultants, and project filing)
- 2.1.2. Phase 2 Progress Reports: Provide Progress Reports with invoices to include the following:
  - a. Progress-to-date since last invoice.
  - b. Anticipated upcoming tasks.
  - c. Budget summary status for the project / percent complete. including:
    - 1. Spent and remaining budgets by task
    - 2. Estimate of percent complete by task. This will be used to assess whether remaining budget will be sufficient to complete tasks (and bring to City PM's attention if not)
  - d. Anticipated schedule delays or other problems. If schedule is delayed, provide an updated schedule.
  - e. Other issues and concerns
  - f. Invoice for tasks accomplished
- 2.1.3. Phase 2 Communication and Meetings
  - a. Miscellaneous communications with consulting team and City
  - b. Up to three (3) Team meetings (not associated with specific technical tasks); some of these meetings may be at Louis Berger's office depending on the number of City staff attending.
- 2.1.4. Quality Assurance/Quality Control.
  - a. Consultant will perform quality control reviews of client deliverables. Quality control reviews will be done by senior staff personnel. Consultant shall keep a log of QA/QC reviews that may be provide to the City upon request.

#### **Task 2.1 Assumptions:**

- Phase 2 Project Management will be up to 1.5 years. If the project schedule is extended, it will be the basis for extra work.

#### **Task 2.1 Deliverables:**

- Monthly invoices and project status reports.
- Up to two (2) team meetings attended by up to two Louis Berger staff.
- QA/QC log

### **2.2 Environmental Permitting and Supporting Documentation**

- 2.2.1. Consultant (Herrera) will finalize the Critical Areas Report, prepared as part of Phase 1 6. The final report will include onsite restoration of temporary impacts to wetlands, streams, and buffers.

- 2.2.2. In support of State Environmental Policy Act (SEPA) compliance, Consultant will prepare an Environmental Checklist for both the City of Shoreline and City of Lake Forest Park. The checklists will include project information on background and environmental elements (earth, air, water, plants, animals, energy and natural resources, environmental health, land and shoreline use, housing, aesthetics, light and glare, recreation, historic and cultural preservation, transportation, public services, and utilities). Consultant will prepare one checklist for the City of Shoreline for the 25th Avenue NE project. Herrera will prepare two checklists, one for the City of Shoreline and one for the City of Lake Forest Park, for the NE 195th Street project.
- 2.2.3. Consultant will prepare documentation in support of Endangered Species Act (ESA) and Magnuson-Stevens Fishery Conservation and Management Act (MFCMA) compliance. Based on a preliminary evaluation of the project site, both projects will qualify for a No Effect letter because listed threatened and endangered species (e.g., Chinook salmon); and critical habitat are located far enough away from the site that they would not be affected. The no effect evaluation will be based on site reconnaissance conducted as part of Phase 1 Task 6, available published documentation, and contacts with resource agency staff and other knowledgeable individuals. Consultant will prepare two No Effect letters, one for each project.
- 2.2.4. Consultant will prepare two Joint Aquatic Resources Permit Application (JARPA) forms and supporting figures in support of acquiring Clean Water Act Section 404 permits from USACE and Section 401 water quality certifications from Ecology. Consultant will prepare the application forms including information pertaining to the applicant, property owners, project location, project description, wetlands, streams, and necessary permits. Consultant will prepare JARPA figures developed from the 60% design and ensure they are developed according to USACE formatting guidelines. Figures will include a vicinity map, property ownership information, plan views, and representative cross-sections. The JARPA figures will identify all work proposed in wetlands and waterward of the ordinary high water mark including quantities of excavation and fill. Consultant will prepare two JARPA forms and two sets of figures, one for each project.
- 2.2.5. Consultant will use the completed JARPA form information and JARPA drawings to complete an online application for a Hydraulic Project Approval with WDFW.
- 2.2.6. Consultant will coordinate with the City of Shoreline and City of Lake Forest Park and obtain the appropriate critical areas permits for the preferred alternative designs.
- 2.2.7. Consultant will provide necessary permitting coordination in support of permits from USACE and WDFW including pre-application meetings/conferences, completion of supplemental permit application documentation (if needed in addition to the original JARPA), submittal of permit application packages, and follow-up coordination to respond to agency and tribal comments. Consultant will arrange and participate in a pre-application meeting at the project site with representatives of USACE, WDFW, and the Muckleshoot Tribe (Phase 1 Task 8) and any supplemental meetings will be included as part of Phase 2 Task 9.

**Task 2.2 Assumptions:**

- The projects at NE 195th Street and 25th Avenue NE will be permitted and constructed separately.

- For the NE 195th Street project, both the City of Shoreline and City of Lake Forest Park will require local permits, unless a Memorandum of Understanding (MOU) is developed where one jurisdiction leads permitting.
- A single Critical Areas Report will be drafted to comply with the critical areas code for both the City of Shoreline and the City of Lake Forest Park.
- There is no federal funding of the project.
- The projects will not have any significant impacts on environmental elements requiring preparation of an Environmental Impact Statement (EIS). Should an EIS become necessary, a scope and budget amendment will be needed.
- Completion of the Environmental Checklist will rely on information contained in other reports prepared for the project and project design elements (e.g., temporary erosion and sedimentation control plan, traffic plan, storm water pollution prevention plan, etc.).
- Some environmental elements will not apply to the project (e.g., shoreline use, aesthetics, and light and glare).
- Information collected in other tasks will be used to complete related sections of the Environmental Checklist.
- Geotechnical reports for the project will be used to answer questions related to the earth element.
- The Cities will sign the Environmental Checklist and route it to the relevant department.
- ESA compliance will be documented in a No Effect letter due to the absence of listed species and critical habitat.
- Based on the need for a federal permit, the U.S. Army Corps of Engineers (Corps) will be the lead agency responsible for ESA and MFCMA compliance.
- Names and addresses of the property owners adjacent to the project, and their direct neighbors will be shown on a JARPA figure. The City will provide the data to Herrera.
- Herrera will be the authorized agent and will submit the JARPA to USACE and the City.
- Both projects will be designed to qualify for Nationwide Permits and no Individual 404 permit will be required.
- The project will not require an individual 401 water quality certification.
- There will be no permanent impacts to wetlands or streams, therefore no compensatory mitigation will be required.
- Restoration of temporary impacts to wetlands, streams, and buffers will be included in the Critical Areas Report and design drawings.
- No street trees or trees of significance (per SMC and LFPMC) will be removed; therefore no tree permits will be required.
- The City will pay all permitting fees.
- If an Ecology Construction Stormwater General Permit is required for the project, the City will take the lead on the filling the notice of intent. The Consultant will provide a preliminary SWPPP in support of the application (as a Task 2.7 90% Design deliverable).

**Task 2.2 Deliverables:**

- Final Critical Areas Report
- NE 195th Street project
  - Draft and Final SEPA Environmental Checklist for City of Shoreline



- Draft and Final SEPA Environmental Checklist for City of Lake Forest Park
- Draft and Final No Effect letter
- Draft and Final JARPA form
- Draft and Final JARPA drawings
- Online application for a Hydraulic Project Approval
- Critical Areas Permit application for City of Shoreline
- Critical Areas Permit application for City of Lake Forest Park
- 25th Avenue NE project
  - Draft and Final SEPA Environmental Checklist for City of Shoreline
  - Draft and Final No Effect letter
  - Draft and Final JARPA form
  - Draft and Final JARPA drawings
  - Online application for a Hydraulic Project Approval
  - Critical Areas Permit application for City of Shoreline

## **2.3 Final Geotechnical Report**

The scope of geotechnical services for Phase 2 would include consultation related to final design of the preferred alternative and preparation of a draft Geotechnical Design Report that would build on the results presented in the preliminary draft geotechnical report with a specific emphasis on the selected alternative. Following receipt of review comments on the draft report, a final Geotechnical Design Report would be prepared and submitted.

The geotechnical consultant will consult with the project team on final design elements and will review the civil plans and specifications prepared by the design team in order to confirm consistency with the geotechnical recommendations. It is assumed this will be done in two separate plan sets: NE 195 St culvert and 25th Ave NE improvements.

### **Task 2.3 Deliverables:**

- Draft final Geotechnical Report
- Final Geotechnical Report
- Letter/email providing geotechnical input/comments on the final design plans and specifications

## **2.4 Allowance for supplemental survey (including critical areas), potholing, and easement preparation**

2.4.1 This is an allowance task to provide supplemental survey and/or easement preparation that may be needed to support final design and implementation of the project. These may be identified at the conclusion of Phase 1. It could include survey of potential site mitigation areas beyond the project area and any associated critical areas, additional potholing, or easement preparation. The level of effort is unknown at this time, so an allowance of \$30,000 is provided. This task shall only be initiated with prior approval by the City.

### **Task 2.4 Assumptions:**

- Subconsultant (Perteet) will coordinate traffic control with the City and will use appropriate signage, cones and safety apparel while working within the right-of-way.
- City shall secure permission for survey crews to enter subject premises prior to commencement of surveying services.



- Consultant personnel are not certified for confined space entry thus all sanitary sewer and storm drainage pipe inverts within control structures will be measured from the rim of catch basins and manholes.

Task 2.4 Deliverables:

- Draft supplemental survey map in AutoCAD Civil 3D
- Final supplemental survey map in AutoCAD Civil 3D
- Other deliverables to be determined

**2.5 Supplemental Hydrologic and Hydraulic Analysis**

- 2.5.1 Hydrologic/Hydraulic Analysis to support design. This task is to provide supplemental hydrologic modeling and hydraulic modeling to assess system hydraulic response as refinements are made during the design process. Because the level of refinement is difficult to assess at this time, an hourly allowance of 60 hours is provided.
- 2.5.2. Final Model Documentation. Upon design completion, prepare a final model simulation and provide model and results to the City.
- 2.5.3. Task 5 Assumptions:
  - No significant modeling changes are assumed from the Phase 1 model updates.

Task 2.5 Deliverables:

- Brief transmittal providing the draft final model along with brief letter any substantive changes from the Phase 1 model, and model results.
- Brief transmittal providing the draft final model and results

**2.6 Preliminary & 60% Plans, Specification, and Cost Estimate**

The Consultant will prepare a preliminary (30%) set of plans of the recommended alternative from Task 1.7. These preliminary plans may be used for grant applications. Upon review and input from the City, Consultant will prepare 60% plans, specifications, and construction cost estimates of the Phase 1 recommended alternative. Because the City may seek funding on portions of the project, it is assumed that the NE 195<sup>th</sup> Street culvert replacement will be on a separate track from the 25<sup>th</sup> Avenue NE work, such that there will be two submittals of each project. This task includes the following subtasks.

- 2.6.1. Prepare preliminary (30%) design, which may be used for grant applications. This shall include a 30% design submittal. This level of design will include civil design sheets only.
- 2.6.2. Prepare 60% set of drawings. Separate construction packages will be prepared for NE 195<sup>th</sup> Street and 25<sup>th</sup> Avenue NE. For preliminary estimating it was assumed that the creek parallel to 25<sup>th</sup> would be daylighted (but structural walls are not required), channel restoration upstream and downstream of the culverts is required (per basin plan assumptions – including channel restoration extending 300 feet downstream of the NE 195<sup>th</sup> Street culvert), and that upstream flood storage is provided in Brugger's park south of the pedestrian bridge crossing. It also assumes

that two new culverts would be required at the private drives along 25<sup>th</sup> Avenue NE (rather than one longer culvert). It also assumes replacing 500 feet of sewer at lower depth to avoid conflict with NE 195<sup>th</sup> box culvert (this is conservative assumption because an alternative if approved by the district could include installing the sewer through the new culvert in a casing pipe). In addition, the scope and budget assumes that no significant increase in downstream flow will occur as the result of replacing the culvert at 195<sup>th</sup> such that the flood storage portion of the project, such as creating more storage by excavating areas in Brugger's Bogs is included in the design package for 25<sup>th</sup> Street NE.

On a preliminary basis, the budget is based upon the following drawings for NE 195<sup>th</sup> Street shown below. This drawing list reflects the anticipated full set of drawings, and it is understood that it will be reviewed at the completion of Phase 1 and the number of drawings could increase or decrease and as a result the task budgets could increase or decrease. Drawings noted with asterisk\* will not be included in the 60% submittal, but will be included in later submittals:

1. G-1 Title sheet, location map, and index of drawings.
2. G-2 Legend and abbreviations
3. G-3 General notes, restoration notes, and preliminary construction sequence
4. C-1 General Arrangement Plan and survey notes
5. C-2 Temporary Erosion Control Notes
6. C-3 Temporary Erosion Control Plan, Sht. 1
7. C-4 Temporary Erosion Control Plan, Sht. 2
8. C-5 Temporary Erosion Control Details, Sht. 1\*
9. C-6 Stream/Culvert Plan and Profile Sheets (1"= 40' at half size), Sht. 1 of 2
10. C-7 Stream/Culvert Plan and Profile Sheets (1"= 40' at half size), Sht. 2 of 2
11. C-8 NE 195<sup>th</sup> Culvert Site Plan and Profile (1"=20' at half size)
12. C-9 NE 195<sup>th</sup> Culvert Sections
13. C-10 NE 195<sup>th</sup> Culvert Construction Sequencing (extra sheet regarding Tolt River pipeline)
14. C-11 Sewer Line Relocation Plan and Profile Sheets (1"= 40' at half size), Sht. 1 of 2
15. C-12 Sewer Line Relocation Plan and Profile Sheets (1"= 40' at half size), Sht. 2 of 2
16. C-13 Miscellaneous Civil Details, Sht. 1 of 2
17. C-14 Miscellaneous Civil Details, Sht. 2 of 2
18. C-15 Miscellaneous Civil Details at 25<sup>th</sup> Avenue NE (potential berm/wall)
19. C-16 Typical Stream Habitat Details, Sht. 1 of 2
20. C-17 Typical Stream Habitat Details, Sht. 2 of 2
21. C-18 Stream Cross Sections
22. C-19 Grading and Locations Table Data\*
23. C-20 Roadway Restoration Details
24. TC-1 Traffic Control Plan (Scale 1" = 80' at half size)
25. TC-2 Traffic Control Detour Plan, notes, and sequencing

- 26. S-1 195th Street Culvert Structural Plan and Sections, Sht. 1
- 27. S-2 195th Street Culvert Structural Plan and Sections, Sht. 2
- 28. S-3 195th Street Culvert Wing wall Structural Plan and Section
- 29. S-4 Miscellaneous Structural Details and Notes
- 30. L-1 Stream Restoration and Planting Plan
- 31. L-2 Planting Notes and Schedules
- 32. L-3 Planting Details

On a preliminary basis, the budget is based upon the following drawings for 25th Avenue NE:

- 1. G-1 Title sheet, location map, and index of drawings.
- 2. G-2 Legend and abbreviations
- 3. G-3 General notes, restoration notes, and preliminary construction sequence
- 4. C-1 General Arrangement Plan and survey notes
- 5. C-2 Temporary Erosion Control Notes
- 6. C-3 Temporary Erosion Control Plan, Sht. 1
- 7. C-4 Temporary Erosion Control Plan, Sht. 2
- 8. C-5 Temporary Erosion Control Plan, Sht. 3
- 9. C-6 Temporary Erosion Control Details
- 10. C-7 Stream/Culvert Plan and Profile Sheets (1"= 40' at half size), Sht. 1 of 3
- 11. C-8 Stream/Culvert Plan and Profile Sheets (1"= 40' at half size), Sht. 2 of 3
- 12. C-9 Stream/Culvert Plan and Profile Sheets (1"= 40' at half size), Sht. 3 of 3
- 13. C-10 25<sup>th</sup> Avenue NE Culvert Site Plan and Profile (1"=20' at half size)
- 14. C-11 25<sup>th</sup> Avenue NE Culvert Site Sections
- 15. C-12 25<sup>th</sup> Avenue NE Driveway #1 Site Plan and Profile (1"=20' at half size)
- 16. C-13 25<sup>th</sup> Avenue NE Driveway #1 Culvert Sections
- 17. C-14 25<sup>th</sup> Avenue NE Driveway #2 Site Plan and Profile (1"=20' at half size)
- 18. C-15 25<sup>th</sup> Avenue NE Driveway #2 Culvert Sections
- 19. C-16 Storm System Modification Profiles (modifications to pipes entering new channel)
- 20. C-17 Water Line Relocation Details
- 21. C-18 Miscellaneous Civil Details, Sht. 1 of 2
- 22. C-19 Miscellaneous Civil Details, Sht. 2 of 2
- 23. C-20 Typical Stream Habitat Details, Sht. 1 of 2
- 24. C-21 Typical Stream Habitat Details, Sht. 2 of 2
- 25. C-22 Stream Cross Sections
- 26. C-23 Brugger's Bog Plan (1"=40' at half scale)
- 27. C-24 Brugger's Bog Cross Sections, Sht. 1 of 2
- 28. C-25 Brugger's Bog Cross Sections, Sht. 2 of 2
- 29. C-26 Brugger's Bog Details
- 30. C-27 Brugger's Bog Grading Point Plan and Table\*
- 31. C-28 Grading and Locations Table Data\*
- 32. C-29 Roadway Restoration Details

33. S-1 25<sup>th</sup> Avenue NE Culvert Structural Plan and Sections
  34. S-2 25<sup>th</sup> Avenue NE Culvert Wing wall Structural Plan and Sections
  35. S-3 25<sup>th</sup> Avenue NE Driveway #1 Culvert Structural Plan and Sections
  36. S-4 25<sup>th</sup> Avenue NE Driveway #1 Culvert Wing wall Structural Plan and Sections
  37. S-5 25<sup>th</sup> Avenue NE Driveway #2 Culvert Structural Plan and Sections
  38. S-6 25<sup>th</sup> Avenue NE Driveway #2 Culvert Wing wall Structural Plan and Sections
  39. S-7 Miscellaneous Structural Details and Notes
  40. L-1 Stream Restoration and Planting Plan, Sht. 1 of 3
  41. L-2 Stream Restoration and Planting Plan, Sht. 2 of 3
  42. L-3 Stream Restoration and Planting Plan, Sht. 3 of 3
  43. L-4 Brugger's Bog Restoration and Planting Plan
  44. L-5 Planting Notes and Schedules
  45. L-6 Planting Details
- 2.6.3. Prepare 60% Project Specifications using the City's standard front end supplemented with Consultant prepare special provisions.
- 2.6.4. Prepare a construction schedule in terms of estimated working days.
- 2.6.5. Prepare a 60% cost estimate.

Task 2.6 Assumptions:

- The level of effort is largely based upon the assumed number of drawings and extent of work. Should the actual number of drawings be increased, it shall be the based to negotiate additional work.
- It is assumed that 195<sup>th</sup> and 25<sup>th</sup> will be closed with a full detour during the construction of the culverts perpendicular to the roadway and that the design will not have to be staged in two phases.
- It is assumed that foundation for the culvert and wingwall support will be spread footings or foundation material, and piling systems are not required.
- Other utility assumptions:
  - Project will work around Tolt pipeline and adhere to SPU requirements for this work
  - City of Shoreline will assume ownership of Ronald wastewater assets in November 2017. Given that work along 25th Avenue NE is most likely to occur after transfer of ownership, this scope should assume that cost of relocation for this utility will be at the City's expense.
  - LFP owns the sewer utility within LFP. Cost for relocation of this sewer should be assumed to be at City's expense.
  - Relocation of all other franchise utilities within City of Shoreline should be assumed to be at franchisee's expense.
  - Relocation of all other franchise utilities within City of LFP should be assumed to be at franchisee's expense (to be confirmed)
  - Note that while SPU owns the Tolt Pipeline, other water mains and services within the project area (both COS and LFP) are typically owned by North City Water District.

**Task 2.6 Deliverables:**

- 30% Plans (.pdf)
- 60% Plans (2 full size sets, 4 half-size, and electronic in .pdf form and AutoCAD form) (both projects)
- 60% Specifications (in Word format) (both projects)
- 60% Estimate of Construction Schedule and Working Days (both projects)
- 60% Cost Estimate (both projects).

**2.7 90% Plans, Specification, and Cost Estimate**

Consultant will address City comments on the 60% plans, specifications, and estimate and resubmit at a 90% level of completion. Consultant shall include 2 meetings with the City to review and discuss City comments (one for each project area).

- 2.7.1. Prepare 90% set of drawings. For the 90% set, the Consultant will prepare Stormwater Pollution Prevention Plans (SWPPP) to accompany the TESC design drawings. The SWPPP shall be preliminary and developed to assist the City in obtaining Ecology's Construction Stormwater General Permit, if required for the project(s).
- 2.7.2. Prepare 90% Project Specifications
- 2.7.3. Update Construction Schedule and estimate of working days
- 2.7.4. Prepare 90% cost estimate

**Task 2.7 Assumptions:**

- See Task 6 assumptions.
- It is assumed that there may be conflicting comments from various stakeholders and different groups within the City. It is assumed that the City will take the lead in resolving conflicting comments to provide direction to the Consultant

**Task 2.7 Deliverables:**

- Same as 60% deliverables, except at 90% level of completion.
- Preliminary SWPPP as an appendix to the contract documents/specifications (both projects).

**2.8 Final Plans, Specification, and Cost Estimate**

Consultant will address City comments on the 90% plans, specifications, and estimates and resubmit a "pre-final" submittal for City review. Consultant shall include 2 meetings with the City to review and discuss City comments (one for each project area). Upon City review, the Consultant shall incorporate City comments on the "pre-final" submittal and submit ad ready stamped plans and specifications, and estimate.

- 2.8.1. Prepare "pre-final" and final set of drawings. Final drawings would incorporate City comments on 90% drawings.

- 2.8.2 Prepare “pre-final” and Final Project Specifications
- 2.8.3 Update construction schedule and estimate of working days.
- 2.8.4 Prepare Final cost estimate

**Task 2.8 Assumptions:**

- See Task 6 assumptions.
- It is assumed that there may be conflicting comments from various stakeholders and different groups within the City. It is assumed that the City will take the lead in resolving conflicting comments to provide direction to the Consultant
- It is assumed that the City is responsible for final printing and production
- It is assumed that the design of improvements advances in level of detail and that there is no major or fundamental change in extent for approach to the improvements between 90%, pre-final, and final design.

**Task 2.8 Deliverables:**

- Same as 90% deliverables, except at “pre-final” level of completion.
- Same as 90% deliverables, except at final (ad-ready) level of completion.

**2.9 Phase 2 Stakeholder Involvement/Outreach**

This task includes stakeholder involvement and outreach to support the project implementation during Phase 2. The following subtasks describe anticipated stakeholders and the type and extent of outreach and communications for each. Work of this task will occur at various times during this phase. Stakeholder involvement and outreach would include the following:

- 2.9.1. Lake Forest Park (coordinate downstream impact analysis, design improvements, permitting, construction)
  - Team meeting after 60% and 90% submittal
  - Miscellaneous email/telephone coordination
- 2.9.2. NMF (coordinate scheduling and interface of site improvements such as grading, drainage, and road)
  - Team meeting to review recommended alternative and implications on design
  - Brief team conference call every other month thereafter
- 2.9.3 SPU (coordinate Tolt River Pipeline crossing)
  - Phone/email contact and design submittals
- 2.9.4 Agency (WDFW/USACE/Tribal)
  - Follow up telephone conversations as needed
- 2.9.5 Other private utilities (including North City Water District, Ronald Wastewater District, Puget Sound Energy, Seattle City Light and telecommunications/cable providers)

- Maintain summary table of utility conflicts, utility contacts, how conflict is being addressed and status of utility relocation.
  - Phone/email contact to check on status of relocations and/or approvals of design
- 2.9.6 City of Shoreline Parks Department, Recreational and Cultural Services Board (if affecting Park)
- Present 60% design one meeting each
  - Present 90% design one meeting each
- 2.9.7 City of Shoreline Planning Department
- Phone/email contact if needed
- 2.9.8 Ballinger Creek Community
- Prepare information flyer on project status (2) to be distributed by City (or on City website)
  - Attend community meeting to present recommended project at 90% stage
- 2.9.9 Shoreline School District (if pursuing purchase of land or land easement)
- Meet with City at 60% design stage
  - Provide 90% plans for review
  - Phone/email as needed.

**Task 2.9 Assumptions:**

- City will set up meetings.
- City will provide summary minutes of meetings in standard format
- City will keep a log of all stakeholder involvement.

**Task 2.9 Deliverables:**

- Summary meeting minutes
- Review of Meeting Agenda and Minutes

**2.10 Bid Assistance (allowance task)**

This task is an allowance task to support the City during the bid and award phase. It is an allowance task because it is difficult to estimate the level of effort. It could include the following activities for both project areas.

- 2.10.1. Assist City in responding to Bidder's questions and requests for information
- 2.10.2. Preparation of any addenda, if required
- 2.10.3. Attending a pre-bid conference, if desired
- 2.10.4. Review of Bids and assist on recommendation of award, if required

**2.11 Construction Assistance (allowance task)**

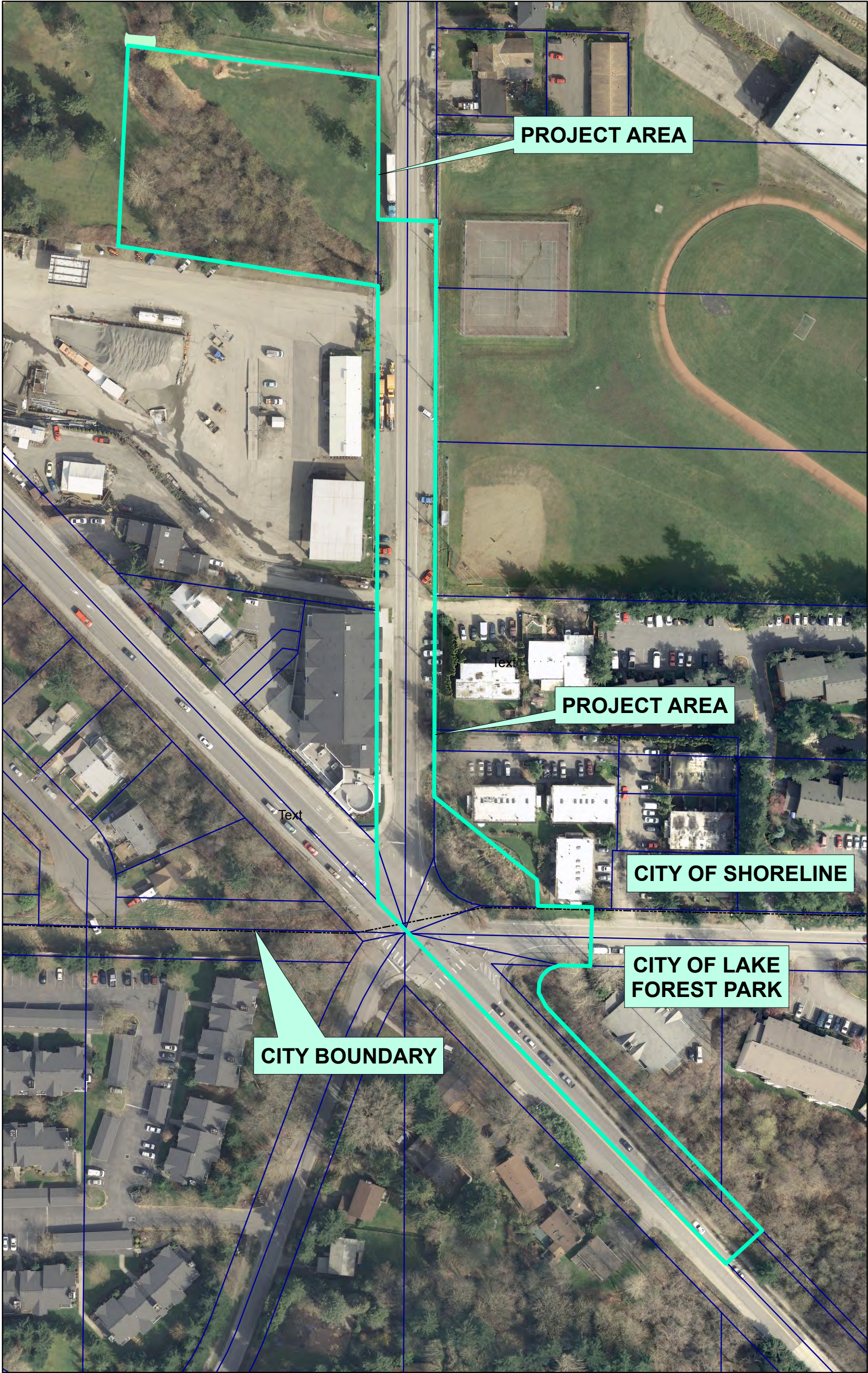
This task is an allowance task to support the City during construction. It is an allowance task because it is difficult to estimate the level of effort. It could include the following activities for both project areas.

- 2.11.1 Assist City in responding to Contractor requests for information (RFIs)
- 2.11.2 Review of Shop Drawings and other submittals (submittals will be returned with comments written directly on the submittal material and/or accompanied by memo if required). A record of telephone conversation will be prepared where required to coordinate the submittal review with the Contractor.
- 2.11.3 Assist on review of any change order request
- 2.11.4 Special on-site inspections to assure that is performed in compliance with the project documents.

## **2.12 Grant Support (allowance task)**

This task is an allowance task to provide grant support during Phase 2. It could include applying for an additional grant or assisting the City with administration of any successfully obtained grants. It is an allowance task because it is difficult to estimate the level of effort at this time.





**Legend**

 Project Area

 Lot Lines

 City Boundary

**25th Avenue NE  
Flood Reduction  
Project Area Map**



## City of Shoreline

## 25th Avenue NE Flood Reduction Project

## Louis Berger - Budget Summary

3-14-16

Phase No.	Task No.	Phase/Task	Louis Berger			Subconsultants				Total Charges
			LB Labor	LB Exp.	LB Total	Herrera	Perteet	Terracon	BergerABAM	
1	1	Project Management	\$0	\$0	\$0					\$0
1	1.1	Project Administration	\$8,467	\$0	\$8,467					\$8,467
1	1.2	Monthly Progress Reports	\$7,258	\$0	\$7,258					\$7,258
1	1.3	Communication and Meetings	\$7,650	\$150	\$7,800					\$7,800
1	1.4	Finalize Phase 2 Work Plan	\$2,990	\$0	\$2,990					\$2,990
1	1.5	QA/QC	\$7,520	\$0	\$7,520					\$7,520
1	2	Data Gathering	\$8,012	\$0	\$8,012					\$8,012
1	3	Survey and Basemap Development	\$1,628	\$0	\$1,628		\$68,902			\$70,530
1	4	Geotechnical Investigations	\$1,966	\$0	\$1,966			\$52,600		\$54,566
1	5	Hydrologic/Hydraulic Modeling	\$0	\$0	\$0					\$0
1	5.1	Review and Update Existing Models	\$19,655	\$50	\$19,705					\$19,705
1	5.2	Alternative Analysis H&H modeling	\$17,988	\$0	\$17,988					\$17,988
1	6	Preliminary Environmental Review	\$3,181	\$0	\$3,181	\$29,752				\$32,933
1	7	Alternative Analysis	\$0	\$0	\$0	\$25,144			\$16,304	\$41,448
1	7.1	Alternative identification	\$11,315	\$0	\$11,315					\$11,315
1	7.2	Strategic Early Stakeholder feedback	\$7,862	\$0	\$7,862					\$7,862
1	7.3	Alternative Evaluation	\$25,327	\$50	\$25,377					\$25,377
1	7.4	Alternative Mitigation Concepts	\$11,673	\$0	\$11,673					\$11,673
1	7.5	Draft Pre-design Memo	\$13,252	\$0	\$13,252					\$13,252
1	7.6	Final Pre-design Memo	\$10,137	\$0	\$10,137					\$10,137
1	8	Stakeholder Involvement	\$26,014	\$400	\$26,414	\$4,306				\$30,720
1	9	Grant Application Support	\$840	\$0	\$840	\$12,673				\$13,513
1	10	Phase 1 Management Reserve	\$0	\$40,000	\$40,000					\$40,000
		Phase 1 Subtotals	\$192,731	\$40,650	\$233,381	\$71,875	\$68,902	\$52,600	\$16,304	\$443,062
2	1	Phase 2 Project Management	\$0	\$0	\$0					\$0
2	1.1	Project Administration	\$9,677	\$0	\$9,677					\$9,677
2	1.2	Monthly Progress Reports	\$9,677	\$0	\$9,677					\$9,677
2	1.3	Communication and Meetings	\$7,650	\$0	\$7,650					\$7,650
2	1.4	QA/QC	\$9,400	\$0	\$9,400					\$9,400
2	2	Permitting	\$17,301	\$0	\$17,301	\$56,385				\$73,686
2	3	Final Geotechnical Report	\$1,591	\$0	\$1,591			\$11,850		\$13,441
2	4	Allowance for Additional Survey	\$0	\$0	\$0		\$30,000			\$30,000
2	5	Supplemental H/H	\$8,620	\$0	\$8,620					\$8,620
2	6	Preliminary and 60% Design	\$0	\$0	\$0				\$0	\$0
2	6.1	30% Design	\$35,660	\$0	\$35,660					\$35,660
2	6.2	Prepare 60% Drawings	\$183,311	\$50	\$183,361				\$42,221	\$225,582
2	6.3	Prepare 60% Specifications	\$9,895	\$0	\$9,895				\$5,683	\$15,578
2	6.4	Prepare 60% Construction schedule	\$795	\$0	\$795				\$1,089	\$1,884
2	6.5	Prepare 60% Cost Estimate	\$3,001	\$0	\$3,001				\$3,316	\$6,317
2	7	90% Design	\$0	\$0	\$0					\$0
2	7.1	Prepare 90% Drawings	\$156,501	\$50	\$156,551				\$23,945	\$180,496
2	7.2	Prepare 90% Specifications	\$8,980	\$0	\$8,980				\$3,316	\$12,296
2	7.3	Prepare 90% Construction Schedule	\$398	\$0	\$398				\$544	\$942
2	7.4	Prepare 90% Cost Estimate	\$3,001	\$0	\$3,001				\$3,316	\$6,317
2	8	Pre-Final and Final Design	\$0	\$0	\$0				\$0	\$0
2	8.1	Pre-final and Final Design Drawings	\$67,080	\$50	\$67,130				\$11,805	\$78,935
2	8.2	Final Specifications	\$7,696	\$0	\$7,696				\$2,842	\$10,538
2	8.3	Final Construction Schedule	\$0	\$0	\$0				\$0	\$0
2	8.4	Final Cost Estimate	\$1,958	\$0	\$1,958				\$2,842	\$4,800
2	9	Phase 2 Stakeholder Involvement	\$22,308	\$400	\$22,708	\$1,669				\$24,377
2	10	Bid Assistance	\$2,158	\$73	\$2,231				\$7,769	\$10,000
2	11	Construction Assistance	\$6,745	\$24	\$6,769				\$23,231	\$30,000
2	12	Grant Support	\$185	\$724	\$909	\$7,091				\$8,000
		Phase 2 Subtotals	\$573,583	1,371	\$574,954	\$65,145	\$30,000	\$11,850	\$131,919	\$813,868
		Project Total			808,335	\$137,020	\$98,902	\$64,450	\$148,223	\$1,256,930

Notes:

<sup>1</sup> Allowance tasks in Red.