

AM NO. 10-082 (C.13)

MEMO TO: City Council

FROM: John Marchione, Mayor

DATE: April 20, 2010

SUBJECT: **APPROVAL OF SUPPLEMENTAL AGREEMENT NO. 1 FOR ADDITIONAL STORMWATER AND BRIDGE ANALYSIS FOR THE NE 76TH STREET CORRIDOR DESIGN, PROJECT NO. 101250**

I. RECOMMENDED ACTION:

Approve the attached Supplemental Agreement No. 1 for additional regional stormwater analysis for the Bear Creek Watershed and additional analysis of the Redmond Way Bridge over Bear Creek with Perteet, Inc., in the amount of \$71,910, and authorize the Mayor to sign the agreement.

II. DEPARTMENT CONTACT PERSONS:

Bill Campbell, Director of Public Works	425-556-2733
Ron Grant, Assistant Public Works Director/City Engineer	425-556-2742
Lei Wu, Senior Transportation Engineer	425-556-2749

III. DESCRIPTION:

Background

Transportation staff is currently proceeding with the NE 76th Street Corridor Design, as the concluding piece of work for the Greater SE Redmond Transportation Study project. This work was previously identified as a condition of approval for Taylor Development Agreement because NE 76th Street is the key east-west street for the SE Redmond Neighborhood.

Part of this project also includes preliminary stormwater analysis for the roadway to identify size, type, and location of stormwater detention and water quality facilities needed for roadway improvements. The NE 76th Street Corridor Design Study area is located within Wellhead Protection Zones 1 and 2, in the Bear Creek watershed (see Attachment A, Vicinity Map). The Bear Creek watershed is made up of about 300 acres

of commercial, light industrial/manufacturing and residential development that drains to Bear Creek.

The Stormwater CIP identified a potential regional project on NE 76th Street to provide additional conveyance capacity, detention and water quality facilities to address groundwater protection in the watershed. The hydrologic and hydraulic analysis for the corridor study stormwater analysis is similar in effort to what would be involved in developing a conceptual Regional Stormwater plan.

The proposed Supplemental Agreement resulted from staff determining that having the same design team perform the additional analysis would allow for efficient use of resources and completion of the project in a shorter timeframe. The analysis will size the trunk along the NE 76th Street corridor and also determine detention and water quality treatment solutions.

In addition, there is a need to provide further analysis of the Redmond Way Bridge over Bear Creek to determine the most appropriate future improvements to the Bridge and the impact of those improvements to the intersection of Redmond Way and NE 76th Street. This work is also included in the Supplemental Agreement.

Expected Outcomes

- 1) The Consultant will conduct a stormwater feasibility study and develop a conceptual Stormwater Plan for the watershed, which includes the NE 76th Street Corridor and surrounding area. The conceptual Stormwater Plan would identify deficient pipes that need upsizing along the NE 76th Street corridor, and determine the feasibility of providing a Regional Detention and Water Quality system.
- 2) The additional analysis of the Redmond Way Bridge will provide a more detailed assessment of the environmental, WSDOT, and construction risks to determine the most feasible interim and long solutions.

Public Outreach

Staff is planning a public outreach meeting around June 1, 2010, for the NE 76th Street Preliminary Corridor Design. Preliminary results of the regional stormwater analysis will be part of the public outreach meeting for the public to comment.

Schedule

The NE 76th Street Preliminary Corridor Design and Stormwater Plan is expected to be finished this summer.

IV. IMPACT:

A. Service/Delivery:

Perteet will provide a preliminary stormwater analysis for the Bear Creek watershed and additional analysis of the Redmond Way Bridge over Bear Creek.

B. Fiscal:

Design Cost

Consultant Agreement – Perteet, Inc.	\$513,586
Supplemental Agreement No. 1	<u>71,910</u>
Total	\$585,496

Funding

Transportation CIP	\$528,586
Stormwater CIP	<u>56,910</u>
Total	\$585,496

Notes: 1) \$250,000 of the previously approved Transportation CIP funding will be reimbursed through the Taylor Development Agreement

2) \$15,000 of this supplemental agreement is for the additional bridge analysis and is funded from the Transportation CIP

V. ALTERNATIVES:

City Council may choose not to approve the Supplemental Agreement No. 1. This action would adversely affect the City's ability to complete a regional facility plan for the NE 76th Street area.

VI. TIME CONSTRAINTS:

This agreement will allow for completion of the corridor study this summer.

Attachment A: Project Map

Attachment 'A'
Drainage Study Area



ATTACHMENT B
Greater Southeast Redmond Area Transportation Study/NE 76th Street
Preliminary Corridor Design
Project No. 101250

SUPPLEMENTAL AGREEMENT NO. 1

This SUPPLEMENTAL AGREEMENT, made and entered into this ____ day of _____, 2010, between the City of Redmond, Washington, hereinafter called the CITY, and Pertect, Inc, hereinafter called the CONSULTANT, amends an earlier Agreement (AGREEMENT) dated December 22, 2008.

WHEREAS the CITY desires to supplement the original AGREEMENT;

NOW THEREFORE, it is mutually agreed that the terms, stipulations, and conditions of the original AGREEMENT shall be binding upon the parties hereto except insofar as amended by this SUPPLEMENTAL AGREEMENT as follows:

I

Section II, SCOPE OF WORK, is amended by the additional tasks summarized in Exhibits A-1 and A-2 attached hereto.

II

Section IV, TIME FOR BEGINNING AND COMPLETION, is amended to change the completion date for all work to read July 31, 2010.

III

Section V, PAYMENT, shall be amended to compensate the CONSULTANT for the work described in Exhibits A-1 and A-2.

A breakdown of the CONSULTANT'S cost proposal is attached hereto as Exhibit B-1. By this reference the exhibit is made a part of this SUPPLEMENTAL AGREEMENT.

Summarized below are the costs as listed in the original AGREEMENT and as modified by this SUPPLEMENTAL AGREEMENT.

Summary			
Description	Original Agreement	Supplement No. <u>1</u>	Total
Labor Cost	\$456,793	\$70,580	\$527,373
Reimbursables	\$11,793	\$1,330	\$13,123
Total	\$468,586	\$71,910	\$540,496
Contingency	\$45,000	\$0	\$45,000
Grand Total	\$513,586	\$71,910	\$585,496

EXECUTION

IN WITNESS WHEREOF, the parties have executed this SUPPLEMENTAL AGREEMENT by having their representatives affix their signatures below.

Perteet, Inc.

CITY OF REDMOND

By _____

By _____
John Marchione, Mayor

(Title)

Attested:

By _____
City Clerk

Approved as to Form:

By _____
City Attorney

EXHIBIT A-1

SCOPE OF WORK

ADDITIONAL REGIONAL STORMWATER ANALYSIS FOR THE BEAR CREEK WATERSHED- DRAINAGE SUPPLEMENT NE 76th STREET PRELIMINARY CORRIDOR DESIGN

The purpose of this project element is to conduct a stormwater feasibility study and develop a conceptual stormwater plan for the NE 76th Street Corridor and surrounding area.

There is an existing stormwater trunk line along NE 76th Street that is reported to be of inadequate conveyance capacity. It conveys flow westerly and discharges into Bear Creek on the west side of highway SR 520. The conceptual stormwater plan is for the study area that includes the trunk line along NE 76th Street and the surrounding area. The study area limits are shown in Attachment 'A' – Drainage Study Area. The study area is located within a Wellhead Protection Zone 1 and 2. Infiltration from runoff from pollution generating surfaces is not allowed.

The *project goals* include:

1. Determine the size of storm pipe for the trunk line along NE 76th Street, from the upper reach of the drainage basin (generally at 185th Ave NE) then westerly to the storm outfall at Bear Creek. Identify the pipe segments that need to be increased in size and preserve as much existing pipe as possible given design constraints.
2. Determine the feasibility of providing a regional detention system, given site constraints (such as elevations, grades, and available land), for the study area. Then determine the type, size and location (TSL) of a regional detention system to serve the study area within the constraints identified.
3. Determine the feasibility of having a regional stormwater treatment system. Consider options such as Low Impact Develop (LID) type facilities and conventional-type treatment facilities.

TASK E.5: DRAINAGE FEASIBILITY & CONCEPT PLAN

The Consultant will perform the tasks listed below.

E.5.1 Review Existing Information

- The Consultant will review existing information from recent drainage studies in the area. The purpose of this task is to build up previous work and analysis done in the area. The recent studies and information

include: 185th Avenue NE Extension Stormwater Feasibility Study (by RW Beck, Dec. 2002);

- 185th Avenue NE Extension Storm Drain Improvements, Project No. 02-CI-04 – Contract Documents (July 2004);
- Geotechnical Report for 185th Avenue NE & NE 76th Street Storm Drain Improvements (by Zipper Zeman Assoc., June 2004);
- 185th Avenue NE Low Impact Development Design Evaluation Memorandum (by INCA, Sept. 30, 2009);
- 185th Avenue NE Extension Surface Water Management Report, Project 101197 (Nov. 2009);
- NE 76th Street Corridor: Groundwater Levels, Monitoring Data; and
- Existing storm pipe data, pipe size, grate elevation, and invert elevation
- Other studies the City may provide

The Consultant has assumed that the City will perform a review of City records and provide relevant information of the study area for the drainage work.

Deliverables:

- None

E.5.2 Hydrology Analysis for Storm Conveyance

Prepare a drainage basin map of the study area showing land-use to be used in the hydrology model and subbasin areas, building upon existing studies identified in the previous task. Determine the areas that can discharge to the storm trunk line given vertical site constraints, and then identify any sub-areas within the study area where it is impractical to discharge runoff to the trunk line.

Perform a hydrology analysis to determine design flowrates for storm conveyance for sizing the storm trunk line on NE 76th Street within the study area. The analysis can be conducted using Santa Barbara Urban Hydrograph (SBUH) method. For runoff from roofs, assume 50% of the areas from roofs can be infiltrated and the remaining 50% of the areas from roofs will discharge into the storm trunk line. Also assume 90% of the runoff from pervious non-pollution generating surfaces will be infiltrated. The remaining areas, parking lots and streets, will not be infiltrated and runoff from these areas will discharge to the storm conveyance system as vertical site constraints allow. Assume there will be no detention of flows from the commercial properties. The design storm event is the 50 year storm.

Deliverables:

- Drainage Basin Map

E.5.3 Storm Conveyance System Analysis and Sizing

Determine those areas which can be conveyed to the existing storm outfall given the relatively flat grades within the study area, and using minimum allowable pipe slopes. Prepare a Service Area Map which is in plan view showing the areas that can be served with a gravity pipe system.

Conduct a pipe conveyance capacity analysis for the storm trunk line along NE 76th Street corridor for the 50-year storm event. The purpose is to determine minimum pipe sizes and slopes. Perform a backwater analysis to determine the hydraulic grade line (HGL) along the pipe route. The design parameters to be used are:

- The maximum water surface elevation in the storm trunk line is to be just below the grate elevation.
- Maintain the existing pipe invert elevation at the outfall, located on the west side of SR 520 and NE 76th Street intersection.
- The tail-water elevation at the outfall will be approximated using flood water surface elevation information created for Bear Creek, which has been performed separately by others.

Identify those existing pipe segments that need to be upsized. Prepare a conceptual conveyance plan showing the locations where pipes need to be increased in size along the trunk line route, and show the minimum pipe sizes and minimum slopes to convey the design flowrates.

Deliverables:

Service Area map

Conceptual Storm Conveyance Plan

E.5.4 Regional Detention System

Conduct a feasibility study to provide a regional detention system to serve the study area, or a portion thereof given site constraints. Identify the areas that can discharge to the regional detention system. The regional detention system is to be sized using the following criteria: a) ultimate built-out land use conditions, which will be based upon input from the City of Redmond; and b) assuming ‘forested conditions’ for land cover, in pre-project conditions. If these two criteria make the detention volume needs excessively large, then involve City staff on considering less-stringent design criteria.

Prepare detention calculations using continuous simulation modeling, such as MGS Flood™ or Western Washington Hydrology Model (WWHM). Both models are acceptable to Ecology and comply with City standards.

Determine type, size, and location (TSL) of a regional detention system. Prepare two to three alternatives. Take into consideration the elevation constraints for locating and sizing a regional detention facility. These vertical constraints may dictate viable alternatives. Three candidate sites already

identified are listed below, but other detention sites may be considered. The three candidate stormwater sites identified are:

- Southwest corner of the Target store parking lot, on the north side of NE 76th Street;
- Open triangular shaped parcel located approximately 300 ft. north of the intersection of NE 76th Street and 180th Avenue NE;
- The City of Redmond parking lot, located on the parcel that is at the northeast quadrant of NE 76th Street and 180th Ave NE.

Sidewalks along NE 76th Street may be considered pervious sidewalks, to minimize impervious surfaces in the detention analysis.

The detention conceptual plan will show TSL for detention facilities, control elevations in plan view, footprint of the detention facility, detention volume, and discharge location. For the three potential sites identified, the concept plan will identify the additional area needed if these prove to be of insufficient size. The aerial photograph of the project study area will be used as a base map for the conceptual plan.

Deliverables:

Detention Conceptual Plan

E.5.5 Regional Stormwater Treatment System

Conduct a feasibility study to provide a regional stormwater treatment system to serve the study area, or a portion thereof given site constraints. Identify the areas that can discharge to the regional treatment system. The regional treatment system is to be sized using the following criteria: a) ultimate built-out land use conditions, which will be based upon input from the City of Redmond; and b) For treatment of runoff for areas outside of the road corridor, the design is to be to ‘basic’ level of treatment as defined in the Ecology Manual. For treatment of runoff from the roadways the design is to be “enhanced” level of treatment. A Filterra™ system is acceptable and considered a good alternative for evaluation. Confirm the level of treatment (i.e. ‘basic’ or ‘enhanced’) for the roadway prior to commencing work.

Prepare water quality treatment calculations using continuous simulation modeling, such as MGS Flood™ or Western Washington Hydrology Model (WWHM). Both models are acceptable to Ecology and comply with City standards.

Determine type, size, and location (TSL) of a regional treatment system. Prepare two to three alternatives. Take into consideration the elevation constraints for locating and sizing a regional treatment facility and/or multiple facilities. These vertical constraints may dictate viable alternatives.

The stormwater treatment conceptual plan will show TSL for treatment facilities, control elevations in plan view, footprint of the treatment facility, key design parameters, and discharge location. The aerial photograph of the project study area will be used as a base map for the conceptual plan.

Deliverables:

Stormwater Treatment Concept Plan

E.5.6 Planning Level Cost Opinions

Prepare planning level construction cost opinions, for the conveyance, detention and stormwater treatment facility concepts. The cost opinions will be developed on a planning level and will include assumptions and contingencies for unknowns.

Deliverables:

Planning level cost opinions construction

E.5.7 Drainage Technical Memorandum

Prepare a technical memorandum summarizing the results along with written recommendations, concept plans, and supporting drainage calculations. Submit a draft version to City for review and comment. Prepare a final version after City review.

It is assumed that the City will review the draft Technical Memorandum and provide comments back to the Consultant shortly thereafter.

Deliverables:

Technical Memorandum, draft and final

E.5.8 Stormwater - Meetings & Coordination

It is anticipated there will be 2 presentation meetings as the project progresses, and a follow-up meeting with City staff after the draft Technical Memorandum is submitted. Attend 3 meetings and prepare meeting minutes.

It is anticipated there will be telephone conference calls between City staff and Consultant on a weekly basis.

Deliverable:

Meeting Minutes

E.5.9 Public Coordination

Participate in the public outreach process by attending one open house and prepare an exhibit for the open house. This is in support of other public involvement tasks. Budget for 12 hours for this task.

Deliverables:

Display material

CITY OF REDMOND TO PROVIDE

The City of Redmond will provide the information listed below:

- Copies of relevant studies, groundwater data, and reports;
- Flood water surface elevation data for Bear Creek in the vicinity of the existing outfall of the NE 76th Street storm trunk line

ITEMS NOT INCLUDED IN THIS SCOPE OF SERVICES

As this is a planning level project, several items are anticipated to be needed at the time of final design, which are not included in this scope of services, but can be provided as an additional service. These are listed below.

- Supplemental topographic survey for existing stormwater facilities
- Stream enhancement design and construction plans
- Culvert design for ‘fish-friendly’ passage
- Design stormwater quality treatment for ‘enhanced treatment’
- Final construction plans, contract documents, and specifications

EXHIBIT A-2

SCOPE OF WORK

ADDITIONAL ANALYSIS OF THE REDMOND WAY BRIDGE NE 76th STREET PRELIMINARY CORRIDOR DESIGN

Additional analysis of the bridge includes

- a. Confirm the feasibility;
- b. Accurate and up-to-date cost estimate for the bridge construction and related development efforts;
- c. Assess risks including
 - i. WSDOT approval related questions and issues;
 - ii. Environmental impacts to Bear Creek;
 - iii. Maintaining traffic on Redmond Way during construction;
 - iv. Geometric design;
 - v. Design assessment regarding bridge types; and
 - vi. The trail treatment under the bridge.
- d. Other significant issues related with bridge construction.

The total cost for additional bridge analysis will be a maximum of \$15,000. This additional work will be integrated into the existing contract and the final amount is dependent on the requirements from WSDOT and Department of Fisheries. All expenditures of this additional funding will require prior approval by City staff.

EXHIBIT B-1

Consultant Fee Determination for scope of work as described in Exhibits A-1 and A-2

Perteet, Inc.

Overhead & Fee

Overhead Cost @	172.47%	of Direct Labor
Fee @	29.5%	of Direct Labor

Month your firm awards raises	0
Percent of contract to apply salary escalation	
Salary Escalation percent	

Classification	Hours	Loaded Rate	Cost
Associate (Drainage)	182	\$ 160.06	\$ 29,131
Senior Engineer/Manager (Drainage)	64	\$ 95.04	\$ 6,083
Engineer II	144	\$ 80.39	\$ 11,576
Technician III	98	\$ 81.67	\$ 8,004
Clerical (Tech II)	10	\$ 78.64	\$ 786
TOTAL LABOR	498		\$ 55,580

Direct Non-Salary Costs

Item	Quantity	Unit	Rate	Cost
Color copies		sheets		-
Reproduction (15 copies of 7 reports, Plots)	1	sq. ft.	\$250.00	\$ 250
Courier/Mail		lump sum est.		-
CADD Station	98	hour	\$10.00	\$ 980
GIS System		hour	\$15.00	-
Survey GPS Receiver		day	\$150.00	-
				-
				-
Geotech	1			-
Mileage @ IRS rate	200	miles	\$0.500	\$ 100
TOTAL DIRECT NON-SALARY COSTS				\$ 1,330

ADDITIONAL BRIDGE ANALYSIS **\$ 15,000**

TOTAL	\$71,910
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