CITY OF NEWPORT

TASK ORDER NO. 01
TO ENGINEERING SERVICES AGREEMENT
FOR GEOTECHNICAL ENGINEERING SERVICES
PROJECT: BIG CREEK DAMS 1 & 2 SEISMIC EVALUATION

This TASK ORDER NO. 01 to the Engineering Services Agreement dated September 5, 2013, hereinafter called Agreement, between the City of Newport, (CITY), and HDR Engineering, Inc., (ENGINEER).

A. SCOPE OF SERVICES

CITY agrees to utilize the services of ENGINEER and ENGINEER agrees to perform engineering services as defined within the scope of work.

This PROJECT will include the following:

Scope of Work for Seismic Stability Analysis and Risk Assessment for Big Creek Dams 1 and 2 as set forth in Attachment A.

B. CITY'S RESPONSIBILITIES

CITY to provide ENGINEER with the following information:

1. CITY shall assign appropriate reviewers to the project and compile and provide a single consolidated, coordinated, legible, and internally consistent copy of written review comments to Consultant for all draft documents and work products, as appropriate.

2. CITY shall provide timely review of submitted products (2-week turnaround), as appropriate.

C. COMPENSATION

1. CITY shall pay ENGINEER according to the fee schedule set forth in Exhibit A to the Engineering Services Agreement.

2. Services provided under this Task Order No. 01 shall not exceed One Hundred Eighty-Six Thousand Seventy Dollars and 00/100 ($186,070.00).

D. MISCELLANEOUS

All terms and conditions of the Engineering Services Agreement apply to this Task Order No. 01 as though fully set forth therein. In the event of a conflict between this Task Order No. 01 and the Engineering Services Agreement, the terms of this Task Order No. 01 shall apply.

~~The parties do mutually agree to all mutual covenants and agreements contained within this Task~~

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CITY OF NEWPORT:

By: Ted Smith

Title: Interim City Manager

Date: October 17, 2013

HDR Engineering, Inc.

By: Amy Dammarell / Amy Dammarell

Title: Vice President

Date: October 17, 2013

ATTACHMENT A

Scope of Work for Seismic Stability Analysis and Risk Assessment
Big Creek Dams 1 and 2
Lincoln County, Oregon
For the City of Newport, Oregon

Modifications to Engineer's Scope of Services

HDR performed an initial seepage, static stability, and post-earthquake stability analysis of Big Creek Dam #1 and #2 to understand the potential for large deformations and/or failure in case of a range of seismic events (subduction zone earthquakes and Yakima earthquakes) that may occur in the area of the reservoir sites. Based on the results of the initial site investigation and analysis program, it was determined that additional site characterization and evaluations are required to help refine the understanding the behavior of the foundation and embankment soils at the Dam #1 and #2 sites.

The scope of work has been developed to allow the City to incrementally update and authorize work as the evaluation progress leading to the identification of the appropriate actions required to address seismic loading issues at both the Dam #1 and #2 sites. This scope does not include formal environmental compliance, or conceptual or final design activities. Conceptual design of the preferred alternative and formal environmental compliance activities will be scoped and performed as part of a subsequent work order from the City once a preferred corrective action is approved by the City.

Overall Project Approach:

HDR/Cornforth will perform the following tasks for the next evaluation phase for the Big Creek dams in regards to seismic loading conditions:

Task	Activity
1.0	Project management
2.0	Additional site characterization and explorations
3.0	Laboratory testing

Not included in this Task Order:

4.0	Time histories and ground motion update for engineering evaluation
5.0	Engineering analysis of updated site characterization data

6.0 Engineering analysis technical memorandum

7.0 Risk analysis

8.0 Corrective action alternatives development and evaluation.

9.0 Preliminary environmental review

10.0 Planning report and presentation

Project Team:

- Prime Consultant: HDR Engineering Inc.
- Subconsultant for seismic hazard and other geotechnical support: Cornforth Consultants
- Cone Penetrometer testing: Subsurface Technologies North Plains, Oregon.
- Mud rotary drilling and piezometer installation: Western States Drilling (Hubbard, OR)
- Survey: Northwest Land Surveying, Inc. (Florence, OR)
- Laboratory index testing: Cornforth Consultants
- Consolidated-undrained (CU) triaxial, and cyclic direct simple shear testing of undisturbed samples: MEG Consulting Limited (Vancouver, BC)
- Independent confirmation of laboratory triaxial and cyclic direct simple shear tests: Dr. Ross Boulanger (University of California at Davis)

Task 1.0 Project Management

This task includes project management - preparation of progress reports, invoicing, schedule and budget oversight, review meetings, and conference calls. This task also includes technical support for Chase Park Grants, LLC to research appropriate funding (federal and state) which can be used for this project.

Deliverables

- Monthly progress reports
- Monthly invoices
- Meeting and conference call notes

Task 2.0 Additional Site Characterization and Explorations

Additional site explorations will be performed in two phases. This scope covers the first phase. During this first phase, the team will obtain CPT (cone penetration test) sounding results along with continuous SPT (standard penetration test) measurements and samples from mud rotary borings at targeted locations near the downstream toe of each dam to supplement a model of the site stratigraphy. Using this information, the plan for the additional Phase 1 boring locations and undisturbed sampling along the downstream toe of each dam will be finalized and completed,

along with the plan for the second phase of exploration along the upstream slope of Dam #2. The proposed drilling program is outlined for phase 1 below and summarized in Table 1.

Scope of Work for Phase 1:

1. Perform two seismic cone penetrometer test soundings along the downstream toe of Dam # 1 (BC1-SCPT-5 and BC1-SCPT-6), and four seismic cone penetrometer test (CPT) soundings at or downstream from the dam toe at Dam #2 (BC2-SCPT- 4, 5, 6, and 7). The results of the SCPT soundings will be used to correlate with mud rotary boring results to further develop the stratigraphic model of the site. At selected SCPT intervals, perform shear wave and pore water pressure dissipation tests and obtain shear wave velocity measurements.
2. Perform a total of two mud rotary Standard Penetration Test (SPT) borings, one each at the downstream toe of each dam (BC1-BH-2 and BC2-BH-4). Continuous Standard Penetration Test's (SPT) will be completed using a calibrated hammer. Samples will be collected for laboratory index testing in each boring. Results from the boring will be used to calibrate the material classifications developed from the SCPT soundings.
3. Perform a total of four additional mud rotary borings along the downstream toes of the each dam. At this time, we anticipate that two borings would be drilled at each dam (BC1-BH-3(U), and 4(U) at Dam #1, and BC2-BH-5(U), and 6(U) at Dam #2). The number and location of these borings will be finalized based on the Phase 1 CPT results and may involve shifting of one of the borings at Dam #1 to the Dam #2 site. The primary purpose of these borings is to obtain high quality undisturbed samples using a fixed piston sampling apparatus (ASTM D 6519). Additional SPT sampling may also be completed in these four borings
4. Select samples for laboratory analyses will include Atterberg Limits (40) and gradation with hydrometer (20) and fines content (20) in order to characterize the foundation material stratigraphy and calibrate the material characterization from the CPT soundings.
5. Prepare gInt logs of the borings and update the stratigraphic model.
6. Finalize the Phase 2 drilling locations, sampling, methods, and intervals.
7. Install piezometers screened in the foundation materials in each of the auger borings. The depth for installation of the screened section of the piezometers will be selected based on field descriptions of materials and stratigraphic interpretation.
8. Obtain initial ground water readings from the piezometers.
9. Perform insitu permeability (falling or rising head) tests in the piezometers to estimate the average permeability of the foundation materials in the screened interval of the instrument.
10. Preserve the undisturbed samples for shipping and laboratory testing during Phase 2. Transport samples to the MEG lab in Canada, and the University of California at Davis, CA for testing.

Table 1

Summary of Phase 1 Explorations

Exploration Number	Exploration Method	Exploration Depths (feet)			Sampling and Insitu Testing Description	Other Comments
		Over-burden	Bed-rock	Total		
Phase 1						
BC1-SCPT-5	Cone	70	0	70	Both shear wave and pore pressure dissipation testing will be performed as directed by the Eng. Geologist	
BC1-SCPT-6	Cone	70	0	70	Both shear wave and pore pressure dissipation testing will be performed as directed by the Eng. Geologist	
BC1-BH-2	Mud rotary boring	70	10	80	Continuous SPT sampling.	Each SPT sample will be preserved for possible lab testing
BC1-BH-3(U)	Mud rotary boring	70	0	70	Continuous SPT and undisturbed fixed-piston samples at designated intervals. Install open well piezometer	Final depth may be modified depending on sampling requirements
BC1-BH-4(U)	Mud rotary boring	70	0	70	Continuous SPT and undisturbed fixed-piston samples at designated intervals	Final depth may be modified depending on sampling requirements
BC2-SCPT-4	Cone	25	0	25	Both shear wave and pore pressure dissipation testing will be performed as directed by the Eng.	

					Geologist	
BC2-SCPT-5	Cone	25	0	25	Both shear wave and pore pressure dissipation testing will be performed as directed by the Eng. Geologist	
BC2-SCPT-6	Cone	30	0	30	Both shear wave and pore pressure dissipation testing will be performed as directed by the Eng. Geologist	
BC2-SCPT-7	Cone	30	0	30	Both shear wave and pore pressure dissipation testing will be performed as directed by the Eng. Geologist	
BC2-BH-4	Mud rotary boring	25	10	35	Continuous SPT sampling.	Each SPT sample will be preserved for possible lab testing
BC2-BH-5(U)	Mud rotary boring	25	0	25	Continuous SPT and undisturbed fixed-piston samples at designated intervals. Install open well piezometer	
BC2-BH-6(U)	Mud rotary boring	30	0	30	Continuous SPT and undisturbed fixed-piston samples at designated intervals	

Abbreviations:

BC1 – Big Creek Dam #1
BC2 – Big Creek Dam #2
SCPT – Seismic Cone Penetrometer with pore water pressure
BH – Borehole
SPT – Standard Penetration Test
(U) – Undisturbed fixed-piston samples to be obtained

Task 3.0 Laboratory Testing

Table 2 below summarizes the laboratory tests proposed for this phase 1 of the explorations.

Table 2 Summary of SCPT and Boring Tests and Sample Procurement

SCPT/Boring Number	Seismic Tests	Pore Water Pressure Dissipation Tests	Standard Penetration Tests	Undisturbed Fixed-Piston Samples
Phase 1				
BC1-SCPT-5	14	6	NA	NA
BC1-SCPT-6	14	6	NA	NA
BC1-BH-2	NA	NA	47 (continuous)	NA
BC1-BH-3(U)	NA	NA	6	4
BC1-BH-4(U)	NA	NA	6	4
BC2-SCPT-4	5	3	NA	NA
BC2-SCPT-5	5	3	NA	NA
BC2-SCPT-6	6	3	NA	NA
BC2-SCPT-7	6	3	NA	NA
BC2-BH-4	NA	NA	17 (continuous)	NA
BC2-BH-5(U)	NA	NA	6	4
BC2-BH-6(U)	NA	NA	6	4
Subtotal	50	24	88	16

Assumptions for Task 2 and 3

- Owner will provide right of entry to HDR and all sub-contractors on request.
- Owner will complete utility location prior to beginning of field work and within two weeks of Notice to Proceed.
- Weather conditions will be conducive to performing field work. Site equipment can access site on schedule and weather does not delay the explorations.
- This task also includes a contingency that will cover unexpected incidents in the field.
- Final technical memorandum to be completed in later task order.
- Additional borings and laboratory testing for phase 2 will be part of the next task order.

Deliverables for Task 2 and 3

- Site exploration plan including technical specifications for drilling subcontracts.
- Draft technical memorandum to include final boring logs and updated site subsurface characterization model.
- Draft exploration logs of all SCPT, and borings with SPT and undisturbed samples.
- Piezometer installation logs.

Schedule:

- Project duration: four months
- Field work duration for this task order: four weeks
- Laboratory testing duration: five weeks
- Draft technical memorandum duration: four weeks

Level of Effort

HDR & Cornforth Fee Schedule — Newport
Dam Explorations Phase II

	Task Description	HDR Engineering																Cornforth Consultants												Western States Soil Conservation, Inc.					Total Fee (includes sub-consultant mark-up)
		Project Manager Winter	Principal Designer Ferguson	QC/Technical Advisor Hannain	Engineering Geologist Charlton	Engineer IV Anderson	Engineer V Ballegeer	CAD Technician Pawlowski	Project Assistant Switzer	Project Controller Kool	Hours	Labor	Technology Charge	Travel	Expense Estimate as a % of Labor	Total Expenses	HDR Fee	Senior Associate Engineer	Associate Engineer/Geologist	Staff Engineer/Geologist	Engineer/Geologist	Senior Technician	CADD/Graphics	Secretary	Labor	Office Expenses	Field Expenses	Laboratory Expenses	Subconsultant Total	SPT	CPT	Labor	Expenses	Subconsultant Total	
		$ 140	$ 320	$ 170	$ 175	$ 190	$ 210	$ 125	$ 90	$ 100								$ 208	$ 178	$ 134	$ 124	$ 105	$ 88	$ 73						$ 1	$ 1				
	Task 1 Project Management																																		
1.1	Project Management	46									46	$ 6,440	$ 170	$ 100	$ 64	$ 335	$ 6,775	2	8						$ 1,820				$ 1,820			$ -		$ -	$ 8,595
1.2	Monthly progress reports and invoices	20								7	27	$ 3,500	$ 100		$ 35	$ 135	$ 3,635	2	6						$ 1,498				$ 1,498			$ -		$ -	$ 5,176
1.3	Meeting/conference call notes	46									46	$ 6,720	$ 175		$ 67	$ 245	$ 6,965	6	12					8	$ 3,932	$ 300			$ 4,232			$ -		$ -	$ 11,436
1.4	Technical Support for Chase Park Grants, LLC	20									20	$ 2,800	$ 74		$ 28	$ 102	$ 2,902								$ -				$ -			$ -		$ -	$ 2,902
	Sub-total	134	0	0	0	0	0	0	0	7	141	$ 19,460	$ 522	$ 100	$ 195	$ 816	$ 20,276	10	26	0	0	0	0	8	$ 7,220	$ 300	$ -	$ -	$ 7,520	0	0	$ -	$ -	$ -	$ 28,172
	Task 2 Additional Site Characterization and Explorations																																		
2.1	Copre/Prep/Site and Safety Plan		3		6		4	4	4		21	$ 3,710	$ 78		$ 37	$ 115	$ 3,825		6		6				$ 1,800				$ 1,800			$ -		$ -	$ 5,715
2.2	Phase 1 CPT (D/S of both dams)	3			8	6	0				17	$ 2,960	$ 63		$ 30	$ 93	$ 3,053		8	8	60				$ 9,920		1000		$ 10,920		16733	$ 16,733		$ 16,733	$ 32,086
2.3	Phase 1 SPT/Undisturbed Borings (D/S both dams)	3	12	2	32	18	4				69	$ 14,080	$ 295	$ 3,000	$ 141	$ 3,396	$ 17,476	2	8	12	80				$ 13,348		1800		$ 15,148	30797		$ 30,797		$ 30,797	$ 65,718
2.4	Boring Logs		2		12						14	$ 2,740	$ 52		$ 27	$ 79	$ 2,819	3	5	4	32		8	8	$ 7,084	300			$ 7,384			$ -		$ -	$ 10,572
2.5	Finalize Phase 2 Exploration Plan	1	2	2	8						13	$ 2,520	$ 48		$ 25	$ 73	$ 2,593	2	4						$ 1,116	50			$ 1,166			$ -		$ -	$ 3,816
2.6	Piezometer Installation				2						2	$ 350	$ 7		$ 4	$ 11	$ 361		1		6				$ 920				$ 920			$ -		$ -	$ 1,327
2.7	Groundwater Level Readings (assume 1 trip)										0	$ -	$ -		$ -	$ -	$ -				6				$ 744		285		$ 1,029			$ -		$ -	$ 1,080
2.8	In-situ Permeability Testing (same trip as GW reading)										0	$ -	$ -		$ -	$ -	$ -	1	1		4				$ 878				$ 878			$ -		$ -	$ 921
2.9	Contingency										0	$ -	$ -	$ 6,000	$ -	$ 6,000	$ 6,000								$ -				$ -			$ -		$ -	$ 6,000
2.10	Draft Memo for Boring Logs and Field Explorations	2	4	2	8						16	$ 3,300	$ 59		$ 33	$ 92	$ 3,392	4	16	4	16		8	4	$ 7,156	200			$ 7,356			$ -		$ -	$ 11,116
	Sub-total	9	23	6	76	22	8	4	4	0	152	$ 29,660	$ 562	$ 9,000	$ 297	$ 9,859	$ 39,519	11	49	28	210	0	16	12	$ 42,966	$ 550	$ 3,085	$ -	$ 46,601	30797	16733	$ 47,530	$ -	$ 47,530	$ 138,358
	Task 3 Laboratory Testing																																		
3.1	Water Content (all SPT samples)										0	$ -	$ -		$ -	$ -	$ -					12			$ 1,260			40	$ 1,300			$ -		$ -	$ 1,365
3.2	Atterberg Limits (up to 28)										0	$ -	$ -		$ -	$ -	$ -		1		50				$ 6,376			400	$ 6,776			$ -		$ -	$ 7,115
3.3	Grain-size analyses with Hydrometer (up to 12)										0	$ -	$ -		$ -	$ -	$ -		1		24				$ 3,152			250	$ 3,402			$ -		$ -	$ 3,572
3.4	Fines Content: P200 (16)										0	$ -	$ -		$ -	$ -	$ -		1			16			$ 1,896			100	$ 1,996			$ -		$ -	$ 2,064
3.5	Sample Preservation and Delivery to HDR										0	$ -	$ -		$ -	$ -	$ -		3		2	6			$ 1,440				$ 1,440			$ -		$ -	$ 1,512
3.6	Draft Memorandum for Laboratory Testing										0	$ -	$ -		$ -	$ -	$ -	2	6		8	4			$ 2,860	100			$ 2,960			$ -		$ -	$ 3,129
3.7	Undisturbed Laboratory Testing	2									2	$ 280	$ 7	$ 500	$ 3	$ 510	$ 790								$ -				$ -			$ -		$ -	$ 790
	Sub-total	2	0	0	0	0	0	3	0	0	2	$ 280	$ 7	$ 500	$ 3	$ 510	$ 790	2	11	0	84	40	0	0	$ 16,964	$ 100	$ -	$ 790	$ 17,854	0	0	$ -	$ -	$ -	$ 19,637
	Hours	145	23	6	76	22	8	4	4	7	295							23	66	28	294	40	16	20						30,797	16,733				
	Fee	$20,300	$7,360	$1,020	$13,300	$4,180	$1,680	$500	$360	$700		$ 49,400	$ 1,092	$ 9,600	$ 494	11,186	$ 60,586	$4,738	$15,130	$3,752	$39,456	$4,200	$1,408	$1,460	$ 67,150	$ 950	$ 3,085	$ 790	$ 71,975	$30,797	$16,733	$ 47,530	$ -	$ 47,530	
	Sub-consultant Budget w/ Mark-up																								$ 70,508	$ 998	$ 3,238	$ 830	$ 75,574			$ 49,906	$ -	$ 49,906	
																																			$ 165,070