

March 14, 2014

TO: Project File
FROM: Laura Peterson Frank Green, David McCurry, Park Piao
SUBJECT: Project Closeout Summary for Columbia River Bridges & Approaches
Design Build Procurement – Geotechnical

Executive Summary

This memorandum provides the status of the work for the development of the Columbia River Bridges & Approaches Design Build Procurement, specifically addressing the following technical focus areas:

- Geotechnical Exploration and Reporting
- Geotechnical Design Criteria
- Geotechnical RFP requirements

This memo overviews the status of the work, outstanding work and next steps, an overview of project history, key decisions, and information on key documents and references. This memorandum, assembled at the time of project closeout, is intended to provide adequate information to allow project start-up within a year's time-frame.

Status of Work

The work includes all geotechnical exploration and reporting within the limits of the CRBA project, and development of geotechnical design criteria and RFP requirements for the CRBA contract.

Geotechnical exploration has taken place since 2007 in several phases, using both agency personnel and consulting firms. Both in-water and on-land exploration and testing have been conducted, and results are documented in multiple reports including data reports, foundation design reports, and specialty reports. For the non-specialty reports, these are grouped by geographic area including the North Portland Harbor, Hayden Island, Columbia River Bridges, and SR-14 within the CRBA package. For the CRBA package, geotechnical exploration work by the project team for RFP input is considered complete, with the exception of exploration on the site of the former Thunderbird Hotel and a potential boring near the SUP approach bridge in the SR-14 interchange. For the Thunderbird site, rights of entry were never granted, so geotechnical and other exploration could not take place during the project. As part of the DB contract, the Design-Builder will need to do additional exploration, and develop its own foundation design recommendations for the CRBA extents. Additionally, a Drilled Shaft and Driven Pile Test Program was conducted by the project, and is documented in a comprehensive report.

Current versions of geotechnical reports can be found at the locations cited in this memo, and are complete unless noted as "Draft". The work completed under ODOT WOC's is also noted in Table 1. If needed, a complete history of Shannon and Wilson geotechnical deliverables over the life of the project can be found at <G:\CRC\CRC Workpaper Files\ Closeout Ref By Discipline\Geotech\Shannon and Wilson Deliverable Record\CRC SW Deliverable Status Summary.xlsx>.

Geotechnical design criteria was originally developed under the jointly-led WSDOT/ODOT project prior to July 2013. It reflected modifications to the WSDOT GDM for any requirements by ODOT or Tri-Met. After July, 2013, under an ODOT-led project, the ODOT GDM became the base document used in the RFP, and only a few modifications were needed. These modifications were incorporated into the RFP text, rather than utilizing a geotechnical design criteria document.

The draft RFP includes a geotechnical section which has received technical review by structural and geotechnical staff. It is fairly complete, but has areas needing further input, as well as additional review by a broad audience.

The following deliverables were completed at the approximate level of completeness as identified in Table 1, at the time of project closeout.

TABLE 1.
CRBA DB Procurement Deliverables Status Summary
Status of Deliverables for the CRBA Design Build Procurement Development

TASK	DELIVERABLE	APPROX. PERCENT COMPLETE	STATUS OF WORK
4.3 WOC4 B31835	Draft technical Performance Requirements - provision DB 141	80%	Work in progress. Waiting for client review. Continued clean up of DB 141 for formatting, language, terminology, acronyms, interdisciplinary coordination, project interfaces, and other outstanding issues. See "Draft RFP action items list".
2.1 WOC1 B31260	Hayden Island Geotechnical Foundation Design Report Columbia River Bridge Geotechnical Foundation Design Report Drilled Shaft and Driven Pile Test Program Report (DEA)	100%	Complete. These GFDR deliverables reflect updates to earlier versions, incorporating results from the Drilled Shaft and Driven Pile Test Program. The Drilled Shaft and Driven Pile Test Program Report (DEA) is the comprehensive report documenting all aspects of the test program. The S&W drilled shaft and driven pile technical reports are a subset of the comprehensive report.
2.2 WOC1 B31260	Hayden Island Geotechnical Data Report Columbia River Bridge Geotechnical Data Report Soft Rock Ground Motions Report Washington Side Geologic Profiles	100%	Complete. Geotechnical Data Reports reflect updates to previous versions of the reports. Soft Rock Ground Motions report was modified from a previous version to provide a stand-alone report that could be used as a contract document in the CRBA DB contract.
2.3 WOC1 B31260	North Portland Harbor Geotechnical Data Report	100%	Complete. Reflects updates to previous versions of the report.
2.4 WOC1 B31260	SR 14 Geotechnical Data Report Park and Ride Structure Geotechnical Data Report Washington Transit Line Geotechnical Data Report	100%	The SR 14 Geotechnical Data Report is being completed by Shannon and Wilson. At the end of June, 2013, WSDOT had completed a draft version of the SR 14 data report. Shannon and Wilson reviewed all WSDOT field notes and data, and updated/finalized the SR 14 Geotechnical Data Report. The Park and Ride structures Geotechnical Data Report and the Washington Transit Line Geotechnical Data Report are not part of the CRBA footprint, but could be useful as a reference document in the CRBA contract.
6.1 WOC4 B31835	Geotechnical Baseline Report	90%	This has been completed in draft form. If utilized in the future, ensure consistency between the GBR philosophy, and the RFP approach.
6.2 WOC4 B31835	Field explorations in Thunderbird Property	0%	Not started.

Table Notes:

1. Table status as of March 14, 2014.

TABLE 1.
 CRBA DB Procurement Deliverables Status Summary
Status of Deliverables for the CRBA Design Build Procurement Development

TASK	DELIVERABLE	APPROX. PERCENT COMPLETE	STATUS OF WORK
4.3 WOC4 B31835	Draft technical Performance Requirements - provision DB 141	80%	Work in progress. Waiting for client review. Continued clean up of DB 141 for formatting, language, terminology, acronyms, interdisciplinary coordination, project interfaces, and other outstanding issues. See "Draft RFP action items list".
2.1 WOC1 B31260	Hayden Island Geotechnical Foundation Design Report Columbia River Bridge Geotechnical Foundation Design Report Drilled Shaft and Driven Pile Test Program Report (DEA)	100%	Complete. These GFDR deliverables reflect updates to earlier versions, incorporating results from the Drilled Shaft and Driven Pile Test Program. The Drilled Shaft and Driven Pile Test Program Report (DEA) is the comprehensive report documenting all aspects of the test program. The S&W drilled shaft and driven pile technical reports are a subset of the comprehensive report.
2.2 WOC1 B31260	Hayden Island Geotechnical Data Report Columbia River Bridge Geotechnical Data Report Soft Rock Ground Motions Report Washington Side Geologic Profiles	100%	Complete. Geotechnical Data Reports reflect updates to previous versions of the reports. Soft Rock Ground Motions report was modified from a previous version to provide a stand-alone report that could be used as a contract document in the CRBA DB contract.
2.3 WOC1 B31260	North Portland Harbor Geotechnical Data Report	100%	Complete. Reflects updates to previous versions of the report.
2.4 WOC1 B31260	SR 14 Geotechnical Data Report Park and Ride Structure Geotechnical Data Report Washington Transit Line Geotechnical Data Report	100%	The SR 14 Geotechnical Data Report is being completed by Shannon and Wilson. At the end of June, 2013, WSDOT had completed a draft version of the SR 14 data report. Shannon and Wilson reviewed all WSDOT field notes and data, and updated/finalized the SR 14 Geotechnical Data Report. The Park and Ride structures Geotechnical Data Report and the Washington Transit Line Geotechnical Data Report are not part of the CRBA footprint, but could be useful as a reference document in the CRBA contract.
6.1 WOC4 B31835	Geotechnical Baseline Report	90%	This has been completed in draft form. If utilized in the future, ensure consistency between the GBR philosophy, and the RFP approach.
6.2 WOC4 B31835	Field explorations in Thunderbird Property	0%	Not started.

2.

Known Issues

The following is a summary of the known issues that were not resolved at the time of closeout:

- Geotechnical exploration needs to be completed in the Thunderbird site once rights of entry can be obtained. Additionally, a former landfill is located at that site, and has not been characterized other than through historical records.
- The area near the SUP approach bridge in the SR 14 interchange was modified later in the project, so exploration in that area has not been completed.
- Seismic Peer Review Panel requirements need to be finalized.
- ATC's are expected (e.g.—base grouting, load tests, etc.). Requirements for ATC submittals for key areas should be pre-drafted.
- Pre-construction instrumentation needs to be coordinated with Noise and Vibration section; Pre-construction documentation needs to be added in a general section of the RFP, but could require modifications to the geotechnical section of the RFP.

Outstanding Work

The following is a summary of outstanding work and next steps at the time of closeout that was not started, but necessary for the development of the DB Procurement final RFP for the CRBA Package:

- See Draft RFP Action Items list.

Project History, Milestones & Key Decisions

Key project milestones include:

- N/A

Key project decisions include:

- Decision to utilize shafts for Columbia River Bridge foundations based on BA/BO. Decision to require vibratory installation with proofing for temporary piles in Columbia River based on BA/BO.
- Decision to undertake a Drilled Shaft and Driven Pile Test Program to reduce construction costs of permanent foundations.

Project Records

Records of the work conducted under this discipline can be found at:

- North Portland Harbor Geotechnical Data Report: <G:\CRC\CRC Project Files\Deliverables\B31260 DEA WOC 01\Task 2.3\B31260 DEA WOC 1 Task 2.3.pdf>
- North Portland Harbor Geotechnical Foundation Design Report: <G:\CRC\CRC Project Files\WSDOT Agreement Deliverables\8 Engineering\AH Deliverables\AH8050-2011-11-30.pdf>
- Hayden Island Geotechnical Data Report: <G:\CRC\CRC Project Files\Deliverables\B31260 DEA WOC 01\Task 2.2\B31260 WOC 1 Task 2.2-1.pdf>
- Hayden Island Geotechnical Foundation Design Report: <G:\CRC\CRC Project Files\Deliverables\B31260 DEA WOC 01\Task 2.1\B31260 WOC 01 Task 2.1-4.pdf>
- Columbia River Bridges Geotechnical Data Report: <G:\CRC\CRC Project Files\Deliverables\B31260 DEA WOC 01\Task 2.2\B31260 WOC 1 Task 2.2-2.pdf>
- Columbia River Bridges Geotechnical Foundation Design Report: <G:\CRC\CRC Project Files\Deliverables\B31260 DEA WOC 01\Task 2.1\B31260 WOC 01 Task 2.1-5.pdf>
- I-5 Columbia River Crossing Soft Rock Ground Motions: <G:\CRC\CRC Project Files\Deliverables\B31260 DEA WOC 01\Task 2.2\B31260 WOC 1 Task 2.2-3.pdf>

- I-5 Columbia River Bridges and Approaches Design Build Project Geotechnical Baseline Report (Draft): [G:\CRC\CRC Project Files\Deliverables\B31835 DEA WOC 04\Task 6.1\CRBA Geotechnical Baseline Report 032814 \(final\).pdf](G:\CRC\CRC Project Files\Deliverables\B31835 DEA WOC 04\Task 6.1\CRBA Geotechnical Baseline Report 032814 (final).pdf)
- Drilled Shaft and Driven Pile Test Program Report: <G:\CRC\CRC Project Files\Deliverables\B31260 DEA WOC 01\Task 2.1\B31260 WOC 01 Task 2.1-1.pdf>
- Drilled Shaft and Driven Pile Test Program Report Appendices: <G:\CRC\CRC Project Files\Deliverables\B31260 DEA WOC 01\Task 2.1\Appendices>
- SR 14 Interchange and Washington Approach Structures Geotechnical Data Report: <G:\CRC\CRC Project Files\Deliverables\B31260 DEA WOC 01\Task 2.4\1-Final SR-14 Interchange and WA Approach Structures GDR.pdf>
- I-5 Columbia River Crossing Washington Side Generalized Subsurface Profiles (Draft): <G:\CRC\CRC Project Files\Deliverables\B31260 DEA WOC 01\Task 2.2\B31260 WOC 1 Task 2.2-4.pdf>
- I-5 Columbia River Crossing Washington Side Generalized Subsurface Profiles (individual profile pdfs): G:\CRC\CRC Workpaper Files_Closeout Ref By Discipline\Geotech\Washington Subsurface Profiles 2014
- SR-14 Interchange and Evergreen Blvd Vicinity Structures and Retaining Walls Draft Conceptual Geotechnical Report (WSDOT): G:\CRC\CRC Project Files\WSDOT Agreement Deliverables_PD\PD.18.05-0004-2013-06-25.pdf

Files that are not directly pertinent to CRBA, but could be used as references:

- I-5/Evergreen Blvd. Vicinity Retaining Walls and Structures Geotechnical Data Report (WSDOT): G:\CRC\CRC Project Files\WSDOT Agreement Deliverables_PD\PD.18.05-0005-2013-03-04.pdf
- Mill Plain to McLoughlin Vicinity Retaining Walls and Structures Draft Geotechnical Data Report (WSDOT): G:\CRC\CRC Project Files\WSDOT Agreement Deliverables_PD\PD.18.05-0006-2013-03-046.pdf
- Vancouver Park & Ride and Transit Structures Geotechnical Data Report: <G:\CRC\CRC Project Files\Deliverables\B31260 DEA WOC 01\Task 2.4\2-Final Park & Ride and Transit Structures GDR.pdf>
- Park and Ride Building Structures Draft Conceptual Geotechnical Report (WSDOT): G:\CRC\CRC Project Files\WSDOT Agreement Deliverables_PD\PD.18.15-0015-2013-06-27.pdf
- Vancouver Light Rail Transit Segment Geotechnical Data Report: <G:\CRC\CRC Project Files\Deliverables\B31260 DEA WOC 01\Task 2.4\3-Final Vancouver Transit Segment GDR.pdf>
- Vancouver Light Rail Transit Segment Draft Conceptual Geotechnical Report (WSDOT): G:\CRC\CRC Project Files\WSDOT Agreement Deliverables_PD\PD.18.05-0018-2013-06-27-DRAFT--PENDING APPROVAL.pdf

Standards & Versions

Standards used for the work are listed in the Design-Build General Provisions DB 141.

[LLP: llp]

cc: Project Controls

.....