

**Washington State Department of Transportation
SR99 Bored Tunnel Alternative Design-Build Project**

RFP Proposer Questions and Answers, July 2, 2010

Refer to Instructions To Proposers Sections 2.7 and 2.8

Highlighted cells indicate that new information is provided.

Item Number	Document	Section	Page	Date Initiated	Comment/Question	Response Date	Response
1	TR	2.42.1		06/25/10	Technical requirements require the contractor to provide space for a cabinet to be installed by cellular telephone services provider. We request clarification of the requirements for the cellular providers, including the number and spacing of cabinets, power requirement per location, number of longitudinal conduits, and provisions for cellular radio antennas in the tunnel. Are the cellular services to be held up on the tunnel UPS?	07/02/10	Information on cell service requirements have not been received from the Providers yet. The known requirements are included in TR 2.41. When the requirements are known, they will be provided to all Proposers.
2	TR	2.41.4.2		06/25/10	What RF channels will be used in the tunnel for operation with the Interoperability Gateway? Are dedicated channels for this interoperability to be provided and if so, how many channels, what frequencies etc.	07/02/10	The RFP does not envision the use of common dedicated channels as not all emergency responders have this capability. Instead the RFP requires an interconnection method for rebroadcast on selected responder frequencies.
3	TR	2.30 and 2.31		06/25/10	Discrepancies between Sections 2.30 and 2.31 were noted and suggest that 2.31 be changed to reflect what was modified in 2.30; i.e., mandatory 32 ft spacing of construction joints in U-Walls was revised to apply to walls only. This change was not made to Cut and Cover section but should be.	07/02/10	No changes will be made to TR 2.31. See Addendum 4 for changes to TR 2.30.
4	TR	2.13.4.2.4		06/25/10	The specification indicates that only undercut anchors are allowed for mounting: <ul style="list-style-type: none"> • structural components, and • non-structural components above 10' unless the anchor loading is predominantly (>90%) shear. Some clarification is needed. Would resin anchored bolts, installed 10' or higher above the next lower surface, be allowed on components (either structural or non-structural) that are not subjected to sustained tensile loading greater than 10% of their tensile capacity?	07/02/10	See future addendum.
5	TR	2.13.4.3.14 & 2.31.4.3.3.10		06/25/10	The specification does not preclude the use of precast barriers. Is this correct?	07/02/10	See Addendum #4.
6	TR	2.52.8.2 & ITP Form T		06/25/10	We note that the capability to undertake compaction grouting from the tunnel is now a requirement and WSDOT requires compaction grouting from the tunnel to be performed at some locations. Has WSDOT performed new analyses or examined new data that suggest that compaction grouting from the tunnel will be more effective than surface mitigation methods? Are there specific conditions that compaction grouting from the tunnel is anticipated to address?	07/02/10	It is a contract requirement to have the capability to undertake compaction grouting from within the tunnel. During tunneling the Design-Builder is required to mitigate settlement for the ground conditions encountered. Mitigation concepts are provided in Appendix S10, which include compaction grouting as one method. The ITP requires the Design-Builder affirm or propose other mitigation methods (Form T). Appendix S13 (Settlement Mitigation Report) is being updated for revised requirements of 2.32, 2.52, and 2.54, for refinement of mitigation concepts, and for inclusion of mandatory structural mitigation design concepts that were not available at time of RFP issue. WSDOT has not performed new analysis apart from what is reflected in the revisions of these documents.

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7	TR	2.52.7.4		06/25/10	In the Draft RFP Group A Buildings had an allowable settlement of 0.75 inches. In the Final RFP, the allowable settlement has been reduced from 0.75 to 0.5 inches for Buildings where compensation grouting is used, but has remained at 0.75 for buildings where other mitigation methods are used. Why has the distinction been made between the criteria for compensation grouting and other mitigation methods?	07/02/10	Compared to other methods, compensation grouting is considered to be more precise and able to achieve control of settlement to the specified 0.5 inch limit and in turn limit potential for building damage. Where other methods are used, such as compaction grouting, the slightly greater settlement limit of 0.75 inch was specified, and the additional risk of damage was considered in the overall evaluation and balance of cost and practicality of mitigation with impact of damage and cost of repair. See the revised Appendix S13 Settlement Mitigation Report for addition information.
8	TR	2.52.7.4 & Table 2-52.8		06/25/10	The allowable angular distortion is defined as L/600, where L is defined as the distance between settlement reference points or major structure elements, in inches. This criterion seems inconsistent with published literature. Can the rationale for this criterion be clarified?	07/02/10	The angular distortion is based on 0.5 inches of settlement over 25 feet, which in foundation engineering is a typical differential settlement tolerated by structures with a column spacing of 25 feet. No clarification to be made in TR.
9	TR	2.52.7.4		06/25/10	We note that the maximum allowable settlement for roads and utilities varies from 1 to 3 inches in different zone along the alignment. What factors have been considered in setting the settlement criteria for roads and utilities?	07/02/10	Factors considered include risk of damage to infrastructure from larger ground deformations, learning curve for start-up of TBM, ground cover, and weak soils. See Section 8.2.4 of Appendix S13.
10	Appendix S13			06/25/10	Will appendix S-13 be completed with the deformation and damage calculations that lead to the new mitigation requirements specified in 8.4?	07/02/10	See Addendum 4. Mitigation requirements have been updated and conformed in the revisions to Appendix S13 and TR 2.52.
11	TR	2.8.4.3.2.1		06/25/10	The requirement to accommodate archaeological investigations in the North Area and South Area is quite restrictive and impractical from a cost effective construction standpoint. While the requirement for "excavation in 4 inch lifts" can generally be accomplished in a manner satisfactory to the archaeologists, it will be at a substantial cost in time and money, and it will not be possible in the excavation for the support of excavation system. Please reconsider and clarify these requirements.	07/02/10	The 4" lifts are a requirement for mass excavation. The 4" lifts for excavation are not likely to be required for construction of support of excavation, depending upon the means and methods chosen.
12	Sub Appendix C.3 of the GEDR			06/25/10	We request that the pump test data be provided in a useable electronic format (not pdf format).	07/02/10	To be provided.
13	TR	2.32.4.4.4 & 2.32.4.5.3		06/25/10	Section 2.32.4.4.4 requires providing select rings with angled drill guides for drilling and grouting forward of tunnel lining ring yet third bullet of Section 2.32.4.5.3 requires every segment to have angled grout holes for drilling forward of tunnel lining. This appears to be a discrepancy with large potential cost implication. Please clarify.	07/02/10	See Addendum 4 for clarifications as follows: 2.32.4.4.4: Added requirement for a minimum of 100 rings of lining to have angled drill guides. 2.32.4.5.3: Added reference back to 2.32.4.4.4 for the number of rings of lining required. Clarified one radial grout hole required for each segment.

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14	TR	2.31.3.4		06/25/10	The requirements state that the entire tunnel structure shall be designed to prevent structural failure and progressive collapse when subjected to a hydrocarbon fire curve. Please confirm that the hydrocarbon fire is in the roadway, and that the design need only consider the hydrocarbon fire curve to apply to surfaces that could reasonably be exposed to the fire. Please also confirm what fire requirements should apply to any areas or surfaces that would not be expected to be exposed to the hydrocarbon fire.	07/02/10	The design 100 MW hydrocarbon fire is in the roadway. The NFPA 502 temperature requirements for concrete and reinforcement apply to surfaces in the roadway and vent plenum (including the tunnel liner where applicable). Other areas of the tunnel should be designed to meet the Seattle Fire Code as modified by Appendices Z5 and Z7.
15	TR	2.32.5.5.2.5		06/25/10	"Deviation of design diameter" in the table is defined as +/-1.5 inches. Experience from past projects suggests that this requirement is difficult to achieve for tunnels of even half this diameter. Given this would WSDoT consider relaxing this requirement to a more achievable value of 6 inches provided this value is incorporated into the design?	07/02/10	See Addendum 4. Revised to +/- 3 inches, which corresponds to approximately 0.5% of the tunnel diameter.
16	TR	2.32.5.5.2.5		06/25/10	The table of tolerances defines that "The actual leading edge of the lining shall not deviate from theoretical location by more than 0.25 inch". It is not clear what the intent of this requirement is and how this theoretical location is defined. Please clarify.	07/02/10	Intent is to keep the tunnel ring installed vertically, or in the theoretical plane through the tunnel cross-section allowing for vertical and horizontal curvature of the tunnel alignment. Tunnel alignment and TBM steering software are expected to provide the coordinate geometry information to indicate to the tunnel crew the deviation of the current as-erected ring of lining from a theoretical location and any change required in setting the next ring of lining as an integral part of driving the tunnel on line and grade.
17	TR	2.32.4.5.4		06/25/10	Section 2.32.4.5.4 is entitled elastomeric gaskets. However, hydrophilic gaskets are also referred to in the text. The application of the final bullet point in this section (lines 28 to 35 on page 3.32-15) clearly applies to hydrophilic gaskets only. Please confirm which (if any) of the previous bullet points (from line 30 on 2.32-13 to line 27 on 2.32-15) refers to hydrophilic gaskets.	07/02/10	See Addendum 4 for clarifications. The last bullet only applies to hydrophilic seals. None of the previous bullet points apply to hydrophilic seals.
18	TR	2.32.5.9.9.3		06/25/10	Bullet point 7 (lines 30-39) States that the level of the invert in a monitored ring shall be measured immediately before and after shoving for the next five rings. Any monitoring point in the tunnel invert would be obstructed by the segment feeder. Please confirm that it is acceptable to measure points as close as practicable to the invert.	07/02/10	It is acceptable to measure points as close as practicable to the invert.
19	Appendix M11			06/25/10	As part of the H2K project (recently awarded) the BNSF Sig Tail track has been shifted East of its existing location about 25'. This will move the new tail track close to the cut and cover structures. Can this portion of the tail track be moved into the SR 99 Bored Tunnel Contract to minimize construction staging issues in support of the tunneling operations? Can we delay the construction until the end of our contract when we are doing surface restoration?	07/02/10	No, the tail track must be moved in it's entirety under the Holgate to King Stage 2 contract to accommodate staging and sequencing of the work. The tail track must remain operational at all times throughout construction.