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March 7, 2008

Michael D. Weeks, P.E.
Project Engineer
TranSystems Corporation
5747 Perimeter Drive, Suite 240
Dublin, Ohio 43017

Re: **SCI-823-6.81, Portsmouth Bypass Project, PID 19415**
Addendum to Report: Embankments (Station 416+00 to 509+50) Phase 1 – Stage I
Time-Rate of Consolidation
DLZ Job No.: 0121-3070.03, Document No. 110

Dear Mr. Weeks:

DLZ has reviewed ODOT-Office of Geotechnical Engineering's (OGE's) Stage I review comments (dated January 31, 2007) for Phase 1 of the SCI-823 project. In compliance with the review comments, DLZ has modified the time-rate of consolidation calculations for the Phase 1 mainline embankments.

The following summarizes the OGE comments related to the interchange:

- OGE requested that DLZ use a standard degree of consolidation of ninety percent when citing consolidation times instead of eighty percent.

Summary of Report Modifications:

- The time-rate of consolidation calculations have been reevaluated based upon a standard degree of consolidation of ninety percent. This modification would increase the cited consolidation times. However, the impact of this change is relatively minor due to the small amount of calculated settlement of the foundation soil.

Time-Rate of Consolidation

There are no changes to the total settlement/consolidation calculations presented in the interchange report.

The time-rate of consolidation calculations were modified based upon the "benchmark" time-rate of consolidation of ninety percent instead of eighty percent. The mainline embankment sections covered in this document are from station 416+00 to 509+50. Note that the Phase 1 interchanges from station 352+00 to 416+00 (Shumway Hollow Road) and 509+50 to 538+55 (Lucasville-Minford Road) are not considered in this document. Refer to the respective interchange report for additional information regarding the embankment sections contained within the interchange areas.

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The results of calculations indicate that the mainline embankments would settle between 2 and 5 inches. Consequently, the use of wick drains or other remediation is not required for these embankment sections.

The following table presents the estimated time to achieve ninety percent (U=90%) consolidation. Also, the estimated time to achieve eighty percent (U=80%) consolidation, calculated previously, is also presented in the following table. Calculations are attached.

Time-Rate of Consolidation Estimates

Station	Boring	Approximate Maximum Fill (ft.)	Primary Consolidation (in.)	Time to U=90% (days)	Time to U=80% (days)
441+00	R-379	44.3	2	550	369
465+00	R-393	70.6	5	1578	1060
487+00	B-10	58.9	2	102	68

We appreciate having the opportunity to be of service to you on this project. Please do not hesitate to call if you have any questions concerning this addendum.

Sincerely,

DLZ OHIO, INC.

Steven J. Riedy
Geotechnical Engineer

Eric Tse, P.E.
Senior Geotechnical Engineer

Encl: As noted

cc: file

sjr

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CLIENT Transystems Corp. / ODOT D-9 PROJECT NO. 0121-3070.03
PROJECT SCI-823 Portsmouth Bypass SHEET NO. 1 OF 1
SUBJECT Embankment Consolidation COMP. BY SJK DATE 2-1-08
REVISED - Time-rate of Consolidation CHECKED BY SWT DATE 2-1-08

Station 441+00

Use $U = 90\% \rightarrow T_v = 0.848$

$H_v = 18.0'$ $C_v = 0.5\ ft^2/day$ — Established in Mainline report

$$t_{90} = \frac{(.848)(18.0)^2}{0.5\ ft^2/day} = 550 \text{ days} = 1.5 \text{ years}$$

Station 465+00

Use $U = 90\% \rightarrow T_v = 0.848$

$H_v = 30.5'$ $C_v = 0.5\ ft^2/day$ — Established in Mainline report

$$t_{90} = \frac{(.848)(30.5)^2}{0.5\ ft^2/day} = 1{,}578 \text{ days} = 4.3 \text{ years}$$

Station 487+00

Use $U = 90\% \rightarrow T_v = 0.848$

$H_v = 8.5'$ $C_v = 0.6\ ft^2/day$ — Established in Mainline report

$$t_{90} = \frac{(.848)(8.5)^2}{0.6\ ft^2/day} = 102 \text{ days}$$