State of California Business, Transportation and Housing Agency

MEMORANDUM

To: Greg Gastelum
Project Manager
MS 27

Date: July 19, 2001

File: 11-SD-5/805
KP 48.9 – 51.2 / 43.9 – 46.5
EA 11-0301u1

From: **DEPARTMENT OF TRANSPORTATION**
ENGINEERING SERVICES CENTER
Office of Geotechnical Services, MS 63

Subject: Interstate 5 and Carmel Mountain Road Undercrossing, Potential Sources for Wall Backfill.

Following your request, we have evaluated the excavation sites (proposed cuts) located in the southeast (SE), northeast (NE), and northwest (NW) quadrants of Interstate 5 (I-5) and the Carmel Mountain Road Undercrossing. Our objective was to determine whether native soils derived from the aforementioned sites would meet the standard Caltrans criteria for the structural backfill (S.E. minimum 20) that is required for the several walls proposed for the subject project.

Based on our limited geologic mapping and subsurface investigation conducted for this project (Tesar and Yazdani, 2001), the review of the geologic literature (Kennedy, 1975), grading plans provided by you, and our experience in the area, we conclude that, in general, materials derived from cuts located within the NE, NW, and SE quadrants of I-5 and the Carmel Mountain Road Undercrossing should meet the standard Caltrans criteria for structural backfill. However, we did not explore the proposed cuts. It is possible therefore that concretion zones, indurated layers, or boulders do exist within these generally granular native soils, and that may render some of the volume unsuitable for structural backfill.

There are basically three formational units in the subject area. These are namely: the Bay Point, the Torrey Sandstone, and the Ardath Shale. For a more detailed description of the site geology and the description of the formational units, reference is directed to our Geotechnical Investigation Report of April 12, 2001, titled: *"Interstates 5 and 805 Interchange, Proposed Retaining Walls."* The NW quadrant is generally underlain by the Bay Point Formation which in turn is underlain by the Torrey Sandstone. Both formations comprise predominately sandstones. However, during our field mapping an indurated surficial crust was observed on the top sections of the proposed cut. The SE and NE quadrants are underlain by the Ardath Shale which in turn is underlain by the Torrey Sandstone that, locally, is underlain by the Bay Point Formation. The Ardath Shale is comprised of claystones with interbedded siltstone and sandstone. The materials derived from this formation would not meet the structural backfill criteria. The other two

geologic units should generate material that will pass the structural backfill requirement. The contact between the Ardath Shale and its underlying Torrey Sandstone, based on geologic literature (Kennedy , 1975), is expected to be at about elevation 55 m. Thus, the planned cuts within the SE and NE quadrants should, in general, generate granular material of the Torrey Sandstone unit.

Should you have any questions regarding this report, please contact Jeff Tesar at (858) 467-2716 (Calnet 8-734-2716) or Zia Yazdani at (858) 467-4054 (Calnet 8-734-4054).

Jeff Tesar
Associate Engineering Geologist

Zia Yazdani
Associate Materials and Research Engineer

Geotechnical Section 11

References

1. Tesar and Yazdani, Geotechnical Investigation Report "Interstates 5 and 805 Interchange, Proposed Retaining Walls.", April 12, 2001.

2. Kennedy, California Division of Mines and Geology, Geology of the San Diego Metropolitan Area, California, Bulletin 200, 1975.

JT

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