



December 2, 2009

The Honorable Peter M. Rogoff  
Administrator  
Federal Transit Administration  
1200 New Jersey Avenue, S.E.  
4th & 5th Floors - East Building  
Washington, DC 20590

RE: Dulles Corridor Metrorail Project  
Use of Existing Pier Foundations

Dear Mr. Rogoff:

I am responding to your letter of November 3, 2009. Let me state clearly that the Metropolitan Washington Airports Authority (Airports Authority) understands and accepts our responsibilities as a federal Grantee. We are fully committed to ensuring the construction of the Dulles Corridor Metrorail Project (Project), including the use of existing pier foundations, is in accord with federal and other safety requirements.

The Airports Authority has developed, for your consideration, a plan for testing the existing pier foundations installed by the Virginia Department of Transportation (VDOT) in 1977. The foundations were installed at the request of the Washington Metropolitan Area Transit Authority (WMATA) in anticipation of the future construction of a Metrorail line along the Dulles Airport Access Highway. This was done with the goal of minimizing the impact that future foundation construction would have on motorists and Orange Line transit service. The foundations were installed by a VDOT contractor under the supervision of VDOT engineers and, we understand, in accordance with VDOT and WMATA design standards. Unfortunately, neither VDOT nor WMATA has been able to locate the as-built drawings for the foundations.

Thirteen pier foundations were constructed by VDOT in the late 1970s. The current design for the Project calls for the use of 11 of these foundations. Under the testing plan that is described below, the Airports Authority will test each of these 11 pier foundations. Enclosed are plan sheets which show the location of the 11 foundations.

Your November 3 letter requested the Airports Authority provide specific information and that information is presented below to correspond to the numeric references in your letter.

1. The testing plan we have developed to ensure the structural integrity of the existing piers is as follows:
  - a. Perform Pile Driving Analysis (PDA) dynamic load tests on two piles in each of the six foundations that, to date, have not been tested by the Project. These are

foundations 7/IB, 6/IB, 5/IB, 5A/OB, 3/OB, and 2/OB, which can be seen on Sheets 1 and 2 on the enclosed plan drawings.

- b. Perform PDA dynamic load tests on two piles in each of the two foundations that had a single pile tested with a static test in 2008 by the Project. This test was performed by Dulles Transit Partners (DTP) as part of its design effort. The test results indicated that the piles exceeded the design capacity required. We propose to re-test these two piles with a PDA test to ensure uniformity of all testing methods. These are foundations 1/IB and 2/IB which are shown on Sheet 1 of the enclosed drawings.
- c. Perform a static load test on one pile in each of three other pier foundations that the Project will use. These are foundations 3/IB, 4/IB, and 5B/OB which are shown on Sheets 1 and 2 of the enclosed drawings.
- d. In addition to the above, the Airports Authority will task DTP to take other steps designed to ensure the integrity of the existing pier foundations, including stray current tests, concrete coring of reused concrete pile caps, and inspection of piles for corrosion.

All of the Project's civil construction work is being accepted under the requirements for the Agency Having Jurisdiction (AHJ). The AHJ for this civil work is the Virginia Department of General Services (DGS). In this process, the design submittals are forwarded to DGS through a series of submissions of 60 percent design documents, final design documents and Issued for Permit (IFP) documents.

The Project's actual construction work is accepted through the Special Inspections process required by the AHJ which is the 2003 Virginia Uniform State Building Code (VUSBC). In this process, the Airports Authority has contracted with a Special Inspections contractor from a DGS-approved list of contractors to perform the inspection and acceptance of the civil construction work. Through this process, the independent Special Inspections contractor issues a report and certifies that the construction has been completed in conformance with the IFP documents. The assurance that this review, inspection, and acceptance are thorough and complete is the responsibility of the Airports Authority. The design and construction of the completed work is the sole responsibility of DTP. This acceptance process had previously been coordinated with both WMATA and VDOT. The Project's safety certification process accepts all of the civil construction based upon this process. The Airports Authority QA/Safety Manager has reviewed the testing plan outlined herein and has concurred with its content. In addition, WMATA and VDOT have reviewed the testing plan and posed no objection.

2. There are two pier foundations that are very difficult to test due to their location. One is next to Interstate-66 and Route 267 (5B/OB) and the other is between the existing WMATA Orange Line tracks (4/IB). Foundation 5B/OB is located at the convergence point of Interstate-66 WB and Route 267 NB. Our opinion is that we can safely tunnel under this pier foundation from the back side to expose a pile and perform a static load test without affecting roadway operations on Interstate-66 or Route 267.

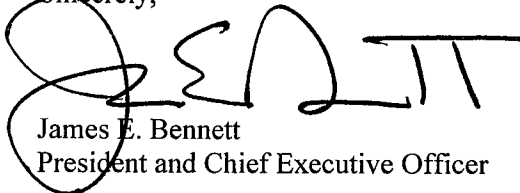
The second pier foundation is 4/IB, located between the existing WMATA Orange Line tracks. This foundation will be difficult to test and will require a shutdown of the Orange Line in order to safely excavate under the pier and perform a static load test on one of its piles.

3. The criteria that will be applied to the testing of piles in the 11 existing pier foundations will be the same as those being applied to new pile foundations that are being installed as part of the Project. The criterion is 225 percent of design capability or 158 tons for each of the 70-ton piles. The criterion for acceptance of piles exhibiting corrosion will be no more than 15 percent loss of cross-sectional area. The criterion for stray current pile to earth potential will be no more than 75mV. The criterion for concrete core breaks will be 4000 psi in accordance with ACI 318.
4. The static load test to be performed on foundations 3/IB and 5B/OB will be conducted in the first quarter of 2010. The PDA tests to be performed on the eight existing foundations will be conducted in the first six months of 2010. Static load testing of foundation 4/IB will have to be scheduled concurrent with a WMATA Orange Line weekend shutdown, which we expect to arrange in 2010.

Throughout its history, the Airports Authority has established a strong record of building safe and quality construction projects. That record is important to the Airports Authority, and I assure you that we intend to maintain it throughout the construction of the Project.

If any additional information is required, please do not hesitate to contact me at (703) 417-8610.

Sincerely,



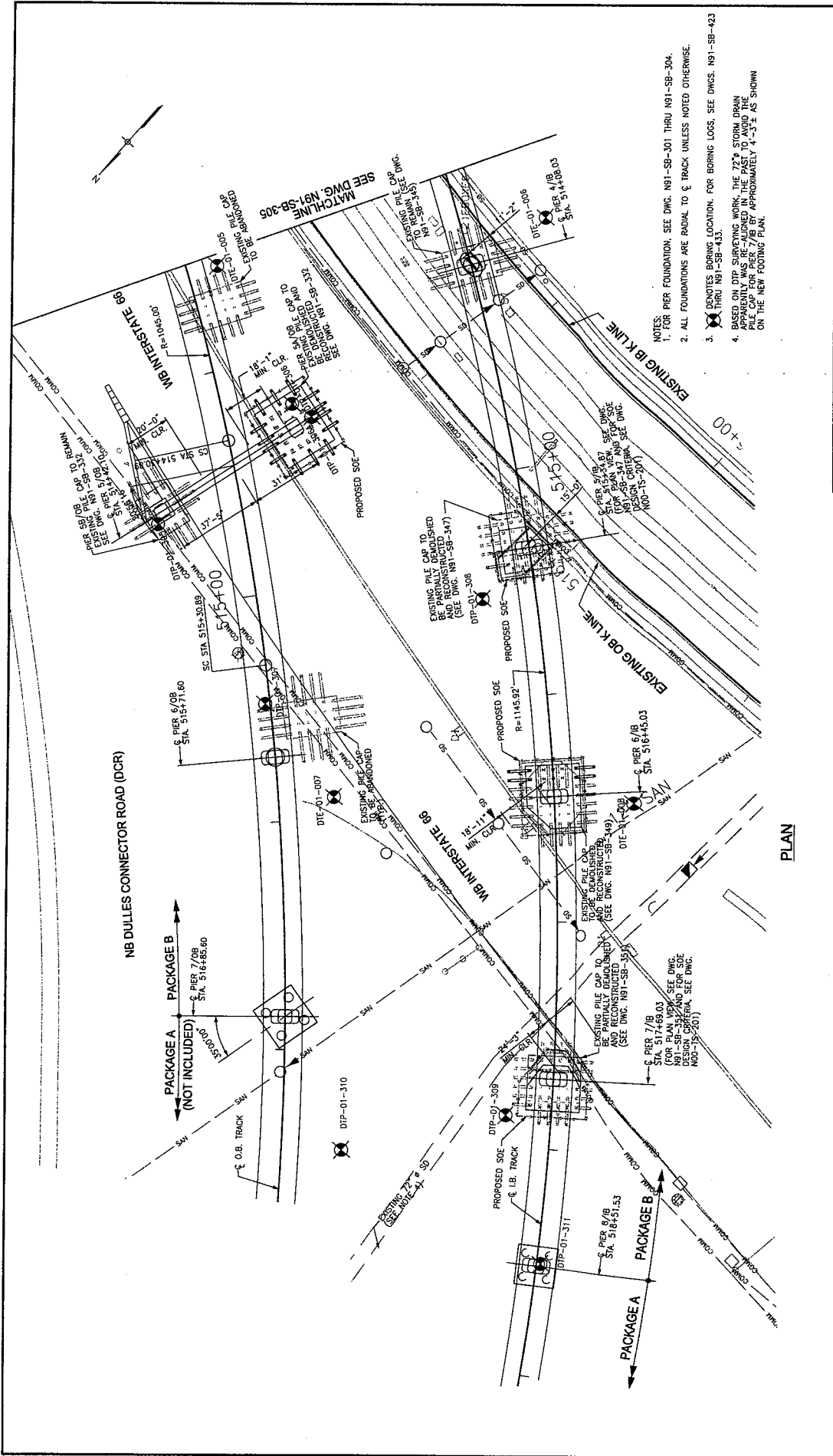
James E. Bennett  
President and Chief Executive Officer

JEB:me

Enclosures

cc: Mr. John B. Catoe, Jr., Washington Metropolitan Area Transit Authority





- NOTES:
1. FOR PIER FOUNDATION, SEE DWG. N91-SB-301 THRU N91-SB-304.
  2. ALL FOUNDATIONS ARE RADIAL TO  $\epsilon$  TRACK UNLESS NOTED OTHERWISE.
  3.  $\otimes$  DENOTES BORING LOCATION. FOR BORING LOGS, SEE DWGS. N91-SB-423 THRU N91-SB-433.
  4. BASED ON DTP SURVEYING WORK, PILE 7/B, STATION 516+85.60, APPARENTLY WAS RE-ALIGNED IN THE PAST TO UNLOAD THE PILE CAP FOR PIER 7/B BY APPROXIMATELY 4'-3" E AS SHOWN ON THE NEW FOOTING PLAN.

PLAN

CONTRACT NO.: <b>N91-SB-306</b>											
WMATA GRID <b>EXTENSION TO WIEHLE AVE          PLAINFIELD STREET SEGMENT          O-1 GUIDEWAY - PACKAGE B          FOUNDATION PLAN - SHEET 2 OF 2</b>											
WASHINGTON METROPOLITAN AIRPORTS AUTHORITY CONTRACT IDENTIFICATION CODE: <b>505-08605-430</b>											
METROPOLITAN WASHINGTON AIRPORTS AUTHORITY DULLES TRANSIT PARTNERS, LLC DULLES CORRIDOR METROAIR PROJECT SCALE: <b>AS NOTED</b>											
REVISIONS <table border="1"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>09/24/2008</td> <td>ISSUED FOR PERMIT</td> </tr> <tr> <td>1</td> <td>07/27/09</td> <td>ISSUED FOR CONSTRUCTION</td> </tr> </tbody> </table>		NO.	DATE	DESCRIPTION	0	09/24/2008	ISSUED FOR PERMIT	1	07/27/09	ISSUED FOR CONSTRUCTION	
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00542002	FOUNDATION PLAN - SHEET 1 OF 2										
00542003	FOUNDATION PLAN - SHEET 2 OF 2										
APPROVED: K. MEDON R. HEARNE J. RUDOLF											



# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF TRANSPORTATION

1593 Spring Hill Road, Suite 300  
Vienna, VA 22182  
(703) 572-0671

DAVID S. EKERN, P.E.  
COMMISSIONER

November 30, 2009

Mr. Charles S. Carnaggio, P.E.  
Project Director  
Dulles Corridor Metrorail Project  
Metropolitan Washington Airports Authority (MWAA)  
1593 Spring Hill Road, Suite 300  
Vienna, VA 22182-2228

Serial Letter No. 596

Subject: Use of Existing Piers and Foundations

Reference: None

Project No. UPC-91887

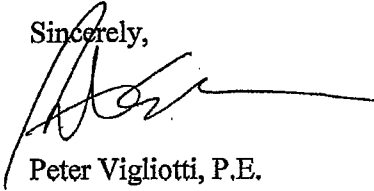
Mr. Carnaggio:

The Virginia Department of Transportation (VDOT) received verbal notification, from MWAA, that the plan to test and evaluate the foundations in the vicinity of the I-66 and Route 267 interchange, that were constructed in the late 1970s and early 1980s, has been revised. Since VDOT is not the engineer of record and these foundations are not VDOT facilities, this office will not evaluate the revised plan to test or determine the capacity of these previously constructed facilities.

MWAA is reminded that the requirements delineated in VDOT's Letter No. 560, dated November 5, 2009, including maintaining the integrity of I-66, maintaining all travel lanes of I-66 during peak hours and performing all work in accordance with the MWAA/VDOT Cooperative Agreement, remain in effect.

If MWAA has any questions, please contact this office at (703) 572-0671.

Sincerely,

A handwritten signature in black ink, appearing to read 'Peter Vigliotti', with a long horizontal line extending to the right.

Peter Vigliotti, P.E.  
Project Manager, Dulles Corridor Metrorail Project  
Virginia Department of Transportation



December 1, 2009

Charles S. Carnaggio, PE  
Project Director  
Metropolitan Washington Airports Authority  
1593 Spring Hill Road, Suite 300  
Vienna, VA 22182

WMATA-090

Address Reply Care of:  
1593 Spring Hill Road, Suite 300  
Vienna, VA 22182

**Subject:** Dulles Corridor Metrorail Project  
Use of Existing Piers/Foundations

**Reference:** a) WMATA Letter No. WMATA-025, dated 5/01/08  
b) MWAA Letter No. MWAA-02386, dated 11/02/09  
c) WMATA Letter No. WMATA-086, dated 11/17/09  
d) Draft Letter from J. Bennett to P. Rogoff, dated 11/19/09

Dear Mr. Carnaggio:

Thank you for providing the attached draft MWAA letter from J. Bennett to P. Rogoff, dated November 19, 2009, regarding MWAA's proposed additional testing of existing piers and foundations for the flyover above Route 66.

The draft MWAA letter includes an outline of further testing proposed by MWAA to evaluate pier foundations installed approximately 30 years ago at the interface of the N-Line with the K-Line. As you are aware, in the WMATA letter of November 17, 2009 (WMATA-086) in response to the previous testing program proposed by DTP (MWAA Letter No. MWAA-02386), WMATA identified possible additional testing to enable better calibration of the PDA testing, and investigation for stray current. WMATA notes that the additional testing identified by WMATA has been incorporated in the draft MWAA letter.

The previous program proposed by DTP was deemed adequate by WMATA, as is this more robust testing program now proposed by MWAA. WMATA concurs with MWAA's comments that testing of pier foundation 4/IB will be difficult, and likely require a shutdown of the Orange Line.

**Washington  
Metropolitan Area  
Transit Authority**

600 Fifth Street, NW  
Washington, DC 20001  
202/962-1234

By Metrorail:  
Judiciary Square—Red Line  
Gallery Place-Chinatown—  
Red, Green and  
Yellow Lines  
By Metrobus:  
Routes D1, D3, D6, P6,  
70, 71, 80, X2

*A District of Columbia,  
Maryland and Virginia  
Transit Authority*



Mr. Charles S. Carnaggio  
Use of Existing Piers/Foundations  
December 1, 2009  
Page 2 of 2

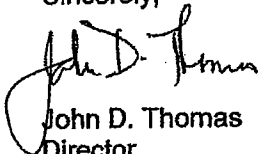
WMATA will need to receive and review detailed plans for the work involved in order to fully assess the impact to operation of the Orange Line. Should a shutdown be required, WMATA will work with MWAA to schedule this pier investigation work to coincide with the limited WMATA planned outages available during calendar year 2010.

As noted previously, WMATA's review of the proposed testing plan is not to be construed as relieving DTP, as the Engineer of Record, of sole responsibility for determining the extent of any investigations required to support DTP's analysis of these existing structures. Responsibility for evaluation, design, construction incorporation, and the ultimate performance of these structures shall rest with DTP.

Regarding the acceptance process as relates to safety certification of civil construction on the Project, the process described by MWAA involving the AHJ, Special Inspections, and Airports Authority oversight is consistent with WMATA's previous understanding and concurrence.

Should you have any question on the above, please contact the undersigned.

Sincerely,



John D. Thomas  
Director  
Office of Major Capital Projects

cc: CHOS - S. Pant  
TIES - D. Kubicek  
ENSV - C. Myers  
ENSS - F. Farhangi

File: 700.A.1, 706.1  
JT: nen: Existing Pier Foundations