City of Alexandria, Virginia

MEMORANDUM

MEMORANDUM TO INDUSTRY NO. 02-07

DATE: JUNE 1, 2007

TO: DEVELOPERS, ARCHITECTS, ENGINEERS & SURVEYORS

FROM: EMILY A. BAKER, P.E., DEPUTY DIRECTOR/ENGINEERING
TRANSPORTATION AND ENVIRONMENTAL SERVICES

SUBJECT: NEW SANITARY SEWER CONNECTION AND ADEQUATE OUTFALL ANALYSIS

The City of Alexandria has been experiencing rapid growth with large new development and/or redevelopment of previously developed areas resulting in increased building and population densities. The City has instituted sanitary sewer studies to address the issue of increased sanitary flow received in various interceptor sewers serving the City. On the basis of the results of these studies, the applicants for new development and/or redevelopment shall provide the sanitary sewer improvements, information, and analyses, as described below, to the satisfaction of the Director of Transportation and Environmental Services (T&ES), if the estimated additional flow exceeds 10,000 gallons per day (0.01 MGD) or 0.0155 cfs. The following information shall be depicted on the First Final Site Plan and addressed to the satisfaction of the Director of T&ES.

1. The applicant shall provide adequate sanitary sewer outfall analysis, as generally described below, sufficient to determine existing and future flows in the sewers to be used by the applicant that are tributary to the City of Alexandria's sanitary interceptor sewer system. The sanitary sewer adequate outfall analysis shall be completed up to the

trunk sewer downstream of the proposed development. The minimum diameter of such a trunk sewer shall be 24".

2. The applicant shall provide an estimate of the average day and peak hour wastewater flow discharged upstream of the development site under existing conditions and the current contribution of sanitary flow from the development site to the Trunk Sewer using the factors described below:

   a. The sewer connection shall be designed for the ultimate build-out conditions.

   b. Recommended average design flows*:

i.	Residence general	100 gpcd
ii.	Single Family Home	350 gpd/unit
iii.	Townhouse	350 gpd/unit
iv.	Garden Apartment	300 gpd/unit
v.	High Rise Residential	300 gpd/unit
vi.	Office / Commercial	200 gpd/1000 sq. ft.

   * It is assumed that the recommended average day design flows include the dry / wet weather infiltration and inflow (I/I) contribution.

   For any other type of development not covered above; the applicant may obtain contributing sanitary flow from the Commonwealth of Virginia, State Water Control Board, Sewage Collection and Treatment (SCAT) Regulations or propose the criteria to be used for estimation of sanitary flows to the satisfaction of the Director of T&ES.

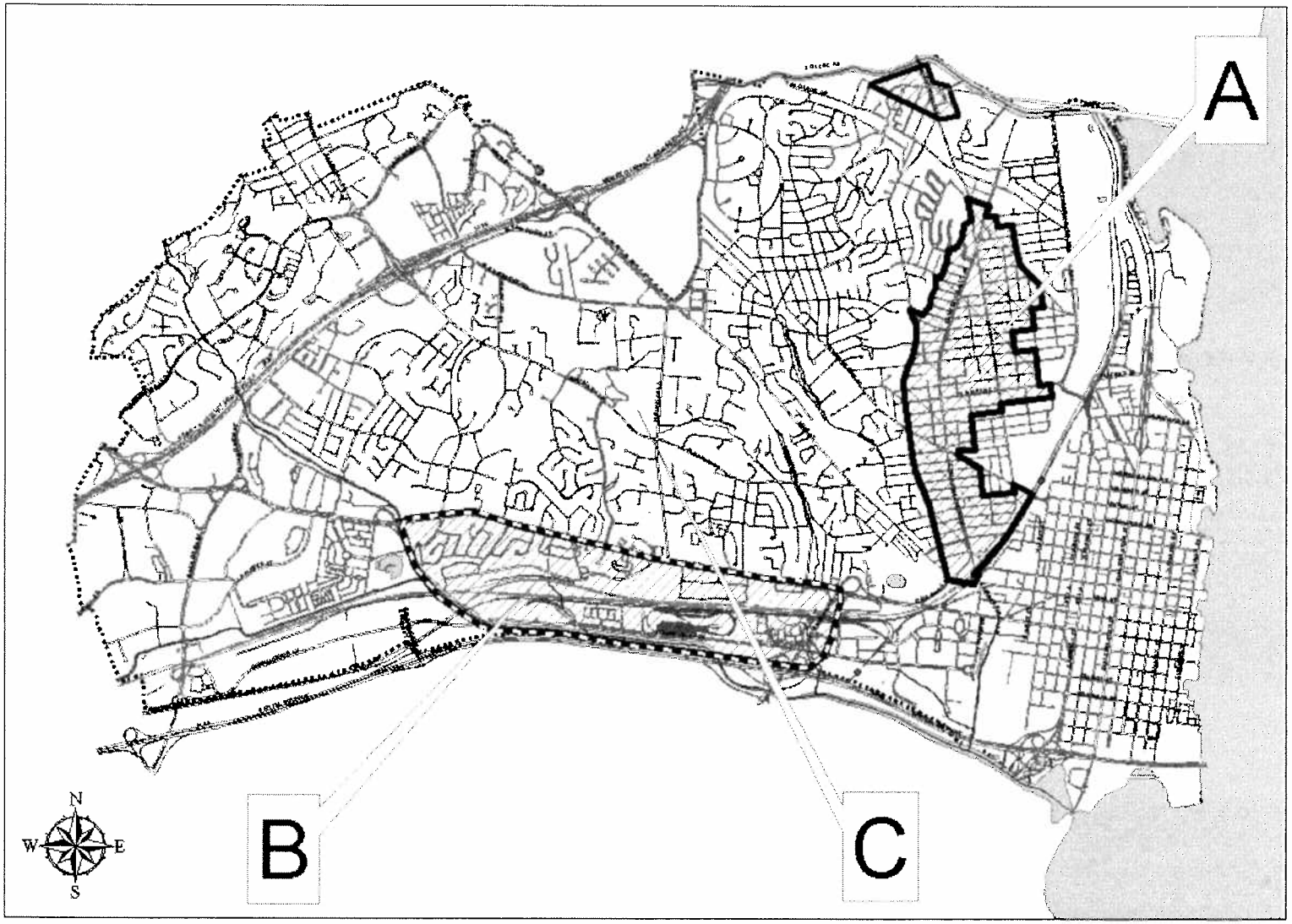
   c. The sanitary sewers shall be designed for maximum hour flow.

   d. A peak factor of 4.0 shall be used for laterals and sub-mains. A peak factor of 3.0 may be used for mains.

3. In lieu of the estimation of the average day and peak hour wastewater flow, the Director of T&ES at his discretion may request the applicant to measure the sanitary flow upstream and downstream of the proposed development site to determine the current sanitary flow discharged into the trunk sewer upstream of the development site and the current contribution of the sanitary flow to the Trunk Sewer from the development site under existing conditions.
4. The applicant shall estimate additional average day and peak hour wastewater flow to be discharged into the trunk sewer from the proposed development site under proposed conditions using the factors described above.
5. The sanitary sewer adequate outfall analysis shall account for the existing and future needs.
6. The City of Alexandria, at its discretion, will provide the applicant with any readily available data to assist in completion of the adequate outfall analysis. The additional parameters required to complete the analysis shall be field measured (i.e., length, pipe diameter, material of construction, and slope, etc.) and/or estimated (i.e., Manning's roughness coefficient) by the applicant. The applicant shall use the criteria established by the Engineers and Surveyors (ESI) Institute, as shown on the ESI Check List, where applicable.
7. The applicant shall provide all the measured and/or estimated data and calculations on the adequate sanitary sewer outfall analysis on the plans for review by the City staff.
8. The increased peak flow will be placed in the City of Alexandria wastewater flow capacity registry to determine that the City has sufficient treatment capacity available in the Alexandria Sanitation Authority (ASA) Advanced Wastewater Treatment Plant (AWWTP) and in various interceptor sewers in the City of Alexandria.

9. Sanitary sewer systems that serve over 400 people require the approval of the Virginia Department of Environmental Quality (VDEQ). Therefore, the applicant shall comply with all the regulatory requirements of the State of Virginia.
10. The installation of plumbing fixtures throughout the City shall be governed by location. In the areas A and B shown in the attached map, the sanitary sewer plumbing fixtures and drains located below the first floor (including parking structures) shall have in-structure or on-site pumped discharge to the City's gravity collection system.
11. The pumped facilities shall be provided with a standby source of power (i.e., battery or generator).
12. The property Owner shall be responsible for the perpetual ownership, capital, and maintenance and operation of the pumps and appurtenances.
13. No foundation drain, basement drain, or stairwell basement access drain shall be connected to the City or ASA sanitary sewer.

If you have any questions, please contact Maurice Daly or Dr. S.P. Singh at (703) 838-4328.


A
B
C
N
W
E
S