

V&A Project No. 22-0345

September 16, 2022

Sergio Ramirez
General Manager
West Bay Sanitary District
500 Laurel Street
Menlo Park, CA 94025

Subject: West Bay Sanitary District CA Sanitary Sewer Master Plan Update
Open Channel Flow Monitoring Services, 12 sites for 8 weeks

Dear Mr. Beyer:

It is our understanding that West Bay Sanitary District (WBSD) is requesting V&A Consulting Engineers, Inc.'s (V&A) services to perform flow monitoring within the WBSD collection system (cities of Menlo Park, Atherton, Stanford, and Woodside). There will be 12 flow monitoring sites to be installed for 8 weeks, including the analysis of 17 existing WBSD flow meters. We will also propose calibrating the 17 WBSD-owned flow meters. The purpose of this work is to support WBSD with master plan updates to their model. The following is our detailed scope of work for the subject services.

Scope of Work

Task | Description

1. **Project Management & Document Review:** The objective of this task is to track and execute the project following the schedule, budget, and quality expectations that are established. This task includes the following project management work activities:
 - a. Monitor project progress, including work completed, work remaining, budget expended, schedule, estimated cost of work remaining, and estimated cost at completion; manage activities within the total project budget.
 - b. Monitor project activities for potential changes and anticipate changes whenever possible; with approval, modify project tasks, task budgets, and approach to keep the overall project within budget and on schedule.
 - c. Manage the quality of all work activities and project deliverables.

V&A will review existing sanitary sewer plans and the proposed flow monitoring location details provided by the WBSD in preparation for flow monitoring. WBSD will provide V&A with the draft and final list of flow monitoring locations, including pipe diameters, flow direction, and GIS shapefiles. V&A will provide a desktop analysis (GIS, sewer plans, Google Earth, etc.) of the site to verify the suitability of primary and alternative manholes for the installation of a flow meter.

2. **Project Preparation and Site Reconnaissance:**

V&A will visit the proposed sites to verify the suitability of manholes and/or alternative manholes for the installation of flow meters. V&A has also included an optional task to visit the WBSD-owned sites. V&A's site reconnaissance will be limited to top-side investigations to verify manhole location and accessibility, identify traffic control requirements, and check hydraulics for manholes not located in the street right-of-way. V&A will consult with WBSD if alternative manholes are required for flow monitoring.

V&A will document the following information: location map with address, pipe size, manhole identification number, flow channel condition, site schematics, and photographs. V&A will

recommend the appropriate metering technology for the flow characteristics and hydraulic conditions observed during the site reconnaissance visits. If site reconnaissance identifies conditions, such as manhole depths greater than 30 feet and/or elevated gas levels that cannot be cleared with forced ventilation, V&A will work with WBSD to identify suitable alternative sites. If monitoring locations cannot be moved, V&A will provide a change order to cover the additional costs due to extreme work conditions.

- 3. Install/Calibrate/Remove Flow Meters (12 flow monitoring sites/8 weeks):** V&A will perform sewer system flow monitoring at 12 locations to collect dry- and wet-weather flow data for 8 weeks per WBSD's direction, with an option for weekly extensions to the flow monitoring period per the direction of WBSD.

V&A has also included an optional cost per/calibration visit for the 17 WBSD-owned.

Extensions for flow monitoring will be in addition to the base fee proposal. V&A will prepare flow monitoring equipment necessary for installing, calibrating, and removing the flow meters. Our team will coordinate all fieldwork with WBSD. By default, flow meters will be area-velocity flow meters capable of collecting flow level and velocity measurements in free-flow and surcharged hydraulic conditions. However, if hydraulic conditions require a non-contact flow meter to be installed, this will not be an issue. The installed flow meters will have remote access to view and download raw real-time data for the duration of the monitoring period.

A 2-person V&A crew with a field truck and the necessary confined space entry (CSE), simple traffic control, and flow monitoring equipment will install, calibrate and remove the flow meters. WBSD will provide an additional person for confined space entry attendant and as-needed personnel to provide traffic control support. Installation and initial in-situ calibration of the twelve flow meters are anticipated to take approximately two 8-hour workdays. V&A's proposal also includes the cost of 4 field visits post-meter install during the study (including removals) for data downloads, in-situ calibration, and meter maintenance.

V&A will verify data integrity and that the meters are operational and clear of debris. V&A shall be responsible for the installation, calibration, and removal of the equipment for this project. Maintenance and meter malfunction will be documented and reported as soon as it is observed. V&A shall be prepared to extend the duration of the flow monitoring period as requested by WBSD.

- 4. Flow Monitoring and I/I Analysis Study Final Report:** Following the flow monitoring activities and after the meters are removed, V&A shall download and reduce the data in 15-minute intervals into Excel spreadsheets for data analysis, data QA/QC, and report preparation. As a part of this study, V&A requires the analysis of the 17 WBSD-owned meters for the 8-week monitoring period. WBSD will assure V&A that these meters are operational, and data is accessible (it is noted that V&A has offered an optional calibration of these 17 flow meters) One draft version and one final version of the report will be prepared and submitted in electronic format (PDF). The report will include the following information:

- A summary of the flow monitoring equipment used.
- Location maps with address, pipe size, manhole identifier number, flow channel condition, site schematics, and photographs.
- Flow monitoring data with tabular outputs of depth, velocity, and flow rate and hydrographs of depth, velocity, and flow rates for each flow meter. MS Excel deliverable.

Any changes to the following assumptions, prevailing wage assumption, exclusions and limitations, or proposed schedule may necessitate an adjustment to the proposed fee.

Assumptions

The following is a list of additional assumptions used to develop V&A's scope of work.

- **Traffic control:** V&A assumes only simple traffic control set-ups (truck-mounted light board and < 10 traffic control cones per site) will be required for this project. If complex or high-speed (>35 mph) traffic control set-ups requiring a traffic control contractor are deemed necessary, it is assumed WBSD will assist with traffic control. If a traffic control subcontractor is required, the costs of the traffic control contractor will be in addition to the stated costs for the flow monitoring and billed on a time & material (T&M) basis. V&A will coordinate with WBSD when a traffic control subcontractor will be utilized.
- **Prevailing Wage:** V&A understands that some or all tasks associated with this project are subject to prevailing wage rate requirements. All project labor subject to prevailing wage requirements will incur a 25% markup on the associated labor fee. This markup covers the higher base hourly labor rates associated with prevailing wage rates, additional overtime requirements, and reporting requirements.
- **Encroachment Permit:** V&A **will not** be responsible for applying for and receiving encroachment permits in the corresponding WBSD cities. If encroachment permits are required, the costs of these permits will be invoiced on a time & material (T&M) not-to-exceed (NTE) basis.

Exclusions and Limitations

The following items, unless otherwise indicated, are not included in the scope of work:

- Project Specific Health and Safety Plan
- Notification(s) to residents
- Bonds
- Shutdown, Dewatering, and Cleaning of Structures
- Excavations and uncovering of inaccessible structures
- Supplied Air for conditions where it is unsafe due to atmospheric conditions.