

RESOLUTION NO. 2015-170

A RESOLUTION AUTHORIZING AND APPROVING TASK ORDER 2015-08 WITH GHD INC. FOR AN INFILTRATION AND INFLOW STUDY AND AUTHORIZING A SUPPLEMENTAL APPROPRIATION

WHEREAS, the City's Infiltration and Inflow (I/I) Study for its sewer collection system was completed in 2005; and

WHEREAS, the City has made significant modifications to its sewer collection system since 2005 including the completion of its Eastside Trunk Sewer; and

WHEREAS, these modifications have changed flow patterns within the collection system which will result in changes to the sewer collection system capacity analysis; and

WHEREAS, the sewer system capacity analysis is an important analytical tool that assists the City in complying with its collection system permit, in evaluating new development proposals and in developing recommendations for repair and rehabilitation projects within the collection system; and

WHEREAS, and updated I/I Study will document the new flow patterns, available capacity, existing capacity limitations and areas where the collection system remains subject to excessive leakage; and

WHEREAS, the City has reviewed qualifications for consulting firms that provide sewer collection system services and determined that GHD Inc. is qualified to provide this type of service based on their experience with the City's sewer system and these studies; and

WHEREAS, The City has requested and GHD has provided a proposal for this study for a total cost of not to exceed \$205,000;

WHEREAS, The City entered into a Master Agreement with GHD, Inc. dated February 8, 2011 and approved by Resolution No. 2011-06; and

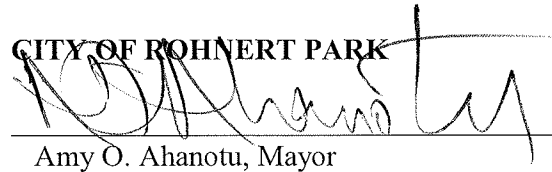
WHEREAS, funds are available in the Sewer Operations Fund due to the delay of the Interceptor Outfall project budgeted for that project in FY 2015-2016 which can be transferred to pay for this study.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Rohnert Park as follows:

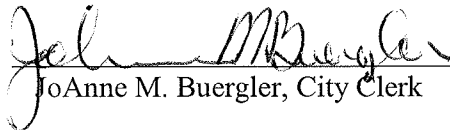
1. The above recitals are true and correct and material to this Resolution.
2. The City Manager is hereby authorized to execute Task Order 2015-08 with GHD Inc. for I/I Study for an amount not to exceed \$205,000 and to take all actions to effectuate Task Order 2015-08 for and on behalf of the City of Rohnert Park, including execution, if necessary in substantially similar form to Exhibit A, which is attached hereto and incorporated by this reference, subject to minor modifications by the City Manager and City Attorney.

3. A supplemental appropriation of \$205,000 hereby authorized from the Sewer Operations Fund and the Finance Director is authorized to take all actions necessary to effectuate this appropriation.
4. This Resolution shall become effective immediately.
5. All portions of this resolution are severable. Should any individual component of this Resolution be adjudged to be invalid and unenforceable by a body of competent jurisdiction, then the remaining resolution portions shall continue in full force and effect, except as to those resolution portions that have been adjudged invalid. The City Council of the City of Rohnert Park hereby declares that it would have adopted this Resolution and each section, subsection, clause, sentence, phrase and other portion thereof, irrespective of the fact that one or more section, subsection, clause, sentence, phrase or other portion may be held invalid or unconstitutional.

DULY AND REGULARLY ADOPTED this 27th day of October, 2015.

CITY OF ROHNERT PARK

Amy O. Ahanotu, Mayor

ATTEST:


JoAnne M. Buergler, City Clerk

Attachment: Exhibit A

CALLINAN: Aye BELFORTE: Aye MACKENZIE: Aye STAFFORD: Aye AHANOTU: Aye
AYES: (5) NOES: (0) ABSENT: (0) ABSTAIN: (0)

Exhibit "A"

GHD Inc. TASK ORDER NO. 2015-08

**CITY OF ROHNERT PARK
AND
GHD INC.**

**AUTHORIZATION TO ENGINEERING SERVICES FOR INFILTRATION
AND INFLOW (I/I) STUDY**

SECTION 1 – PURPOSE

The purpose of this Task Order is to authorize and direct GHD Inc. to proceed with the work specified in Section 2 below in accordance with the provisions of the MASTER AGREEMENT between the City of Rohnert Park ("City") and GHD Inc. ("Consultant") hereto dated October 27, 2015.

SECTION 2 – SCOPE OF WORK

The items authorized by this Task Order are presented in Attachment "1" - Scope of Services.

SECTION 3 – COMPENSATION AND PAYMENT

Compensation shall be as provided in the MASTER AGREEMENT between the parties hereto referenced in SECTION 1 above. The total cost for services as set forth in SECTION 2 shall be actual costs (time and materials) based on Consultants' standard labor charges in accordance with the provisions of the MASTER AGREEMENT and as shown in Attachment "B" for an amount not-to-exceed \$205,000.00.

SECTION 4 – TIME OF PERFORMANCE

The work described in SECTION 2 shall be completed by July 31, 2016, or as extended by the City Manager.

SECTION 5 – ITEMS AND CONDITIONS

All items and conditions contained in the MASTER AGREEMENT for professional services between City and Consultant are incorporated by reference.

Approved this 27th day of October, 2015.

CITY OF ROHNERT PARK

GHD Inc.

Darrin Jenkins, City Manager (Date)

Name and Title (Date)

Per Resolution No. 2015- ____ adopted by the
Rohnert Park City Council at its meeting
of October 27, 2015.

GHD, Inc.

By: Name and Title (Date)

ATTEST:

City Clerk

APPROVED AS TO FORM:

City Attorney

Attachment 1



September 25, 2015

Mr. Art da Rosa, P.E.
Deputy City Engineer
City of Rohnert Park
130 Avram Avenue
Rohnert Park, CA 94928

Our Ref: 11110007

RE: Proposal for Engineering Services – Infiltration and Inflow (I/I) Study

Dear Art:

GHD is pleased to submit this proposal for professional engineering services for Infiltration and Inflow (I/I) Study of the City's sanitary sewer collection system (the "Project"). The proposal is based on our understanding of the City's need for sanitary sewer collection system wet weather assessment as discussed through recent correspondence with City staff and review of previous City I/I studies.

Project Understanding and Background

The City last conducted a citywide wet weather assessment and hydraulic evaluation of its collection system in 2005, including flow monitoring and targeted field reconnaissance between December 2003 and March 2004 for suspected problem areas. Since 2005, the City's collection system has changed, including construction of the Eastside Trunk Sewer and rehabilitation of various collection system components (i.e., pipelines and manholes). Water usage and rainfall patterns have also changed. In consideration of these changes, the most current collection system planning documents are now outdated.

Rohnert Park's current sanitary sewer collection system includes approximately 80 miles of 6- to 42-inch gravity sewer pipelines, one collection system pump station (Canon Manor), and 16 inverted siphons. The City's average dry weather flow (ADWF) is approximately 3.3 million gallons per day (mgd); peak wet weather flow (PWWF) is approximately 14 mgd. All flow from the City's collection system is conveyed to the Main Pump Station facility, which is located west of Highway 101 and includes two pump stations. The pump stations then convey all flow via two force mains to the regional Wastewater Treatment Plant (WWTP).

The City is interested in identifying collection system deficiencies through wet weather assessment to provide a basis for system repair and rehabilitation and capital improvement programming and eventual preparation of a comprehensive collection system planning document.

Qualifications

GHD's proposed project team is uniquely qualified to conduct the wet weather assessment and I/I Study for the City. This is based on our project team's experience with the City's sewer collection system and recent experience with I/I studies and similar hydraulic assessments and planning efforts in the North Bay since 2010. Rohnert Park experience includes: wet weather analysis of the City's sewer collection system for flow monitoring in 2003-04; follow-on I/I Study in 2005; Routing Study for the Eastside Trunk Sewer Project that began in 2004; and, most recently in 2012 for hydraulic modeling for Eastside Trunk Sewer Phases 2 and 3. North Bay experience includes work for Windsor, Ukiah, American Canyon, US Coast Guard TRACEN in Petaluma, and the Napa Sanitation District.



GHD has teamed with V&A Consulting Engineers (V&A) for these projects, including previous flow monitoring and I/I analyses for the City's collection system in 2003-04 and follow up I/I study in 2005.

GHD's Project Manager, Matt Winkelman, served as either the Project Engineer or Project Manager for the recent efforts listed above. His I/I Study and collection system planning experience also includes preparation of the Conveyance System Master Plan for Silicon Valley Water District in 2011 and various hydraulic analysis and studies for municipal wastewater agencies in Washington State.

V&A's Project Manager, Kevin Krajewski, is V&A's Flow Monitoring Practice Leader and has completed numerous wet weather assessments in the North Bay. Kevin has worked directly with GHD's project team as V&A's project manager for each of the reference projects above.

GHD's proposed core project team includes Adam Fisher as Project Engineer, Ted Whiton as QA/QC Engineer, and Alex Culick as the Project Principal.

Project Approach

The City has requested GHD to prepare a scope of work for wet weather assessment of its sanitary sewer collection system. The assessment would substantially include wet weather flow monitoring and field reconnaissance during the 2015-16 wet weather season, together with preliminary assessment of the field work results, with the purpose to identify areas (basins) within the City's collection system that exhibit high levels of I/I and to provide a basis for future collection system hydraulic evaluation.

Wet weather flow monitoring is recommended to include enough monitoring locations to accurately define basins within the sewer collection system for I/I contribution. 28 flow monitoring locations were evaluated by V&A and GHD during the field work in 2003-04 and the following analysis in 2005. Those monitoring locations were used as a basis for the recommended monitoring locations for the current project, with some modification to meter locations based on changes in the City's trunk sewer system since the completion of the Eastside Trunk Sewer in 2015. A reduction in the total number of monitoring locations is possible, which may be based on available City budget. However, a reduction in the number of monitoring locations should consider the economy of scale for the work and the opportunity for comprehensive monitoring during one wet weather season for all locations versus a lesser number of locations.

At the conclusion of the I/I Study, GHD will provide the City with a Flow Monitoring and I/I Analysis Study that includes an analysis of average dry weather flow curves and rain dependent infiltration and inflow (RDI/I) responses for the flow monitoring locations. I/I analysis will include developing synthetic I/I hydrographs for each flow monitoring site and applying the synthetic hydrographs to a selected design storm. Note – prior hydraulic analyses for the City's sewer collection system have used a 5-year, 6-hour design storm; however, use of a 10-year, 24-hour design storm is fairly common practice. The design storm selected for this project will be based on review of collected flow monitoring data and recommendation for a "best-fit" between observed flow conditions and synthetic hydrograph analysis. This information will be useful for the City in future collection system assessments, including hydraulic evaluation and determination of capital improvement (CIP) and repair and rehabilitation (R&R) projects.

Basic Scope of Services

The professional engineering services for the Project are provided below.



Task 1 – Project Management and Coordination

GHD will coordinate with the City during the project, including:

- Budget and schedule tracking.
- Provide project and contract oversight.
- Coordination/communication with the City.

Deliverables: Monthly progress reports provided with invoices

Task 2 – Flow Monitoring and Nighttime Field Reconnaissance

Task 2.1 Flow Monitoring

GHD will subcontract with V&A Consulting Engineers (V&A) for wet weather flow monitoring during the 2015-16 wet weather season and prepare a report that presents the findings of the flow monitoring together with previous flow monitoring efforts for the City.

Flow monitoring is proposed to occur in the December 2015 – January/February 2016 timeframe, depending on weather conditions, and after early season rains have saturated the ground. The flow monitoring effort will begin with a kickoff meeting attended by GHD and V&A to discuss proposed flow monitoring locations and field work logistics. Prior to the kickoff meeting, V&A will prepare for its field work by visiting the anticipated flow monitoring sites and confirming preferred and alternative flow monitoring locations, as appropriate.

Field work will include the installation, calibration, and removal of 28 flow meters and 2 rain gauges for a period of 2 months, with an option for extending the flow monitoring period at the City's direction. Following the field work, V&A will evaluate the flow monitoring data and prepare a report (see Task 2.2). During the flow monitoring period, V&A will provide preliminary results for consideration by the project team. GHD will convey these results to the City and together with V&A will make recommendations, if appropriate, for relocating flow meters within the collection system.

V&A will verify data integrity and that the meters are operational and clear of debris. V&A will be responsible for 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.

This scope of services assumes only simple traffic control set-ups (truck mounted light board and cones) will be required for this project. If complex traffic control set-ups requiring a traffic control contractor are deemed necessary, the costs for the traffic control contractor will be in addition to the stated costs for the flow monitoring. This scope of services also assumes that the City or other jurisdictional permits (i.e., encroachment, traffic control plans, etc.) will be paid for by the City.

The attached figure shows the anticipated flow monitoring locations within the City's collection system. Locations were selected by the GHD and V&A based on the location of prior flow monitoring equipment and needs for current collection system wet weather characterization. See also attached Figure 1 from V&A's August 2004 *Sanitary Sewer Flow Monitoring and Infiltration & Inflow Study* that shows the location of the 28 subareas within the City's collection system that were monitored in 2003-04.

Task 2.2 – Flow Monitoring and I/I Analysis Report (V&A)

V&A will download and reduce the flow monitoring data in 15-minute intervals into Excel spreadsheets for data analysis and report preparation. The summary report will be in hard copy (3 copies) and electronic format and will include the following information:



- 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 for depth, velocity and flow rates for each flow meter; and
- I/I Analysis: Average dry weather flow curves will be determined and rain dependent infiltration and inflow (RDI/I) response will be isolated during wet weather rainfall events. I/I analysis will include developing synthetic I/I hydrographs for each flow monitoring site and applying the synthetic hydrographs to the selected design storm.
- Historical Data Analyses: Where relevant, V&A will review previously collected flow monitoring data and include analyses, as appropriate, as part of this study.

Task 3 – I/I Study Report (GHD)

GHD and V&A will attend a workshop with City staff following preparation of the draft I/I analysis in Task 2. The purpose of the workshop is to gather input from City staff regarding the results of the work and to discuss the City's approach and scope of work for future collection system assessment(s) and planning. Anticipated topics of discussion include: results of field work, including flow monitoring and field reconnaissance; recommendation for dry weather flow monitoring (if necessary); and future collection system assessment and planning needs.

GHD will prepare a draft I/I Study Report following the workshop and submit three hard copies and an electronic copy to the City for review. Following receipt of City review comments, GHD will revise the report and submit five hard copies and an electronic copy of the final report. V&A's final report will be included with the final I/I Study Report.

Optional Tasks

Task O.1 Weekly Extension(s) to the Flow Monitoring Period

At the direction of the City, which would likely follow a review and discussion of weather conditions affecting the flow monitoring effort, the flow monitoring time period would be extended for one or more additional weeks. The intent for extending the flow monitoring time period is to capture additional data from storm events. Analysis and reporting per Tasks 2 and 3 would also apply to this optional task.

Task O.2 Nighttime Field Reconnaissance

Flow monitoring will only capture flows at key points within the collection system – the meters will be installed primarily in larger ("trunk") sewers. Since there are 28 subareas delineated within the City's collection system, the flow monitoring will not directly measure all subareas. To better characterize the potential I/I sources in subareas within the collection system beyond the trunk sewers, V&A will conduct nighttime field reconnaissance within subareas with known or suspected high levels of I/I. A second benefit of the field reconnaissance is the potential of visual identification of I/I sources within the collection system (i.e., structural defects within manholes, suspicious storm crossings, or direct connections from roof leaders into sanitary sewer clean-outs), which will benefit the preparation of recommendations for system repair and rehabilitation (R&R) projects.

Nighttime field reconnaissance will be conducted during low-flow hours, which is typically between the hours of 1:00 am and 4:30 am, when I/I flow is most evident ("clear-water" flow). This scope includes two nights for field reconnaissance during the flow monitoring period. GHD and V&A will consider the location of prior nighttime field reconnaissance efforts and preliminary 2015-16 flow monitoring results prior to mobilizing for the work.



Note: The effectiveness of the field reconnaissance is limited in what it may discover, such that the source of I/I may not be traceable from the field visits and the work may be dependent on investigations taking place during storm events, which are unpredictable. Evidence of I/I will be documented and, wherever possible, quantified. Depending on the characteristics and conditions unique to the basins being investigated, investigation measures may include general and/or detailed reconnaissance, and/or basin isolation by meter relocation or temporary meter usage.

Project Schedule

Engineering services will commence upon issuance of the Notice to Proceed for this scope of services, which is anticipated to occur in November 2015. The Project will begin with project planning and site reconnaissance in November 2015 with the intent to install flow meters by December 2015. Timing for flow monitoring is weather-dependent, but anticipated to begin in mid-December 2015. Flow monitoring will last for two months, or as extended at the City's direction.

One month following the conclusion of the flow monitoring, V&A will submit a draft report for deliverable to GHD. GHD will review the report and provide the draft report with redline comments to V&A and the City within two weeks. The project team and City will then meet to discuss the flow monitoring findings and recommendations. GHD will then prepare and submit the I/I Study Report within four weeks. The report will be finalized following receipt of the City's review comments. The following provides an approximate schedule for the completion of the scope of services:

Table 1 Tentative Project Schedule

<u>Task</u>	<u>Completion Date</u>
a. Notice to Proceed	Mid-November 2015
b. Project Kickoff, Planning, and Site Reconnaissance	November-December 2015
c. Conduct Flow Monitoring (Task 2.1)	December 2015 -- January/February 2016 *
d. Conduct Nighttime Field Reconnaissance (Optional Task O.2)	January 2016 *
e. Prepare Draft Flow Monitoring and I/I Analysis Report (Task 2.2)	February/March 2016 *
f. GHD Review (2 weeks)	March/April 2016 *
g. Review Meeting	April 2016 *
h. Prepare Draft I/I Study Report (Task 3)	May 2016 *
i. City Review (2 weeks)	May/June 2016 *
j. Prepare Final I/I Study Report	June 2016 *
* Timing depends on weather conditions and whether or not the flow monitoring period was extended.	

Engineering Fee

Compensation for basic scope of services shall be on a time and materials basis, for an estimated not-to-exceed fee of \$179,955. The budget estimate is provided in the attached fee spreadsheet, including the budget estimate for optional tasks (weekly extension(s) to the flow monitoring period; nighttime field reconnaissance).

The budget is substantially based on 28 flow monitoring locations, which matches the flow monitoring effort completed for the City's prior flow monitoring effort in 2003-04. GHD considered a potential reduction of the number of flow monitoring locations from 28 to 24, which would provide the City with monitoring coverage for the collection system, but with larger sewer basins. Reduction from 28 to 24 would reduce the project budget to \$165,064. Further reduction in the number of locations to less than 24 is possible, though not recommended relative to the goal for system-wide I/I assessment.



Closing

Please don't hesitate to contact me if you have any questions regarding the scope of work. I can be reached at (707) 523-1010. Thank you for the opportunity to serve the City of Rohnert Park.

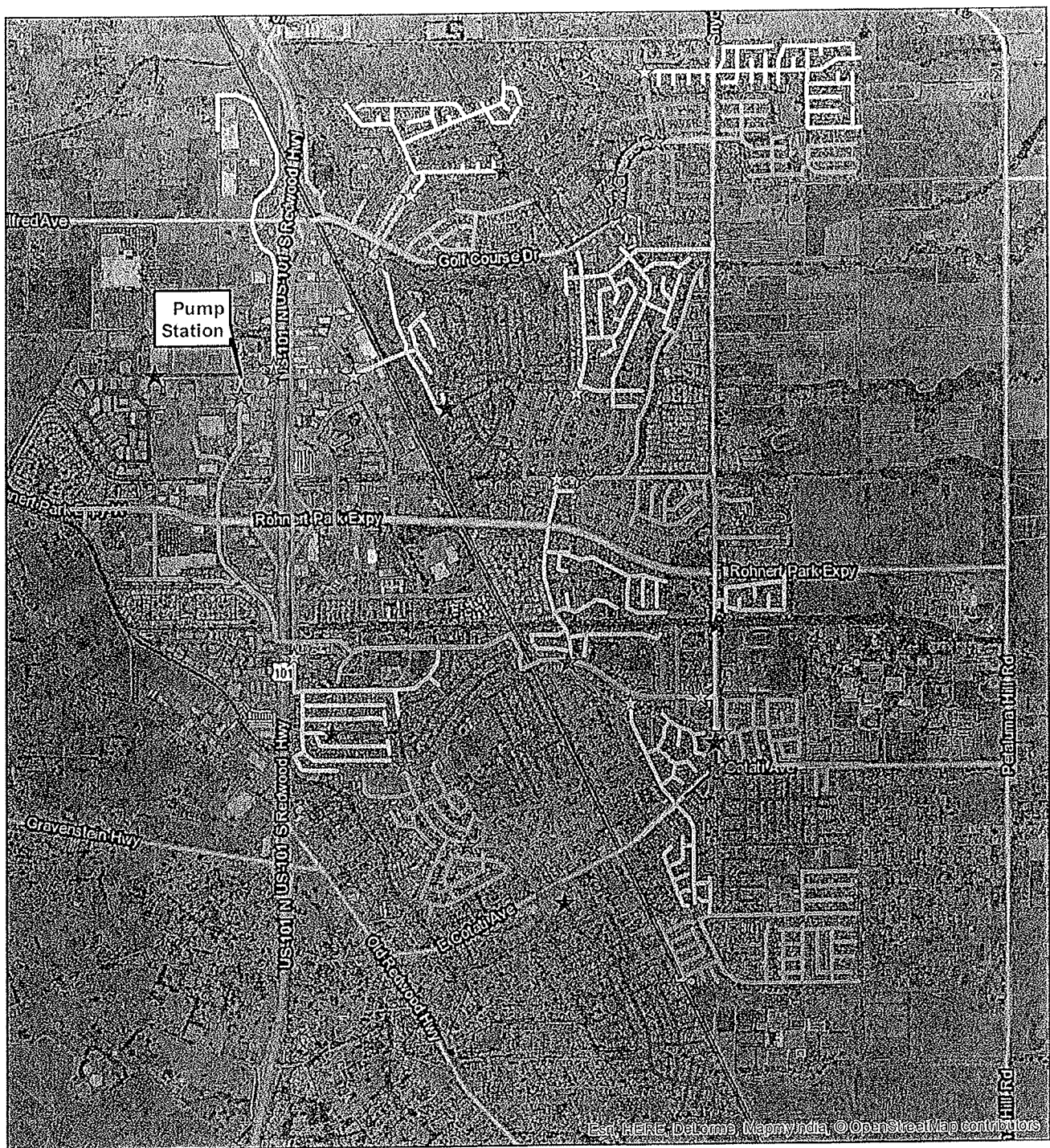
Sincerely,
GHD Inc.

A handwritten signature in black ink, appearing to read 'Matt Winkelman', with a long horizontal flourish extending to the right.

Matt Winkelman, P.E.

Project Manager
(707) 523-1010

Attachments: Fee Estimate Spreadsheet
Proposed Flow Monitoring Locations
Figure 1 – Basin Map (from V&A's August 2004 report)



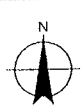
Sanitary Sewer Collection System

- Colors Indicate Pipes in Basins Defined by Proposed Meter Location

Proposed Flow Monitoring Locations

- Colors Indicate Basin
- Monitored by Meter
- Location

Paper Size 8.5" x 11" (ANSI A)
 0 625 1,250 1,875 2,500
 Feet
 Map Projection: Lambert Conformal Conic
 Horizontal Datum: NAD 1983 2011
 Grid: NAD 1983 StatePlane California II FIPS 0402 Feet 2011



City of Rohnert Park
 Sanitary Sewer Flow Monitoring (2015/16)

Job Number XX-12345
 Revision 0
 Date 23 Sep 2015

Sanitary Sewer Collection System Proposed Flow Monitoring Locations Figure 1

2235 Marquay Way Suite 150 Santa Rosa CA 95407 USA T 707 523 1010 F 707 527 8679 E santarosa@ghd.com W www.ghd.com
 \ghdnotghd\US\Santa Rosa\W&K\Marketing\Proposals_Presentations\Rohnert Park, City of\NI Study 2015-16\GIS\Map\Figure 1 - Proposed Flow Monitoring Locations.mxd
 © 2012. While every care has been taken to prepare this map, GHD (and DATA CUSTODIAN) make no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and cannot accept liability and responsibility of any kind (whether in contract, tort or otherwise) for any expenses, losses, damages and/or costs (including indirect or consequential damage) which are or may be incurred by any party as a result of the map being inaccurate, incomplete or unsuitable in any way and for any reason.
 Data source: Data Custodian, Data Set Name/Title, Version/Date. Created by: afshor2

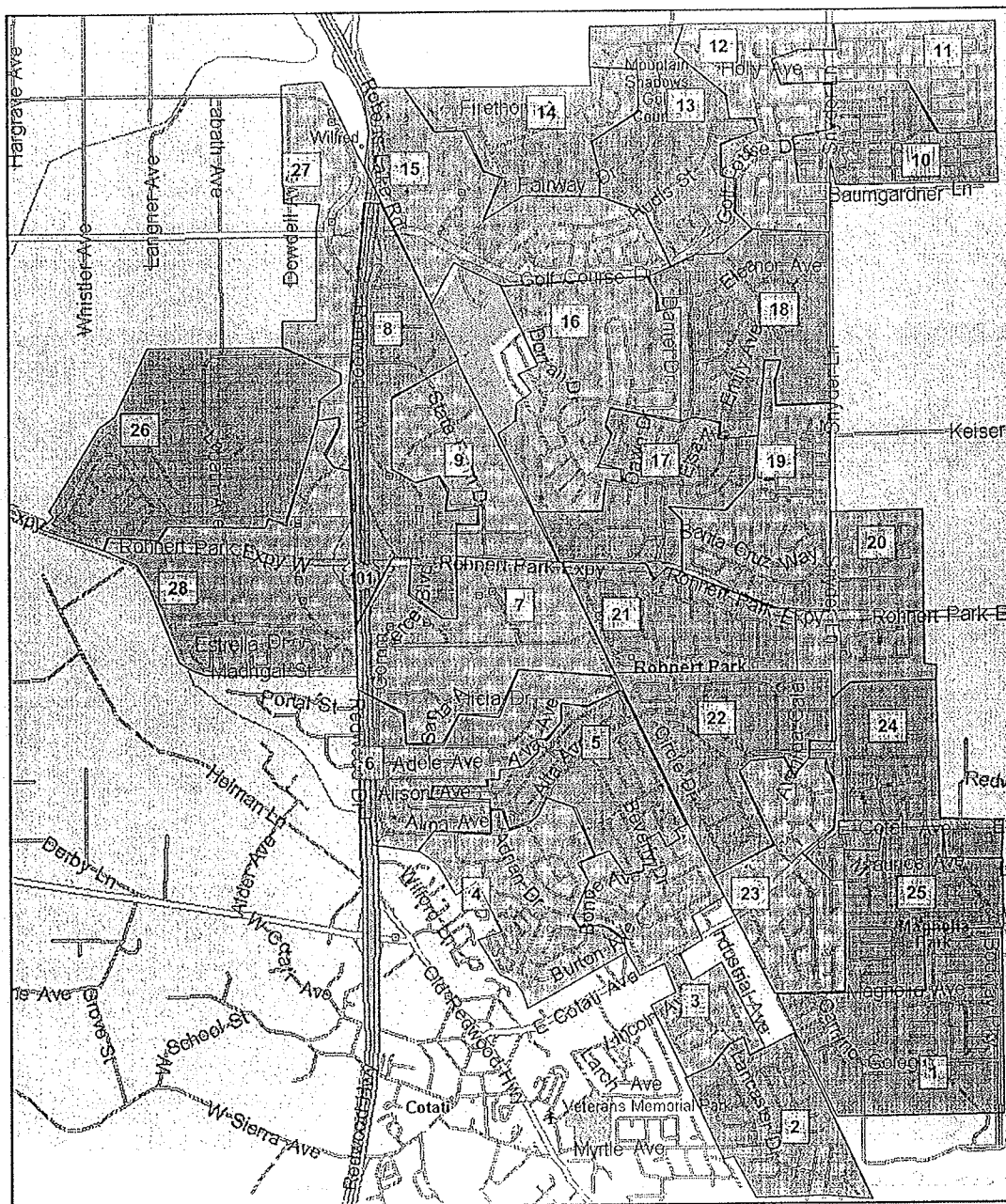


Figure 1. Basin Map





PROJECT FEE ESTIMATING SHEET

Project Name: Infiltration and Inflow (I/I) Study Client: City of Rohnert Park
 Prepared by: M. Winkelman Date: September 25, 2015
 Reviewed by: A. Culick
 Job Number: 11110007

		LABOR COSTS					FEE COMPUTATION		
Task / Item	LABOR CATEGORY > RATE >	Principal / QA/QC \$265 /Hr	Proj. Mgr. / Sr. Engr. \$205 /Hr	Project Engineer \$145 /Hr	Admin \$100 /Hr	TOTAL HOURS	*OTHER DIRECT COSTS	Sub- Consultants V&A	TOTAL FEE
Task 1 - Project Management and Coordination									
1.1 Coordination and Administration	Subtotal Task 1	1	8	0	2	11	\$66	\$0	\$2,171
		1	8	0	2	11	\$66	\$0	\$2,171
Task 2 - Flow Monitoring and Nighttime Field Reconnaissance									
2.1 Flow Monitoring		4	8	16		28	\$168	\$127,650	\$132,838
2.2 Flow Monitoring and I/I Analysis Report (V&A)		6	8	8	2	24	\$144	\$27,600	\$32,334
	Subtotal Task 2	10	16	24	2	52	\$312	\$155,250	\$165,172
Task 3 - I/I Study Report (GHD)									
3.1 I/I Study Report		4	24	40	4	72	\$432		\$12,612
	Subtotal Task 3	4	24	40	4	72	\$432	\$0	\$12,612
PROJECT TOTALS		15	48	64	8	135	\$810	\$155,250	\$179,955
Optional Tasks									
O.1 Weekly Extension(s) to the Flow Monitoring Period			1	1	1	3	\$18	\$9,780	\$10,248
O.2 Nighttime Field Reconnaissance			4	4	4	8	\$48	\$11,500	\$12,948
TOTAL WITH OPTIONAL TASKS									
									\$203,151
TOTAL NOT TO EXCEED									
									\$205,000

*OTHER DIRECT COSTS include telephone, mileage, printing, photocopies and other miscellaneous direct expenses.