V&A

preserving America's infrastructure — water, wastewater, light rail







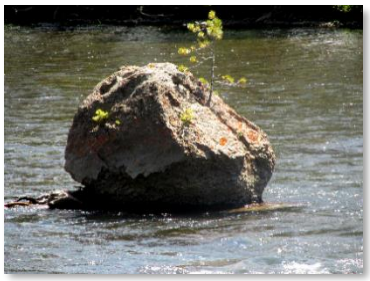


Qualifications

Who We Are

V&A Consulting Engineers, Inc. (V&A) is a consulting firm providing responsive service and successful solutions focused on corrosion engineering specialized in evaluating, rehabilitating and preserving municipal infrastructure. Headquartered in Oakland, CA and founded by Jose Villalobos in May of 1979, V&A has evolved into a multi-disciplined engineering organization concentrating on civil infrastructure—primarily in the fields of water, wastewater, and transit. We employ 30 team members in four offices located in Oakland and San Diego, CA, Houston, TX, and Las Vegas, NV.

Our company vision and mission is "*to dedicate our expertise to achieve a better world through resilient and sustainable civil infrastructure.*"



V&A's corporate symbol stands for our will to persevere and our resolve to continue on our journey providing the next generations with infrastructure resiliency and sustainability.

What We Do

We are passionate about what we do… from field verifying pipe condition to assessing true remaining life of treatment plants, structures, and facilities. We bring value to those responsible for taking care of and protecting America's infrastructure.

We assess resiliency and sustainability by providing methodically-collected data and

1. field verifying what actually exists and determining true replacement cost(s);
2. measuring and documenting condition; and
3. providing supportive data and recommendations on how to best maximize value…

so informed decisions are made with regard to operations, maintenance, and asset management.

V&A assists municipalities, special districts, counties, and private agencies. We work with our clients on projects such as evaluation and condition assessment of tanks, utilities, and water treatment plants; design of galvanic and impressed current cathodic protection systems for tanks, pipelines and water treatment plants; coating systems recommendations and evaluation; field testing cathodic protection systems; corrosion failure analysis; materials selection; and more. Our team of dedicated and experienced engineers are committed to doing the job right, on schedule, and within budget.

Service Lines

- Corrosion Engineering
- Condition Assessment
- Coating Systems Management
- Flow Monitoring
- Odor Control
- Asset Management
- AC Interference Mitigation
- Materials Selection & Design Audit

Corrosion Engineering

Today's infrastructure assets were designed for a 60- to 100-year service life. Many systems are past their prime and V&A engineers assist in preserving these assets due to the damaging effects of corrosion. We pinpoint corrosion and it's cause—whether atmospheric, immersed, or buried—and recommend solutions for mitigation. We incorporate evaluation of assets in our process to determine the extent of corrosion, design corrosion control and cathodic protection systems, and corrosion control master programs for long-term protection and operation.

Dedicated to Corrosion Engineering

Member
44 yrs exp

Jose Villalobos, PE
Corrosion Engineer, CA
Civil Engineer, CA, TX, NV
CC, CA, CP, OD, Xs
Oakland

CIP2
36 yrs exp

Glenn Willson, PE
Corrosion Engineer, CA
Civil, CA, HI, AZ, OR, WA, UT
CC, CA, CP, SC, Xs
Oakland

CP4
CIP1
33 yrs exp

Chris Sheldon, PE
Corrosion Eng, TX, PA, NY
Corrosion Lead & SME
CC, CA, CP, AC, SC, Xs
Houston

Member
35 yrs exp

Debra Kaye, PE
Civil Engineer, CA, NV
CC, CA
San Diego

CP2
36 yrs exp

Mark Tam
Corrosion Associate
SME Design & Testing
CC, CA, CP
Oakland

CIP2
16 yrs exp

Manny Najar, PE
Chemical Engineer, CA
Coating Systems Lead
CC, CA, CP, Xs
Oakland

CP3
13 yrs exp

Chris Hunniford, PE
Chemical Engineer, TX
Odor Lead & SME
CC, CA, CP, OD
Houston

CP3
14 yrs exp

Chelsea Teall, PE
Metallurgical Engineer, CA
Solar SME, Envision Spec.
CC, CP, Xs
Oakland

Member
15 yrs exp

Brian Briones, PE
Civil Engineer, CA
Engineering Lead
CC, CA
San Diego

15 yrs exp

Angel Mejia, PE, PMP
Civil/Structural Eng, CA
Engineering Lead
CC, CA
Oakland

12 yrs exp

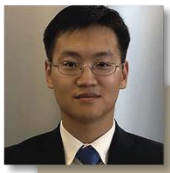
Mike Johannessen, PE
Mechanical Engineer, CA
Stray Current SME
CC, CA, SC
Oakland

11 yrs exp

Noy Phannavong, PE
Civil Engineer, CA
Cond. Assessment SME
CC, CA, AM
Oakland

CP3
5 yrs exp

Matt Snow, EIT
Corrosion Associate
Cathodic Protection SME
CC, CA, CP
Oakland



CP2
7 yrs exp

Brian Huang, EIT
Corrosion Associate
Odor SME
CC, CA, OD
Houston

Member
5 yrs exp

Nicole Kwan, PE
Civil Engineer, CA
Envision Specialist
CC, CA
Oakland

5 yrs exp

Clinton McAdams, PE
Corrosion Associate
Envision Specialist
CC, CA
San Diego

CP2
15 yrs exp

Mike Sherman
Corrosion Associate
Senior Technician
CC, CA, CP
San Diego

NACE CP1 - Cathodic Protection Tester
NACE CP2 - Cathodic Protection Technician
NACE CP3 - Cathodic Protection Technologist
NACE CP4 - Cathodic Protection Specialist
NACE CIP1 - Coatings Inspection Program, Level 1
NACE CIP2 - Coatings Inspection Program, Level 2

SME - Subject Matter Expert
CC - Corrosion Control
CA - Condition Assessment
CP - Cathodic Protection
Xs - Coatings
AC - Alternating Current Mitigation
SC - Stray Current

Condition Assessment

For more than 35 years, V&A has conducted condition assessments of coated or uncoated steel and concrete structures. We provide the necessary recommendations and design services for their rehabilitation or replacement. Typical projects include pipelines, tunnels, tanks, digesters, outfall pipelines, water treatment plants, wastewater treatment plants, and pump stations. V&A uses a three-stepped approach to determine their condition, including evaluation of existing condition, in-the-field data collection, and analysis of design and operational requirements against collected data, and finally prepare detailed reports.

Coating Systems Management

Coating and lining systems are often the first line of defense against deterioration by water, reclaimed water, wastewater, corrosive soils, and chemical exposures. For more than 35 years, V&A has undertaken assessments, coatings selection, specifications, third-party evaluations, and maintenance on behalf of our clients.

Our approach to systems management involves structure assessments (including confined-space entries) meeting American Society for Testing and Materials (ASTM), International Concrete Repair Institute (ICRI), National Association of Corrosion Engineers (NACE), Society of Protective Coatings (SSPC) standards; selecting and specifying appropriate coatings options; as well as inspections during construction and third-party evaluation while monitoring the coating process from surface preparation to curing.

Our team members are certified through the National Association of Corrosion Engineers (NACE) Coatings Inspection Program, Society of Protective Coatings (SSPC) Training Program, and the National Association of Sewer Service Companies (NASSCO) Pipeline and Manhole Program.

Flow Monitoring

Since 1998, V&A has supported municipalities and agencies in managing their water and wastewater collection systems and mitigating sanitary system overflows. By collecting timely, accurate data about wastewater flows, we can predict peak flows for a given segment of the system, and help clients understand the condition of their and then determine actions to be taken to avoid flooding or overflows. The expertise of V&A's flow monitoring team stands out in the marketplace because the work is directed and performed by engineers and data integrity is always paramount.

Our flow monitoring division incorporates the latest data collection and metering technologies and conducts a wide-range of inflow and infiltration (I/I) analysis for municipalities and master-planning consultants. We specialize in rain-dependent, groundwater and/or tidal I/I. We also perform reconnaissance providing clear pictures of system condition. V&A consults on regulatory matters including U.S. Environmental Protection Agency (EPA) Consent Decrees, Stipulated Orders, or Administrative Orders.

Odor Control

V&A deals with the complex biological, chemical, and physical interactions that combine to create hydrogen sulfide (H^2S) gas in wastewater collection systems and treatment plants. Uncontrolled H_2S releases can result in potential hazards for operators, odor complaints from residents, and costly corrosion of wastewater facilities. V&A uses instruments and equipment to sample, monitor, and identify compounds causing odors. We then evaluate the data in order to develop recommendations to resolve odor issues. Solutions may encompass collection system sampling to evaluate odors from a single pump station source, or may be as intricate as developing an odor control master plan for an entire collection system.

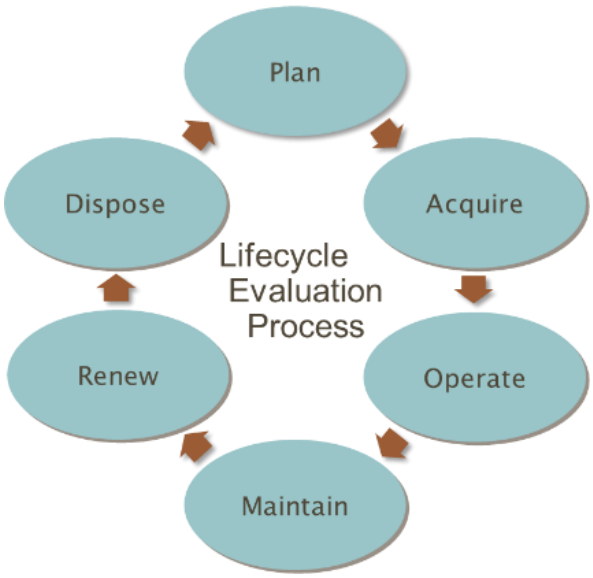
Upper Brays WWTP & West District WWTP, Houston, TX - Odor Investigation

V&A has developed innovative odor control solutions at treatment plants. For example, aeration basin disposal and return activated sludge (RAS) scrubbing and recycling. We were also the first to monitor air pressure in sewers to identify areas prone to positive pressure and odor release and created computer-based sewer ventilation software identifying locations and volume of odors released from a collection system. We have completed projects such as monitoring gas and odor at wastewater facilities and designing models that predict hydrogen sulfide loading.

Typical fan testing setup.

Asset Management

V&A experts approach municipal agency asset management (AM) in a pro-active fashion—our process evaluates and estimates the maintenance and rehabilitation needs along with the true lifecycle of an asset(s)—this is especially important today as agencies are challenged with maintaining aging infra-structure along with tight financial resources.



Our nationally recognized AM practice leader is experienced and at home with all elements of asset management. We assist our clientele in implementing GAP Analysis through to complete master planned programs designed and customized to their specific needs.

V&A AM programs include engineer-conducted field analysis on the condition of water and wastewater facilities. V&A has evaluated the probability and consequence of asset failure for water and wastewater agencies up and down the western United States for many years.

AC Interference Mitigation

AC interference mitigation can be required on steel pipelines occupying (or close proximity) overhead electric corridors. Primary concerns include elevated induced AC levels creating employee safety concerns (step touch potential) and pipeline corrosion wall loss/rupture (a function of AC current density). We can identify these “hot spots” by way of drawing plan review, survey measurements in the field to determine the degree of AC interference, and design effective AC mitigation solutions. Typically, installation of size appropriate solid state decouplers in addition to copper/zinc-based grounding system safely allows the reduction of induced AC from the pipeline (in accordance with NACE/industry recognized thresholds) while maintaining protective cathodic protection DC currents.

Testing Technologies

V&A employs the follow testing technologies:

- Multimeters
- Reference Electrodes
- Resistance Meters
- Insulating Joint Testing
- Soil Corrosivity Survey
- In-Situ Soil Resistivity Testing
- Laboratory Soil Resistivity and Chemical Analyses
- Soil Sample Analysis
- Water Analysis
- Electrical Testing
- Visual Assessment
- Broadband electro-magnetics (BEM) Thickness Scanning
- Ultrasonic Thickness (UT)
- Surface Penetrating Radar (SPR)

BEM Scanning

Broadband electromagnetics (BEM) testing offers the ability to perform pipeline evaluation. It can detect corrosion in ferrous (metal) structures under the non-destructive testing (NDT) industry.

Condition assessments using BEM has proven very effective and provides owners with accurate information to determine lifecycle stage and develop future budgets and programs.

UT Testing

Ultrasonic testing is the procedure of introducing a high frequency sound wave into the exterior side of a pipe, and reflecting the sound wave from its interior surface to produce a measurement of wall thickness. Ultrasound allows precise measurement of the pipe wall dimension from the outside surface and provides a measurement of remaining wall thickness over a wide sampling of individual points, it produces a very thorough corrosion evaluation within a short time and at a reasonable cost to the client.

VANDA® Corrosion Rating System

Over the years V&A has developed a number of helpful tools for its engineers in the assessment of various structures in terms of corrosion. The following pages contain three corrosion indices developed by V&A, referred to industry-wide as the VANDA® Corrosion Rating System.

Each Index was created to provide consistent reporting of corrosion damage based on qualitative, objective criteria. Condition of corrosion can vary from Level 1 to Level 4 based upon visual observations and field measurements, with Level 1 indicating the best case and Level 4 indicating severe damage.

The corrosion aggressiveness index was developed to quantify how corrosively aggressive an atmosphere is to a structure. Overall ratings are not based on a formula or an average value. The ratings are subjective and may be based entirely on one criterion.

VANDA Concrete Condition Index

Condition Rating	Description	Representative Photograph
Level 1	**None/Minimal Damage to Concrete** • Hardness: No Loss • Surface Profile: No Loss • Cracking: Shrinkage Cracks • Spalling: None • Reinforcing Steel (Rebar): Not Exposed or Damaged	
Level 2	**Damage to Concrete Mortar** • Hardness: Damage to Concrete Mortar • Surface Profile: Some Loss • Cracking: Thumbnail Sized Cracks of Minimal Frequency • Spalling: Shallow Spalling of Minimal Frequency, Related Rebar Damage • Reinforcing Steel (Rebar): May Be Exposed but Not Damaged	
Level 3	**Loss of Concrete Mortar/Damage to Rebar** • Hardness: Complete Loss • Surface Profile: Large Diameter Exposed Aggregate • Cracking: ¼-inch to ½-inch Cracks, Moderate Frequency • Spalling: Deep Spalling of Moderate Frequency, Related Rebar Damage • Reinforcing Steel (Rebar): Exposed and Damaged, Can Be Rehabilitated	
Level 4	**Rebar Severely Corroded/Significant Damage to Structure** • Hardness: Complete Loss • Surface Profile: Large Diameter Exposed Aggregate • Cracking: ½-inch Cracks or Greater, High Frequency • Spalling: Deep Spalling at High Frequency, Related Rebar Damage • Reinforcing Steel (Rebar): Damaged or Consumed, Loss of Structural Integrity	

VANDA Metal Condition Index

Condition Rating	Description	Representative Photograph
Level 1	**Little or No Corrosion** • Loss of Wall Thickness %: None • Pitting Depth (as % of Wall Thickness): None to Minimal • Extent (Area) of Corrosion: None	
Level 2	**Minor Surface Corrosion** • Loss of Wall Thickness %: < 25% • Pitting Depth (as % of Wall Thickness): < 25% • Extent (Area) of Corrosion: Localized	
Level 3	**Moderate to Significant Corrosion** • Loss of Wall Thickness %: 25%–75% • Pitting Depth (as % of Wall Thickness): 25%–75% • Extent (Area) of Corrosion: 25%–75%	
Level 4	**Severe Corrosion; Immediate Repair/Replacement Needed** • Loss of Wall Thickness %: > 75% • Pitting Depth (as % of Wall Thickness): 75% or More • Extent (Area) of Corrosion: Affects Most or All of Surface	

VANDA Corrosion Aggressiveness Index

Aggressiveness Rating	Atmospheric H_2S (ppm)	Total Sulfides (mg/L)	Hydraulic Rating	Concrete Condition Rating	Concrete pH Rating
1 – Negligible	0	0.0	Smooth	Solid	>7.5
2 – Minor	1 – 5	0.1 – 0.2	Minor turbulence	Some loss of hardness	6.5 – 7.5
3 – Moderate	5 – 15	0.3 – 0.9	Siphon, smooth	Loss of hardness, dry	6.0 – 6.5
4 – Major	15 – 25	1.0 – 2.0	Siphon, drop inlet, force main discharge, turbulent	Loss of hardness, wet	5.5 – 6.0
5 – Severe	>25	>2.0	Siphon, drop inlet, force main discharge, extreme turbulence	Corrosion of reinforcing steel	<5.5

Management Practices

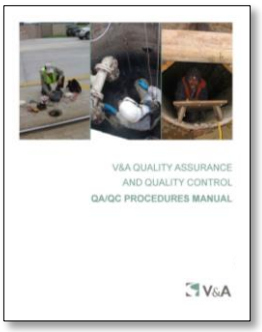
AjeraComplete by AXIUM

V&A uses Ajera, an integrated accounting and project management software system, to continuously monitor the progress of all our projects in real time. The timesheet feature of the Ajera software is used to record time spent on each project, provide a graphical record of the project progress, record project-related expenses, and create detailed invoices. The project management module is the basis of the project control process used by V&A. Ajera allows continuous comparison of actual project performance against the project plan, identification of deviations in the performance, evaluation of alternatives, and corrective action to complete the scope of work within the project schedule and budget.

Envision™

Envision is a system, which enables civil infrastructure to be analyzed and rated based on its adherence to sustainable development. There are similar systems already being used within the industry, such as Leadership in Energy & Environmental Design (LEED®) and the Environmental Protection Agency's (EPA) Sustainability Roadmap. However, Envision™ differs from these systems by providing analysis of all infrastructure systems. Envision is not intended to replace other systems, but rather provide a link to system-specific analyses. V&A promotes the use of the Envision system and sustainable practices in the analysis of infrastructure projects.

Quality Assurance/ Quality Control (QA/QC)



V&A manages risk by requiring a mandatory review of all data, reports, plans and specifications entailing proper formatting, correct grammar, and technical information reviews. V&A ensures plans and specifications are in accordance and meet agency/client guidelines

V&A engineers have completed more than 20,000 confined-space entries and designed in abundance of 1,000 corrosion control systems for water and wastewater facilities.

Our comprehensive quality assurance/quality control (QA/QC) program addresses not only design work, but field activities. Quality is achieved when work is adequately planned, assigned, executed, and checked.

Safety

Safety is of the highest priority and is an integral part of our work. V&A has developed an independent Health and Safety Program, which complies with Federal and California Occupational Safety and Health Administration (OSHA) regulations. V&A's field staff are all trained in cardiopulmonary resuscitation (CPR) and First Aid as well as confined-space entry certified. All equipment and gear is kept in optimal operating condition.

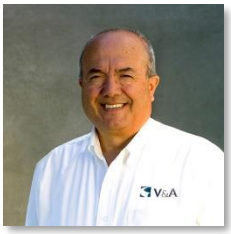
Profiles

At V&A, we're proud to have built an extraordinary team combining comprehensive applied experience with a genuine commitment and passion to provide clients with grade-A services.

Our culture attracts and retains some of the best people in the industry and fosters a commitment to transparency, teamwork, and integrity. This offers our clients the kind of efficient, innovative service, and responsive solutions they've come to expect.

José Villalobos, PE – Founder & Chief Marketing Officer

- *Licensed Civil Engineer – CA, NV, TX*
- *Licensed Corrosion Engineer - CA*



During the past 40 years, José has worked primarily in the water/ wastewater industry with a focus on design and condition assessment for corrosion protection systems for municipal infrastructure, including water and wastewater conveyance, treatment, and storage facilities. He has been published in numerous technical journals and has contributed chapters in coatings and corrosion reference books.

> *"I love engineering! It was my dream since the 6th grade. I wanted to create an experience-based organization placing priority on client service."*

Debra Kaye, PE – President & Acting Southwest Regional Manager

- *Licensed Civil Engineer, CA, NV*

Debra brings valuable insight to project management based on a diverse background of more than 24 years of her career employed by investor- and publicly-owned water utilities, along with eight years working as a consultant to utilities. She has 13 years of field experience in water treatment and distribution operations as a certified operator, has worked as a planning and design engineer, and an agency General Manager.

Christopher D. Hunniford, PE Chief Operating Officer & Acting Central Regional Manager Odor Control Technical Lead

- *Licensed Professional Engineer – TX*

Chris has more than 11 years of experience in the field of wastewater odor and corrosion control. His project expertise includes solving a variety of odor and corrosion issues in municipal wastewater systems. He has performed the analysis and design of odor control solutions, developed and utilized models to predict the extent of odor and corrosion problems, and conducted numerous field investigations and pilot performance studies to collect data. He has been the author on a number of technical papers regarding the subject of collection system odor control and ventilation dynamics.

Glenn Willson, PE – Western Regional Manager

- *Licensed Civil Engineer – AZ, CA, HI, OR, UT, WA*
- *Licensed Corrosion Engineer - CA*

Glenn has more than 34 years of experience in condition assessment, corrosion, and coatings engineering for protection of concrete and steel structures in municipal infrastructure. His specialized services include evaluation of existing pipelines, force mains, cathodic protection, coating systems, design of new systems, and construction inspection.

Glenn is responsible for managing the Western Region (firm headquarters) daily operations, as well as overseeing quality control, project delivery, and client relations.

Kim Costa – Controller and Project Controls Specialist

Kim is responsible for managing the firm wide administrative services for V&A including financials, budgeting, contracts, payroll, prevailing wage compliance, policies, and procedures. Ms. Costa also manages and oversees project controls—project planning through monitoring of costs associated with tasks, personnel and associated other direct costs (ODCs). Her department has developed appropriate reporting methods to support our project management and facilitates optimal outcome throughout the project lifecycle.

Chris Sheldon, PE Corrosion Engineering Technical Lead

- *Licensed Professional Engineer – TX, NY, PA*

Chris has 20 years of corrosion control experience relating to cathodic protection. He has exceptional leadership skills with an extensive knowledge of utility corrosion control including engineering design, construction, and project management. Chris has proven technical support skills managing a wide variety of groups and teams while developing best practices and he is dedicated to providing high quality results and meeting schedules at the lowest cost.

Kevin Krajewski, PE – Flow Monitoring Technical Lead

- *Licensed Mechanical Engineer - CA*

As practice leader, Kevin brings more than 17 years of experience in flow monitoring, smoke testing, inflow and infiltration (I/I) analysis, condition assessment, and design of sanitary sewer facilities and collection systems. He has conducted more than 1,000 flow-monitoring projects for multiple municipalities and agencies throughout California. Kevin is also a nationally recognized expert in his and has extensive knowledge on the processes and procedures required.

Manuel (Manny) Najar, PE – Coating Systems Technical Lead

- *Licensed Chemical Engineer – CA*

Manny is our coating systems management practice leader. He has more than 12 years of coatings experience and has been involved with the condition assessment of coating and lining systems for metal and concrete structures including digesters, pipelines, tanks, and other appurtenances for water and wastewater facilities. He is a NACE Level 2 Coatings Inspector and has been involved with plant-wide coating systems management and standard coating design specifications for multiple municipalities.

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Firm Information

Legal Name: V&A Consulting Engineers, Inc.

Type of Business: S Corporation

Website: www.vaengineering.com

Years in Business: 38, founded May 7, 1979

SBA Classifications: DBE | MB | MBE | SBE

V&A is a certified D/MBE firm as designated by the California Unified Certification Program (CUPC) and registered with the California Department of Industrial Relations (DIR), #1000007205. Our registration is valid through June 31, 2018.

NAICS Code: 541330 | 541990