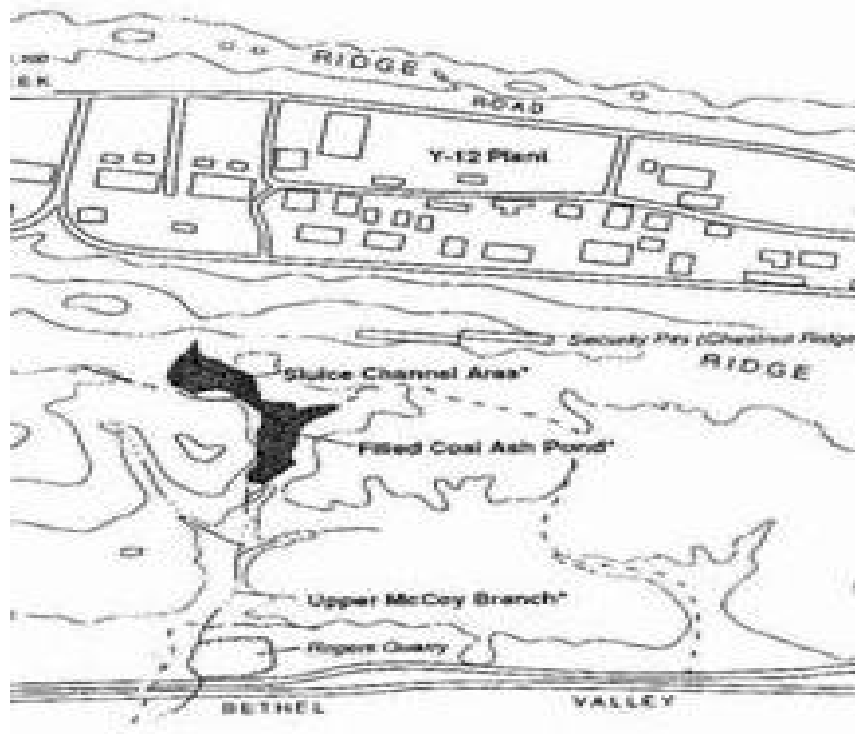


## My Bio

I have worked for SAIC as a Senior Environmental Engineer and Project Engineer for 7 years, am a US Citizen, Professional Environmental Engineer with a PhD in Civil Engineering related to Water Treatment and 32 years of design, construction and operation in the Civil-Environmental Engineering Profession. Highlights of my experience and education are highlighted below:

- ✚ Along with presentations of RI/FS environmental projects at conferences, my Y-12 Filled Coal Ash Pond environmental remedial design project received the USDOE National Pollution Engineering Award for Eco-Sensitive Design and Remediation. <http://trumpetcall.org/resume/awma.htm>





- ✚ The 2-day research I performed for Reynolds Aluminum Co. while at Bechtel resulted in a \$40M contract for TSCA-PCB cleanup at the facility.
- ✚ Our SAIC team in San Antonio received the Air Force Base Excellence Award at Kelly Air Force Base for the Environmental RI/FS and Remediation work we performed.
- ✚ I evaluated a process by Bio-Diesel Industries in Denton where used oil was refined and converted to bio-diesel using biogas as a renewable energy source from the City's solid waste landfill. The process had applications to refinement and conversion of cooking oil Central Texas-wide to Bio-Diesel, and I was in charge of the project for application to the City of Waco. We embarked on this project to reduce the dumping of used cooking oil into our sewers.
  - <http://www.biofuelsjournal.com/pdf/bf/biodieselindustries.pdf>

- ✚ We thickened bio-solids to high energy residuals at the Waco wastewater treatment plant using dissolved air flotation and digested the sludge anaerobically to produce biogas for conversion to electricity. We teamed with Minute Maid and many other industries in Waco to utilize their high BTU waste from the industrial wastewater treatment process to maximize the generation of biogas. The waste was burnt in a process burner to convert it to a soil conditioner for marketing.
  - [http://www.trumpetcall.org/resume/Waste\\_To\\_Energy.pdf](http://www.trumpetcall.org/resume/Waste_To_Energy.pdf)
  - <http://njchurch.org/enproviser/wet.pdf>
  
- ✚ My Phd in Civil Engineering involved Chemical Engineering MS-PhD level courses such as Transport Phenomena and Chemo-dynamics along with X-ray diffraction, Atomic Absorption, X-ray fluorescence with Advanced Analytical Chemistry for identifying the fingerprint and patterns in minerals composing geological formations. Along with a full semester of undergraduate course in geology theory and practical, I have experience in identifying the Shale formations with special applications to Oil & Gas. The MPEG Video and photographs imply the process used to identify drilling into shale:
  - <http://www.trumpetcall.org/resume/dam.htm>
  
- ✚ My extensive experience relates to environmental remediation of petroleum hydrocarbons including JP-4 fuel contaminated soils and groundwater utilizing in-situ bioremediation and air-sparging. My eco-sensitive environmental project won the National Pollution Engineering Award for USDOE.
  - <http://www.trumpetcall.org/resume/awma.htm>
  
- ✚ I have performed hydraulic design of pipelines for construction and operation below lakes, aerial and in the street right-of-way, and pipeline inspection and maintenance.
  
- ✚ I have extensive experience in water well drilling design and cost estimating plus completion, well maintenance, calculating optimal efficiency at well pump design point, maximizing well production, maximizing dual phase recovery and treatment (DNAPLs and ground water) and well preventive maintenance.

### E-3 Dual Phase Recovery System (Conceptual)

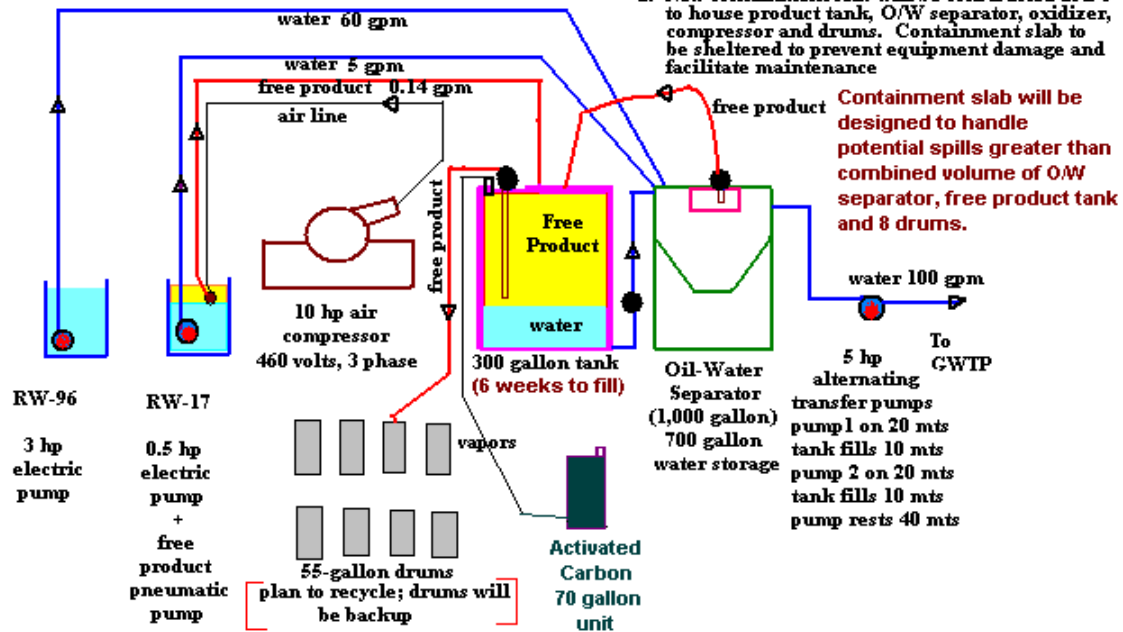
Based on 3/24/99 RW-17 bail & 0.5 gpm pump test, total volume of free product recovered is 4.4 gallons. Test recovery rate indicates free product can reach original level in approximately 18 hours---41 gallons can be recovered/week

 electric pump 460 volts, 3 phase

 pneumatic pump

Notes:

1. Product tank and O/W separator will be interlocked with pumps to prevent spill.
2. New containment slab will be constructed at E-3 to house product tank, O/W separator, oxidizer, compressor and drums. Containment slab to be sheltered to prevent equipment damage and facilitate maintenance



✚ At Kelly AFB, I performed an optimization study for maximizing the treatment efficiency of an industrial wastewater effluent from aircraft cleaning and degreasing operations which had heavy metals at high concentrations in the effluent. The project was published in the Environmental Technology Journal. I also upgraded the groundwater treatment plant utilized for treating chlorinated solvent contamination in groundwater at Kelly AFB.

- [http://www.trumpetcall.org/resume/Env\\_Tech.pdf](http://www.trumpetcall.org/resume/Env_Tech.pdf)

✚ I was recently an Asset-Engineering Manager and have extensive experience in technology development-implementation in water and wastewater plants, plant process engineering and support functions related to SCADA, PLC, and Instrumentation.

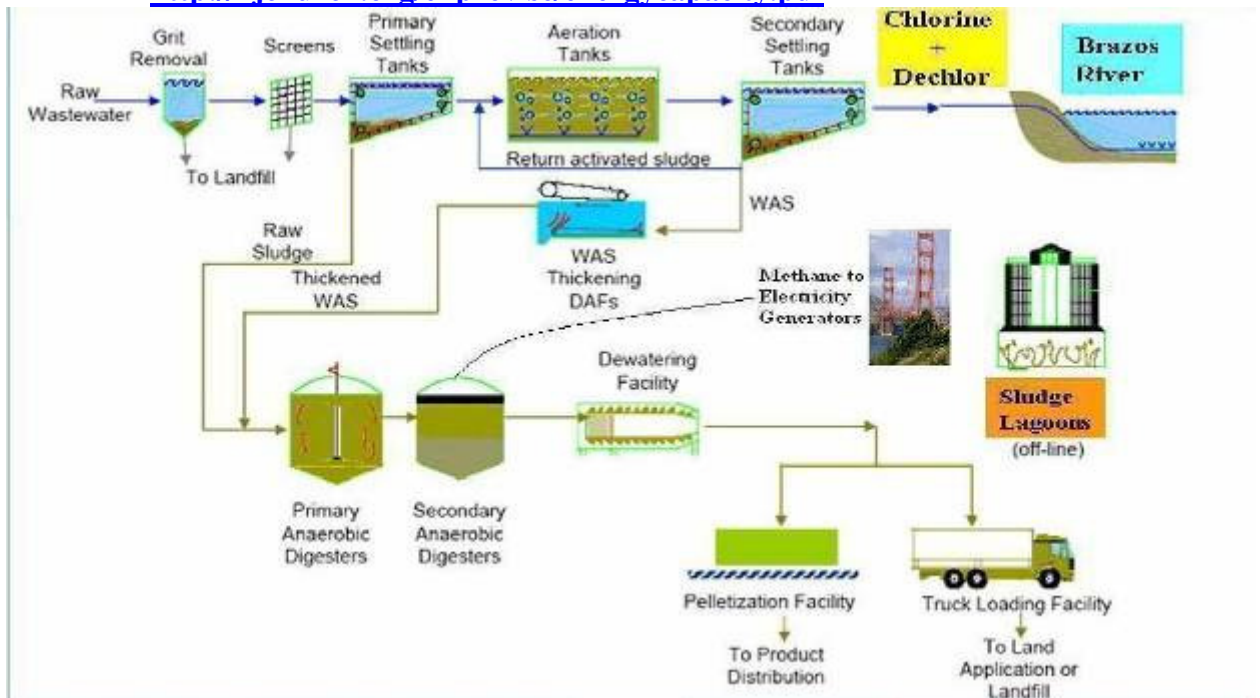
Just a few more highlights of my career are noted below for your review:

✚ I designed and constructed an emergency 36 inch sewer line adjacent to major gas, telephone and electrical lines over a major arterial road that collapsed in Waco due to a 400 x 800 ft sinkhole adjacent to Lake Waco. The project was completed with my own utility staff performing the construction under my engineering oversight. Some of these operators were transported by cranes and harnessed to the concrete bridge which we installed to span the sinkhole. The pipeline project was completed by my own staff at 50% of the cost of contractor bids that I received.



- I saved the City of Waco Utilities nearly \$1M by using one of the four emergency generators to generate electricity from methane at the Wastewater Treatment Plant (WWTP) where we also produced soil conditioners from the anaerobic sludge.

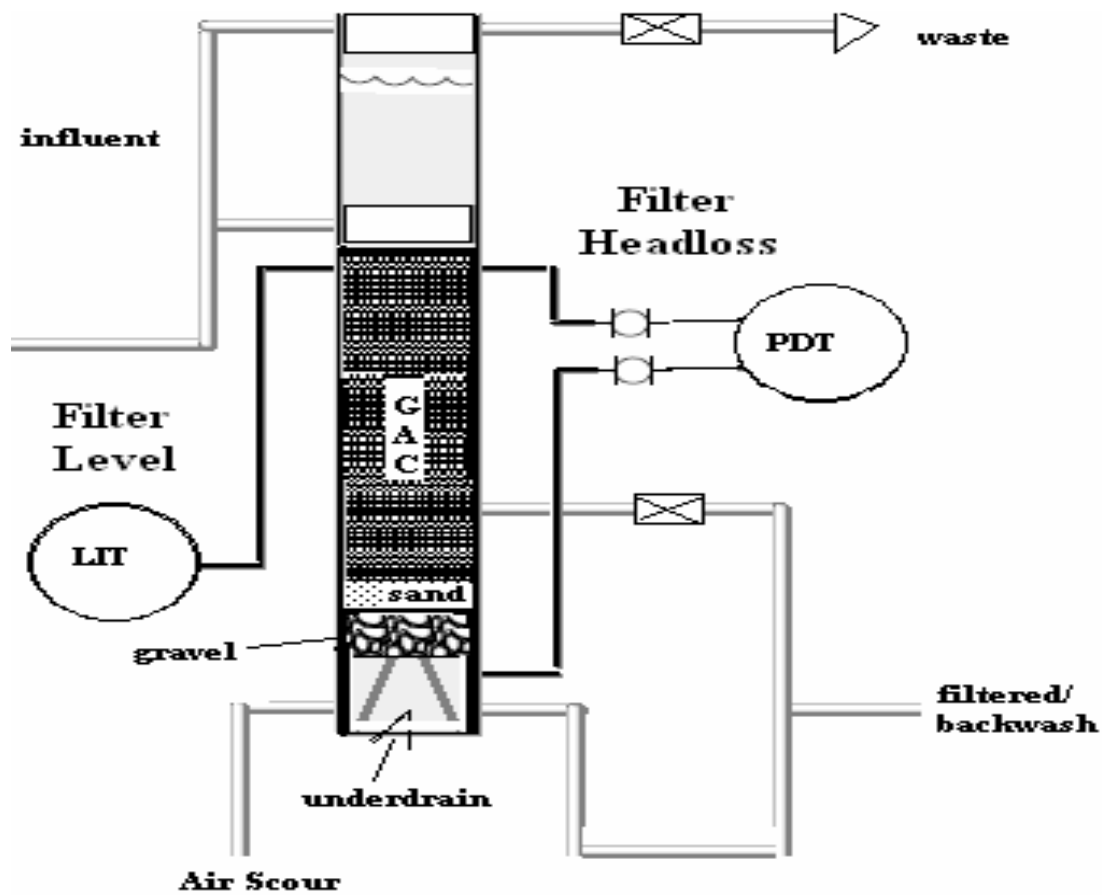
- <http://njchurch.org/enprovis/energycapacity.pdf>



- A few years back, I saved the City of Waco from a WWTP capacity downgrading by performing a stress test and presenting the successful results to TCEQ. Subsequently, we trained the TCEQ staff at their Annual Water Quality Training.

- [http://www.trumpetcall.org/resume/Waste Water Plant.pdf](http://www.trumpetcall.org/resume/Waste_Water_Plant.pdf)
  - <http://www.trumpetcall.org/resume/tceq.pdf>

- I recently completed the design for expansion of a Water Treatment Plant from 6 to 12 MGD using an innovative biological de-nitrification filter in water treatment after successful pilot studies.



- ✚ We have applied for a patent for the above de-nitrification filter process.
- ✚ I also have much experience in subdivision development and have worked in this field both as a City official and a developer's engineer.
- ✚ I was instrumental in having a **General Electric Superfund Site removed from the NPL list** based on my detailed studies and findings on naturally occurring contaminants in Posey County, Indiana. The EPA reviewed my report and made the determination for delisting.
- ✚ I received the Bechtel global technical grant for innovative technology in hazardous waste sludge minimization.
  - <http://njchurch.org/enprovisereferences-brochure-awards.pdf>

In summary, I have expertise in:

- ✚ Hydraulic modeling, design and construction related to developments, stormwater-drainage, groundwater wells, pipelines, water and wastewater plants.
- ✚ Maintaining engineering controls in a preventive maintenance driven health and safety environment (HSE).
- ✚ Pilot studies, design, construction, operation-troubleshooting in water and wastewater plants and pipelines, stormwater (hot spot remediation), environmental remediation (RI/FS, ROD, RD), automatic meter reading infrastructure (AMR-AMI), City-

Municipal Engineering-Public Works-Plan Reviews, and development design & construction.

- ✚ Performing Environmental Audits and maintaining environmental compliance with local, regional, state, & federal (EPA and USCOE), RCRA, CERCLA, TSCA, CAA, CWA, USCOE regulations for operations including emission, waste disposal (RCRA closure plans), stormwater (Stormwater Pollution Prevention Plan-SP<sup>3</sup>), and Spill Prevention, Control, and Countermeasure (SPCC) Plans.
- ✚ Project assessment to final permit preparation and closure..
- ✚ Managing environmental related matters associated with site operations including air, water, waste and chemical/materials management issues.
- ✚ Underground storage tank regulations and permitting processes plus remediation-closure.

Please call me if you have any questions regarding my experience or capabilities. Attached are my project photos.

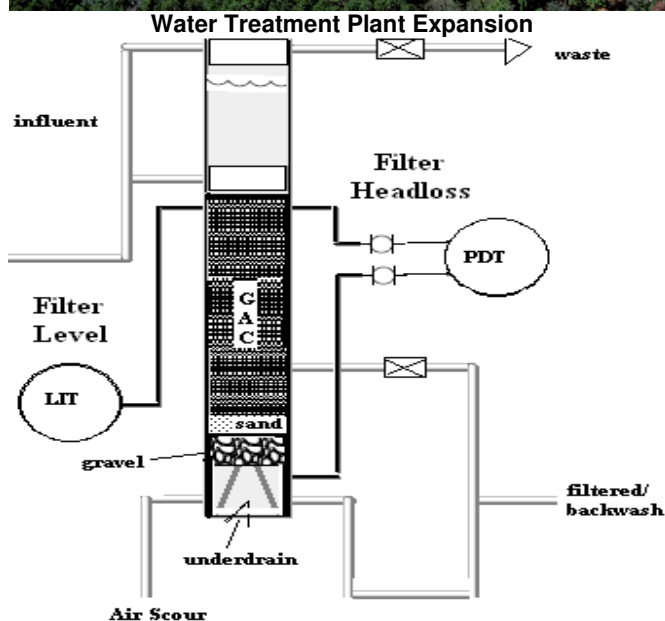
Sincerely,



**Daniel Christodoss, PhD, PE**

**817-894-1357**

## PROJECT HIGHLIGHTS



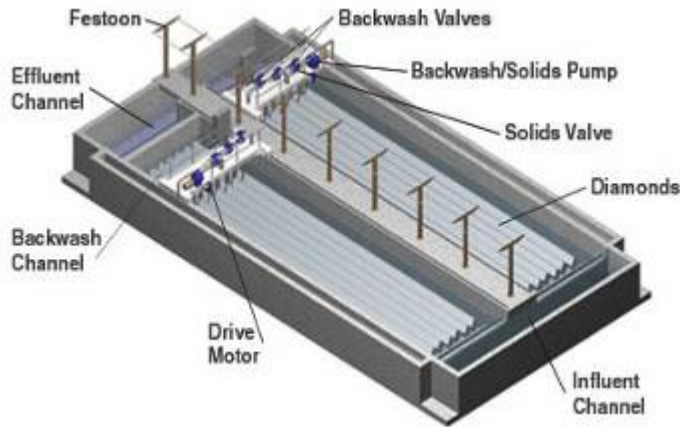
**Biological Denitrification Filter**



Trinity River Authority (TRA) Huntsville Water Treatment Plant Prepared construction plans for expansion from 6 MGD to 12 MGD including the design of innovative 11 MGD GAC biological denitrification filters for nitrate and taste and odor removal.

- Designed backwash pump station and 1.2 MG clearwell: four 350 HP low energy vertical turbine pumps
- Performed preliminary design of parallel 30 and 42 inch 10 mile long transmission main with booster pump
- Designed the new innovative 11 MGD GAC biological denitrification filters for nitrate and taste and odor removal combined with conventional filtration (lifetime savings \$11 million). Completed an online pilot study at the plant, prepared a pilot study report and submitted a patent application for this innovative biological technology.

**Asset Management:** Performed field Asset Inventory and Condition Assessment (AI/CA) with GPS and Bar Codes to Create a GWTP, SWTP & WWTP Asset Data Base. Each Asset in this data base was ranked based on Condition and Criticality. The ranking was utilized to Program Preventive Maintenance Schedules and Rehabilitation into a long-term Capital Improvement Program to reduce the cost of ownership and transition from Reactive to Proactive Maintenance.



**Trinity River Authority (TRA)  
Central WWTP Diamond Filters**

Project Support Engineer for the high flow and small footprint diamond cloth filters to replace the existing sand filters. Features include:

- Higher solids loading per square foot of media (2.5 times the filtration area of sand filters), higher hydraulic loadings, reduced backwash water volume, reduced footprint
- Canopy to minimize Algae Growth

**City of Azle WWTP Pump Station Upgrade**

A preliminary design report (PDR) was prepared summarizing evaluation of the following three alternatives

- replacing existing triplex pumps to better match the existing system curve and adding a new booster pump station (a)
- same as alternative "a" except adding two - booster pump stations
- replacing existing triplex pumps to better match the proposed pumping conditions; and constructing a new effluent flow equalization/ storage basin at the Ash Creek WWTP, that will link to the existing effluent/storage basin, and will normalize peak discharge flows



**Cities of Temple, Waco & Azle**

- Development and capital infrastructure plan reviews
- Water-Wastewater-Development-Building Inspections-Permitting Program Management
- Projects reviewed including developments were about \$165 M in value



[www.njchurch.org/enproviser/references-brochure-awards.pdf](http://www.njchurch.org/enproviser/references-brochure-awards.pdf)

**Southwest Water Company**

- Designed innovative technology to implement removal of Trihalomethanes in purchased surface water.
- Cost of implementation was \$0 since existing equipment configuration was used.
- System out of compliance attained TCEQ compliance with





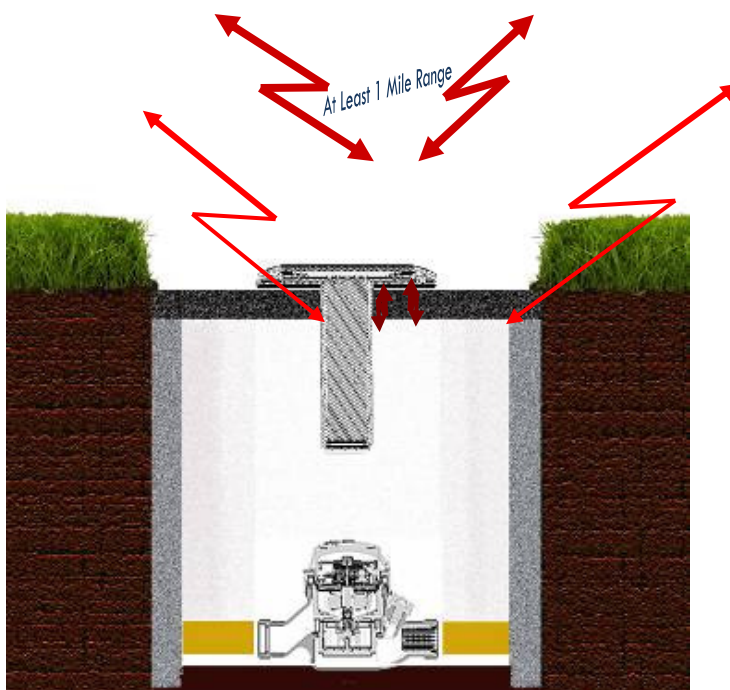


technology

### City of Azle Denver Trails Road and Bridge

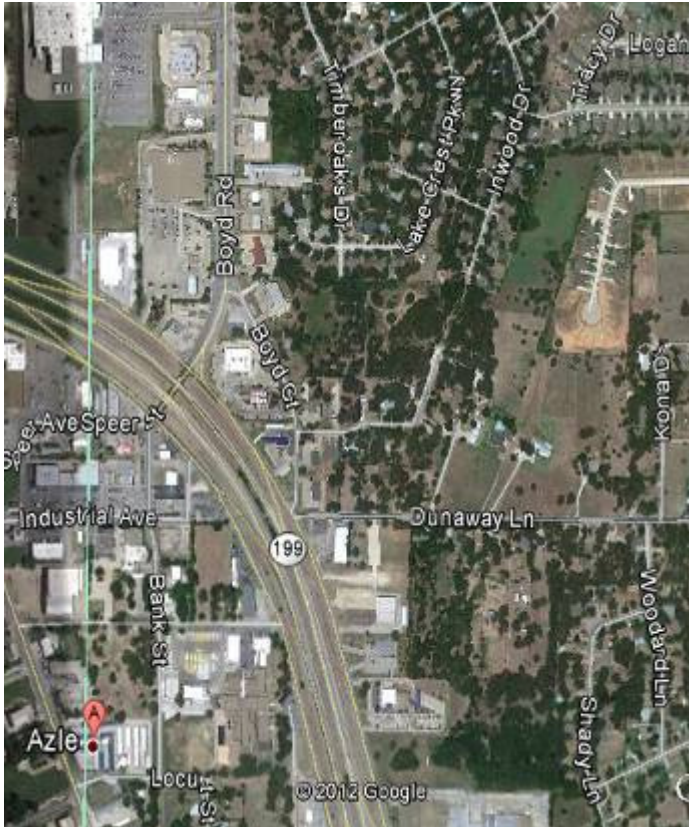
Evaluated three traffic reliever street alternatives across the floodway of Ash Creek to connect Highway 199, schools, hospitals and interior residential developments.

- The selected alternative was the best configuration to relieve existing and future traffic conditions on several collector streets during peak hours.
- Designed and managed the project which involves a 3,000 ft long road with a 900 ft bridge over the floodway of Ash Creek with drainage (storm collection system comprised of inlets and flume combinations) and water-sewer improvements.
- Coordinated the Section 404 permit with the Corps of Engineers.



### Transition to Wireless RF Frequency Automatic Meter Reading (AMR):

Created a new AMR Program by preparing a business case/return on investment (ROI) document to evaluate the merits of transitioning from a manual meter reading system to an AMR system, obtained funding for \$8M. Evaluated various AMR/AMI technologies and implemented best fit that provided the optimal return on investment at the lowest life-cycle cost. Installation was completed at an accelerated schedule across 108 CCNs in Texas with diverse challenges at an unprecedented record time. Paper presented at EUEC 2012, Phoenix, AZ



### City of Azle Flooding Hotspots

In lieu of doing a drainage master plan, the focus of this project was to

- Identify drainage solutions and prepare conceptual designs for 10 of the 25 flooding hot spots in the City of Azle
- These 10 hot spots were flood prone areas ranging from businesses and residents to major streets that have to be closed frequently during rainstorms
- Conceptual design plans were submitted
- Performed hydraulic and drainage analyses for different storm frequencies using Haestad-Bentley hydraulics and drainage software and sized-designed structures for flood control, drainage and erosion protection



### City of Waco Sinkhole Collapse

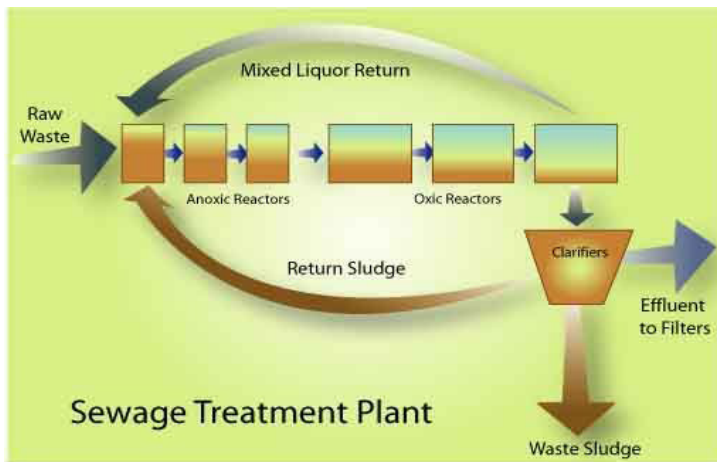
Designed and constructed

- an emergency 36 inch sewer line across a major arterial road which collapsed due to a sinkhole
- Budget constraints led to in-house design-build at 50% of the cost of contract bids.
- Coordinated the rebuild of gas and electric lines/cables



### City of Azle Central Parks

Responsible for the design and construction of the 30 acre park which included recreational facilities, gardens, bird blinds, landscaping, irrigation and lighting, and a drainage system and a detention pond.



### City of Waco WWTP

Saved approximately \$20 Million by doing a stress test to retain the WMARSS wastewater treatment plant capacity at 37.8 mgd and eliminate downgrading to 31 mgd.

- Made presentations to TCEQ on the highlights of the stress test and received approval for maintaining the existing rating for the WWTP.

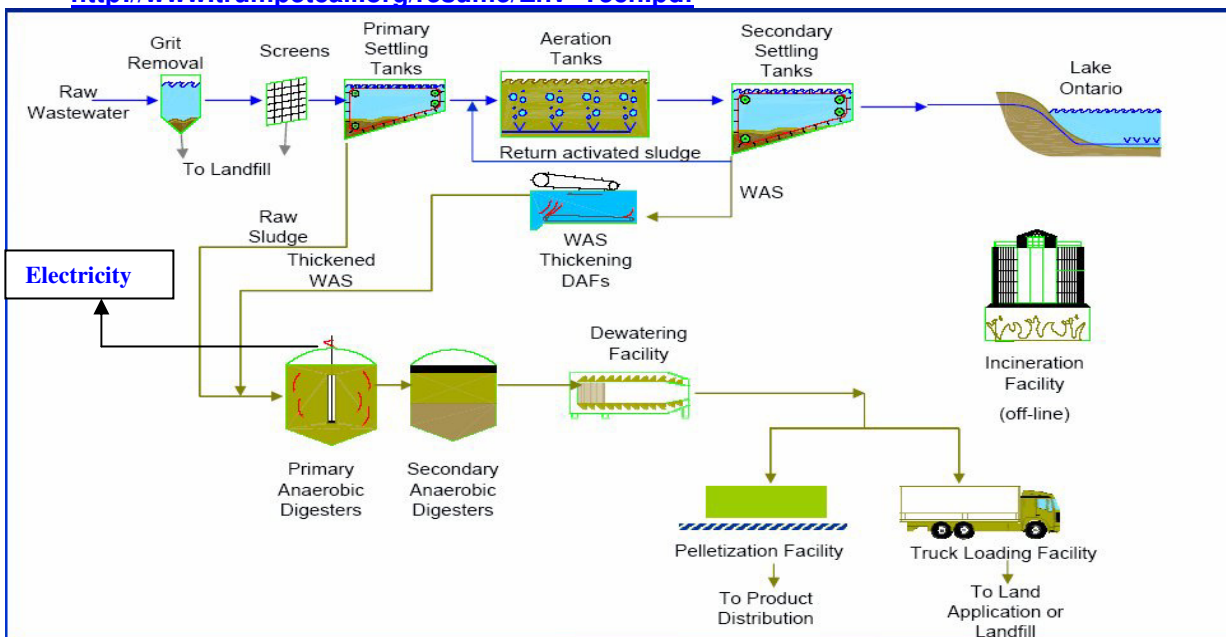
1. <http://njchurch.org/enprovisewet.pdf>
2. [http://www.trumpetcall.org/resume/Waste\\_Water\\_Plant.pdf](http://www.trumpetcall.org/resume/Waste_Water_Plant.pdf)
3. <http://www.trumpetcall.org/resume/tceq.pdf>



### Kelly Air Force Base

Waste Treatment Process Optimization: Field engineer for optimization of the Unipure industrial heavy metals co-precipitation treatment plant. Performed a comprehensive study of process parameters for enhancing treatment performance and meeting NPDES limits (photo on right). Published report summarizing operating guidelines for achieving maximum efficiency.

**Unipure Industrial Heavy Metals Treatment Plant**  
[http://www.trumpetcall.org/resume/Env\\_Tech.pdf](http://www.trumpetcall.org/resume/Env_Tech.pdf)



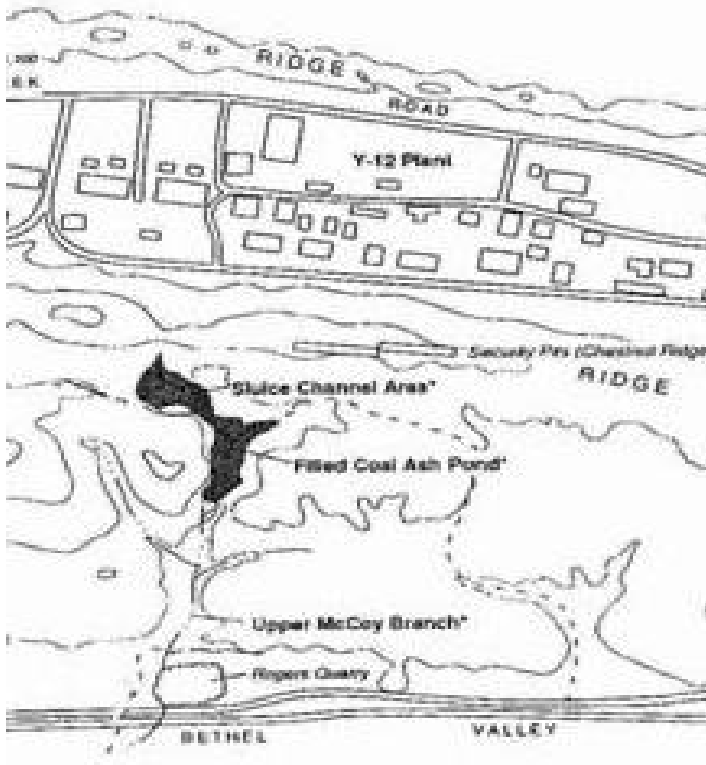
**City of Waco:** Stabilized operations budget during a previous energy crisis (natural gas @ \$13/mmbtu) by waste to energy initiatives. Implementation of these initiatives decreased natural

gas and electricity usage by 30% using cogeneration (generating electricity from methane production at the anaerobic digesters and producing sludge pellets for agricultural use).

- <http://njchurch.org/enprovis/energycapacity.pdf>
- [http://www.trumpetcall.org/resume/Waste\\_To\\_Energy.pdf](http://www.trumpetcall.org/resume/Waste_To_Energy.pdf)



UV/H<sub>2</sub>O<sub>2</sub> Chlorinated Solvent Oxidation



<http://trumpetcall.org/resume/awma.htm>

### Kelly Air Force Base

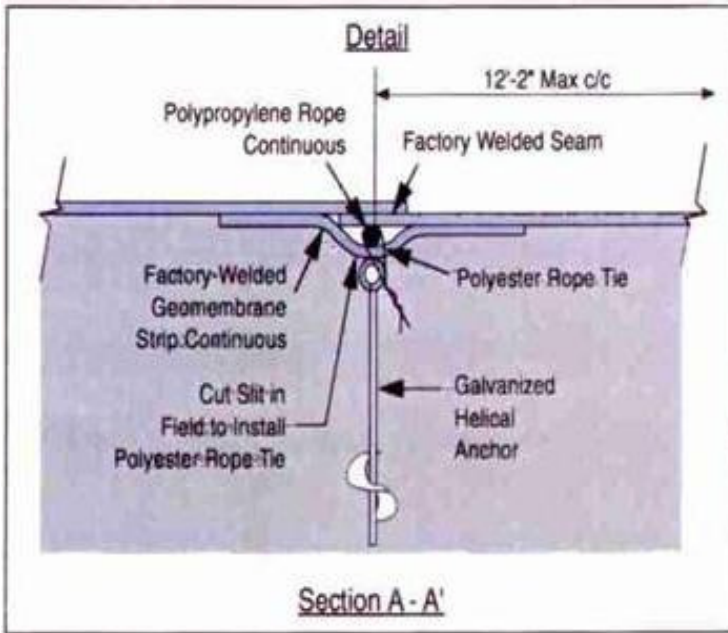
Performed design upgrade to the existing Groundwater Treatment Plant (GWTP) in a design-build process

- Functioned as the general contractor for the project.
- Prepared concept for radio monitoring and control from 7 automated remote pump stations.
- Integrated 1,000 gpm industrial plant into 500 gpm GWTP to reduce costs and utilize both infrastructures effectively.

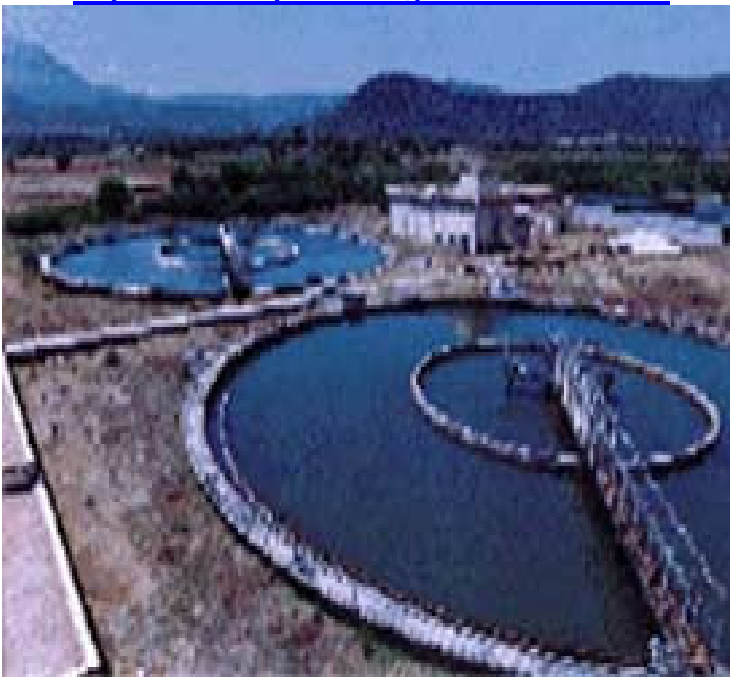
### Oak Ridge Y12 Plant Remediation

Y-12 Filled Coal Ash Pond Remediation Prepared feasibility studies, proposed plan, ROD, construction oversight and monitoring plan for 5-year CERCLA review.

- National Pollution Engineering Award for Eco-sensitivity in Engineering
- Provided support to DOE in public meetings.
- Received commendations from DOE for escalation of milestones resulting in savings of over \$2M in overall costs leading to finalization of a Feasibility Study, Proposed Plan, ROD, Remedial Design, and Remediation 7 years ahead of the original schedule.



<http://www.trumpetcall.org/resume/wma.htm>



<http://www.njchurch.org/cleanwater4us/presentations/christodoss.pps>

### FUSRAP Program

Performed engineering studies of existing piles on DOE sites (FUSRAP Project) and prepared several designs for both soil and geomembrane pile covers and anchor systems

- Calculated the maximum slope angle based on the angle of internal and the cohesion "c" (for various factors of safety) for a low level radioactive waste storage pile covered with clean soil and riprap on the slope
- Prepared the conceptual design for a soil cover and riprap configuration for the FUSRAP project

### Water and Wastewater Board

Verified design and performed construction oversight/O&M for a 101.4 LPD water treatment plant and control building in an elephant forest 2,500 ft above msl to convey and provide drinking water to metropolitan city (40 miles away).

- System included a surface water intake, spray nozzle aeration chamber, chemical house, clariflocculator, filter house with shell roof, pump house/main control station, and clear water reservoir.
- Performed structural design of residential and commercial buildings. Verified design and oversaw construction of control building for the 101.4 MGD water treatment plant.
- Performed field investigations for laying water supply mains and designed water/waste systems.

**Water Loss Program:** Controlled real & apparent losses. *Real Loss Control:* Performed Leak Detection & Cycle-stop valve installation/testing to quantify leak reduction through pressure equilibration. *Apparent Loss Control:* Studied significant drop in efficiency for meters that registered over 1.7 million gallons and proposed replacement of meters with state of the art automatic meter reading and high accuracy rugged registers.

Email: [info@vr4u.us](mailto:info@vr4u.us) DANIEL CHRISTODOSS, EMT, PhD, P.E.

Water, Wastewater, Environmental Remediation, Compliance, AMR/AMI, Asset Management, Storm Water-Drainage-City Engineer, Modeling, Pilot Studies, Design, Construction, Operational Optimization, Life-Cycle Sustainability

3450 Cripple Creek Ct, Granbury, TX 76048 (Mobile) 817 894-1357 4931 Old Coffee Plantation, Rosharon, TX 77583

## SUMMARY of EXPERTISE

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Master plans, pilot studies, hydraulic-treatment engineering design & construction of water-wastewater (w/ww) plants-pipelines, sewer collection inflow/infiltration (I&I) & distribution water loss control, automatic meter reading infrastructure (AMR/AMI) return on investment (ROI) analysis, AMR/AMI bid packages-construction management, water and wastewater program management, iron and manganese sequestration, bio solids-water reuse, waste to energy technology implementation, industrial process optimization & pollution control, environmental compliance and agency coordination, audits-assessments, hazardous waste & contaminated groundwater remedial investigation/ feasibility study (RI/FS), innovative technology evaluation/pilot studies, remedial design including remediation of hydrocarbon (oil & gas) contamination in soil and groundwater, construction management, alternative fuels & green energy implementation, asset management (asset inventory, GPS, condition assessment, preventive maintenance schedules, rehabilitation vs. replacement evaluations, life cycle cost analysis, condition & criticality based capital improvement program (CIP) planning & transitioning of utilities from reactive to pro-active mode), review of City CIP and development plans, w/ww/environmental permitting, storm water & drainage design-master plans, health & safety & web design/administration. City Engineer@Temple, Program Manager@Waco Utilities, Project Manager@APAI, Asset-Design-Construction Manager at Southwest Water. EMS-ISO 14001 training & auditing.

## AREAS OF EXPERTISE

### **Asset/Risk Management: Plant Engineering, Preventive Maintenance, Capital Project Planning (CAPEX)**

- Water/Wastewater Plant GPS Asset Inventory & Condition Assessment with Condition/Criticality Ranking
- Prioritized Weighted Long Term Capital Improvement Project Program Planning for Multiple Assets
- Asset Preventive Maintenance Schedules/Risk Reduction based on Asset Life, Condition and Criticality
- Program to transition from Reactive Replacement to Pro-Active Maintenance and Rehabilitation/Replacement along with Long Term CAPEX and Risk Analysis to promote health and safety/longevity
- Root Cause of Failure Analysis, Risk reduction measures, Hazard Identification Failure Modes & Effects Consequence/Criticality Analysis

### **Environmental Compliance and Remediation**

- RI/FS, Value Engineering, Pilot Studies, Proposed Plan, Record of Decision and Remedial Design/Construction
- Environmental Compliance and Audits
- Development, Design and Construction of Innovative Remediation Technologies

### **Water Services (Groundwater, Surface Water Plant Preventive Maintenance/Design/Construction)**

- New Water Treatment Plant Design, Existing Design Optimization and Rehabilitation
- Distribution System Design
- Master Plans and 85% Capacity Reports to TCEQ

### **Municipal Waste Water Services (Preventive Maintenance/Design/Construction)**

- New Waste Water Treatment Plant Design with Reuse, Existing Design Optimization/Rehabilitation
- Collection System Design
- I&I Studies and Recommendations
- Lift Station Design
- Capacity Evaluations and Rating Studies

- Wastewater Master Plans
- Green Energy and Bio-solids to Energy (Electricity Generation)
- Treated Wastewater/Biosolids Reuse

#### **Industrial Waste Water Services**

- Pilot Studies
- Treatment System Design and Construction

#### **Storm Water Management**

- Hot Spot Studies, Design and Construction

#### **City Engineering and Utility Program Management**

- Review of Development and Engineering Plans
- Water and Wastewater and Stormwater Field Operations City Wide
- Code Compliance Investigations
- Stormwater Pollution Prevention Plans
- City Planning Functions
- Preliminary Traffic Engineering and Route/Road Widening Feasibility Studies

#### **Grant Administration**

- Identification of Applicable Grants
- Preparation of Grant Documents
- Coordination with the Funding Agency for Receipt of Grant Funds

#### **Value Engineering**

- Identification of Technologies
- Effectiveness, Implementability and Cost Evaluations
- Return on Investment (ROI) and Life Cycle Analysis
- Weighted Ranking of Alternatives
- Recommendation of Optimal Technology which provides the highest ROI at lowest Life Cycle Cost

#### **Technology Innovation**

- Problem Evaluation
- Pilot Studies for Development
- Full Scale Design

#### **Automatic Meter Reading/Automatic Meter Reading Infrastructure**

- Evaluation of Technologies
- Exploring available funding sources
- Grant Administration
- Business Plan
- Implementation of the optimal Automatic Meter Reading Technology for Utilities to maximize the Return on Investment (ROI).
- Construction Administration

#### **Patent Applications**

- Preparation and filing of Provisional (Patent-Pending) Applications

- Preparation and filing of Regular Patent Applications

**Web Design**

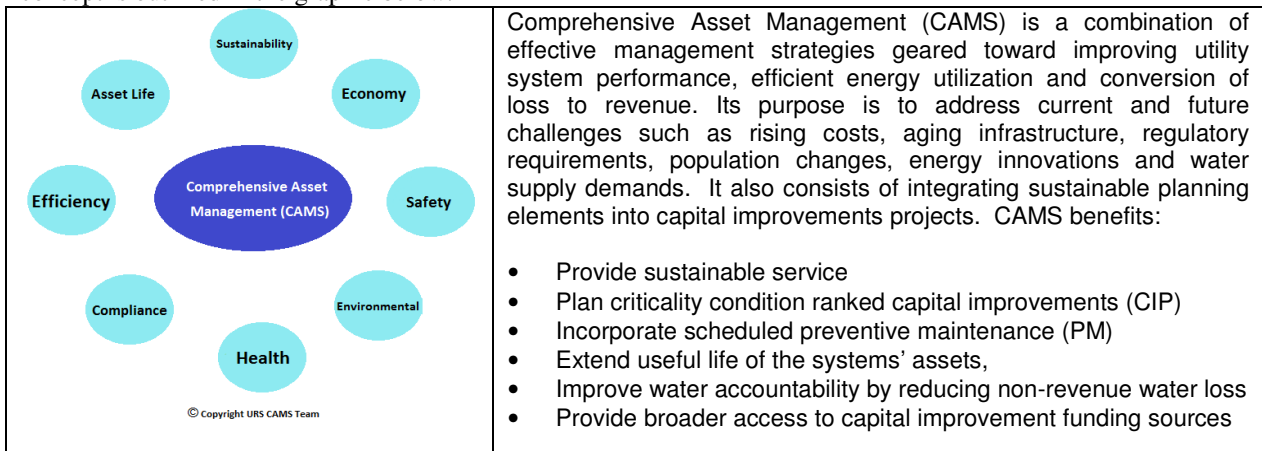
- Creation of interactive web sites utilizing state of the art design tools
- Website optimization and promotion

**URS CORPORATION, Houston, TX**

**2012 – Present**

**Business Development – Marketing.** Prepared a new water and wastewater and comprehensive engineering services business sector and brochure which included facilities, transportation, drainage/stormwater, asset and energy management, renewables with reuse, water and wastewater and permitting services. Upgraded standard SOQ template master to be comprehensive and focused on client needs. Established new relationships with over 52 municipalities in North, Central and South East Texas. Won \$25,000 of work for permit related engineering for Waco WMARSS Wastewater Plant the 2nd month. Developed new business initiatives for Biogas (methane) to Electricity Sludge to Soil Conditioner, FOG to Biodiesel, Wastewater Reuse, Comprehensive Asset and Energy Management plus AMR and AMI. Made marketing presentations on comprehensive municipal engineering services.

**Comprehensive Utility Asset Management.** Assembled a Comprehensive Asset Management Team (CAMS) and Program for Municipalities to address long-term infrastructure sustainability through Preventive Maintenance, Criticality and Condition Ranked Capital Improvements to include water audit and non-revenue water loss. The concept is outlined in the graphic below:



**West District and Upper Brays Wastewater Treatment Plant Service Areas Sanitary Sewer and Odor Control Systems Master Plan, City of Houston, TX.** Completed a Collection System Master Plan for the City of Houston. The InfoWorks Model was integral to the master plan. The Master Plan identified existing wastewater system deficiencies and future needs of the system to provide prioritized recommendations to the City that would provide the greatest return for the time and money invested in the projects. The master plan involved condition assessments for the collection system infrastructure utilizing a prioritization matrix. The project involved coordination with a team of consultants.

**City of Beaumont Collection System Optimization.** A collection system model was built using Info Works (Integrated Catchment Model) ICM to perform a conceptual study. The study determined optimal operating conditions to maximize the collection system capacity. During Info Works ICM Modeling, the storage potential of the existing collection pipes, manholes, and lift stations/pump stations, were evaluated against various dry and wet weather flows. Alternative pump operating schemes, were input into the model to maximize available storage, and identify additional storage needs within the collection system. The study was intended to minimize the capital improvements needed by maximizing the storage and redundancy within the sewer infrastructure comprised of pipes, manholes and lift stations/pump stations. Infiltration/Inflow (I/I) was also studied for storm events during



the Info Works ICM collection sewer system hydraulic modeling conceptual study/preliminary engineering report (PER). Additional storage needs within the collection system were identified from the Info Works ICM Modeling Effort.

**ENPROVISE SOLUTIONS. INC, Granbury, TX**

**2009 – 2012**

**Municipal/Industrial: Water/Wastewater** Master Plans, Technology Development/Validation through Pilot Studies, Hydraulic and Treatment Design, Construction and Operation. **Environmental Remediation:** RI/FS, Remedial Design & Construction. **Public Works:** Drainage hot spot evaluation, hydraulic design, and construction.

**SOUTHWEST WATER COMPANY, Sugar Land, Texas**

**2009 – 2012**

**Design:** Performed chemical feed and booster/well pump designs to attain optimal efficiency.

**Technology:** Implemented innovative aeration/recycle technology for Tri-Halo Methane reduction in Water Tanks.

**Asset Manager/Design and Construction Manager:** Managed assets by preparing an Asset Management Implementation Project Plan followed by Inventory Audit and Condition Assessment of Water and Wastewater Infrastructure. Prepared Asset Appraisal and Life Cycle Analysis plus Return on Investment for Management.

**Criticality Assessment and Preventive Maintenance:** Assigned scores to ground water, surface water and wastewater treatment plant assets based on redundancy, criticality, system and probability of failure to prepare a preventive maintenance plan, and long term capital improvement plan.

**Water Capacity Planning:** Planned for long-term capacity using population projections, economic outlook and historical trends to increase water system capacity to match future growth. Utilized peak and average flow graphical trend predictions to make future decisions on augmenting groundwater supplies vs. purchasing wholesale water.

**Transition to Wireless RF Frequency Automatic Meter Reading (AMR):** Created a new AMR Program by preparing a business case/return on investment (ROI) document to evaluate the merits of transitioning from a manual meter reading system to an AMR system. Team modified Mobile Antenna for optimal RF interception.

**Meter Replacement:** Evaluated AMR technologies and made recommendations on the best technology which provided the highest rate of return at the lowest life-cycle cost. Prepared detailed schedule in MS Project.

**Water Loss Program:** Created a new water loss program by controlling real and apparent losses. *Real Loss Control:* Performed Cycle-stop valve installation and testing to quantify reduction in leaks through pressure equilibration. *Apparent Loss Control:* Utilized study identifying significant drop in efficiency for meters that registered over 1.7 million gallons and proposed replacement of meters with state of the art automatic meter reading and high accuracy rugged registers.

**Hydraulic Design/Filter Backwash Pump Design:** Prepared a hydraulic model of backwash systems at two water plants to evaluate piping upgrade and pump replacement options to meet the minimum backwash flow requirements established by TCEQ. Extensive Hydraulic Design and Modeling to select optimum pipe and pump.

**Sludge Dewatering Project:** Evaluated available technologies and selected a new technology to provide a sludge volume reduction of 94% at a wastewater plant documented in the business plan/ROI in coordination with pilot testing at the facility.

**Developments:** Reviewed design and performed ROI calculations based on infrastructure cost vs. life cycle revenue.

**ALAN PLUMMER ASSOCIATES INC, Fort Worth, Texas**

**2007 - 2009**

**Project Manager/Engineer:** Managed and designed projects involving road and bridge construction (\$5M), drainage and water/wastewater utility improvements (\$1M), and water treatment plant improvements (\$10M) and made presentations at City Council and Client meetings. Provided marketing support for numerous prospects and won over \$5M in projects for the company. Developed and implemented an innovative water treatment technology, met with potential clients and consulting engineers to discuss and develop plans to employ the technology on projects, and submitted a patent application for bio-filter de-nitrification technology. Projects included:

**Huntsville Water Treatment Plant:** Prepared construction plans for expansion from 6 MGD to 12 MGD including the design of innovative 11 MGD GAC biological de-nitrification filters for nitrate and taste and odor removal.

- Designed backwash pump station and 1.2 MG clearwell: four 350 HP low energy vertical turbine pumps
- Performed hydraulic design of parallel 30 and 42 inch 10 mile long transmission main with booster pump

**Mansfield Water Treatment Plant:** Evaluated GAC pressure filters vs. gravity filters for the plant expansion from 15 MGD to 30 MGD (current) and 45 MGD (2020).

**TRA Central WWTP Diamond Filters:** Project Engineer for the high flow and small footprint diamond cloth filters to replace the existing sand filters. Features include higher solids loading per square foot of media (2.5 times the filtration area of sand filters), higher hydraulic loadings, reduced backwash water volume, reduced footprint

**Amarillo Wastewater Treatment Plant (WWTP) Master Plan:** Project engineering and management for performing a feasibility study of new satellite WWTP vs. upgrade of existing Hollywood Road and River Road WWTPs with reuse cooling water to the power plant.

**Azle Flooding Hotspots:** Identified drainage solutions and prepared hydraulic designs for 10 of 25 flooding hot spots in the City of Azle. These 10 hot spots were prone to flood prone businesses, and major streets.

**Stribling Drainage Channel:** Designed and managed the reconstruction of the eroded channel to grade with armor flex and geotextile mat for erosion control and conveyance of the 100 year storm.

**Highway 199 Lift Station:** This lift station serves an area which includes a large undeveloped section of land along State Highway 199 west of the lift station site. Performed hydraulic design of pumps and pipe.

**Highway 199 Sewer line Crossing, Ash Creek Sewer line Relocation and Turpin and Conwell Water Lines:** Designed the replacement of an existing 8 inch aged sewer line with a new 12 inch line by methods other than open cut since the line crossed a busy highway. Performed hydraulic design to select optimum pipe and grade.

**Ash Creek WWTP Effluent Pump Station:** Project increased the capacity of line from 2 MGD to 3 MGD.

**Grant Support to Cities and Authorities:** Assisted City of Azle and Trinity River Authority in applications to the Texas Water Development Board for Water Treatment Plant Expansion and Wastewater Treatment Plant Upgrade Funding (approximately \$25M combined).

**Denver Trails Road and Bridge:** Designed and managed the project which involves a 3,000 ft long road with a 900 ft bridge over the floodway of Ash Creek with drainage (storm collection system comprised of inlets and flume combinations) and water-sewer improvements.

**Azle Water Treatment Plant Evaluation:** Identified possible causes for the high turbidity at the transfer station and recommended that the caustic feed be relocated to a zone of high mixing upstream of the transfer station.

**Azle Development/Construction Plan Reviews:** Reviewed development and construction plans for conformity with City of Azle Ordinances and acceptable engineering practices so City budget can be dedicated towards expansions and improvements to accommodate growth rather than remediation of problem systems.

**Azle Central Parks:** Responsible for the design and construction of the 30 acre park which included recreational facilities, gardens, bird blinds, landscaping, irrigation and lighting, and a drainage system and a detention pond.

**CITY OF WACO, Waco, TX**

**2004 – 2007**

**Program Manager:** Operations and maintenance manager for about 900 miles of waterlines and 800 miles of sewer at Waco and Coordinator for the Environmental Management Systems (EMS) Program Initiative with TCEQ.

- Performed hydraulic design and constructed an emergency 36 inch sewer line across a major arterial road which collapsed due to a sinkhole. Budget constraints led to design-build at 50% of the cost of contract bids
- Prepared Manhole/Lift Station Overflow Reduction Plan to TCEQ
- Responsible for managing construction/preventive maintenance of water distribution systems and wastewater treatment plants spanning 100 square mile of service area and serving 150,000 residents
- Saved \$20 Million by doing a hydraulic-treatment stress test to retain the WMARSS wastewater treatment plant capacity at 37.8 mgd and eliminate downgrading to 31 mgd and made presentations to TCEQ
- Stabilized operations budget during energy crisis (natural gas @ \$13/mmbtu) by waste to energy initiatives
- Prepared plans to provide 24/7 water and sewer service for 150,000 population including line cleaning, Water/Sewer Mains and Lateral Repair/Replacement, sewer overflows prevention, and pipe leak prevention

**KILLEEN ENGINEERING, Killeen, Texas**

**2004 -2005**

**Development Engineer:** Performed residential and commercial subdivision/lot designs for lot layout, roads,

hydraulic design of drainage, water and sewer designs in compliance with Drainage Criteria and Design Manual and TCEQ/Local water and sewer codes. Prepared standardized spreadsheets to document hydraulic designs.

**CITY OF TEMPLE - Temple, TX**

**2002 - 2004**

**City Engineer (CIP, Development, and Building Inspection & Flood Plain Manager):** Directed public works activities, including the design, construction, and operation of roads, traffic engineering and road alignment feasibility studies, water/wastewater utilities, and City developments; coordinated maintenance of road and drainage systems and traffic control functions with Director of Services.

- Served as the City Flood Control Engineer
- Managed roads, drainage, water and sewer, and subdivision infrastructure projects in excess of \$400 M
- Made presentations to City Council and Planning/Zoning Commission on Zoning, Plats and Construction
- Managed all environmental activities associated with storm water permits; and recommended solutions

**SCIENCE APPLICATIONS INTERNATIONAL CORPORATION, San Antonio, TX**

**1997 - 2002**

**Senior Project Engineer:** Field engineer for optimization of the Unipure industrial heavy metals co-precipitation treatment plant, performing a comprehensive study of process parameters for enhancing treatment performance and meeting NPDES limits.

**Kelly AFB:** Performed a hydraulic design upgrade to the existing Groundwater Treatment Plant (GWTP) in a design-build process, and oversaw construction. Performed hydraulic design and construction oversight of lift/pump station, recovery well pumps, silt traps, below ground piping, mechanical and instrumentation components

- Brought in new work through consistent technical support to AFB client via AFCEE/AFB programs
- Evaluated Interim Stabilization Measures for Sites A, B and C contaminated with Heavy Metals from Plating Operations, Free Product, Chlorinated Solvents in soils and groundwater exceeding TCEQ limits

**Brooks AFB:** As Resident Support Engineer conducted engineering evaluations and system cost analysis and recommended, designed, and oversaw reengineering projects as required to ensure optimal operation.

**JACOBS ENGINEERING, Oak Ridge, TN**

**1994 - 1997**

**Senior Feasibility Engineer:** Prepared feasibility studies, proposed plan, ROD, construction oversight and monitoring plan for 5-year CERCLA review for a Y-12 Filled Coal Ash Pond Remediation and received written commendations from DOE for escalation of milestones which resulting in a savings of over \$2M and completion of the Remedial Design, and Remediation 7 years ahead of the original schedule

**Feasibility Study Engineering Group Leader:** Conducted weekly meetings for engineering staff and prepared presentations on emerging treatment technologies for contaminated soil, groundwater, and sediment and was commended for effective communication and presentation of geological hydrogeological and engineering principles relevant to remediation. Projects included but not limited to:

**Chanute AFB, IL:** Developed an environmental Cleanup Plan for the demobilization, closure and spill control and discharge plan for remediation of a landfill and a test site contaminated with metallic and organic contaminants.

**Task manager for the K-25 Project:** Prepared a ROD for a classified, contaminated burial ground and engineering studies for in situ vitrification and chemical oxidation of a pit contaminated with volatile organics and radionuclides, and remediation of PCB-contaminated ponds.

**Senior Engineer for restoring contaminated auto salvage sites:** Prepared Engineering Evaluation/Cost Analysis and Specifications for Magnetometer Surveys to identify buried objects, Soil Sampling with Geoprobe Sampling Systems for site contaminated with PCBs, radiological constituents, organics and heavy metals including mercury.

**SCIENCE APPLICATIONS INTERNATIONAL CORPORATION, Oak Ridge, TN**

**1992 - 1994**

**Senior Environmental Engineer:** Project manager for an Engineering Evaluation/Cost Analysis-Environmental Assessment (EE/CA-EA) for the Colonie site, New York under the Formerly Utilized Sites Remedial Action Program (FUSRAP).

- Prepared regulatory requirements package for Creek Environmental Impact Statements
- Performed an environmental audit of the Paducah Gaseous Diffusion Plant (PGDP), Paducah, KY

- Prepared Integrated Waste Management Plans for organic, nuclear and mixed wastes for the Y-12 inactive nuclear weapons production plant, K-25 inactive gaseous diffusion plant, X-10 active research facilities
- At the Burial Grounds at PGDP prepared conceptual designs and analysis for remediation of the WAG 22 and received commendation from DOE site manager for the team's finding cost-effective ways for cleanup
- Prepared conceptual designs for air strippers, ion exchange and activated carbon treatment units for the Portsmouth site groundwater corrective measures study (CMS)

## BECHTEL ENVIRONMENTAL INC. - Oak Ridge, TN

1989 - 1992

**Civil Engineer:** Principal Investigator for development of an innovative technology in hazardous waste treatment & waste minimization including producing a conceptual design of sewer and treatment systems to convey water (via railroad crossing) from blow-down, tank farm sinks, metal frame warehouse and a 2 story concrete block warehouse to a sanitary sewer after being treated in an activated carbon unit.

- Performed hydraulic design of storm sewer system, sumps and catch basins based on a 25 year storm
- Performed structural analysis of manholes for a FUSRAP project to prepare specifications for purchasing the appropriate manhole to accommodate site-specific requirements
- Performed calculations for determining the bearing pressure, buoyancy, uplift force, AASHTO soil load on the manhole structure, bending stress, maximum moment and shear on manhole roof
- Calculated the maximum slope angle based on angle of internal and the cohesion "c" (for various factors of safety) for a low level radioactive waste storage pile covered with clean soil and riprap on the slope
- Prepared the conceptual design for a soil cover and riprap configuration for the FUSRAP project

## LICENSES, EDUCATION, AWARDS and PUBLICATIONS

- Professional Engineer (PE) – State of Texas
- PhD in Civil Engineering - University of Tennessee - Knoxville, TN
- MS in Public Health Engineering - Bharathiyar University, Coimbatore, India
- BS in Civil Engineering - Madras University, Coimbatore, India
- *National Pollution Engineering Award* for Eco Sensitive Remediation Design of Filled Coal Ash Pond/Dam
- *AWWA Award* for contribution to research in water treatment.
- *Award for effective team building-technical excellence in key SAIC projects (1994)*  
*Bechtel Award of Merit for technical excellence (1990, 1992 and 1993)*
- *Bechtel Technical Grant Award* for development of innovative technology in remediation. SAIC Year 2000 Environmental Excellence Award as part of team that facilitated the Air Force Base Closure Agency's acquisition of Kelly Air Force Base through innovative remediation-related cost-reduction efforts
- 🚧 Streamlining Cleanup Decisions at Filled Coal Ash Pond, Proceedings for the Air and Waste Management National Conference, Nashville, TN (1996)
- 🚧 2011 Implementation of a High-Tech Automatic Meter Reading Application in Unprecedented Record Time at Diversified Texas Water Utilities, 15<sup>th</sup> Annual Energy, Utility and Environmental Conference, Phoenix, AZ (2012)
- 🚧 Anoxic Selector Single Stage Nitrification Process, Texas Commission on Environmental Quality Annual Water Quality Training, Waco, TX, (2006)
- 🚧 Paper: "Capping Options for Low-Level Radioactive Mtrl Storage Pile, Waste Management Symposia '93
- 🚧 Wastewater: Heavy Metals Removal-Enhancing the Process-Part I & II, Environmental Technology Journal of Advanced Science & Engineering (1999)
- 🚧 Remedial Action Alternatives for Containment of the Source and the Centroid of the Northwest Plume of Groundwater Contaminants Originating from the Paducah Gaseous Diffusion Plant in Kentucky, USA, 2nd International Symposium on Environmental Contamination, Budapest '94, Hungary
- 🚧 Turning Wastewater Treatment Sludge into Revenue by Bio-transformation (Alternative Bio-Fuel: Methane Generation, Optimization, Electricity Production, and Reuse), Texas AWWA Conference Proceedings, Austin, TX, April 2006/Texas Public Works Association, Mesquite, TX (2006)
- 🚧 Activated Sludge Plant Field/Model Capacity Evaluation, Texas AWWA Conf', Austin, TX (2006)
- 🚧 Meeting O&M and Capital Investment Challenges in Wastewater Treatment, ASCE, Temple, TX (2006)
- 🚧 Activated Sludge Plant Field Study, Texas Public Works Association Meeting, Mesquite, TX (2006)

- ✚ Retaining and Replenishing Water Utility Operators for Long Term Operational Sustainability of Critical Infrastructure, Utility Management Journal (abstract submitted)
- ✚ Investigation of Manganese Sequestration by Silicates and Polyphosphates with Oxidants, Ph.D. Dissertation, Univ. of Tennessee, August, 1990
- ✚ Silicate Effects on Iron Colloids in Sequestration, ASCE, National Conference on Environmental Engineering, Washington, DC, (1990)
- ✚ Sequestration of Iron in Groundwater by Polyphosphates, AWWA Annual Conference, Cincinnati, OH (1990)
- ✚ Sequestering Methods of Iron and Manganese Treatment, AWWA Research Foundation Project Report (1989)
- ✚ Fluoride Analysis and Treatment of High Fluoride-Bearing Water Sources, MS Thesis, Madras University (1985)

Thanks for Taking the Time to Review this Resume!

**DOWNTOWN RESTORATION**



**City of Temple  
Engineering  
Department Brochure  
City Engineer:  
Daniel Christodoss PhD PE**

**Room 304  
Municipal Building  
2 N Main  
254-298-5668**



**Q: I need to make repairs on my house. Do I need a permit?**

**A:** Except for routine maintenance, a permit is needed. Permits can be obtained in room 304 of the municipal building. There is a small fee and you will be asked to provide a sketch of your plans. Please call 298-5641 for details.

◆ **Description:** A permit is required for all but the most minor construction projects.

◆ **Penalty:** Fine equal to twice the permit fee; potential for removal of construction project.

[www.ci.temple.tx.us/departments/planning/index.htm](http://www.ci.temple.tx.us/departments/planning/index.htm)



Performance Measures	2000-01	2001-02	2002-03	2003-04 4 mth
Total Permits	245	257	334	350
Permit Value \$	70M	77M	80M	85M
Construction Plans Approved/Lots	42/594	48/794	60/1,381	71/2,648
Capital Improvement Projects \$				80M
Total Value	\$			165M

# PROJECTS, FUNCTIONS AND LONG-TERM GOALS

## FUNCTIONS (2002-2004)

The engineering department is responsible for:

1. Plan review
2. Plan approval
3. Design and construction of public works improvements.

## STAFF

1. City Engineer, **D. Christodoss**
2. Construction Inspections Supervisor: **Dean Stroud**
3. Two Staff Inspectors.
4. Building Official
5. Electrical Official
6. Plumbing Official

## INSPECTION AND CONSTRUCTION PROJECTS VALUE

**\$165 million in value**

## LONG-TERM GOALS

Streamline the process for

## PUBLIC WORKS PROJECTS COMPLETED in 2003-04, IN PROGRESS OR NEARING CONSTRUCTION

1. Waters Dairy Road
2. Apache Road
3. Tarver Road Extension
4. Lowe's Avenue
5. Hickory Improvements
6. Shell Ave & Avenue N
7. Airport Hangar
8. Former Texas Instruments facility Renovation
9. Plaza and Temple Visitors Center
10. Hog Pen Creek Drainage Channel
11. Marlandwood Drainage
12. Eberhardt Business park
13. Pepper Creek Linear Detention Pond
14. Thompson Reliever Channel
15. Water/Sewer Projects
16. Two new Fire Stations
17. New Law Enforcement Facility
18. Animal Service Facility
19. Parks Ballfields

## PROJECT PHOTO ALBUM



**Temple Airport-hangar completed**



**Historic Restoration-Santa Fe**

