

Mr. NAHEL F. KABAZI, P.E.
Senior Project Engineer

REGISTRATION: Registered Professional Engineer in State of Texas No. 76991 (1993)

EDUCATION : Rice University Master of Civil Engineering in Structural (1987)
University of New Orleans Bachelor of Science in Civil Engineering (1984)

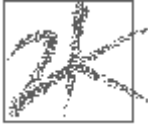
EXPERIENCE: 23 years experience in Civil Engineering/Structural and GPS surveying

SUMMARY OF EXPERIENCE

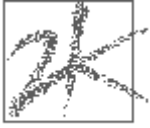
Mr. Kabazi has over 23 years of experience in many aspects of Civil Engineering design including hydraulic engineering, drainage system design, erosion control, structural analysis and design, reinforced and prestressed concrete design, bridge design, paving design, and foundation design, digital terrain modeling, geographic information systems management/programming, and conventional and GPS surveying.

DRAINAGE/FLOOD CONTROL AND MITIGATION

- **US290/HEMPSTEAD CORRIDOR:** Member of the Lead H&H team for Tukay Associates which was responsible for developing the comprehensive drainage impact analysis and mitigation plan for the proposed expansion of 17.2 mile of US290 freeway section from Telge Rd. to Loop-610 and a segment of Loop-610 from US290 to IH-10. The proposed project would include mainlane grade-separations, mainlane widening to between 8 and 14 lanes, frontage roads and new exit/entrance ramps. The study included the hydraulic design of all the major drainage structures in accordance with TxDot's design criteria.
- **IH45 SOUTH – BELTWAY 8 TO FM 1764:** The proposed project consisted conducting a comprehensive drainage analysis and mitigation study for the proposed expansion of 19.2 mile freeway section from south of Beltway 8 to FM 1764. The project design included the construction of mainlane grade-separations, mainlane widening to 10 lanes, frontage roads and new exit/entrance ramps. The study included the hydraulic design of all the major drainage structures.
- **METRO LIGHT RAIL SYSTEM:** This project consisted of conducting a comprehensive drainage analysis study for the proposed Light Rail System along the full alignment of the rail which extends from the Astrodome to Buffalo Bayou. The scope included the preliminary design of storm sewer appurtenances to accommodate the new rail drainage requirements.



- **GEORGE BUSH INTERCONTINENTAL AIRPORT RUNWAY EXTENSION:** This project involved the design of all storm sewer utilities and facilities to accommodate the proposed development associated with the extension of existing Runway 15R-33L and the addition of parallel Taxiways, high speed Taxiways, and mow strips. The design scope included a comprehensive evaluation of all existing drainage facilities and design of a closed sewer system within the airfield and upgrade of open channel outfalls outside of the airfield in a manner to maintain discharge levels to at or below existing levels, i.e., no impacts downstream.
- **CHEVRON PLANT ADMINISTRATION BUILDING:** This project involved the design of all civil site development and work which included roadway, road side drainage ditches, water lines, and sewer. In addition, the work included design of floodplain mitigation measures to compensate for fill within the floodplain and the design of a detention pond to mitigate the impact of the proposed development.
- **SOUTH BELT MASTER DRAINAGE STUDY:** The South Belt Master Drainage Study from FM 521 to Beamer road included the evaluation of the watershed drainage impact of the construction of the south Belt mainlanes and frontage roads. Most of the roadway is in the 100 year floodplain and consequently the impacts due to loss of storage, conveyance, development, bridge crossings and equalizer culverts were determined. Mitigation alternatives were developed and possible detention sites locations established.
- **SHEET PILE WALL ACCESS DOOR:** This project involved the design of a removable/reinstallable access door and ramps to the site through the flood protection sheet pile wall. The controlling design factor was to minimize the time required to reinstall/restore the flood protection integrity of the sheet pile door before the rise in flood stage of the San Jacinto River.
- **BRIARGROVE STORM SEWER REHABILITATION PROJECT:** This project involved the modification of the storm sewer outfall reach alignment, junctions, layout and profile at the request of Harris County Flood Control District to abate community concerns.
- **BUFFALO BAYOU/SPRING BRANCH EROSION CONTROL PROJECT:** Design a slope stabilizing gabion revetment along Spring Branch with a sheet pile wall along the toe of the slope to protect the gabions from undermining and reducing the potential for distress at the toe. This project also involved the design of erosion protection works using Reno mattresses along the study alignment.

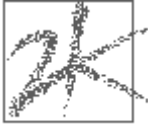


HIGHWAYS/STREETS-PAVING

- **FRANZ ROAD PAVING PROJECT:** This project involved the replacement of the existing 1.2 miles of 2-lane, open ditch, asphalt-paved roadway with a 4-lane boulevard pavement section and the design of all associated utilities improvements such as storm sewer, sanitary sewer, and water lines. Also, this project involved conducting a detailed traffic study and the design of intersections layout and traffic control signalization based on the estimated future traffic counts.
- **T.C. JESTER BOULEVARD:** This project involved structural and hydraulic design, as well as some aspects of surveying. It involved the management, acquisition, and analysis of GPS satellite surveying data. Three prestressed bridge structures were designed across HCFCU Units K100-00-00 (Cypress Creek), P145-00-00, and P147-00-00. Also, the design phase involved HEC-2 modeling of the aforementioned units.
- **REED ROAD:** This project consisted of the design of the proposed Reed Road improvements and the related trunk storm sewer system, analysis evaluation of existing drainage patterns and storm sewer systems, and the study of the alternative off-site drainage systems.
- **SHAVER ROAD PAVING PROJECT:** This project involved the design of the proposed roadway improvements to South Shaver Road where a 4-lane open-ditch roadway was to be replaced with approximately 7500 feet of 6 lanes of boulevard concrete pavement section. This project also included the design of storm sewer, sanitary sewer, and water line improvement. The offsite storm sewer consisted of widening and deepening of the existing roadway outfall ditch. The downstream reach will be a concrete trapezoidal channel because of ROW limitations.

HIGHWAYS/STREETS-STRUCTURES

- **IAH/HOU MARRIOTT HOTEL PARKING GARAGE:** This project involved the design of a two story structural steel parking garage structure to accommodate approximately 200 vehicles.
- **IAH/HOU MISCELLANEOUS STRUCTURAL REPAIRS:** The scope of this project covered the investigation of the cause of severe distress cracking patterns of beams, columns, and post-tensioned slabs of all airport garage structures, evaluation of the structural performance, and the recommendation of a remediation plan of the evident structural and leakage problems at Houston Intercontinental and Hobby Airports.

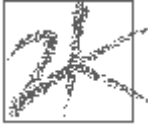


WASTEWATER COLLECTION AND TREATMENT

- **WILL CLAYTON PARKWAY/WRIGHT ROAD RELIEF SEWER:** This project includes approximately 19,000 feet of eight-inch to 27-inch sanitary sewer lines; a new lift station and approximately 8,000 feet of 16 inch force main as part of the Greater Houston Wastewater Program overflow elimination program. This project will eliminate two lift stations at airport and provide trunk sewer that will allow the Bordersville relief system to be constructed.
- **FULTON STREET CONVEYANCE TUNNEL:** This project included planning phase I and phase II environmental and the design of a wastewater tunnel under Fulton Street. The Project Length was 2 miles. The sewer line was 78 inches in diameter and is under an existing major thoroughfare running through a mixed commercial and residential area. The tunnel crosses an active fault and special design considerations were required. The project also includes 1,500 feet of 24 inch microtunnel.
- **NORTHEAST SLUDGE TRANSFER PROJECT:** This multimillion-dollar project involved the evaluation of existing and upgrading of the sludge disposal facilities at 4 wastewater treatment plants. Project scope involved the design of approximately 25 miles of sludge force main, a 0.55 MGD pump station at the Homestead Wastewater Treatment Plant for the purpose of collecting and pumping the combined Waste Activated Sludge (WAS) output from satellite wastewater treatment plant to the proposed 0.64 MGD pump station located at the corner of market and Dorsett streets. The Dorsett street pump station is designed to pump the combined WAS outputs from the proposed Homestead pump station, Northeast WWTP and Clinton Park WWTP to the 69th street WWTP for processing. Project responsibilities also included the design of all support facilities and selection of equipment, appurtenances, and instrumentation tied to this project.
- **NORTHWEST SEWER RELIEF STUDY:** In charge of revising and updating the structural and hydraulic component of a 70 MGD pump station, which was designed 6 year earlier but never constructed, to comply with the City of Houston's latest standards. The structure was converted into a caisson type to facilitate construction and the evaluation and redesign of all hydraulic elements and piping. This project's scope involved the relief of West Tidwell trunk sanitary sewer line, revision of a number of private wastewater treatment plants and incorporation into the project, diversion of areas flowing to the proposed 70 MGD pump station to located on Poppy and Lockfield.

STORM & WASTE WATER COLLECTION AND PUMPING

- **WESTPARK TOLLWAY PUMP STATIONS:** This project includes the design of three (3) storm sewer pump stations for the proposed Westpark Tollway for the Harris County Toll Road Authority

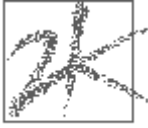


(HHCTRA), including all structural components and support facilities and control buildings. All design features were designed using TxDOT criteria for design.

- **WILL CLAYTON PARKWAY/WRIGHT ROAD RELIEF SEWER:** This project includes approximately 19,000 feet of eight-inch to 27-inch sanitary sewer lines; a new 6.5 MGD lift station and approximately 8,000 feet of 16 inch force main as part of the Greater Houston Wastewater Program overflow elimination program.
- **NORTHEAST SLUDGE TRANSFER PROJECT:** This multimillion-dollar project involved the evaluation of existing and upgrading of the sludge disposal facilities at 4 wastewater treatment plants. Project scope involved the design of approximately 25 miles of sludge force main, a 0.55 MGD pump station at the Homestead Wastewater Treatment Plant , a 0.64 MGD pump station located at the corner of Market and Dorsett streets. Project responsibilities also included the design of all support facilities and selection of equipment, appurtenances, and instrumentation tied to this project.
- **NORTHWEST SEWER RELIEF STUDY:** In charge of revising and updating the structural and hydraulic component of a 70 MGD pump station. The structure was converted into a caisson type to facilitate construction and the evaluation and redesign of all hydraulic elements and piping. This project's scope involved the relief of West Tidwell trunk sanitary sewer line, revision of a number of private wastewater treatment plants and incorporation into the project, diversion of areas flowing to the proposed 70 MGD pump station to located on Poppy and Lockfield.

MILITARY FACILITIES/SITES

- **FORT POLK CORROSION REDUCTION OF STEEL TANKS:** This project involved the evaluation/re-design of the cathodic protection system of 5 existing potable water supply tanks and the design of cathodic protection of 2 new site tanks.
- **FORT POLK BRIDGE CROSSING AND FORWARD LANDING SITE:** This project involved the design and preparation of complete construction drawings and project bid documents for 7 separate tasks in a period of three months. The tasks included the design of a Forward Landing Site (FLS) all weather landing strip, forward ammunition supply Site (FASS) consisting of steel frame ammunition storage structure and secured area fencing, 3 exterior low water crossings located on the perimeter tank trail 1 interior low water crossing, 1 interior bridge renovation and upgrade of storm, sanitary and water utility services of the contonment area (Enlisted Quarters and support facilities).
- **LACKLAND AIRFOCE BASE DORMITORIES:** This project consisted of the design of a 96 Unit three story enlisted quarters using a unique an varied architectural treatments requiring the use of pre-cast members, concrete masonry units, and cold formed steel products. The design consisted of drilled pier foundation supporting structural grade beams. Due to the highly active soils in the area, a four foot crawl space was provided underneath the ground floor. The First,



Second and Third floors of the dormitory were formed using precast concrete planks. A super structure that consisted primarily of precast spandrel beams and columns supported the floors. Masonry units were utilized as a means for compartmentalizing the units and for providing structural stiffness.

DEVELOPMENTS-RESIDENTIAL

- **CHPMAN RESIDENCE:** On this project, severe erosion problems were addressed where continued failure of the slope had predictable structural impact implications on the residence. The design involved the realignment of Hunter's Creek along the property line and the implementation of slope stabilizing rip-rap blanket along the said property.
- **ABELLO RESIDENCE:** This project consisted of design, implementation, and foundation construction quality control. The project involved the design of a 4000-square-foot, post-tensioned residential slab, and the supervision of slab construction and post-tensioning process.

INDUSTRIAL

- **TOC MIX PROCESS CONTROL INSTRUMENTATION:** This project involved the evaluation of preliminary instrumentation layout and design plans originated by another consulting company, revision of preliminary plans, selection of instrumentation equipment and preparation of complete project specifications/bid package for the control of Total Organic Content in the effluent from the hazardous waste remediation effort.

ENVIRONMENTAL/HAZARDOUS WASTE

- **NEVADA NUCLEAR SITE INVESTIGATION PROJECT:** Member of Project Management team in charge of conducting technical reviews for the State of Nevada's Nuclear Waste Project Office associated with the proposed Nuclear Waste Repository at the Yucca Mountain site.