

AGENDA ITEM 21

Discuss and consider granting a variance request for Brushy Creek, Section 4 and 5.

Joe England addressed the Court.

Moved: **Commissioner Hays**

Seconded: **Commissioner Limmer**

Motion: To grant a variance request for Brushy Creek, Section 4 and 5.

Vote: **3 – 0**

AGENDA ITEM 22

Discuss and consider preliminary plat approval of Brushy Creek, Section 4 and Section 5.

Joe England addressed the Court.

Moved: **Commissioner Limmer**

Seconded: **Commissioner Curlee**

Motion: To grant preliminary plat approval of Brushy Creek, Section 4 and Section 5.

Vote: **3 – 0**

AGENDA ITEM 23

Discuss and consider amended plat approval of Mason Subdivision.

Joe England addressed the Court.

Moved: **Commissioner Hays**

Seconded: **Commissioner Curlee**

Motion: To approve amended plat approval of Mason Subdivision.

Vote: **3 – 0**

AGENDA ITEM 24

Consider and pre-approve HVJ Associates, Inc. For geotechnical engineering services for Road Bond projects within Williamson County.

Mike Weaver addressed the Court.

Moved: **Commissioner Curlee**

Seconded: **Commissioner Limmer**

Motion: To pre-approve HVJ Associates, Inc. for geotechnical engineering services for Road Bond projects within Williamson County.

Vote: **3 – 0**

< Attachment >

HVJ Associates, Inc.

Geotechnical, Environmental, Materials & Pavement Engineers

4201 Freidrich Lane
Suite 110
Austin, Texas 78744
512.447.9081
512.443.3442 fax
<http://www.hvj.com>

April 12, 2004

Mike Weaver
Prime Strategies, Inc.
Gateway Planning Group
1508 S. Lamar Boulevard
Austin, Texas 78704

Re: Statement of Qualification for Williamson County Road Bond Projects

Dear Mr. Weaver:

Enclosed is HVJ Associates, Inc.'s. Statement of Qualification for Geotechnical Services for Williamson County Road Bond Projects, including our company overview, project descriptions and resumes that show our past experience in similar projects.

We welcome the opportunity to provide our services to Williamson County and its stake holders. We believe that our staff, facilities, experience, and desire to provide the quality services makes HVJ Associates, Inc. the best team member for your engineering projects. Our staff includes licensed civil engineers, engineering –in-trainees and environmental geologists. Our project staff identified in this submittal and located in Austin will be performing the work if, selected.

Our skilled professionals concentrate on understanding client needs, finding solutions, and completing assignments in a timely and quality manner. The resumes attached represent the HVJ staff members who have a variety of experience and are available immediately to work on Williamson County Projects.

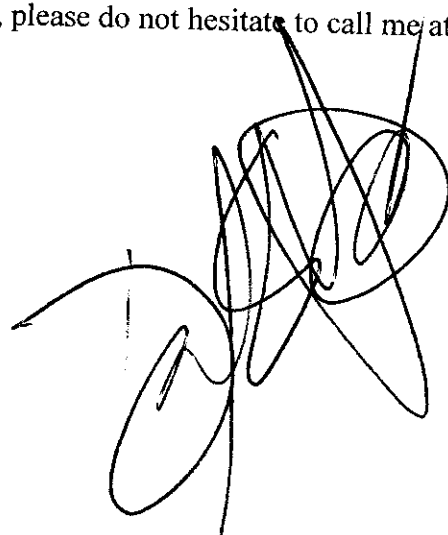
If you have any questions or need additional information, please do not hesitate to call me at 512-447-9081.

Sincerely,

HVJ ASSOCIATES, INC.

C. Neumann
Dev Chelliah, P.E.
Vice-President

Attachments



HVJ Associates, Inc.

Incorporated in Houston, Texas, in April 1985, by Herbert V. Johnson, PE, HVJ Associates, Inc. provides a range of environmental, geotechnical, construction materials, and pavement engineering services. In August 2000, the firm opened its first branch offices in Austin and San Antonio, Texas. The firm currently has a staff of 45 with 33 in our Houston office and 12 in our Austin office. Professional engineering and scientific services include:

- **Geotechnical Engineering** services include site exploration and drilling, soil laboratory testing, foundation and pavement design recommendations, earth materials failure investigations and geologic fault hazard assessments.
- **Construction Materials Engineering** services include construction materials testing, construction management and inspection services, construction management assistance, quality assurance and quality control functions, and failure studies.
- **Pavement Engineering** services includes the implementation of pavement management systems for municipal, county, state, and airport agencies. As part of the implementation of infrastructure management systems such as pavement and bridge management systems, HVJ Associates, Inc. (HVJ) personnel have also linked these databases to geographical information systems (GIG). HVJ also provides pavement design engineering for new construction and rehabilitation projects. Existing pavements are evaluated using non-destructive falling weight deflectometer (FWD) testing equipment and traditional geotechnical methods.
- **Environmental Services** include the production of Environmental Assessments associated with property transfers and infrastructure construction. Environmental investigations involving petroleum storage tanks, industrial sites, and landfills. NEPA environmental document preparation to include EA's, Categorical Exclusions. Wetlands delineation, assessment of critical habitats, and permitting support. SPCC Plan preparation and development of mitigation procedures.

HVJ Associates is proud to have participated in three of the seven projects that received the Consulting Engineering Council of Texas' 2001 Engineering Excellence Awards. Other honors include articles in Civil Engineering News, DBA, and the Houston Business Journal. In recent years, HVJ Associates has engineered numerous infrastructure projects in Texas. The firm is also the geotechnical engineering firm of record for the 25-mile Interstate-10 Reconstruction Project in TxDOT's Houston District.

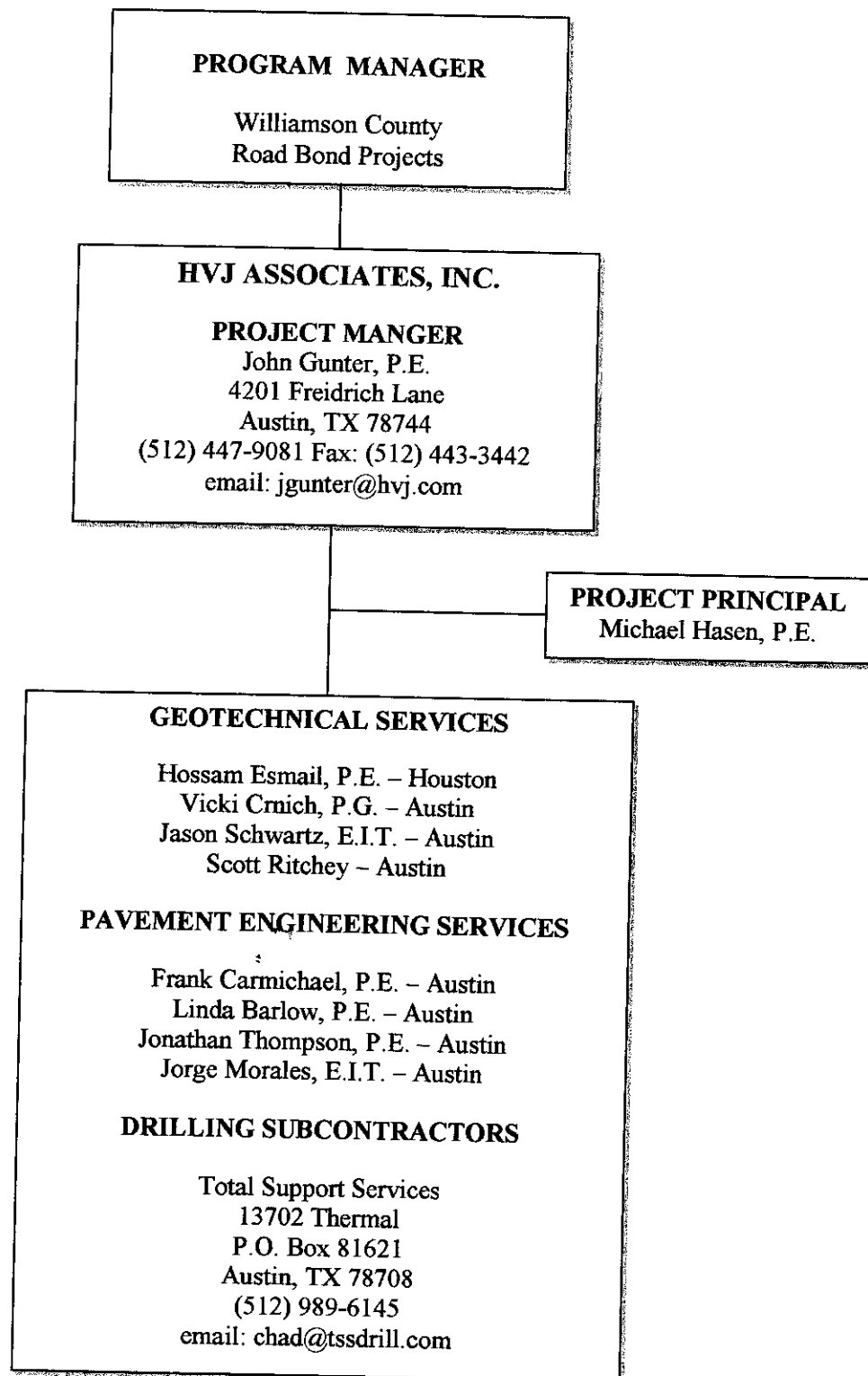
HVJ Associates is certified as a MBE/DBE by the cities of Houston, Austin, and San Antonio, as a HUB by the Texas General Services Commission, and as a DBE by the Texas Department of Transportation. Our laboratory facilities are accredited by the A2LA and we participate in proficiency testing programs sponsored by the American Association of State Highway and Transportation officials.

The firm has strong financial capability, which can be verified by Sterling Bancshares, Inc. HVJ has a formal management system document for directing project management activities, administration, and to control costs and deadlines. The document addresses operations, financial, human resources, facilities, and branch management.

Herbert V. Johnson, PE, President

HVJ Associates, Inc.

ORGANIZATIONAL CHART



HVJ Associates, Inc.

Firm Capabilities

Mr. John Gunter, P.E. with more than 25 years of experience, manages the Geotechnical department in our Austin office. HVJ Associates, Inc. provides clients with timely, responsive, cost-effective engineering solutions to geotechnical design problems. Geotechnical problems pertain to the ability of earth materials to support loads, the deflection of materials under load, the load imposed by materials on buried structures, and the forces imposed by seepage of water through the earth.

HVJ Associates develops geotechnical design and construction recommendations for:

- ✓ Deep Foundations in soil and rock
- ✓ Pavement Thickness designs and Subgrade Stabilization
- ✓ Structure Foundation Stabilization
- ✓ Slope Stabilization
- ✓ Excavation Sheet piling and Shoring
- ✓ Retaining wall design parameters
- ✓ Buried Utilities
- ✓ Erosion Protection
- ✓ Beneficial Use of Dredge Materials
- ✓ Tunneling

The majority of our professional staff members have earned Master of Science Degrees in Geotechnical Engineering from major universities. Projects range in size from residential development to multi-billion dollar industrial and infrastructure facilities. Recent projects include:

A geotechnical study for the proposed improvement to Cedar Breaks Road between D.B. Woods Road and SH29 in Williamson County. The project includes constructing new pavement, a bridge and rehabilitating an existing asphalt road over 8,000 feet long.

Geotechnical investigation and recommendations for the proposed pavement improvements to Red Bud Trail between FM 2244 (Beaumont Caves) and Westlake in Travis County, Texas. Geotechnical studies on several proposed elevated HOV ramps, interchanges and at-grade sections along US 59, Houston, and SH-45 in Williamson County, Texas. Deep borings were drilled to determine subsurface stratigraphy and design characteristics for deep foundations to support roadway sections and high-mast lighting. Shallow borings were drilled to provide recommendations for pavement thickness, subbase preparation, slope stability for elevated sections for roadway on fill and retaining walls.

IH-610 West Loop @ I-10 Interchange, Houston, Texas A geotechnical study and fault investigation to determine subsurface stratigraphy and design characteristics for deep foundations to support aerial ramps and high-mast lighting facilities. Shallow geotechnical borings were drilled to evaluate pavement design, subbase preparation, utility construction, trench stability, and shallow foundations. Also, the evaluation of the potential for fault movement along the Eureka Heights Fault.

Red Bud Trail Interchange, Austin, Texas

HVJ Associates, Inc.

Project Understanding and approach

We understand that the prospective project scope has not been specifically identified, but may include minor and major roadway construction, bridge widening, bridge replacement, or interchange in the area located within the Williamson County. We understand that the geotechnical investigation for these projects will follow guidelines provided in Texas Department of Transportation (TxDOT) Geotechnical Manual. For these roads and structures, and most roadway and transportation projects, the following phases/steps are required to be incorporated into the geotechnical investigations for projects under this contract:

- Investigation Planning
- Investigation Equipment
- Soil/Rock Sampling and In-Situ Testing
- Groundwater Level Measurement
- Laboratory Testing
- Documentation
- Engineering Analysis and Design

KEY PERSONNEL AND CAPABILITIES

John Gunter, P.E. – Project Manager

John Gunter, P.E. who is pre-certified in categories 14.1.1 Soil Exploration, 14.2.1 Geotechnical Testing and 14.3.1 Transportation Foundation Studies, and 14.4.1 Building Foundation Studies will serve as Project Manager. Mr. Gunter (Registered License Engineer in Texas; License # 47957) is located in our Austin office and will be coordinating all the project related activities and will be signing all the documents of projects related to this contract. His career spans more than 28 years, and he has proposed, planned and executed numerous geotechnical studies on a broad range of facilities including bridges, retaining walls, roadways, office buildings, and wastewater projects. Mr. Gunter has a strong background in slope failure investigation and his knowledge of, and experience with deep foundation design is strong. Of particular interest is his lead role in on-going participation in the technical meetings and in assisting estimation of the cost estimate for State Highway 45 South East project. A detail resume of Mr. Gunter is provided as an attachment.

Michael Hasen, P.E. – Project Principal

Mr. Hasen will be our project principal. He will be the team member who has direct access to firm ownership. He will serve as technical resource and implement the quality control and quality assurance program of the firm for this project. Mr. Hasen is responsible for verifying the geotechnical reports for its compliance to the project specifications. The project principal will also assure that appropriate and sufficient resources are available for all team members. Mr.

HVJ Associates, Inc.

Hasen, as project principal, will interface with Mr. Gunter to develop and maintain the project quality control and quality assurance program. Mr. Hasen offers his personal experience with similar projects to this team. He recently managed four drilling firms and all laboratory testing for the largest geotechnical contract ever let in the Houston District of TxDOT, for 30,000 ft. of drilling for the IH-10 (from IH-610 to Katy, Texas) expansion project.

ADEQUACY OF STAFF

The following list provides names of certified professional and other licensed personnel employed full-time in a professional position and will be involved in this contract depending on the assignment. The following table shows the number of current full time employees in each office location:

HVJ Associates Inc.	TOTAL # EMPLOYEES Austin Office	TOTAL # EMPLOYEES Other Locations
a) REGISTERED P.E.s	4	6
b) OTHER PROFESSIONALS (Not included above)	6	4
c) OTHER SUPPORT PERSONNEL (Include field personnel and clerical)	5	23
TOTALS	15	33

Austin Office

<u>NAME</u>	<u>COLLEGE DEGREES</u>	<u>FIELD</u>	<u>YRS. EXP.</u>
<u>R. Frank Carmichael, III, P.E.</u>	<u>M.S.C.E.</u>	<u>Pavement Eng</u>	<u>29</u>
<u>John. A. Gunter, P.E.</u>	<u>M.S.C.E.</u>	<u>Geotechnical Eng</u>	<u>28</u>
<u>Linda Barlow, P.E.</u>	<u>B.S.C.E.</u>	<u>Pavement Eng.</u>	<u>20</u>
<u>Vicki Crnich, P.G.</u>	<u>B.S.G.E.</u>	<u>Env. Geology</u>	<u>16</u>
<u>Jon Thompson, P.E.</u>	<u>B.S.A.E.</u>	<u>Pavement Eng.</u>	<u>10</u>
<u>Jorge Morales, E.I.T</u>	<u>B.S.C.E.</u>	<u>Pavement/Geo Eng</u>	<u>4</u>
<u>Jason Schwarz, E.I.T</u>	<u>B.S.C.E.</u>	<u>Geotechnical Eng</u>	<u>2</u>

Houston Office

<u>Michael Hasen, P.E.</u>	<u>M.S.C.E.</u>	<u>Geotechnical Eng</u>	<u>20</u>
<u>Hossam Esmail, P.E.</u>	<u>M.S.C.E.</u>	<u>Geotechnical Eng.</u>	<u>15</u>

ALL EMPLOYEES HAVE BEEN EMPLOYED

HVJ Associates, Inc.

SPECIAL PROJECT RELATED EXPERIENCE

Project Name	TxDOT Katy Freeway General Engineering Contract
Service Provided	Geotechnical Engineering
Project Location	Houston, TX
Project Cost	\$1,000,000,000
HVJ Fee	\$ 2,200,000
Completion Date	May 2004
Client Reference	Parsons Brinckerhoff Quade & Douglas, Inc. Barton Oaks Plaza Two Austin, TX 78746 Jim Rozek, P.E. Phone: 512-328-1012 Fax: 512-347-3525

HVJ Associates, Inc. conducted a geotechnical investigation for the proposed IH-10 Katy corridor project in Harris County, Texas. The project limits are from east of the IH-610/IH-10 interchange to west of Katy, a distance of approximately 20 miles. Additionally, the limits also included a short distance along both IH-610 and SH6, north and south of IH-10.

The project consisted of reconstructing and widening to 8 main lanes, 4 special use lanes, and 3-lane frontage roads between IH-610 and SH-6. West of SH-6 to west of Katy, proposed construction included reconstructing and widening to 8 main lanes, 2-lane high occupancy vehicle and 3-lane frontage roads. Proposed construction also includes underpass and overpass structures at various intersections along the alignment and reconstruction of interchange ramps at the IH-10 and BW-8 interchange. In addition to the reconstruction and widening of IH-10, proposed improvements at the IH-10 and SH-6 interchange include construction of a 4-lane bridge over IH-10 and Park Row Blvd. The IH-10 and IH-610 interchange improvements include reconstructing southbound and northbound main lanes of IH-610 and the interchange ramps. Additional construction includes detention ponds, sound walls and culverts at various locations along the alignment.

A total of 600 borings with 30,000 feet linear feet of soil borings were drilled to a depth ranging from 30 to 100 feet below ground surface. Advanced soil laboratory testing program was conducted during the study. The advanced testing included consolidated undrained triaxial compression tests with pore water measurements and consolidation testing.

Engineering analysis conducted for the project included deep and shallow foundations, MSE and cantilever retaining walls, soil nail reinforcement, detention ponds, slope stability analysis, settlement analysis, dewatering rates estimation, excavation and other general earthwork recommendations.

Parsons Brinckerhoff Quade & Douglas, Inc.

HVJAssociates, Inc.

References

Klotz Associates, Inc. Harvey J. Treybig, P.E. Regional Manager 1515 S. Capital of Texas Hwy. Westlake Place, Suite 302 Austin, Texas 78746 Phone: 512-328-5771 Fax: 512-328-5774 Email: Harvey.treybig@klotz.com	Binkley & Barfield John Fowler, P.E. Branch Manager 4419 Frontier Trail Suite: Austin, TX 78745 Phone: 512-851-1660 Fax: 512-851-1617 Email: jgf@binkleybarfield.com
PBS&J Roy Mynier, P.E. Program Manager – Transportation Services 6504 Bridge Point Parkway Suite 200 Austin, TX 78746-3343 Phone: 512-327-6840 Fax: 512-327-2453 Email: clmynier@pbsj.com	Othon, Inc. Ken Fowler, P.E. Project Manager 11200 Jollyville Road Suite: Austin, TX 78759 Phone: 512-343-5538 Fax: 512-343-0271 Email: kfowler@othon.com
Texas Department of Transportation Stanley F. Yin, P.E. District Materials Engineer Houston District Laboratory 7721 Washington Avenue Houston, TX 77007 Phone: 713-802-5211 Fax: 713-802-5896 Email: syin@dot.state.tx.us	

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HVJ Associates, Inc.

MICHAEL HASEN, PE

Principal-in-Charge

TxDOT Employee Sequence Number 02280

TxDOT Firm Sequence Number 337

EDUCATION

MBA, Executive Program,
University of Houston, 1992
MS, Geotechnical Engineering,
University of California, Berkeley, 1981
BS, Civil Engineering, University of Illinois, 1980

LICENSE

Professional (Civil) Engineer, Texas (1985),
California (1984)

PRECERTIFIED TxDOT CATEGORIES:

Soil Exploration	14.1.1
Geotechnical Testing	14.2.1
Transportation Foundation Studies	14.3.1
Building Foundation Studies	14.4.1

PROFESSIONAL AFFILIATIONS

Geo Houston '99, Program Committee Chair
Association of Consulting Municipal Engineers/
Geotechnical Committee Chair (1999 and 2000)
American Society of Civil Engineers/Houston 2001
Convention/Local Geotechnical Committee
Program Chair
Society of American Military Engineers, Member

CIVIC ACTIVITIES

Boy Scouts of America, Adult Leader/
Friends of Scouting Campaign Participant
Fort Bend Chamber of Commerce/Infrastructure
Planning Division Vice Chair, (1998 and 1999),
Board of Directors (2000-2002) Junior
Achievement, Volunteer

EXPERIENCE SUMMARY

Mr. Hasen's career encompasses a period of over 22 years of diverse geotechnical and environmental engineering experience. He has proposed, planned and executed hundreds of studies of a broad range of facilities from residential structures to multi-billion dollar wastewater projects. His experience includes studies of low, mid and high rise office structures, bridges, roadways; water mains, sewer lines, tunnels, wastewater treatment facilities, residences, dredge disposal areas, refineries; power generation facilities; medical facilities; port and harbor facilities; and offshore structures. In addition, Mr. Hasen has a solid background in slope failure investigation, including development of geologic models of the causes of failure. His knowledge of and experience with deep foundation design is especially strong.

Of particular interest is his lead role in several studies involving bridge structures and at grade pavement. He has managed geotechnical design for several TxDOT projects in the Houston, Lufkin, and Pharr Districts. He is managing the geotechnical investigation for the reconstruction of a 20-mile section of the Katy Freeway in Houston.

HVJAssociates, Inc.

MICHAEL HASEN, PE

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PROFESSIONAL EXPERIENCE

- **Geotechnical Services Contract, Texas Department of Transportation, Houston District.** Project manager for a two-year commercial laboratory contract for geotechnical exploration, lab testing, and design of pilings, drilled shafts, roadways, bridges, and drainage facilities at various locations within the Houston District. All soil testing was conducted in accordance with Texas Department of Transportation's Manual of Testing Procedures and all design analyses were conducted in accordance with the Foundation Design Manual. Some of the individual assignments are listed below:
 - **IH-45 Replacement Bridge at San Jacinto River, Montgomery County.** Subsurface exploration for a new bridge including nearly 2000 feet of borings, some as deep as 150 feet.
 - **FM 529, Huffmeister Road to US 290, Houston.** This project involved widening the existing bridge over Horsepen Creek at FM529 and the installation of storm sewers along FM 529 from Huffmeister to US 290.
 - **Noise Abatement Walls Along SH 6 from US 59 to McKeever Road, Sugar Land.** Geotechnical study to develop pile and drilled shaft design curves for the noise abatement walls.
 - **Bent 48 Sinkhole, CBD Connector, I-10, and Houston.** Geotechnical evaluation of a sinkhole developed during the METRO I-10 to Central Business District connector. The sinkhole was formed due to the subsurface erosion caused by a leaking storm sewer. The recommendation included jet-grouting and a Ground Penetrating Radar (GPR) program to verify whether significant
- disturbance has occurred beyond the area proposed for grouting.
- **SH 45 from IH 35 Interchange to Pflugerville Loop, Round Rock, Texas Turnpike Authority, (c/o PBS&J).** Project manager for geotechnical studies related to replacing an existing four-lane arterial with a six-lane turnpike facility with three-lane continuous frontage roads. The geotechnical investigation included drilling and sampling of 30 soil borings to a depth of 20 to 50 feet deep, according to Texas Department of Transportation Guidelines. Engineering analyses were performed to estimate the settlement of deep fill embankments as high as 35 feet. Our recommendations included results of global stability analysis, soil parameters for retaining wall design, bridge foundation recommendations, and storm sewer recommendations.
- **Katy Freeway (I-10) Reconstruction, Texas Department of Transportation, Houston District (c/o Parsons Brinckerhoff).** Project manager providing geotechnical investigation services for the General Engineering Consultant for reconstruction of about 20-miles of the Katy Freeway (I-10) from the West Loop to Brookshire. The extensive project includes coordination with multiple section designers and geotechnical investigation for over a hundred new structures. Soil borings were drilled and laboratory tests performed. It was determined that overpass bridge structures may be supported on drilled shaft or driven pile foundations, and allowable frictional capacity curves for compressive axial loads were provided along with installation recommendations. Design recommendations for cantilever and mechanically stabilized earth retaining walls were presented as a basis for design of the approach sections.

HVJ Associates, Inc.

JOHN A. GUNTER, P.E.
Austin Branch Manager

TxDOT Employee Sequence Number 08773
TxDOT Firm Sequence Number 337

EDUCATION

B.S., Civil Engineering, University of Houston, 1976
M.S., Civil Engineering, University of Houston, 1978

LICENSE

Professional Engineer - Texas, License # 47957

PROFESSIONAL AFFILIATIONS

American Society of Civil Engineers

PRECERTIFIED TxDOT CATEGORIES:

Soil Exploration	14.1.1
Geotechnical Testing	14.2.1
Transportation Foundation Studies	14.3.1
Building Foundation Studies	14.4.1

EXPERIENCE SUMMARY

Mr. Gunter has over twenty-eight years of geotechnical engineering, construction materials testing, and environmental and hazardous waste experience in Texas. In addition to project experience in Texas, he has managed and worked on projects in Louisiana, Arkansas, Oklahoma, Nebraska, Ohio, California, and Saudi Arabia. He has managed and performed engineering investigations for projects including roads and bridges, water/wastewater systems and treatment facilities, multi-story buildings, petrochemical plant expansions, schools, apartment complexes, subdivisions, bulkheads, retaining walls, dams and offshore mooring facilities. In addition to these projects, Mr. Gunter has performed numerous forensic studies of distressed pavements.

Environmental and hazardous waste projects have included preparing plans and specifications for hazardous waste closures, negotiating closure requirements with state and federal agencies, and providing project management and oversight services during the closure.

PROFESSIONAL EXPERIENCE

- **FM 1626 Extension, Hays County, Texas.** As Project Manager, provided soil exploration, geotechnical testing, and foundation studies for 30,000 linear feet of new roadway, overpasses at IH-35 and Union Pacific Railroad, and a bridge structure on IH-35. Provided recommendations for slopes and retaining walls.
- **Center Park Bridge and Canyon Bridge Drive, Austin, Texas.** As Project Manager, provided soil exploration, geotechnical testing and foundation studies for a new bridge on Canyon Ridge Drive at Center Park Street. Also as part of this project, provided these same services for approximately 1,000 linear feet of roadway on Canyon Ridge Drive.
- **Old Manor Road Bridge, Austin, Texas.** As Project Manager, provided studies for replacement of an existing bridge on Manor Road. Foundation components as part of this project included arched culvert embankments and retaining walls.
- **Texas Rivers Center, San Marcos, Texas.** As Project Manager, provided soil exploration, geotechnical testing and foundation studies for multiple buildings proposed for construction on the old Aquarena Springs site for conversion to a state park facility.

Mr. Gunter has over twenty-eight years of geotechnical engineering, construction materials testing, and environmental and hazardous waste experience in Texas. In addition to project experience in Texas, he has managed and worked on projects in Louisiana, Arkansas, Oklahoma, Nebraska, Ohio, California, and Saudi Arabia. He has managed and performed engineering investigations for projects including roads and bridges, water/wastewater systems and treatment facilities, multi-story buildings, petrochemical plant expansions, schools, apartment complexes, subdivisions, bulkheads, retaining walls, dams and offshore mooring facilities. In addition to these projects, Mr. Gunter has performed numerous forensic studies of distressed pavements.

HVJ Associates, Inc.

JOHN A. GUNTER, P.E.

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- **LCRA System Operations Control Center, Austin, Texas.** As Project Manager, provided soil exploration, geotechnical testing and foundation studies for new LCRA Operations Control Center. Tasks for this project included lateral load analyses on pier foundations.
- **Alamo Cement Company, San Antonio, Texas.** Tasks for this project included writing specifications for closure, overseeing closure, and certification of closure for a kiln dust landfill. Subsequent to obtaining closure, the landfill formed part of a golf course.
- **Dell Computer Campus, Round Rock, Texas.** Participated in the two-phase geotechnical investigation for a seven building expansion to the Dell Computer Campus. The buildings are all multi-storied and are used for sales and technical support. The site had numerous faults crossing the building locations resulting in changes in the geologic formations beneath individual buildings.
- **University of Texas, Parking Garages and Office Buildings 4A and 4B, Austin, Texas.** Participated in the geotechnical investigation conducted on a site that was previously used as a parking lot. The office buildings were all above grade, while the parking garages combined below grade and above ground levels. Several faults were found in the site area that contained changes in geologic formations and fractured zones due to the faulting.
- **Hoechst-Celanese Chemical Company, Pampa, Texas.** Project tasks consisted of preparation of a remediation work plan, overseeing closure, and certification of closure for a 34-acre hazardous waste impoundment in Pampa, Texas. The work consisted of solidifying sludges and constructing a multi-layered cap. An early portion of the work consisted of performing four, large-scale permeability tests using Sealed Double Ring Infiltrimeters.
- **Scofield Farms, Austin, Texas.** Participated in the geotechnical investigations for this large subdivision in north Austin. The investigation included studies of streets varying from local residential streets to minor arterials. The subdivision is in a faulted area of Austin and crosses several geologic formations.
- **Coca-Cola Distribution Center Parking Lot, Austin, Texas.** The investigation was conducted on a parking lot that was composed of a new parking lot and an old parking lot that had been overlaid. The study revealed that the old parking lot had a very poor quality base material below the asphalt and that site drainage and watering of vegetation were resulting in a very wet base and subgrade.
- **Convention Center Headquarters Hotel, Austin, Texas.** Conducted a geotechnical investigation for a new 23-story hotel located north of the City of Austin Convention Center Expansion. The planned construction included excavating the site to a depth of 31 feet.

HVJ Associates, Inc.

HOSSAM ESMAIL, P.E.

Project Manager

TxDOT Employee Sequence Number 11736

TxDOT Firm Sequence Number 337

EDUCATION

M.A.Sc., Civil Engineering, Concordia

University Montreal 1996

B.Sc., Civil Engineering, Alexandria University,

Egypt 1981

LICENSE

Texas Society of Professional Engineers (Number 89980)

PRECERTIFIED TxDOT CATEGORIES:

Soil Exploration	14.1.1
Geotechnical Testing	14.2.1
Transportation Foundation Studies	14.3.1
Building Foundation Studies	14.4.1

EXPERIENCE SUMMARY

Mr. Esmail's professional experience extends over 15 years and covers a wide range of geotechnical engineering experience. He has coordinated and managed projects during various phases, prepared proposals, conducted field investigations, lab testing, engineering analyses, construction supervision and prepared reports.

Mr. Esmail's expertise covers transportation, infrastructure, foundation design projects and water-wastewater treatment plants.

PROFESSIONAL EXPERIENCE

- Cedar Breaks Road Extension, Williamson County, TX:** As a Graduate Engineer, Mr. Esmail coordinated the field investigation, including site clearance activities and coordinating with U.S. Army Corps of Engineers, edited the field logs based on visual classification and pocket penetrometer and prepared the soil/rock boring log using WinCore program; assigned and supervised and reviewed the laboratory tests need for the project. In addition, prepared design curves for the proposed bridge structure and prepared draft report for the project manager's review.
- IH-10 Katy Corridor, Houston, Texas:** As a project Graduate Engineer, Mr. Esmail has worked on all phases of the geotechnical investigation for the 1.2 billion dollar construction project. He has coordinated, field investigation, and laboratory testing for the project. Project involved reconstructing and widening to 8 main lanes 4 special use lanes and 3 lane frontage roads between east of IH-610 and West of Katy, about 20 miles. Mr. Esmail has performed engineering analysis and led the team of junior engineers in performing extensive settlement analysis and global stability analysis for the project.
- Cantilever Retaining Walls, Loop 20 in Laredo, TX:** As a Project Manager, of the geotechnical investigation, supervised drilling operations and edited the field logs based on visual classification and pocket penetrometer, and prepared the soil borings using the WinCore program. The entire project was completed in less than two weeks as requested by client. Engineering analysis and recommendations were provided for retaining walls.

HVJ Associates, Inc.

HOSSAM ESMAIL, PE

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- **FM-107, Coryell County, TX:** As a Project Engineer, coordinated all the field investigation for widening the existing roadway, constructing a single span bridge; edited field logs; assigned supervised and reviewed laboratory tests as needed for this roadway rehabilitation project. The field investigation phase included obtaining right of entry with few land owners and utility firms.
- **Reconstruction of US-90A, Houston, TX:** Coordinated entire geotechnical investigation for the proposed US-90A expansion from west of Spur 58 to west of SH-6 (Approx. 1.064 miles) and on SH-6, from north of US-90A to north of First Colony Blvd. (approx. 1.59 miles). Recommendations included an interchange at SH-6 and US-90A with the SH-6 main lanes elevated over the US-90A main lanes. The grade separation is planned to be constructed with prestressed concrete spans, braided ramps, at-grade frontage roads and MSE retaining walls, with an allowance for the future depression of the US-90A main lanes. In addition, two bulkhead walls of about 270 feet length each are planned for this project. Provided design and construction recommendations for the embankments and retaining walls for the North side embankment of SH-6 Crossing US-90A. Mr. Esmail gathered information on subsurface conditions at the site, assigned, supervised and reviewed the laboratory testing as needed, prepared the soil borings using WinCore program, and developed recommendations for the design and construction of the deep foundations for the bridges, storm sewers, high mast lights, signs and retaining wall structures including global stability analysis. In addition, Sheet pile design analysis and construction recommendations were also provided for the bulkhead walls.
- **Galveston-Bolivar Ferry Terminal(s) Improvements, Galveston, Harris County, TX:** Performed a geotechnical study; which included new steel dolphins, relocated or lengthened breakwaters and new mechanical and washroom facilities. Mr. Esmail performed the geotechnical study for the project, gathered information on subsurface conditions at the site, and developed recommendations for the design and construction of the deep foundations for the new terminal, wharf, dolphin, breakwater structures including global stability analysis, and the new mechanical and washroom facility foundations.
- **Warren Ranch Road Bridge over Rock Hollow Creek, Houston, TX:** As a Project Manager, I have provided project management and project coordination throughout the geotechnical investigation for this project. Gathered information on subsurface conditions at the site to develop recommendations to guide the foundation design of the proposed bridge, box culverts and temporary road to be used during construction.
- **Woodlands Water Bridge, Woodlands, Harris County, TX:** As a Project Manager, provided geotechnical investigation for the bridge across the waterway; gathered information on subsurface conditions at the site and assisted in the development design recommendations for the bridge foundation, embankments and retaining walls.
- **Direct Connector Ramp between Woodlands Parkway and IH-45, Harris County, TX:** As a Project Manager, Mr. Esmail performed a geotechnical investigation and provided design and construction recommendations for drilled shafts or piles to support the elevated ramp and slope stability recommendations.

HOSSAM ESMAIL, PE - CIVIL ENGINEER

HVJ Associates, Inc.

R. F. (FRANK) CARMICHAEL, III, P.E.

Pavement Branch Manager

TxDOT Employee Sequence Number 00723

TxDOT Firm Sequence Number 337

EDUCATION

MSCE, University of Texas at Austin, 1974

BSCE, University of Texas at Austin, 1973

LICENSE

Professional (Civil) Engineer, Texas (No. 43815)
and States of AZ, CO, IN, MO, NM, OK, PA, RI
and National Council of Engineering Examiners

PRECERTIFIED TxDOT CATEGORIES:

Systems Planning	1.2.1
Feasibility Studies	1.5.1
Soil Exploration	14.1.1
Geotechnical Testing	14.2.1
Route Studies/Schematic Design/	
Minor Roadways	3.1.1
Minor Bridge Layouts	3.4.1
Minor Roadway Design	4.1.1
Routine Bridge Inspection	6.1.1
Complex Bridge Inspection	6.2.1
Traffic Engineering Studies	7.1.1
Bicycle/Pedestrian Facility	
Development	9.1.1

PROFESSIONAL AFFILIATIONS

Fellow, American Society of Civil Engineers
American Public Works Association
Texas Society of Professional Engineers
ASTM Committee E-17 on Pavement Management
Technologies
TRB Committee A3C01 on Highway Maintenance and
Operations Systems
Chi Epsilon, Civil Engineering Honorary Society

EXPERIENCE SUMMARY

Mr. Carmichael has consulted on pavement engineering nationally, has developed and implemented pavement evaluation, design, and maintenance-management systems, and has conducted special pavement research for the United States Department of Transportation and Federal Aviation Administration. With over 30 years of pavement engineering experience, he is thoroughly familiar with the

pavement design and evaluation methods of the Texas Department of Transportation, the U.S. Military, the American Association of State Highways and Transportation, the Portland Cement Association, the Asphalt Institute, FHWA, FAA, Cities of Austin and Houston, and Travis County. He lead the development of the City of Austins MFPS and MRPS design programs used for over 15 years. He has experience in bridge construction, inspection, and rehabilitation and has conducted TxDOT BRINSAP bridge inspections. He was the principal engineer for the development of the Washington D.C. bridge management system, which is based on the FHWA PONTIS system and managed two cycles of NBIS bridge inspections for all the bridges in Washington D.C.

He has developed and taught training courses for the Federal Highway Administration and has directed development of pavement management systems studies for Texas, in addition to many other states and cities. He has directed the data collection of pavement visual surveys on over 100,000 lane-miles of roads and streets. He has operated and interpreted the pavement strength data from the regular and heavy Falling Weight Deflectometer, Dynaflect, and LaCrio Deflectograph.

PROFESSIONAL EXPERIENCE

- **Lamar Boulevard from 12th Street to 24th Street, City of Austin** – Principal in Charge and reviewed submittals for QA/QC
- **1998/1999 Street Rehabilitation Program, City of Austin** – Principal in Charge and reviewed submittals for QA/QC. Developed bridge widening details on 12th Street project.
- **1999/2005 Street Rehabilitation Program, City of Austin** – Principal in Charge and reviewed submittals for QA/QC. Developed preliminary field pavement distress data for Burleson, Guadalupe, 30th, Rio Grande, and Nueces Streets. Reviewed all engineering reports, 30% submittals, and 65% plans.
- **Pflugerville Outer Loop (Pecan Street), Travis County** – Developed pavement designs using Dynaflect deflection for a reconstruction of a major county arterial road which links to SH 130. the flexible pavement design used MFPS a program

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R. F. (FRANK) CARMICHAEL, III, P.E.

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which Mr. Carmichael prepared based on TxDOT FPS 11.

- **Traffic Control Plan Development, Austin, Dripping Springs, Taylor, Round Rock, Texas.** Indefinite services contract with N-Line Traffic Services to provide traffic control plans for barricade and traffic control device set-up for a variety of clients. Engineered traffic control plans are developed for projects within the jurisdiction of TxDOT, City of Austin, and surrounding cities and counties. Through coordination with the City of Austin and TxDOT, an acceptable format for the submittal and approval of Traffic Control Plans was developed. Traffic Control Plans encompass details for single and multiple lane closures, road closures, detours, freeway closures, shifting of traffic, flagger set-ups, and sidewalk and crosswalk closures.
- **North Bluff Drive Phase II (IH 35 to Pleasant Valley), Austin, Texas.** Pavement design project that considered life-cycle costs and optimum pavement cross-sections for expected traffic.
- **William Cannon Drive (Brodie Lane to US 290), Austin, Texas.** Pavement design study to consider asphalt or Portland cement concrete design alternatives for a four- and six-lane facility with a 20- and 30-year design life.
- **City of Seguin-Bicycle Bridge and Network System.** Designed pedestrian and bicycle bridge and bicycle system ten miles in length on both streets and through a city park. Site plans and construction drawings and specifications were developed for the project using the latest AASHTO Guide for the Development of Bicycle Facilities (Bike Guide) as a guidance document for the project. The pedestrian bridge was a prefabricated structure with a clear span of 150 feet.
- **Phoenix Outer Loop** – Performed design calculations for Portland Cement Concrete (PCC) pavements including consideration of jointed plain concrete pavement (JPCP), Jointed reinforced Concrete Pavement (JRCP), and continuously reinforced concrete pavement (CRCP). These analysis included life cycle cost estimates. Earlier developed highway construction smoothness measurement and acceptance criteria for AZDOT. Reviewed final smoothness results for this section, which was very smooth based on its CRCP design and excellent construction.
- **IH15 Salt Lake City, Brown & Root for Utah DOT** – Developed pavement thickness designs and alternatives for the Brown & Root team. Reviewed and interpreted hundreds of borings and laboratory test results to develop design inputs. Developed thickness designs for all types of PCC pavements. Since this project involved the demolition and reconstruction of over 100 bridge structures pavement design included consideration of approach embankments. Since this design-build project was fast tracked to complete prior to the Winter Olympics, innovative cross sections had to be considered by the design team to interface with complex construction phasing and traffic control plans.
- **Eberhart/Cooper Lane (South Congress to William Cannon Drive), Austin, Texas.** Designed optimal flexible and rigid pavement sections to consider in situ soils and all life-cycle costs.
- **Katy Mills Mall, Mills Corporation, Katy, Texas.** Interacted with City Planning and Development Board to approve 200+ acres of paving for this new major mall. Designed all parking lot and building service road asphalt-concrete pavements. Reviewed lime stabilization of subgrade. Designed coarse-grade, hot-mix asphalt-stabilized paving, and fine-grade hot-mix asphalt surface thicknesses. Reviewed laboratory test results.
- **Pavement Maintenance Management System, Houston, Texas.** Conducted survey of all 6000+ centerline miles of City of Houston streets. Implemented computerized system for rating and selecting specific rehabilitation strategies for all sections. This project included curbs and gutters, shoulders, roadside ditch drainage, and ADA ramps.

HVJ Associates, Inc.

LINDA L. BARLOW, P.E.

Pavement Engineering Department Manager

TxDOT Employee Sequence Number 00721

TxDOT Firm Sequence Number 337

EDUCATION

B.S., Civil Engineering,
University of Texas at Austin, 1983

LICENSE

Professional (Civil) Engineer, Texas - No. 63878

PRECERTIFIED TxDOT CATEGORIES:

Policy Planning	1.1.1
Land Planning/Engineering	1.4.1
Roadway Construction	
Management/Inspection	11.1.1
Minor Roadway Design	4.1.1
Major Roadway Design	4.2.1
Complex Highway Design	4.3.1
Signing, Pavement Marking and Channelization	8.1.1

PROFESSIONAL AFFILIATIONS

American Society of Civil Engineers
Chi Epsilon, Civil Engineering Honorary

EXPERIENCE SUMMARY

Ms. Barlow is the Manager of the Civil Engineering Department in the Austin office. She is experienced in a broad range of pavement related work including: materials evaluation; airport, highway and street pavement evaluation and design; development of pavement related construction plans and specifications; development of airport pavement management plans, and pavement related research.

Ms. Barlow's 18-years of project experience specifically associated with roadway/airfield pavements and related construction plan development, provides a knowledgeable background of transportation systems.

Ms. Barlow's pavement design work has included the determination of concrete and asphalt pavement thickness using several different methodologies for both overlays and new pavement. In addition, she has designed reinforcing steel and joint details. Much of the pavement design work she has performed has included detailed life cycle cost analyses of alternative pavement designs over extended performance lives to determine the most economical design over the long term. Ms. Barlow also has extensive experience preparing construction plans, specifications, and contract documents for design projects, as well as construction phase services.

PROFESSIONAL EXPERIENCE

Highway/Streets

Designed concrete and asphalt pavements for both overlays and new pavement, using design methods including TxDOT, U. S. military, AASHTO Guides, PCA method, City of Austin design procedure, and industry mechanistic procedures. Performed detailed life cycle cost analyses of alternative pavement designs over extended performance lives to determine the most economical design over the long term. Prepared construction plans, specifications, and contract documents for design projects, as well as provided construction phase services. These construction documents have included: street plan and profile, typical paving sections, construction phasing, traffic control plans, environmental plans, striping plans, utility adjustments, and design details. Developed cost estimates associated with construction of designed highway, street, parking lots, and peripheral items, related to rehabilitation, widening, or new construction. Managed subcontracts for surveying, drilling and testing, potholing, and water line design, for City of Austin street rehabilitation projects. Performed drainage analyses for problem areas and designed necessary drainage improvements for street rehabilitation projects.

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LINDA L. BARLOW, P.E.

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Performed evaluations for numerous street, parking lot and airport pavements, including collection of and interpretation of field data, such as condition surveys and nondestructive deflection measurements.

Determined allowable loads for pavements by analyzing expected traffic for existing pavement conditions as well as performed pavement life analyses in which the amount of remaining pavement life is determined.

Participated in numerous pavement evaluation and design projects for hundreds of lane miles of streets and highways in: Austin, Georgetown, Dallas, Midlothian, Houston, and Harris County, Texas; Denver, Colorado; Phoenix, Arizona; and for turnpikes in Oklahoma.

- **Burleson Rd, Austin TX** - Asphalt pavement evaluation and reconstruction designs, including construction documents (plan and profile sheets, utility plans, construction sequencing and traffic control, pavement marking, erosion/sedimentation control and tree protection), bidding, and construction phase consulting.
- **12th St and Rosewood Ave, Austin TX** - Asphalt pavement evaluation and rehabilitation/reconstruction designs and concrete bus pads, including construction documents (plan and profile sheets, utility plans, construction sequencing and traffic control, pavement marking, erosion/sedimentation control and tree protection), bidding, and construction phase consulting.
- **Woodward St, Austin TX** - Asphalt pavement evaluation and rehabilitation/reconstruction designs and concrete bus pads, including construction documents (plan and profile sheets, utility plans, construction sequencing and traffic control, pavement marking, erosion/sedimentation control and tree protection), bidding, and construction phase consulting.
- **Burton Dr, Austin TX** - Asphalt pavement evaluation and rehabilitation/reconstruction, and concrete bus pads, including construction documents (plan and profile sheets, utility plans, construction sequencing and traffic control, pavement marking, erosion/sedimentation control and tree protection), bidding, and construction phase consulting.
- **San Jacinto Street, Austin TX** - Concrete pavement evaluation and rehabilitation designs, including construction documents (plan and profile sheets, utility plans, construction sequencing and traffic control, pavement marking, erosion/sedimentation control and tree protection), bidding, and construction phase consulting.
- **Congress Ave., Austin, TX** - Asphalt pavement evaluation and rehabilitation designs incorporating concrete bus lanes, including construction documents (plan and profile sheets, utility plans, construction sequencing and traffic control, pavement marking, erosion/sedimentation control and tree protection), bidding and construction phase consulting.
- **Northeast Dr., E. Oltorf St., Austin, TX** - Asphalt pavement evaluation and rehabilitation designs, including construction documents (plan and profile sheets, utility plans, construction sequencing and traffic control, pavement marking, erosion/sedimentation control and tree protection), bidding and construction phase consulting.
- **Spring Cypress At Champion Forest, Spring Forest, TX** - Designed roadway and bridge widening to add turn lanes on Spring Cypress Rd and signalized intersection, prepared construction plans (plan and profile sheets, bridge details, construction sequencing and traffic control, pavement marking, erosion/sedimentation control), specifications, and construction phase consulting.

HVJAssociates, Inc.

Project Name	TxDOT SH 45 from IH 35 Interchange to Pflugerville Loop
Service Provided	Geotechnical Engineering
Project Location	Austin, TX
Project Cost	\$44,000,000
HVJ Fee	\$116,849
Completion Date	May 2000
Client Reference	PBS&J 6504 Bridge Point Parkway Suite 200 Austin, TX 78746-3343 Michael Garrison Phone: 512-327-6840 Fax: 512-327-2453

The project was proposed to replace an existing four-lane arterial with a six-lane turnpike facility with three-lane continuous frontage roads. The geotechnical investigation included drilling and sampling of 30 soil borings to a depth of 20 to 50 feet deep, according to Texas Department of Transportation Guidelines. Engineering analyses were performed to estimate the settlement of deep fill embankments as high as 35 feet. Our recommendations included results of global stability analysis, soil parameters for retaining wall design, bridge foundation recommendations, and storm sewer recommendations.

HVJ Associates, Inc.

Project Name	Cedar Breaks Rd. Extension
Service Provided	Geotechnical Engineering and Pavement Engineering
Project Location	Georgetown, TX
Project Cost	\$ N/A
HVJ Fee	\$103,395
Completion Date	August 2001
Client Reference	PBS&J 6504 Bridge Point Parkway, Suite 200 Austin, TX 78746-3343 Gerald Lankins Phone: 512-327-6840 Fax: 512-327-2453

HVJ performed a geotechnical investigation for the Cedar Breaks Road Extension and DB Woods Road re-alignment in Williamson County, Texas. The project included recommendations for bridge foundations and pavement design. Subsurface conditions for the project alignment were determined by a total of 11 soil borings for the Cedar Breaks Road extension and 16 borings for the DB Woods Road. The soil borings were drilled in a difficult terrain with all-terrain vehicle mounted drilling equipment. Drilling difficulties were encountered due to losing drilling fluids into the fractured Edwards limestone formation. The Wincore computer program that incorporates TxDOT standard procedures was used to compute the bearing data for straight-sided drilled shafts for the project bridge structure. The soil design parameters were developed based on laboratory unconfined shear strength test data and the TxDOT cone penetrometer blow counts data. TxDOT flexible pavement design system (FPS19) was used to develop alternative flexible pavement construction designs for different traffic levels, surface and base thicknesses. In addition, the subgrade support in both fill and cut sections were analyzed for the pavement designs. Construction materials recommendations were made for Hot Mix Asphalt Surface and Base, Flexible Crushed Stone Base, Fill placement, and Subgrade preparation.

THE ABOVE INFORMATION IS UNCLASSIFIED

HVJ Associates, Inc.

Project Name	Geotechnical Investigation MLK Blvd from Lamar to Rio Grande
Service Provided	Geotechnical Engineering and Pavement Engineering
Project Location	Austin, TX
Project Cost	\$ N/A
HVJ Fee	\$22,859
Completion Date	November 2002
Client Reference	Othon Inc. 11200 Jollyville Road Austin, TX 78759 Ken Fowler Phone: 512- 343-5538 Fax: 512-343-0271

HVJ Associates, Inc. was retained by Othon, Inc. to perform a geotechnical investigation for the proposed improvements on Martin Luther King Boulevard between Rio Grande Street and Lamar Boulevard in Austin, Texas. The primary objectives of this study were to gather information on surface and subsurface conditions along the alignment and to develop design and construction recommendations for the proposed pavement improvements. The objectives were accomplished by: 1) performing non-destructive deflection testing with the Falling Weight Deflectometer (FWD); 2) drilling soil borings to determine the subsurface stratigraphy and to obtain samples for laboratory testing; 3) performing laboratory tests to determine physical and engineering characteristics of the soils and rocks; and 4) performing engineering analyses to develop design guidelines and recommendations. The surveys were used to identify type and location of distresses to be repaired, etc. FWD testing was performed to both aid in selecting locations for borings and cores, and to identify the limits each boring and core represented. Subsurface conditions for the project alignment were determined by a total of 7 soil borings. The borings were drilled to depths of 10-15 feet below the existing grade. Selected soil samples were tested in the laboratory to determine physical and engineering properties applicable to the project, in accordance with ASTM procedures. City of Austin MFPS was used to develop the flexible pavement section thicknesses for 10 and 20-year designs. Construction materials recommendations were provided for subgrade preparation and pavement layers.

HVJ Associates, Inc.

Project Name	2nd and 3rd St. Reconstruction, Great Streets Program
Service Provided	Geotechnical Engineering and Pavement Engineering
Project Location	Austin, TX
Project Cost	\$ N/A
HVJ Fee	\$42,500
Completion Date	January 2002
Client Reference	Binkley & Barfield, Inc. 4419 Frontier Trail Austin, TX 78745 John Fowler Phone: 512-851-1660 Fax: 512-851-1617

Binkley and Barfield contracted with HVJ to perform a geotechnical investigation and pavement recommendations for the proposed reconstruction along 2nd and 3rd Streets between San Antonio Street and Trinity Street and eight blocks connecting 2nd and 3rd Streets including San Antonio, Guadalupe, Lavaca, Colorado, Brazos, San Jacinto, and Trinity Streets in Austin, Texas. The proposed project included replacing existing utilities (water, wastewater, and storm sewer), at a maximum invert depth of 10 feet below existing grade.

The primary objectives of this study were to gather information on surface and subsurface conditions along the alignment and to develop bedding and backfill construction recommendations for the proposed utilities and pavement. The objectives were accomplished by drilling 14 soil borings at a depth of 15' to 30' to determine the subsurface stratigraphy and to obtain samples for laboratory testing, performing laboratory tests to determine physical and engineering characteristics of the soils, and performing engineering analyses to develop design guidelines and recommendations. Hydrometer tests were performed to determine the potential for particle migration into the pipe bedding coarser material. Recommendations included providing geofabrics around bedding material to prevent particle migration.

Designs were completed using the City's computer pavement design program MFPS, Municipal Flexible Pavement System, and MRPS, Municipal Rigid Pavement System for pavement thickness calculations for the new reconstructed Flexible and Rigid pavements. The new designs include consideration of traffic loads, lab test results, and borings. The Interlocking Concrete Pavement Institute (ICPI) design method, ICPI Publication 52500 TR-6, was used for the interlocking concrete paver design. As a design check, thickness equivalences with concrete blocks in another publication, "Applications For Concrete Paving Block in the United States Market" by Rolling Engineering- report papered for UNI-GROUP USA, was reviewed.

Additional work was performed regarding the use of structural soil as backfill in the tree planting areas within the sidewalk adjacent to the street, and its impact on the pavement as well as drainage characteristics. A review of deep tree root barriers was conducted and recommendations made regarding the use of the barriers both for protection of tree root infiltration and water infiltration under the pavements.

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Project Name	Red Bud Trail
Service Provided	Geotechnical Engineering and Pavement Engineering
Project Location	West Lake, TX
Project Cost	\$ N/A
HVJ Fee	\$39,450
Completion Date	November 2000
Client Reference	PBS&J 6504 Bridge Point Parkway Suite 200 Austin, TX 78746-3343 Mark Ramseur Phone: 512-327-6840 Fax: 512-327-2453

HVJ Associates, Inc. was retained by PBS&J to provide geotechnical recommendations for the proposed pavement improvements to Red Bud Trail between FM 2244 (Bee Caves Road) and West Lake Drive in Travis County, Texas. The primary objectives of this study were to develop design and construction recommendations for the proposed pavement improvements. The objectives were accomplished by: drilling soil and rock borings to determine the subsurface stratigraphy and to obtain samples for laboratory testing; performing laboratory tests to determine physical and engineering characteristics of the soils and rocks; performing pavement condition survey, non-destructive deflection testing with the Falling Weight Deflectometer (FWD) and traffic counts; and performing engineering analyses to develop design guidelines and recommendations.

Red Bud Trail was visually surveyed from Bee Caves Road (F.M. 2244) to West Lake Drive for a total length of 2.4 miles. The pavement distress and general condition observed throughout of the project length was documented. The scope of FWD testing on Red Bud Trail included: perform FWD deflection tests, plot deflection profiles, and develop layer moduli using back-calculation techniques. Subsurface conditions at the site were investigated by drilling fifteen 10-foot borings along Red Bud Trail. Selected soil samples were tested in the laboratory to determine applicable physical and engineering properties. TXDOT flexible pavement design system FPS19 was used to develop overlay and reconstruction designs for Red Bud Trail. In reference to the recommended pavement repairs, materials recommendations were provided for: seal coat, HMA, Flexible (Crushed Limestone) base, and subgrade.

For design phase plans and specifications development, HVJ marked full depth repair locations on the pavement and provided recommendations for specifications and pavement construction notes.

11/18/00 11:12 AM 11/18/00 11:12 AM

AGENDA ITEM 25

Discuss and take appropriate action on road bond program.

Mike Weaver and Paul Petrich addressed the Court.

AGENDA ITEM 26

Consider a resolution authorizing the necessity to condemn property interests required for the construction of Parmer Lane expansion project, and take other necessary action. (VanArtdalen parcels).

At the request of Charlie Crossfield, Agenda Item 26 was discussed in Executive Session, and no action was taken during Executive Session.

Moved: **Commissioner Hays**

Seconded: **Commissioner Curlee**

Motion: To authorize the County Judge to sign a resolution authorizing the necessity to condemn property interests required for the construction of Parmer Lane expansion project, and take other necessary action. (VanArtdalen parcels).

Vote: **3 – 0**

< Attachment >