



James H. Nelson, PE
President

Storm Water Consulting, Inc.

Education

1976, B.S., Hydrology, University of Arizona

Professional Registrations

1991, Civil Engineer, CA; 1987, Civil Engineer, AZ; 1990, Civil Engineer, NV; 2013, Civil Engineer, HI

Experience and Current Responsibilities

Mr. Nelson is the President of Storm Water Consulting, Inc. and retains over 35 years of specialized experience in managing and performing a wide variety of storm drainage and water resources projects; including storm drainage master plans, floodplain analyses, hydrologic and hydraulic studies, drainage designs for streets and highways, storm drainage impact fee analyses, joint-use flood control/recreation and environmental enhancement projects, environmental impact reports, flood control studies and designs, and drainage litigation expert witness services. Since beginning his professional practice in 1975, Mr. Nelson has completed or supervised the completion of over 2,500 relevant projects in the field of water resources. Many of the project engagements that Mr. Nelson has managed have involved extensive public and agency participation, and he has effectively facilitated workshops, public meetings, and consensus building sessions. Prior to founding Storm Water Consulting, Inc., Mr. Nelson was a member of a large multi-disciplinary consulting firm for 27 years, functioning in a variety of roles, including Chief Hydrologist, Water Resources Manager, Principal, Branch Manager and Vice President.

Relevant Project Experience

Fahrens Creek/Black Rascal Creek FEMA CLOMR/LOMR; Merced, California; O'Dell Engineering; Project Manager for the preparation of a request and acquisition of a Conditional Letter of Map Revision to FEMA pertaining to floodplain and floodway modifications along a 2-mile reach of Fahrens Creek/Black Rascal Creek. Prepared bridge alternative reports for proposed crossings of the creek at Buena Vista Drive and R Street. Prepared a request and acquired a Letter of Map Revision from FEMA after floodplain and floodway modifications were completed.

Westside Flood Control Channel and Delta Outfall; Tracy and San Joaquin County, California; City of Tracy; Project Manager/Principal for design of a 9-mile system of open channels, greenbelt parkways, trunk line storm drains and detention basins to serve as the storm drainage infrastructure for existing and future urbanization zones in the City of Tracy. Project included flood control studies, HEC-1 analysis, HEC-2 analysis, risk-based analysis, construction drawings, specifications, cost estimates, utility coordination, public facilitation, environmental permitting, and construction support services.

Federal Flood Insurance Studies; Federal Emergency Management Agency; Project Manager for the preparation of Federal Flood Insurance Studies for 26 communities and six unincorporated counties under 10 separate contracts. These studies included reconnaissance, surveys, hydrology, hydraulics, community coordination, and the preparation of Flood Insurance Rate Maps.



Clover Creek Preserve; Redding, California; City of Redding; Project Manager/Principal for design and construction support pertaining to a 360 acre-foot detention basin and wildlife preserve along Clover Creek. Project also included hydraulic analyses, street and drainage design and the acquisition of a Letter of Map Revision for the downstream 4-mile reach of Clover Creek from FEMA, reflecting the flood control benefits of the project.

Tortolita Basin Management Study; Pima County, Arizona; Pima County Department of Transportation and Flood Control District; Project Principal for floodplain management study for a 100-square-mile area northwest of Tucson. The study examined existing flooding conditions, proposed drainage and flood control improvements, provided cost estimates and recommended guidelines for regulation of development within the area.

Whites Creek Basin Management Study; Reno, Nevada; Washoe County Public Works; Project Manager/Principal for preparation of interim policies for development and infrastructure improvements, preliminary design for a flow splitter and regional stormwater detention basin, HEC-1 analysis, and basin management study for alluvial fan area south of Reno.

Patterson Storm Drainage Master Plan; Patterson, California; City of Patterson; Project Manager for the preparation of a Storm Drainage Master Plan for the City's General Plan area, including hydrology, hydraulics, storm drainage infrastructure planning, cost estimating, and AB 1600 reporting.

Moraga Storm Drainage Needs Study; Moraga, California; Town of Moraga; Project Manager for the preparation of a storm drainage study to determine infrastructure upgrades needed along roadway and highway crossings of the Town's major creeks and associated costs. Project included the completion of an impact fee analysis and AB 1600 reporting.

Modesto Storm Drainage Master Plan and Engineer's Report; Modesto, CA; City of Modesto; Project Manager and Project Consultant for preparation of the Storm Drainage Master Plan for the City's Sphere of Influence, including infrastructure sizing, quantification and cost estimates. Project Manager for preparation of the Engineer's Report for the Storm Drainage Rate and Connection Fee Study.

Elk Grove East Area Storm Drainage Master Plan; Elk Grove, California; City of Elk Grove; Project Manager for the preparation of a storm drainage master plan for the eastern portion of the City (roughly 8 square miles), including sizing of roadway crossing upgrades and other storm drainage infrastructure, quantifications and cost estimates.

Navajo-Kendrick Drainage Project; City of Flagstaff; Flagstaff, Arizona; Project Manager for the preparation of a drainage study and construction drawings for storm drain improvements to relieve flooding in an area of downtown Flagstaff.

Livingston Storm Drainage Master Plan and Impact Fee Analysis; Livingston and Merced County, California; City of Livingston; Project Manager for the preparation of a Storm Drainage Master Plan for the City's Sphere of Influence, including infrastructure sizing, quantifications and cost estimates. Project Manager for the completion of a storm drainage impact fee analysis and AB 1600 reporting. Prepared the Hydrology and Water Section of the EIR for the City's General Plan update.

Shasta Ranch Mining and Reclamation; Shasta County, California; Pacific Municipal Consultants for Shasta County; Prepared the portions of the Hydrology and Water Quality section of an EIR addressing



surface drainage, access roadway drainage design, erosion, flooding, and channel migration for a proposed aggregate mining operation adjacent to the Sacramento River.

Gardner Lane Area Flood Control Study; *Tucson, Arizona; City of Tucson;* Project Manager for a flood control study that proposed alternative solutions to flooding within an approximately 400-acre area in northwest Tucson. Evaluations included hydrology, hydraulics, detention basin analysis, drainage design and cost estimates.

Mission Road Interchange; *Merced, California; O'Dell Engineering;* Assisted in the review of the drainage design associated with a new freeway interchange along Highway 99 in the south area of the City of Merced.

Merced Storm Drain Master Plan; *Merced, CA; City of Merced;* Project Manager for the preparation of a Storm Drain Master Plan for the City's Specific Urban Development Plan area comprising about 30 square miles. Project components included reconnaissance and base mapping, hydrologic modeling, storm drainage infrastructure master planning, cost estimates, phasing analysis and CIP listings.

Ulatis Creekwalk/Andrews Park Improvements; *Vacaville, California; City of Vacaville Public Works Department;* Project Principal and Engineer for a creekside linear park improvement project in downtown Vacaville. Project included preparation of plans, specifications and cost estimates, environmental review and permitting. Project features included pedestrian bridges, retaining walls, concrete walkways, urban plazas, fountains, kiosks, picnic areas and parking facilities.

Alameda Point; *Alameda, California; City of Alameda;* Provided reviews and opinions regarding floodplain and storm drainage issues associated with the proposed redevelopment of a 1,734-acre decommissioned Naval Air Station site on the western tip of Alameda Island.

CDO Bridge Location Study; *Pima County, Arizona; Pima County Department of Transportation and Flood Control District;* Task Leader for flood control study for 10-mile reach of the Canada Del Oro Wash; hydraulics, sediment transport and preliminary design for levees and bridges, and cost estimates.

Indian School Park; *Scottsdale, Arizona; U.S. Army Corps of Engineers;* Task Manager for the hydraulic design of a regional linear park system located within the Indian Bend Wash floodplain. The completed project won several design awards from the U.S. Army Corps of Engineers.

Tracy Storm Drainage Master Plan; *Tracy, California; City of Tracy;* Project Manager for the preparation of the City's 1994 and 2010 Storm Drainage Master Plans for their Sphere of Influence (approximately 100 square miles). Project included reconnaissance, hydrology, hydraulics, infrastructure planning, cost estimating, and environmental review support.

Salt River Bank Stabilization - 7th Street to 16th Street; *Phoenix, Arizona; CalMat Properties Company;* Project Manager/Principal responsible for design and construction engineering pertinent to gabion bank stabilization along 1-mile reach. Design included integration of landscape planters into bank slope and processing of map revision through FEMA.

Corning Flood Study; *Corning, California; Aaron Mount/Marguerite, LLC;* Prepared a hydrologic and hydraulic analysis to determine flooding limits and flood elevations along the Blackburn Moon Drain and Central Drain.



Bell Road - 99th Avenue to New River; *Peoria and Maricopa County, Arizona; Maricopa County Highway Department;* Project Manager for the design of a 2-mile segment of six-lane arterial street. Project included extensive utility and right-of-way studies, hydraulic/storm drain design, and enclosure of a large drainage channel.

Big Bend State Park Recreation Area; *Laughlin, Nevada; Nevada Department of Conservation and Natural Resources;* Performed watershed hydrology, drainage design, soil stability analysis, erosion/sedimentation analysis, wetland assessment, park planning and 404 permit processing relevant to a regional recreation area along the Colorado River.

Engineering Study of Window Rock, T.I.; *Lupton, Arizona; Arizona Department of Transportation;* Project Manager for an alternative design study to examine possible solutions to flooding problems at a traffic interchange along Interstate 40. Solutions proposed included drainage conduits, sediment basins, detention/retention basins, and open channels.

Kingman-Hoover Dam Highway; *Mohave County, Arizona; Arizona Department of Transportation;* Task Leader for the drainage design for a 6-mile segment of state highway in the northwestern portion of the State of Arizona, including hydraulic design of several drainage crossings.

Yosemite Flood Hazard Analysis; *Yosemite National Park, California; National Park Service.* Project Manager for a flood hazard analysis of the Merced River and Tenaya Creek to assist the National Park Service with the abandonment, relocation, and addition of campground areas serving Yosemite National Park and other related planning activities. Analysis included estimation of 2-, 10-, 25-, and 100-year discharges; HEC-2 evaluations of flooding conditions for each of these events; identification of depth zones, velocity zones, and flood limits; and relevant recommendations.

Laveen Area Drainage Master Study (ADMS); *Phoenix, Arizona; Flood Control District of Maricopa County;* Project Manager/Principal for the preparation of Phase I of an ADMS for a 50-square-mile area in South Phoenix, including topographic mapping, watershed hydrology, and floodplain delineations.

Nogales Wash Reconnaissance Level Flood Control Study; *Nogales, Arizona; Arizona Department of Water Resources;* Project Manager for a funding analysis for a proposed bridge, including hydrology, hydraulics, flood control design, preliminary bridge design, benefit-cost evaluations and public presentation.

Rio Nuevo Redevelopment Project; *Tucson, Arizona; Downtown Development Corporation;* Project Manager responsible for flood control design to protect a 200-acre project on a former landfill along the Santa Cruz River. Two miles of bank protection were integrated in a riverpark design, and recommendations were made to reinforce and enhance capacity of 2 arterial street bridge crossings. The completed project withstood a 200-year flood event shortly after it was constructed.

Estrella Freeway; *Phoenix, Arizona; Arizona Department of Transportation;* Task Leader responsible for coordinating the hydrology work effort to determine right-of-way requirements for future construction of a 37-mile freeway facility. Project consisted of reconnaissance phase, location study phase and preliminary design phase of 37-mile corridor.

Papers

“Incorporating LID Into Storm Drainage Master Planning,” co-authored with S. McIlroy, StormCon, The North American Water Quality Conference & Exposition, Anaheim, California, August 2011.



"General Guidelines for Planning and Design of Multi-Objective Drainage Facilities," Urban Runoff Symposium, Modesto, California, September 2003

"General Guidelines for Multi-Use Detention Basins," Arizona Floodplain Management Association, October 1998.

"Joint-Use Flood Control/Recreation Facilities," Arid Regions Floodplain Management Conference, Laughlin, Nevada, March 1997.

"General Guidelines for the Development of Multi-Use Detention Facilities," Annual Conference of the Floodplain Management Association of California, September 1993.

"Multi-Objective Flood Control Projects In Arid Regions," Fourteenth Annual Conference of Association of State Floodplain Managers, Asheville, North Carolina, June 1990.

"Use of HEC-2 for Floodplain Mapping In Fluvial Channel Systems," HEC-2 Users Conference, Denver, Colorado, August 1989.

"Alluvial Fan Flooding and Development Alternatives," ASCE Hydraulics Division National Conference on Hydraulic Engineering and International Symposium on Model-Prototype Correlations, Colorado Springs, Colorado, August 1988.

"Tortolita Fan Area Watershed Management Plan," co-authored with J.S. Wise, V.M. Diggins, M.S. Pearthree, and D.A. Smutzer, Realistic Approaches to Better Floodplain Management, Eleventh Annual Conference of Association of State Floodplain Managers, Seattle, Washington, June 1987.

"Watershed Management Study for Tortolita Alluvial Fan," Arid West Committee Regional Conference, Las Vegas, Nevada, March 1986.

Litigation Support

Heidrick/Schultz v. City of Davis. Increased and recurring flooding of agricultural properties downstream of a recently-constructed, large residential development project and accompanying storm drainage facilities, Yolo County, California. Hydrology consultation and expert witness.

Burton v. Celentano. Diversion along Finger Rock Wash, Tucson, Arizona. Hydrology consultation and expert witness.

P&S Metals v. Whitton Corporation, et. al. Flooding caused by a downstream landowner's construction of a CMU wall across the floodway for the North Branch Tropicana Wash, Las Vegas, Nevada. Hydrology consultation and expert witness.

Moniz v. State of Hawaii. Intensified flooding and destruction of a residence in Waianae, Hawaii caused by upslope grading in State lands. Hydrology consultation and preparation of initial evaluation report.

Maricopa County v. Allied Concrete. Sand and gravel operation along Agua Fria River near Indian School Road, Phoenix, Arizona. Hydrology consultation and expert witness.



Cordes v. County of San Joaquin, et. al. Increased incidence of flooding caused by construction of large industrial development southwest of Tracy, California. Hydrology consultation and settlement agreement.

Palos Verdes Unlimited v. Estes Co. Trespass on private property, West Branch Santa Cruz River Diversion Channel, Tucson, Arizona. Hydrology consultation and expert witness.

Lindquist v. City of Tucson. Zoning restriction with respect to building height limitation, Tucson, Arizona. Engineering consultation and expert witness.

Bahman v. Estes. Borrow pit area in Rillito River floodplain, Pima County, Arizona. Hydrology consultation and expert witness.

Frielich v. Tucson Airport Authority. Valuation case with respect to drainage and development potential, Avra Valley, Arizona. Hydrology consultation and expert witness.

Gastilum v. State of Arizona. Drainage impacts of Interstate Highway Construction, Santa Cruz County, Arizona. Hydrology consultation and expert witness.

Pima County v. Cindrigh Construction. Impacts of sand gravel extraction in Tanque Verde Creek, Pima County, Arizona. Hydrology consultation and expert witness.

Harvard v. Ellison. Local drainage and seismic sloshing concerns regarding construction of a “Japanese Gardens” estate and lake, Woodside, California. Hydrology consultation and settlement agreement.

Addison/Phillips v. Cienega, Ltd. Property erosion along Rillito River north bank, Pima County, Arizona. Hydrology consultation and court room assistance (no testimony given).

Robert Junker v. United States. Diversion of drainage flow and increased flooding induced by CAP canal construction, Apache Junction, Arizona. Hydrology consultation and expert witness.

Reed v. Rivendale. Blocking of drainage across a parcel of land caused by grading and filling within adjacent subdivisions in Santa Rosa, California. Hydrology consultation and expert witness.

Haugen v. Ludwig Builders. Flooding caused by a limited capacity crossing of a wash within a residential lot in metropolitan Phoenix, Maricopa County, Arizona. Hydrology consultation and expert witness.

Schaefer v. City of Larkspur. Bank erosion along Larkspur Creek resulting from a flow accelerating culvert crossing of Magnolia Avenue in Larkspur, California. Hydrology consultation and expert witness.

Arizona Department of Transportation. Drainage litigations associated with right-of-way condemnations for the Northwest Outer Loop Freeway in metropolitan Phoenix, Arizona. Hydrology consultation.

MacDonald v. Valley National Bank. Impacts on erosion, sedimentation, and flooding associated with trespass and construction of a crossing of Tonto Creek, Gila County, Arizona. Hydrology/survey consultation and expert witness.

Dillard v. Nauslar. Flooding of commercial self storage facility and contents resulting from a 400-year return period storm, Folsom, California. Hydrology consultation and expert witness.



Eurofresh Corporation v. WTI. Encroachment of a project into a floodplain resulting in flood damage in Snowflake, Arizona. Hydrology consultation and affidavit.

Professional Affiliations

American Society of Civil Engineers
Floodplain Management Association (California)
Arizona Floodplain Management Association
Association of State Floodplain Managers