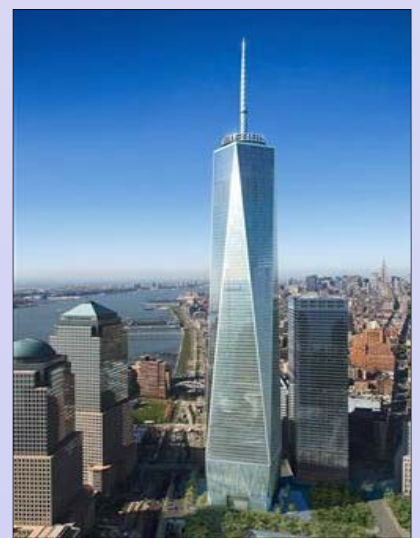




**Site/Civil – Casino Structures
High Rise – Retail**

QUALIFICATIONS PACKAGE



McLaren Engineering Group Corporate Overview

Founded in 1977, McLaren Engineering Group has a 37-year history of providing multidiscipline consulting engineering services to clients worldwide. Headquartered in West Nyack, NY and with offices in New York, NY; Orlando, FL; Baltimore, MD; Middletown, CT; and San Francisco, CA; McLaren provides premier professional engineering services through eight (8) technical divisions:

Structural...expertise encompasses all aspects of structural inspection, design and construction, including curtain wall design. McLaren has worked on over 4,000 building structures of varying degrees of complexity, including high-rise buildings, intermodal terminals, parking structures, airport facilities, laboratories, historic structures, maintenance facilities, and performing arts centers.



Site/Civil...complete design and construction management services for all types of civil and site development projects. Including drainage, grading, geotechnical services, utilities design, erosion control, stormwater management, zoning assistance, and slope stability analysis; for large-scale mixed-use developments, parks, and waterfront facilities.

Entertainment...at the forefront of the design of scenic and entertainment structures, staging, rigging, and show action equipment. Recent projects include stage sets for the Rolling Stones, U2, Black Eyed Peas, Lady Gaga, Metallica, and Madonna tours; as well as the renowned Cirque de Soleil.



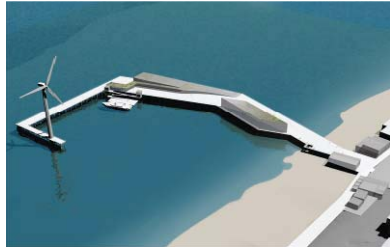
Survey...plays a central role in the planning of any type of site or structure. In its various forms, surveying determines distance and elevations, identifies angles and directions, and establishes boundaries. McLaren's multiple, fully equipped survey crews have experience with commercial and residential applications, municipal facilities, and highway and rail facilities.

Forensics...responds to calls for expert witness testimony and provides forensics analysis of failed structures. Recent examples have included the I-40 Bridge collapse in Oklahoma, the Queen Isabella Causeway in Texas, and a super grid collapse in the Atlantic City Convention Center.



Bridges, Highways, Rail...offers full bridge, roadway and rail design, bridge inspection/condition assessments, and construction management services. Clients include many state and city DOTs and transit industry giants, such as the New York City Metropolitan Transportation Authority.

Marine...provides underwater inspection and condition assessment services, coastal engineering expertise, marine design, and construction management of all types of marine structures; including piers, wharves, marinas, bulkheads, quay walls, terminals, rip rap, dry docks, and bridges. In New York Harbor alone, our inspection P.E. divers have inspected over 2 million piles over the last decade.



Waterborne Transportation...offers design, permitting, and construction administration services for all types of waterside landings and terminals and their upland facilities/infrastructure. In the Northeast, McLaren has designed over 50 ferry terminal facilities with associated upland infrastructure.

Our 150 person staff includes skilled civil, geotechnical, structural, marine, and mechanical engineers, P.E. licensed underwater inspectors, construction management specialists, specification writers and CAD designers experienced in the latest computer-aided design equipment and software. McLaren’s success in providing timely, innovative, and cost effective solutions has led to steady growth in the size of our divisions. Total McLaren staff forces available to perform work includes the following disciplines:

18	Administrative/ITS Specialists	2	Landscape Architects
10	Bridge Inspectors	10	Marine Engineers
21	Civil Engineers	4	Mechanical Engineers
9	Construction Inspectors	19	P.E./Certified Divers
12	CAD/Drafting Personnel	27	Structural Engineers
4	Geotechnical	8	Surveyors
6	Highway Designer/Engineer		

Clients. We have an excellent history of inspection, engineering and design experience working for both public and private entities. McLaren is currently providing or has recently provided structural engineering services for clients such as the Port Authority of New York and New Jersey, New York City Department of Transportation, New York City Economic Development Corporation, New York City Department of Corrections, New York State Department of Transportation, the Baltimore Center for the Performing Arts, Olympia & York, Carnival Cruise Corporation, U.S. Gypsum, Roseland Contractors, LLC., R&D Development, Turner Construction, Consolidated Edison Company, PSE&G, and the U.S. Navy.

For more information, please visit our website, www.mgmclaren.com, which also contains a downloadable version of our corporate brochure. If you prefer, you can contact us directly as follows:

Mr. Malcolm G. McLaren, P.E., SECB – President and CEO	(845) 353-6400 ext. 328
Mr. William J. McCarthy III – Vice President – Business Development	(845) 353-6400 ext. 354
Email: wmccarthy@mgmclaren.com	(845) 353-6509 Fax

M.G. McLaren P.C. d/b/a McLaren Engineering Group

100 Snake Hill Road	330 West 42 nd Street
West Nyack, NY 10994	New York, NY 10036
EIN# 13-3172836	(212) 548-1440

Our services include feasibility studies; project management; all phases of design (from conceptual to final); preparation of specifications and cost estimates; value engineering; constructibility reviews; and construction services including: shop drawing review, field inspection/supervision, contract administration, CPM scheduling, and as-built drawing preparation.

STRUCTURAL DESIGN AND INSPECTION SERVICES

(BUILDINGS AND SPECIALTY STRUCTURES)

McLaren's depth of experience and expertise encompass all aspects of structural design, inspection and construction services. The firm has provided structural inspection, design and engineering services for thousands of projects in the New York Metropolitan area, nationwide and worldwide.

McLaren has in-depth knowledge of all types of structures, including:

- Airport Facilities
- Casinos
- Churches
- Commercial Buildings
- Cultural Buildings
- Damping Systems
- Educational Facilities
- Entertainment Venues
- Healthcare Facilities
- High-Rise Buildings
- Historic Structures
- Hospitality Buildings
- Industrial Structures
- Laboratories
- Maintenance Facilities
- Mixed-Use Buildings
- Municipal Buildings
- Parking Structures
- Recreational Developments
- Retail Facilities
- Transportation Facilities
- Waterfront and Marine Structures



164 Kent - Building and Foundation Structural Design

Our experience can be broken down into the following seven (7) categories:

STRUCTURAL EXPERTISE:

- New Building Construction
- Renovations and Additions to Existing Construction
- Façade Design
- Feasibility Studies
- Peer Review/Value Engineering
- Forensic Engineering
- Construction Engineering

New Building Construction

McLaren has successfully completed projects constructed of steel, reinforced and post-tensioned concrete, masonry, timber, stainless steel and aluminum. We have an in-depth knowledge of all current standards and codes throughout the country and abroad, as well as, many historic codes which often govern. Key issues that our structural engineers address in structural design projects include:

- Evaluation and Selection of Alternate Structural Systems.
 - Optimal Foundation Systems determined with our in-house geotechnical division.
 - Structural System Design Using State-of-the-Art Software – SAP, ETABS, SAFE, RAM, RISA 3D, ANSYS, SJ MEPLA and custom in-house software.
 - Knowledge of the Latest Codes and Local Requirements.
 - Blast Resistant Design Using Non-Linear Dynamic Analysis.
- Rapid Response During Design and Construction Phases.

Renovations and Additions to Existing Construction

In addition to professional design services for new projects, McLaren has diverse experience in dealing with the complexities associated with the evaluation and analysis of existing structures and historic structures. Our experience includes forensic engineering analysis, structural analysis of existing and older buildings for renovation/repair and adaptive reuse, and evaluation of distressed/damaged buildings.

Façade Design

McLaren regularly designs specialty façade systems including glass fin walls, parallel cable walls, cable net walls, tensioned truss walls and many other systems using traditional and non-traditional materials such as stainless steel and bronze. Many of our façade systems are designed for blast resistant construction to provide a barrier at the base of the building. Typical designs are performed to the DOD design standards for blast resistant fenestration systems.



**World Trade Center
South Curtain Wall**

Feasibility Studies

McLaren analyzes existing buildings to determine whether proposed alterations can be made and provides an order of magnitude estimate of costs to make the repairs.

Peer Review/Value Engineering

These services of McLaren are regularly retained to provide review of alterations/renovation structural design of other engineers to assess the feasibility and cost effectiveness of the proposed design.

Forensic Engineering

McLaren assesses the stability of structures that have been damaged by flood, fire, insect infestation, and structural overloading. We develop a strategy and provide an engineering design on how to stabilize the structure, and we develop structural design repair details.

Construction Engineering

McLaren regularly provides construction engineering services for steel, concrete, foundation and marine contractors. Our scope of

services typically include:

- Shoring Design
- Jacking Sequence Design for Column Removals
- Demo Drawings (DMO in NYC)
- Steel Connection Design
- Foundation Underpinning Design
- Sheeting and Shoring
- Tower Crane Installation Design



Maryland Live Casino – 1.7 Million SF Building Opened in 2012

We have an excellent history of structural inspection, engineering and design experience working for private developers, corporations, contractors, architects, and public and private entities. McLaren is currently providing or has recently provided structural inspection, design, and foundation engineering design services for clients such as the Port Authority of New York and New Jersey, the New York City Economic Development Corporation, the Baltimore Center for the Performing Arts, Olympia & York, Carnival Cruise Corporation, U.S. Gypsum, Cappelli Development, R&D Development, and the U.S. Navy.

SITE AND CIVIL ENGINEERING SERVICES

McLaren's site/civil division provides comprehensive engineering services ranging from the planning stage through final design and construction management for all types of facilities. We have specific in-depth expertise in large site development projects and transportation facilities.

Our recent large-scale site development experience includes: The Club at Briarcliff Manor Senior Housing will be a 9,385 unit continuing care retirement community with 385 units on a 5 acre campus; the General Electric Training Center in Ossining, NY, which includes a new residential building, maintenance building, classroom addition, and renovations on the 52 acre campus; the Maxwell House site development which features 1.4 million square feet of residential and commercial space and a waterfront park, esplanade, and marina; the Port Imperial development which consists of 6,500 residential units and approximately 2 million square feet of commercial space, including office, retail and a full service hotel; the 5.5 acre River Barge Park, which was a former marina site, located along the western bank of the Hackensack River, in Carlstadt, NJ; and the Wartburg Adult Care Community in Mount Veron, NY, for construction of a skilled nursing facility and adult day care center for uses currently on the campus, this included construction of a new supportive senior housing building to provide shelter for seniors at affordable rents, the demolition of two (2) structures, and reconfiguration of associated parking;

Our site services include:

- Feasibility Studies
- Local & Regional Planning Studies
- Site Planning & Layout
- Geotechnical Services
- Flood Plain Impact
- Utilities Design
- Subdivision and Land Development
- Demolition & Removal of Existing Structures
- Erosion Control
- Drainage Studies, Design & Hydrology
- Highway Design
- Street & Parking Design
- Transportation System Impacts
- Design of Deep and Shallow Foundation Systems
- Stormwater Management
- Potential Traffic, Noise, and Air Quality Impacts
- Retaining Wall Design
- Earthwork
- Landfill Design
- Landscaping
- Zoning Assistance
- Environmental Permitting
- Public Participation/Meeting Assistance
- Construction Plans and Specifications
- Construction Inspection Services
- Construction Support Services
- Maintenance and Protection of Traffic
- Slope Stability Analysis

McLaren engineers in our site/civil division employ state-of-the-art software, including: Autodesk Civil 3D 2013, Hydraflow Hydrographs (extension for AutoCAD Civil 3D 2013), HEC-RAS 4:1:0, Hypack 2012, Watercad V8, Hydraflow Storm Sewers 2013, and WinTR-55 Small Watershed Hydrology.

Geotechnics. Developable land has become less abundant over the past decade as restrictions have increased. Marginal sites have now become viable ones; however, they are often associated with difficult ground. The geotechnical challenges offered by these sites require creative engineering skills and technical expertise. Whether the solution is piling, dynamic compaction, or other means of ground modification, McLaren can assess and recommend the appropriate method. We have stabilized old buildings, underpinned and lifted others, and have designed foundations for hundreds of structures. We have in-depth expertise in providing economical foundation design for clients. McLaren explores all feasible



Maxwell House Site Development

alternatives in geotechnical design, such as reusing existing piles to provide cost effective solutions. We examine the most economical solutions to determine if they will meet the long terms needs of the project.

Geotechnical services offered by McLaren include:

- Subsurface Investigations
- Soil Strength Parameter
- Underpinning Design
- Foundation Design
- Retaining Walls
- Seismic Analysis
- Ground Improvement

ENTERTAINMENT ENGINEERING

Our dedication to provide continued services to the entertainment industry through visionary engineering and design has enabled our services to be amongst the most comprehensive offered. McLaren's experienced staff offers proficiency in stage and scenery design (moveable and stationary), theater facilities and rigging, themed architectural elements and sculptures, studio fit-out design, billboard and special signage, promotional displays, amusement rides, show action equipment, and mechanized effects, inspection and consultation on special structures. McLaren brings more than 37 years of engineering expertise in the areas of structural and mechanical engineering for entertainment facilities, theatres and equipment.



Batman Live World Area Tour 2011



***Hard Rock Hotel and Casino
Chandelier, Las Vegas***

Since our firm is involved in the engineering of all types of structures, theaters, entertainment shows, passenger terminals, etc., our capabilities for design and analysis are comprehensive. We are extensively familiar with materials, systems, mechanisms, machinery, hydraulics, rigging, effects, methods of construction, costs, specifications, and means of analysis. We are an engineering firm with advanced modeling capabilities and experience, and therefore possess an advantage in the design of moving systems under extreme loading and environmental conditions.

Entertainment engineering has evolved tremendously with technology over the past twenty to thirty years. What was once a group of four (4) singers standing on a stage has now become a technological extravaganza complete with moving platforms, flying bridges, tracking video walls weighing dozens of tons, pyrotechnics, hydraulic lifts and 16 ton speakers. In many cases these stages must be portable, and able to be erected in hours. Permanent installations compete for attention at theme parks, casinos, public spaces, and retail stores. The more grandiose the show, the greater the appeal. These events, shows, or installations are the result of some very creative development, but the journey from imagination to installation requires serious engineering design and fabrication. Over the past fifteen years, the McLaren Engineering Group has provided that engineering for large rock concerts, Broadway shows, theme parks, casinos and many other performance events and venues.

Complete services provided to the industry include:

- Concept Development
- Static and Dynamic Analysis
- Finite Element and Matrix Structural Analysis
- O&M Manual Preparation
- Load Rating of Existing Structures
- Field Investigations and Inspections

- Fatigue and Fracture Analysis
- Range of Motion Studies
- Rigging System Design
- Themed Attraction Integration
- Ride/Show Engineering
- Fabrication and Installation Inspection
- Custom Machinery Design
- Safety Assessments and Specifications
- Show Set Element Engineering

What we do...Our involvement with the entertainment industry began in the early 1990s when McLaren was asked to provide engineering support and consultation for the Pink Floyd and the Rolling Stones' World Tours. We have continued to hone our skills with a steady stream of projects that run the gamut: from the Tina Turner 24/7 World Tour, Elton John Tour, and MSNBC Studio, to Cirque du Soleil, all 20 Shubert Theaters, Toys R' Us Animatronic T-Rex, to the Mohegan Sun Casino, Wynn Casinos in Las Vegas and Macau, and four Super Bowl Half-Time shows. Just as the industry has progressed, so has the demand of our clients, with each project pushing the envelope further.



U2 360° Tour 2009

As a result, to meet these growing expectations, the ingenuity and breadth of our services has developed to include:

- Theme Park Attractions
- Theatrical Structures and Rigging
- Themed Architectural Elements
- Theatrical Equipment and Staging
- Television and Film Production Facilities and Rigging
- Entertainment Facilities: New and Renovations
- Mechanized Effects / Entertainment Equipment
- Studio and Set Engineering
- Animatronics
- Permanent, Temporary & Touring Stages/Sets
- Mirrored Ceilings
- Stage Equipment
- Amusement Rides and Attractions
- Modular Staging
- Mobile Stages
- Control Performance Specifications
- Movie Set Engineering
- LED Wall Structures
- Projection Screen Supports
- Moving Architectural Elements
- Performer Flying System Engineering
- High Wind Action Plans
- Severe Weather Preparedness Plans

As the entertainment industry continues to change, McLaren follows suit in taking the ideas and concepts of our clients and making them a reality. Easier said than done, this challenges our engineers and designers to push the limits technically, while not compromising the aesthetic appeal of the project. We are responsible for incorporating the clients' ideas, while maintaining the functionality, structural soundness and durability of the mechanical components, including accommodating electrical, control system, and safety requirements.

Portable staging poses a battle on all of these fronts. The very nature of the structure being "Portable" requires the designer and/or engineers to fulfill all of the aforementioned requirements, in addition to being able to replicate the action of the structure, its assembly and the installation and dismantling process without diminishing the safety, durability, function and visual appeal of the structure(s) to the audience. To meet such challenges we employ cutting edge technologies and equipment, combined with personalized involvement and interaction with end-users, that allow the clients' imagination to be the limit of our capabilities.



Cirque du Soleil, "KA"

**Project Samples
Site/Civil**

Maryland Live! Casino

Design, Engineering and Surveying Services

Location

Hanover, Maryland
(Arundel Mills Mall)

Client/Owner

The Cordish Company
PPE Casino Resorts, LLC

Project Type

Site/Civil Engineering

Services

Site/Civil Engineering
Roadway Engineering
Surveying
Permitting
Construction Documents
Structural Design &
Engineering
Geotechnical Engineering
Design Development

Duration

2010-2012

Construction Cost

\$200,000,000 Overall
\$6,000,000 Roadway
\$80,000,000 Garage

Reference

The Cordish Company
601 E. Pratt St., 6th Fl
Baltimore, MD 21202
Mr. Tunnie Ping
(410) 752-5444

Project Description

Maryland Live! is the largest and highest revenue generating gaming facility in Maryland, featuring 4,750+ of the latest slot and table games (including black jack, roulette, craps and poker). This 2 million square foot structure, including the 300,000 square foot gaming facility, features multiple upscale dining establishments and an intimate live music venue. Five (5) nationally-acclaimed restaurants and entertainment venues are part of the project. ***This project was fast tracked, including design and construction being completed in just 17 months.***



North Elevation of Maryland Live

McLaren's Role

McLaren Engineering Group (McLaren) provided site civil engineering services associated with the development of the Arundel Mills Maryland Live! Casino. Specific project tasks include the re-design of the casino building and the design of on-site and off-site roadway improvements which included public off-site traffic/roadway improvements, preparation of schematic sketches, public roadway improvement plans, a formal permit submission package, and permit applications. This also included Maryland's first Divergent Diamond Intersection (DDI) at MD 295 B-W Parkway and Arundel Mills Boulevard. The bridge and both roadway approaches were redesigned and reconstructed.



Roadway Improvements

The project also involved a field run topographic survey for all of the proposed public off-site traffic/roadway improvements to supplement the existing survey files, specifically at the improvement "tie-in" locations in accordance with Maryland's Minimum Standards of Practice for Professional Land Surveyors. McLaren was also involved with the preparation of a schematic and final public stormwater management plans. McLaren provided structural design services including schematic design, design development, preparation of construction documents, and provisions of construction administration for the development a 10± acre site on the west side of the Arundel Mills Mall property. The completed structure contains approximately 310,000 square feet of Casino space on the first level of the site and a 6-level garage for 4,300 cars above the casino. The footprint proposed for the building structures is roughly 350 feet by 900 feet (approximately 7 acres). McLaren also provided geotechnical investigation for this site and all investigative field work has been completed. Construction was completed in 12 months after commencement of construction (18 months after selection of design team). The design-build process included steel mill order package, precast concrete package, and permit package in addition to conventional drawing submissions.



Divergent Diamond Intersection

The Club at Briarcliff Manor Senior Housing

Location

Briarcliff Manor, New York

Client/Owner

Integrated Development
Group LLC

Services

Site/Civil Engineering
Permitting
Construction Administration

Contract Period

2007-Present

Reference

Integrated Development
Group LLC
707 Skokie Blvd, Suite 340
Northbrook, IL 60062
Mathew Phillips
(224) 392-6919



Lodge Pool

Project Description

McLaren Engineering Group (McLaren) was retained by Briarcliff Manor Investors, LLC C to provide engineering services for the development of a Continuing Care Retirement Community (CCRC) plan at the former Kings College site in the Village of Briarcliff Manor, NY. The 58-acre complex includes 385 units of independent and assisted living space, critical care, townhouses, villa homes, and various recreation facilities – all placed onto a site that features considerable terrain, drainage and utilities challenges.



Site Plan

Topography was the primary issue in designing the site development scheme, as the plans needed to respect the 80 feet of elevation change between the upper and lower site as well as the prevalence of rock. The complex was organized into two (2) distinct levels, built around and between its irregular terrain and the three (3) acre lake known as Lodge Pool.

Another key feature of the site is the existing Village water tank. The previous tank served a portion of the Village's water system, and also was home to four (4) or five (5) cell carriers and their antennas. The project placed the cell facility on stealth monopole and replaced the water tank with a pressure pump distribution system.

McLaren's Role

McLaren provided full site/civil services necessary for the site development and permitting support and construction administration services.

The initial phase of the development project included review, assessment, and analysis of existing site information and the architect's plans. McLaren assessed the architect's conceptual plans with regard to layout, circulation, grading, drainage and utilities, and prepared a zoning analysis. A significant aspect of the project was determining that the project fell within the New York State Quality Review Act findings of the prior approval on the site.



Scenic View from Site

McLaren then developed SPA drawings, demonstrating proposed buildings, sidewalks, parking, roadways, landscape areas, traffic signs and striping. McLaren assisted in the approval process which was completed in 2008, making way for preparation of construction documents and agency permitting for a construction start date in 2014.

completed in 2008, making way for preparation of construction documents and agency permitting for a construction start date in 2014.

Renovation/Reconstruction of White Plains Hospital Center

Location

White Plains, New York

Client/Owner

Perkins Eastman
White Plains Hospital Center

Services

Site/Civil Engineering
Drainage & Utilities Plan
Site Planning
Construction Administration
Construction Inspection

Contract Period

2009-present

Reference

White Plains Hospital Center
Davis Ave @ East Post Road
White Plains, NY 10601
Mr. Ossie T. Dahl, Vice
President-Facilities
(914) 681-2116
odahl@wphospital.org

Project Description

McLaren Engineering Group (McLaren) provided site/civil engineering services for the renovation and reconstruction of the White Plains Hospital Center (WPHC), established in 1893. The White Plains Hospital Center is a 292-bed health care facility serving Westchester County.

Major reconstruction components of this renovation project include the following:

- New main entrance from Davis Avenue
- Construction of new utility services and connections
- Construction of a new lobby and traffic circle at the new driveway, as well as a new Radiology facility
- Modifications to Davis Avenue which include:
 - Conversion of the road to one-way traffic
 - Construction of a pedestrian corridor and canopy from the parking garage to the new lobby
 - Modifications to the garage entrances and circulation
 - Landscape improvements.



White Plains Hospital Center

McLaren's Role:

McLaren provided numerous services on the project, including:

- Civil and Structural Engineering
- Drainage and Utilities Plan
- Site Plan
- Construction Documents
- Construction Administration and Inspection

Central Nyack Storm Drain, Dam, and Detention Basin Design Project

Location

Central Nyack, New York

Client/Owner

Town of Clarkstown,
Department of
Environmental Control

Project Type

Stormwater Management

Services

Site/Civil Engineering
Drainage Analysis
Drainage Design
Dam Design
Surveying Services

Contract Period

2005-2009

Construction Period

December 2012 Completed

Construction Cost

\$3,000,000

Reference

Town of Clarkstown
Department of
Environmental Control
10 Maple Avenue
New City, NY 10956
Mr. Luke Kalarickal
(845) 639-2111



*Surface Drainage Issues
(Before)*

Project Description

The Town of Clarkstown hired McLaren Engineering Group (McLaren) to provide a cost efficient design solution to address problems with both surface and subsurface drainage issues due to insufficient /improperly placed inlets and inadequate channel/culvert capacity. Numerous streets and adjacent lots required the improvements to alleviate street and local flooding conditions that were plaguing the neighborhood.



New Dam and Detention Basin Under Construction

McLaren's Role

McLaren provided engineering and design services to assist in the remediation of these problems, including:

- Site Investigation
- Dam Design
- Utility Coordination
- Public Outreach
- Drainage Analysis and Design
- Environmental Assessment
- Survey Coordination
- Construction Administration

McLaren developed a study that determined the flooding in Central Nyack was caused by the undersized drainage system and insufficient stream capacity. Upstream to Central Nyack is a 244-acre drainage area called Buttermilk Falls Park, which drains into the center of the hamlet and causes flooding. McLaren performed a hydraulic analysis of this area and analyzed four (4) options to remediate the flooding problem. After considering the options, the Town opted for a Detention Basin with a High Berm. The services provided by McLaren included, hydrologic investigation, field inspection, preliminary design, geotechnical engineering and topographic and boundary surveys for the dam. McLaren was also responsible for permitting, creating a Stormwater Pollution Prevention Plan (SWPP), specifications, cost estimates, bid and construction administration services associated with the flood control for the creation of a detention pond/dam and upgrades to downstream culverts. In addition, McLaren provided all the necessary services associated with the design of the dam, including construction support services.

Project challenges included design solutions that minimized the disturbance of private residences and a stringent design schedule.



Detention Basin with High Berm (Before)



*Drainage-Phase II Schuyler Road Box Culvert
Installed*

Location

Tappan, New York

Client/Owner

Town of Orangetown
Highway Department

Services

Pavement Design
Preparation of Plans and
Specifications
Construction Inspection
Services
Utility Coordination
Public Outreach

Contract Period

2006-2009

Reference

Town of Orangetown
Highway Department
119 Route 303
Orangeburg, NY 10962
Mr. James Dean
(845) 359-6500

Project Description

The Hamlet of Tappan was one of the earliest settlements founded in historic Orangetown, NY. The area still retains much of its original colonial character. However, the type of traffic that traversed the village roadways in 1800 is quite different from the traffic that moves on them today.

McLaren's Role

To help minimize traffic congestion, overall safety conditions and address problems of limited sight distance, the Town of Orangetown retained the services of McLaren Engineering Group to design the following improvement measures:

- Reduced the width of the bypass road with temporary construction consisting of a rolled asphalt curb and stone dust fill.
- Constructed a temporary island consisting of a rolled asphalt curb and stone dust fill at the Greenbush Road / Kings Highway intersection.
- Converted the bypass road to one-way northbound.
- Converted Greenbush Road north of its intersection with Kings Highway to one-way northbound.
- Constructed a new storm drain north along Greenbush to an existing inlet, prior to the stream crossing.

Services included full in-depth pavement replacement, drainage design including utilities and right-of-way mapping, and roadway and sidewalk reconstruction.

Public meetings were held to include the local community in the project and to collect input for use in the planning of the reconstruction.



Project Area



Greenbush Road



Location

Scarsdale, New York

Client/Owner

Mountainview NY, LLC

Services

Site/Civil Engineering
Drainage Analysis
Drainage Design

Contract Period

2006-2009

Reference

Mountainview NY, LLC
24 Aspin Road
Scarsdale, NY 10513
David Fenton
dfenton@mountainviewny.com

Project Description

McLaren Engineering Group (McLaren) provided site/civil engineering services for a residential housing unit construction project. The overall goal of the project was to design as many residential units as possible within the lot's current zoning. The lot is approximately 19.16 acres and is zoned R-10 one family residential. Site plan approval and subdivision approval were required for the proposal.

McLaren's Role

McLaren surveyed the site and determined the number of units the property can hold according to the lot's shape and zoning. We provided site/civil engineering services including:

- Soils, Topography and Steep Slopes
- Stormwater Management
- Water Supply and Sanitary Sewerage
- Traffic and Transportation
- Surface and Groundwater Resources
- Determination of impact on site due to cut/fill (include for either option)
- Two alternate access points (Knollwood Road and the east side of the property along Virginia Avenue)



Overview of Jobsite Area

The main project challenge was fitting as many units of housing in the proposed lot as possible while still meeting the zoning specifications. The client received a design for multiple unit homes on a lot zoned one family residential. The design was performed as efficiently as possible given this constraint.

Location

Mount Vernon, New York

Client/Owner

Wartburg Home of the
Evangelical Lutheran
Church

Services

Surveying Services
Site/Civil Engineering
Drainage Analysis
SPDES
Permitting

Contract Period

2010-Present

Reference

Wartburg Home of the
Evangelical Lutheran
Church
Wartburg Place
Mount Vernon, NY 10552
Mr. Ryan Herchenroether,
Corporate Planner
(914) 513-5223
rherchenroether@thewartbu
rg.org

Project Description

The Wartburg organization has provided care for older adults on its campus for more than 110 years, service which has evolved into a full continuum addressing the different levels of care that seniors require. The proposed project relocates existing services already on campus and responds to industry trends in long-term care by providing settings that promote the independence of seniors. These efforts are done while respecting and maintaining the heritage of the early 20th century structures and open space which convey the unique sense of place on the Wartburg campus.

The principal project activities involve the construction of a skilled nursing facility and adult day care center for uses currently on the campus; construction of a new supportive senior housing building to provide shelter for seniors at affordable rents; the demolition of two (2) structures; and reconfiguration of associated parking. The Proposed Project would result in a decrease of 30 skilled nursing beds, an increase of 61 supportive senior housing units, and a net increase of 81 parking spaces.

McLaren's Role

McLaren Engineering Group (McLaren) is providing the Wartburg Home of the Evangelical Lutheran Church with the civil engineering services associated with the project. The design phase included the need to obtain fast track approvals from the City of Mount Vernon to allow construction to be completed within 2 years. The project will be subject to Special Permit approval by the City Planning Board. Project phases include the following:

Phase I - Preliminary Engineering

Phase II - Site Plan Approval Design Development Documents which included;

- Site Plan Approval Drawings;
- Environmental Services (SEQRA);
- Stormwater Pollution Prevention Plan (SWPPP) and a
- Traffic Impact Study

Phase III - Construction Documents

Phase IV - Construction Phase Services

Phase V- SPDES Inspections



Locations

Queens, New York

Client/Owner

New York City Department of Parks and Recreation

Services

Surveying Services
 Site/Civil Engineering
 Drainage Analysis
 Drainage Design
 State Pollutant Discharge Elimination System (SPDES)
 Utilities
 Bioswale

Contract Period

2007-2010

Reference

Nancy Owens Design Studio, LLC
 110 Franklin Street
 New York, NY 10013
 Ms. Nancy Owens
 (212) 226-2143

Project Description

McLaren Engineering Group (McLaren) worked with Nancy Owens Design Studio on the conversion of the civil-war era Fort Totten military site into a 14-acre urban park. Fort Totten is a 149-acre peninsula near Bayside, Queens and was, until 2005, the home of a U.S. installation largely restricted to the public. The new park opened in spring of 2010 and expertly weaves the site's rich historical fabric into a passive park looking out over the Long Island Sound.



Site Plan – Fort Totten Park

Key to the design of the Fort Totten North Park was recalling the site's long and layered history, which includes a fortification known as a water battery that sits along the waterfront. As a gesture to this and other battery buried on the grounds, a 200-foot long ridge rising eight (8) feet was constructed, dubbing King Battery Mound. Planting and grading strategies focused on the site's natural history, restoring native vegetation (200 new trees and 10,000 grasses).

With different on-site agencies having interest in design and coordination (Coast Guard, U.S. Army, and FDNY), implementation of the design features was a challenge. These property boundaries were addressed in the park's design, as King Battery Mound was used to obscure views of Coast Guard property to the west, and a bioswale was positioned as a natural separation between the park and FDNY property. The drainage was designed to comply with the New York State SPDES regulations.

McLaren's Role

As site/civil engineer, McLaren provided engineering services including review and assessment of the current military infrastructure systems to identify and determine which systems would remain, be abandoned, and/or be demolished. Demolition plans were developed as well as grading, drainage, and utility plans for the new park. McLaren also provided contract documents for pavement removals, utility works, backfilling, and grading associated with the demolition of 19 buildings and construction of the Park.



Rendering – Fort Totten Park (Courtesy of Nancy Owens Design Studio, Landscape Architect)



Bioswale Under Construction

Construction cost estimates, client support during the construction phase, review of the contractor's shop and installation drawings, NYS SPDES inspection of soil erosion control, and site visits during construction was also provided.

Location

Tarrytown, New York

Client/Owner

KTGY Group, Inc.

Services

Surveying Services
Site/Civil Engineering
Geotechnical Engineering
Structural Engineering

Contract Period

2011-2013

Reference

KTGY Group, Inc
17922 Fitch Street
Irvine, CA 92614
Mr. Mike Flynn, AIA
LEED AP
(949) 851-2133

Project Description

McLaren Engineering Group (McLaren) was retained by the KTGY Group, Inc. to provide various engineering services for the planned expansion at The Castle in Tarrytown, NY. The new buildings include a new spa building of approximately 8,000 square-feet, a new hotel entrance, and reconstruction of the entry courtyard. The Castle also received small building additions at the rear of the building and the entrance to the banquet hall, a new entry gate, as well as modification to the current parking along entrance road and overflow parking.



McLaren Surveyor – Tarrytown Castle

McLaren's Role

McLaren provided numerous services on this project, which are listed below:

Surveying Services: McLaren provided topographic and property surveys for this 10 acre property.

Site/Civil Engineering: McLaren prepared site plan approval documents, which included existing conditions of the site, proposed plans for grading and utilities, sediment and erosion control plans, stormwater management drawing, sanitary sewer pumping station plans and report, as well as construction details. The site plan documents also included a full Environmental Assessment Form, as well as a Stormwater Pollution Prevention Plan. This plan prevents any stormwater pollution stemming from discharges from construction activity, and contains a post-construction component to help prevent future contamination.

Geotechnical Engineering: McLaren also developed a boring plan and specifications for exploratory work which was used by the drilling contractor on the site. We then supervised the borings in the field investigation, prepared field reports, and coordinated obtaining the boring logs and all laboratory testing results. McLaren prepared a Geotechnical Report that included all of the collected data as well as our engineering analysis and recommendations.

Structural Engineering: McLaren was also retained to design and develop a new single-story spa building and accompanying courtyard. The new spa building includes four (4) exterior water features, a gazebo, as well as associated patios and stairs. The additions also include a two-story castle elevator addition, as well new entryways to both the main and banquet entrances. These entrances include an architecturally exposed structural steel cantilevered canopy, approximately 13 feet tall, with a maximum cantilever of 18 feet.



Replacement Design for NYSDOT Bridges Along Route 42

Location

Lexington, New York

Owner/Client

New York State
Department of
Transportation

Services

Damage Assessment
Bridge Design
Roadway Planning
Hydraulic Analysis
Construction Documents
Construction Admin.

Contract Period

October 5, 2011 –
February 14, 2012
Design - April 2011

Construction Cost

\$14,100,000

References

Halmar International LLC.
1 Blue Hill Plaza
Pearl River, NY 10965
Mr. Raul Arguello
845-735-3511

NYSDOT

Office of Regional Affairs
50 Wolf Road
Albany, NY 12232
Timothy R. Conway PE
(518) 485-9234
tconway@dot.state.ny.us

Project Overview

McLaren Engineering Group (McLaren) and Halmar International, LLC teamed up for this \$14.1 million emergency reconstruction contract (#C030792) for the New York State Department of Transportation (NYSDOT) to design/build State Route 42 in Greene County.

The two bridges and six miles of road, on this vital artery, were destroyed by severe flooding caused by Hurricane Irene and Tropical Storm Lee, in August and September of 2011. Governor Andrew M. Cuomo issued an emergency design/build to restore the roadway and bridges to pre-storm conditions by February 2012. McLaren/Halmar delivered on budget and ahead of time. Within a week of the contract, McLaren was ordering steel for the bridges and had it onsite being constructed within weeks.

Work included the removal and replacement of BIN 1025200 and BIN 1025190 crossing the West Kill; reconstruction of the roadway embankment and pavement section at various locations; repair of shoulder and pavement washouts; replacement and resetting of guiderail, cleaning and reestablishing ditches; removal of debris from highway ROW; and cleaning and replacement of culverts as necessary.

This project demonstrated that when it comes to restoring vital infrastructure, such as bridges and roadways, the design-build delivery system offers significant advantages versus traditional infrastructure delivery methods. Advantages include cost savings, time efficiency, flexibility, and accountability.

McLaren's Role

McLaren provided full bridge replacement design including piles, foundations, abutments, wingwalls, bearings, superstructure, and guiderails. This effort included the development of plans, specifications, and the necessary construction inspection to assure construction was in conformance with the plans and specifications.

BIN 1025190 was reconstructed as a single span structure with a span length of 100 feet, two 11 feet lanes, and two 4 ft shoulders. Within the State ROW BIN 1025200 was replaced, with a 150 foot single span structure supported on integral abutments.

In addition to the bridge work, McLaren also provided planning and peer review services for the bridge approaches along Route 42.

McLaren's engineers worked in close collaboration with Halmar, steel suppliers, and onsite construction workers laying roadbed and asphalt, and erecting steel and concrete pilings and trusses. The smaller of the two bridges was completed in December and the larger bridge in early February. This project demonstrated that when it comes to restoring vital infrastructures such as bridges and roadways the design-build delivery system offers the NYSDOT significant advantages in cost, time, flexibility, and accountability versus traditional infrastructure delivery methods.



Finished Bridge



Damaged Bridges



McLaren Engineering Group

**Project Samples
High Rise Structures**

164 Kent Avenue – Williamsburg, Waterfront Towers Design

Location

Williamsburg, New York

Client/Owner

RD Management

Project Type

Building Structural Design
Foundation Design
Marine Design

Contract Period

2005-2007

Construction Cost

\$500,000,000 (est.)

Reference

R.D. Management
810 7th Avenue, 28th Floor
New York, NY 10019
Mr. Al Rossi
(212) 265-6600 x 305

Project Description

McLaren Engineering Group (McLaren) provided the foundation design and structural design of high-rise and low-rise structures for 164 Kent Avenue, a residential development on the Brooklyn waterfront. The project consists of two primary components, an inland block and a waterfront block, and will be completed in three phases. Phase 1 involves the development of the inland block which will include a 32 story residential tower with 218,356 square feet of town homes and condominiums; a six story affordable housing building totaling 117,201 square feet and 18,900 square feet of retail on ground level; and a two story parking garage with 37,600 square feet of parking.



McLaren's Role:



- Supervision of wind tunnel testing of the tower models to determine design pressures for the structural and façade designs.
- McLaren designed the tower's building frames for both strength and serviceability.
- Prepared early Foundation Bid Package
- As part of the site development work, McLaren provided the design of the North 4th and 5th Street platform pier and bulkhead for public access and future ferry landing.



Location

New York, New York

Client/Owner

American Architectural

Services

Structural Engineering
Blast Design

Contract Period

2010-2012

Role

Structural Engineering
Blast Design
Stainless Steel Design
Glass Design

Reference

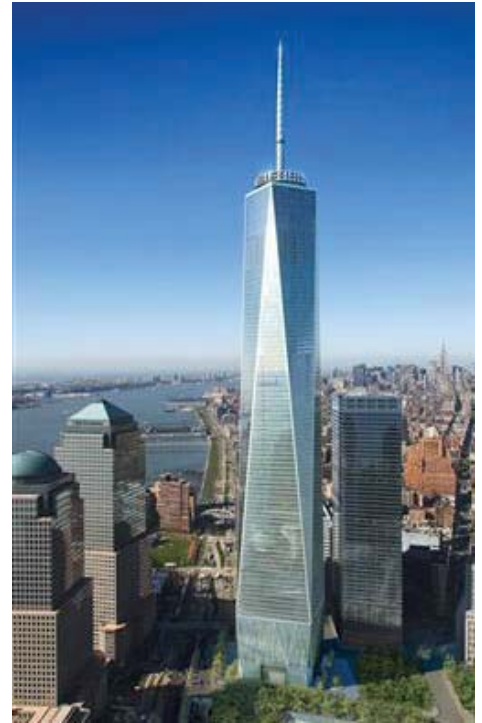
American Architectural
2260 State Road
Bensalem, PA 19020
Mr. John Melching
(215) 295-7788

Project Description

Each standing at over sixty feet tall, the four cable net walls under construction at the new World Trade Center Tower One will provide a grand entrance to the tallest building in North America. McLaren provided the engineering expertise to make the grand entrance design a reality.

The sixty foot tall and up to sixty foot wide glass walls are supported on all sides by two inch thick stainless steel jamb plates up to six feet wide. A two-way grid of pre-tensioned cables supported by the perimeter jamb plates support spider fittings which in turn support the laminated panes of tempered glass. The perimeter jamb plates resemble a “picture frame” around the cable net, providing an architecturally exposed structure for the cables and glass.

The challenge of the project was to provide a sixty-foot tall glass structure that appeared to be non-existent, all while providing maximum blast security. This proved to be no small feat to achieve, but the team at McLaren Engineering Group (McLaren) excelled with the innovative use of high strength stainless steel.



McLaren's Role

The architectural constraints coupled with the large blast pressures required a dynamic multiple degree of freedom (MDOF) analysis. McLaren used ETABS to perform a 3-dimensional dynamic analysis of the jamb and canopy structure using time-history functions to account for the dynamic effect of the blast loading. The results of the MDOF model were verified by spot checks of members using hand calculations based on the single DOF methodology.

The exposed structure required tolerances of less than one quarter that is typically allowed for steel construction. Coupled with the fact that nearly all connections must be hidden, constructability became a key part in our design. The tolerances were so strict, that the connections of the members had to be designed to account for temperature differences between the indoor temperature at the shop and the outdoor temperature at the site.

The specialty and quantity of the blast resistant stainless steel consumed the entire output of a steel mill for a month to produce the high strength stainless steel for the cable net walls. Laminated tempered glass up to 2” thick provides a blast resistant impressive transparent structure that stands 60-feet tall.

Most structures of this complexity and level of tolerance are prototyped, tested and revised accordingly, sometimes involving several iterations. With the scheduled open date of the building quickly approaching, there was no choice but to get it right the first time, leaving no margin for error. From the spider fittings made in Germany, to the high strength stainless steel bolts, nearly every piece of the structure was a custom designed and fabricated piece. McLaren's attention to detail and experience with large scale, fast track, architectural structures provided SOM and the Port Authority a constructible design true to their original intent.

Location

New York, New York

Client/Owner

United Structural Works

Services

Connection Design
Blast Design

Contract Period

2011-2012

Role

Connection Design for
Blast Forces

Reference

United Structural Works
45 Hemlock Drive
Congers, NY 10920
Mr. Cormach Murrhy
(845) 268-3600

Project Description

The United Nations headquarters complex located in New York City was constructed in the early 1950's. With the high profile nature of the building coupled with the history of terrorist attacks in NYC, the United Nations buildings were in need of a physical security upgrade. A portion of the Conference Building stands above the FDR Drive (FDR), thus leaving the building especially vulnerable to an explosion from a truck bomb. Therefore, a blast shield floor was installed inside the building above the FDR to protect occupants inside the building from a truck bomb on the FDR.

**Project Role**

McLaren Engineering Group (McLaren) was responsible for the structural design of the steel connections for the blast shield floor above the FDR. Our expertise in Blast Design and Connection Design using Blast Design standards, such as UFC3-340-02 "Structures to Resist the Effects of Accidental Explosions" by the Department of Defense, led to a significant cost savings in the connection design. We worked with our Client, USW, to revise the Engineer of Record (EOR) connections to find a constructible and cost saving approach. Providing a detailed analysis of key connections using Dynamic Increase Factors for the strain rate effects of the steel under blast loads, we were able to eliminate the need for web doublers and copes on the typical connections. This led to an estimated savings of \$600,000 in fabrication costs on a single detail that was used repetitively throughout the project. Due to the fact that the design of the blast shield structure relied on inelastic design of the steel, many of the connections had to be designed for forces well above the strength of the member itself. Coupled with the aggressive fast-track schedule, McLaren rose to the challenge and provided USW with constructible connections while limiting field work and reducing the fabrication costs through our detailed analysis and design of the connections for the large blast forces.

City Center Mall, Mixed-Use Retail and Residential Facilities

Location

White Plains, New York

Client/Owner

Cappelli Development Group

Project Type

Structural Design

Services

Foundation Design and Structural Engineering, Construction Administration

Contract Period

2001-2003

Construction Cost

\$300,000,000

Role

Prime

Reference

Cappelli Development Corporation
115 Stevens Avenue
Valhalla, NY 10595
Mr. Joe Apicella
(914) 769-6500

Project Description

The City Center Mall project is a mixed-use high-rise retail and residential facility at the former Macy's Department Store in downtown White Plains, New York. McLaren Engineering Group provided foundation and structural design services for the 774,200 square foot retail space, including the design of retail areas, loading docks, and below-grade parking (situated under the retail space and the first floor plaza).

Contained within the retail space are the White Plains Performing Arts Center and a multiplex cinema complex with an IMAX Theater. The Performing Arts Center includes a 400-seat theater with stadium seating, overhead pipe grids and catwalks, and mezzanine for storage, lighting and lobby. Other features include:

- Design of sloped raker beams and light gage framing supporting stadium seating.
- Reinforcement of existing steel framing to support new theater loads.
- Structural support for box booms, lighting equipment, curtains, and other theater features.
- Coordination with architect and theater consultant on layout and structural requirements for theater features.
- Comparison of alternative framing schemes to maximize cost efficiency.

Three 35-story residential buildings were also designed at this location encompassing 727,900 square feet. A municipal parking garage was included providing both below and above grade parking, and a garage core encompassing 767,000 square feet.



City Center Mall



Structural Design of Goldman Sachs West Canopy

Location

New York, New York

Client/Owner

American Architectural
Incorporated

Project Type

Structural Engineering
Shop Drawing Detailing

Services

Structural Analysis
Structural Design
Glass and Glazing Design
Shop Drawings

Contract Period

2007-2009

Construction Cost

\$1,900,000

Role

Prime

Reference

American Architectural
2260 State Road
Bensalem, PA 19020
Mr. John Melching
(215) 295-7788

Project Description

McLaren Engineering Group (McLaren) was retained to provide structural engineering design and detailing services for the new canopy at the Goldman Sachs Building on West and Vesey Streets in Manhattan. The 350-foot canopy is a study of folded planes of glass, both at the top and bottom and supported by 86 different cantilevered tapered, bent structural steel ribs.

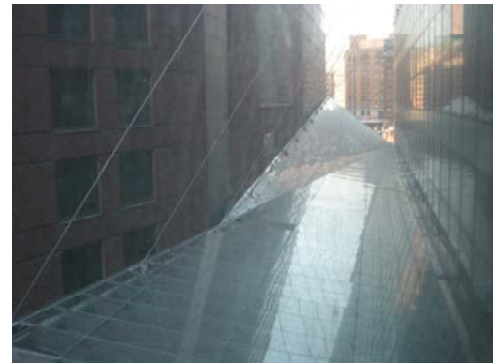
The project included the design of the canopy structure and its attachments to the building. It also encompassed design of glazing, fascia panels, and other finishes. Design features included mounting and raceways for lighting and cameras, as well as a trough for gutters.



McLaren's Role

McLaren helped develop the I-shaped profile for the tapered cantilevered canopy members. Back-to-back tapered channel-shaped bent plate members with welded top and bottom flange plates were used. McLaren also developed a structural system that permits incremental thermal movement along the length of the canopy, which is attached to the building. The building itself is not subject to thermal movement.

Following design of the structural systems, McLaren produced detail shop drawings including all of the bent plate components for the structural steel frame, for the fascia panels and their attachments, and for the custom attachment of the glass at both the top and bottom canopy planes. McLaren also developed a custom system to permit differential thermal movement of the individual glass lites at the bottom glass plane.



Location

Ballston, Virginia

Client

Cochran, Stephenson &
Donkervoet, Inc.

Project Type

Structural Design

Services

Structural and Foundation
Engineering
Schematics
Design Development
Construction Documents
Construction
Administration

Construction Cost

\$55,000,000

Reference

Cochran, Stephenson &
Donkerovet, Inc.
323 West Camden Street
Suite 700
Baltimore, MD 21201
(410) 539-2080

Project Description

McLaren Engineering Group was chosen to provide engineering services for the Jefferson Life Care Community in Ballston, Virginia.

The \$55 million **Jefferson Life Care Community** consists of complex, concrete-framed twin 25-story residential towers with three levels of below grade parking. In each of the residential towers, nursing and assisted living facility are provided. The roof structure consists of a 20-foot standing seam mansard roof supported on structural steel, which housed the mechanical equipment and elevator machine rooms. The residential floors consists of six, ½" thick post-tensioned flat plates supported by concrete columns and shear walls. The plaza and parking levels are reinforced concrete flat slabs. The three levels of below grade parking included an extensive sheeting and shoring and dewatering system. The foundations are spread footings founded on disintegrated rock.



Edenwald Housing for the Elderly

Location

Towson, Maryland

Client

Cochran, Stephenson &
Donkervoet, Inc.

Project Type

Structural Design

Services

Structural and Foundation
Engineering
Schematics
Design Development
Construction Documents
Construction
Administration

Construction Cost

\$15,000,000

Reference

Cochran, Stephenson &
Donkervoet, Inc.
323 West Camden Street,
Suite 700
Baltimore, Maryland 21201
(410) 539-2080

Project Description

McLaren Engineering Group was chosen to provide engineering services for Edenwald Housing for the Elderly.

Edenwald Housing for the Elderly is a 20-story residential tower with an adjacent two-story assisted living facility. One level of below grade parking was provided for the residents and staff. The residential tower is a concrete frame constructed with post-tensioned concrete floor and roof slabs supported by reinforced concrete columns and shear walls. The Assisted Living Facility is a steel frame structure with composite concrete and steel beam floors and a metal deck roof supported by steel beams and columns. Reinforced concrete retaining walls resist lateral earth pressure around the basement and parking areas. The foundations of the residential tower are pressure-injected footings with reinforced concrete pile caps. The Assisted Living Facility is supported on shallow foundations.



Park Charles, Charles Center Place Residential Housing

Location

Baltimore, Maryland

Owner

Shelter Development Corporation

Services

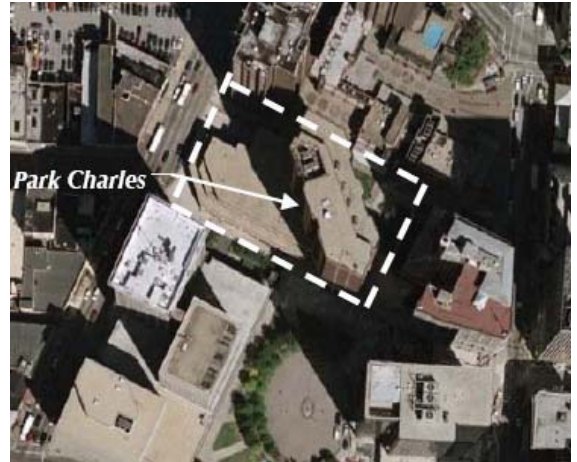
Structural and Foundation Engineering
Schematics
Design Development
Construction Documents
Construction Administration

Reference

Winsor/Faricy Architects, Inc.
421 Wabasha Street, North Suite 200
St. Paul, MN 55102
(651) 227-0655

Project Description

Park Charles is a 32-story irregular-shaped building that contains five levels of underground parking (160,000 square feet), five levels of office facilities (151,000 square feet), 21 stories of residential housing (340,000 square feet), and a mechanical penthouse totaling approximately 651,000 square feet of mixed-use space. It is bound on all sides by existing construction; Mies van der Rohe's One Charles Center and The Fidelity Building on the east, Liberty Street on the west, Charles Center Plaza on the south, and Two Charles Center on the north.



Park Charles – Site Location



McLaren's Role

McLaren provided design of the structural systems of the building including:

- Foundations
 - ♦ Pressure injected piles and auger cast piles
 - ♦ Review of sheeting and shoring
 - ♦ 5 level concrete foundation walls
 - ♦ Reinforced concrete flat slab
- Superstructure
 - ♦ Office levels – reinforced concrete flat plate
 - ♦ Residential Levels – two-way post-tensioned slab
 - ♦ Precast concrete panel veneer at office levels
 - ♦ Brick veneer on metal studs at tower
- Exterior wall support framing

Project Challenges / Client Benefit

- Provided drilled auger cast piles in portions of the new construction that were in close proximity to adjacent structures in order to limit the magnitude of vibrations and thus potential damage to them
- Worked closely with architect to develop appropriate locations for control joints and shelf angles to relieve stresses in veneer due to thermal changes, lateral loads, concrete creep, and gravity loads
- Worked closely with architect to provide concrete shear walls that adequately controlled movement of building without significantly impacting residential space
- Coordinated column grid layout to eliminate the need for transfer levels at transitions between residential, office, and parking levels

Baltimore Marriott Inner Harbor Hotel and Convention Center

Location

Baltimore, Maryland

Client

Cochran, Stephenson &
Donkervoet, Inc.

Project Type

Structural Design

Services

Structural and Foundation
Engineering
Schematics
Design Development
Construction Documents
Construction
Administration

Reference

Cochran, Stephenson &
Donkervoet, Inc.
323 West Camden Street
Suite 700
Baltimore, MD 21201
(410) 539-2080

Project Description

McLaren Engineering Group was chosen to provide engineering services for the Baltimore Marriott Inner Harbor Hotel and Convention Center.

The Baltimore Marriott Inner Harbor Hotel was designed and constructed in two separate phases. The original phase consisted of a 12-story hotel tower and a one-story steel frame low-rise that housed the convention facilities. The second phase was consisted of another 12-story hotel tower and a two-story concrete frame low-rise that housed additional convention facilities in both phases. The original phase required long clear spans to accommodate large meeting rooms and banquet facilities. The second phase required a framed ballroom floor, which necessitated heavy post-tensioned concrete beams and floor slabs to accommodate impact loads produced by ballroom activities (dancing). In addition, the second phase employed the use of post-tensioned concrete transfer girders, which clear spanned the ballroom and supported the hotel tower above. Hotel towers for both phases were constructed from post-tensioned concrete flat plates supported on reinforced concrete columns and shear walls. The lower levels (street level) are reinforced concrete flat plates. Reinforced concrete retaining walls were provided to resist lateral earth pressure around the perimeter of the basements in both phases. The most economical foundation systems were determined to be conventional slabs on grade and spread footings founded in sands and gravel. A portion of the concrete low rise of the second phase is supported on 80-ton driven steel H-piles.



Location

Port of Spain, Trinidad & Tobago

Owner

Marriott

Services

Structural Engineering
Foundation Engineering
Schematics
Design Development
Construction Documents
Construction Admin.

Contract Period

2008-Present

Construction Cost

\$25,000,000

Project Description

The Port of Spain Hotel is located in a prestigious neighborhood and established corporate center featuring high end office buildings, embassies, and government ministries. The building will be a 236,000 square foot, 200 room, 4 star full-service hotel that has 12 stories and a roof top outdoor pool, terrace/lounge space with beverage service. Amenities include a business center, restaurant, lobby lounge/bar, spa/fitness center, meeting rooms, rooftop pool, onsite parking.

**McLaren's Role**

McLaren provided professional structural engineering services for the project, which included the following:

- Assessment of local environmental (wind and seismic) data to determine appropriate load information for use with International Building Code required design methods
- Structural Design of the following:
 - ♦ Foundation design for auger-cast pile foundations
 - ♦ Precast concrete plank floor system
 - ♦ Roof top pool structure and surrounding terrace to accommodate pavers, planters, and associated drainage systems
 - ♦ Structural steel framing for floor and roof structures
 - ♦ Structural steel transfer level above amenity space where it occurs below the hotel units
 - ♦ Glazing system attachments
 - ♦ Lateral load resisting systems

As the country of Trinidad and Tobago has yet to formally adopt the Eastern Caribbean Building Code and current allows United States and British Standards to be used, McLaren gathered appropriate information regarding the environmental loads (wind and seismic) to be reviewed and approved by the Town and Country Planning department for this project.

In addition, because Trinidad is an island nation with virtually no natural resources for building construction, all materials were imported and this impacts the normal balance of pros and cons of each structural system. McLaren is familiar with the unique methods of construction on the island of Trinidad, allowing our design to benefit from the most economical labor force and materials.

Waterside Plaza – On-Call Engineering Services

Local Law 11 Façade Inspection and Repair

Location

New York, New York

Client/Owner

Waterside Plaza

Services

Structural Inspection
Structural Engineering
Civil Engineering
Marine Engineering
Local Law 11

Contract Period

2008-2010

Role

Prime

Reference

Waterside Plaza
30 Waterside Plaza
New York, NY 10010
Mr. Peter Davis
Managing Director
(212) 340-4232

Project Description

McLaren Engineering Group (McLaren) was contracted by Waterside Plaza to provide on-call structural, civil and marine engineering services for its facilities, located on Manhattan's lower East side. A premier residential community, Waterside Plaza encompasses 1400 apartment units along with playgrounds, promenades, and a health club.

Under this on-call contract, McLaren has provided its structural and civil engineering services for exterior stair and ramp upgrades, elevator feasibility study and, most notably, a Local Law 11 Façade Inspection and Repair Design Task. The LL11 inspection effort included initial site visits, a scaffold inspection, repair supervision, and report.

McLaren's Role

McLaren provided structural engineering services for Local Law 11 Cycle 6 façade evaluations and repair drawings as required for the provision of the necessary New York City Department of Buildings filings for Local Law 11 inspections. Based on preliminary analysis of existing conditions, McLaren developed a scaffold inspection plan for the south facade for Building 30 and for the north, south, east and west facades of Building 10. In addition, McLaren viewed the repairs at the west façade of Building 30 that were previously identified. There were a total of six scaffold drops per day, two for Building 30 and four for Building 10. Our inspectors used the elevation drawings prepared prior to inspections to identify and note any defects. These drawings were then used to develop repair drawings as required. McLaren then supervised these repairs.

As mentioned above, another key structural engineering task under this contract was the provision of concrete repair drawings and specifications for a new waterproofing system and details for the pedestrian ramp and bridge at Waterside Plaza. The pedestrian ramp is located at the west side of the Plaza and leads to the pedestrian bridge that crosses over the FDR Drive. The repairs to the pedestrian bridge were limited to the eastern portion of the bridge that is owned and maintained by the Plaza.



Waterside Plaza Building 30

**Project Samples
Retail Structures**

Colonie Center Building Expansion & Redevelopment

Location

Albany, New York

Client/Owner

spg3 Architects

Services

Structural Engineering
Foundation Design
Seismic Analysis
Construction Admin.

Contract Period

2005-2008

Reference

spg3 Architects
1524 Delancey Street
Philadelphia, PA 19102
Mr. Mark Cahill
(215) 735-1524

Project Description

McLaren Engineering Group (McLaren) was retained to provide structural design services for the expansion and redevelopment of the Colonie Center Mall in Albany, New York. Established in 1966, the 1.2 million square foot Mall underwent a \$10 million renovation that adds a Cheesecake Factory restaurant, a Barnes & Noble Bookstore, and L.L. Bean store, and a Regal Cinema multiplex theater – additions aimed at increasing the Mall's appeal in the region.

McLaren's Role

Perhaps McLaren's most significant contribution to this large-scale effort was the design of a 74,000 square foot structure to house the Regal Cinema multiplex. The theater is a third-floor building constructed above the Mall's roof, linked into but not reliant upon the existing structure. It is essentially a building on top of a building, made to appear as an organic part of the Mall.

After assessing the original Mall structure, it was determined that constructing the new structure would be most efficient if done so without disturbing the existing portion. The theater, therefore, required its own lateral system and seismic analysis. McLaren also designed a new projection mezzanine, third level framing as needed, and a new roof structure, and reinforced foundations and structural steel beams, columns, and connections as required. With half constructed above the Mall and the other half standing alone, the theater structure is certainly the most innovative design aspect.

McLaren also designed the ground-level additions of a Barnes & Noble and a PF Chang's China Bistro, which are 20,000 and 7,000 square feet, respectively. For each new structure, McLaren engineered the design and details required to attach them to the existing mall structure. Both new buildings are located beneath the theater.

Beyond the primary aspects of the project, McLaren also provided structural design for the 2,000 square foot addition housing a new L.L. Bean store. Design services also included new stairs, elevators, escalators and a refurbished service elevator, and design for the new 1,800 square foot Macy's entrance.



*Building on top of a building –
Regal Cinemas at Colonie Center Mall*



City Center Mall, Mixed-Use Retail and Residential Facilities

Location

White Plains, New York

Client/Owner

Cappelli Development
Group

Project Type

Structural Design

Services

Foundation Design and
Structural Engineering,
Construction
Administration

Contract Period

2001-2003

Construction Cost

\$300,000,000

Reference

Cappelli Development
Corporation
115 Stevens Avenue
Valhalla, NY 10595
Mr. Joe Apicella
(914) 769-6500

Project Description

The City Center Mall project is a mixed-use high-rise retail and residential facility at the former Macy's Department Store in downtown White Plains, New York. McLaren Engineering Group provided foundation and structural design services for the 774,200 square foot retail space, including the design of retail areas, loading docks, and below-grade parking (situated under the retail space and the first floor plaza).

Contained within the retail space are the White Plains Performing Arts Center and a multiplex cinema complex with an IMAX Theater. The Performing Arts Center includes a 400-seat theater with stadium seating, overhead pipe grids and catwalks, and mezzanine for storage, lighting and lobby. Other features include:

- Design of sloped raker beams and light gage framing supporting stadium seating.
- Reinforcement of existing steel framing to support new theater loads.
- Structural support for box booms, lighting equipment, curtains, and other theater features.
- Coordination with architect and theater consultant on layout and structural requirements for theater features.
- Comparison of alternative framing schemes to maximize cost efficiency.

Three 35-story residential buildings were also designed at this location encompassing 727,900 square feet. A municipal parking garage was included providing both below and above grade parking, and a garage core encompassing 767,000 square feet.



City Center Mall



Structural Engineering Services

Dobbs Ferry Retail Center – Building Design

Location

Dobbs Ferry, New York

Client/Owner

spg3/Saber Real Estate
Advisors, LLC

Project Type

Structural Engineering
Civil Engineering

Services

Feasibility Study
Structural Inspection &
Design

Contract Period

2012-2014

References

spg3
1524 Delancey Street
Philadelphia, PA 19102
Mr. Richard K. Gelber
215-940-2260

Saber Real Estate Advisors,
LLC
80 Business Park Drive,
Suite 100
Armonk, NY 10504
Mr. Rick DeCola
(914) 250-0600

Project Description

The architectural firm, Spg³, contracted McLaren Engineering Group (McLaren) to provide various structural engineering services related to the development of a retail center in Dobbs Ferry, NY. This mixed use development site is comprised of 9 structures that include retail buildings, commercial buildings, parking structures, hotel components, and a movie theater.



Rivertowns Square Site Rendering

McLaren's Role

McLaren will perform a study of the various buildings and components to determine if the existing structural framing (beams, columns, slabs) is adequate to support the loads shown on structural documents. In addition, McLaren will analyze the existing structural frame and foundations to determine if there is enough reserve capacity to support additional residential floors and to verify if the frames are sufficient to resist wind and seismic loads per the current New York State Building Code. Lastly, McLaren will provide recommendations based on these findings, construction drawings, cost estimates and construction phase services.

Services will include:

- Feasibility Study on Retail E&G Building
- Design Development
- Construction Documents
- Construction Administration/Construction Phase Services

Scope of Work to include the following buildings and design services:

Market Building B & Retail Buildings J and L... is a new two-story commercial building with three (3) retail components and parking at each of the two levels. Market Building B is approximately 18,000 square feet and is located at the first floor level with parking surrounding this market space. Retail Building J is approximately 9,100 square feet located at the south side of the second floor and Retail Building L is approximately 1,500 square feet and is located at the north-west corner of the second floor. The remaining portion of the second

Structural Engineering Services

Dobbs Ferry Retail Center – Building Design

floor has parking for approximately 115 automobiles.

Cinema Building C... is a new two-story multiplex cinema building with eight (8) theaters with stadium seating for 1,460 patrons. The building footprint area is approximately 33,600 square feet. The second floor includes a lounge/bar area, restrooms and other back of house areas as well as the projection rooms for the theaters.

McLaren's work on this building will include the structural design of the seating structures and demising walls between the theatres.

Retail Building D... is a new 4-story building adjacent to the existing lab building. There is approximately 6,100 square feet of retail at the 1st floor, approximately 6,100 square feet of parking and roof at the 2nd floor, and approximately 3,000 square feet of parking at each of the 3rd and 4th floors. Retail Building D will share a portion of the existing lab building basement and foundation. The construction will be structural steel braced frames and the parking and roof areas will be flat. The new footings will be spread footings.

Retail E & G... This is an existing four-story building that will incorporate the existing lab building basement with two (2) retail components of approximately 12,300 square feet, and 10,000 square feet representing Retail E and Learning Experience G respectively at the existing grade level (1st floor level) with parking proposed on all four (4) levels. The total building area is approximately 118,000 square feet.

Utilizing the RAM Structural System (RAM), McLaren ultimately determined that the existing structural elements meet the design criteria under the current steel code. A RAM computer model was also used to determine if the existing structural frames are adequate to support the building under current wind and seismic loads required by the current code and to determine if it will be able to support the loads of the additional floors.

Recommendations/Findings included:

- Bracing in the north-south direction in order to resist wind and seismic loads
- Sufficient capacity for conversion to a multi-level parking garage for adjoining facilities
- Framing under these loads is adequate for the existing building loads and the proposed parking loads

Parking and Hotel Building F First Floor (Transfer Level)... Is a new building west of and adjacent to the existing lab building and new Retail Building D, and south of Cinema Building C. It includes a loading dock for the cinema and parking for approximately 22 cars at the 1st (ground level) floor, parking for approximately 91 cars at the 2nd floor, 104 cars at the 3rd floor, and 48 cars at the 4th floor. The 4th floor is also the hotel lobby level. The 4th floor structure will also include a pedestrian bridge located at the north-west corner of the 4th floor connecting to the embankment to the west to provide access to the fire access road that passes behind the cinema and hotel buildings. The building includes approximately 21,000 square feet at the 1st floor, 44,500 square feet at the 2nd and 3rd floors including the parking ramp, and 45,500 square feet at the 4th (transfer) floor.

Elevated Play Area G... Is an open steel platform located at the second level between the existing lab building (Part E) and the new Retail Building H and includes a new elevator between the ground floor and the new second floor. The elevated play area is approximately 4,600 square feet in area. This structure will be structurally connected to Building H and will have a structural steel braced frame with a flat level open terrace structure at the second floor.

Retail Building H... Is a new one-story 6,600 square foot retail (restaurant) building with a dining terrace at the roof level. This building will have a slab at grade and a structural steel braced frame with a flat roof.

Retail Building I... is a new one-story 17,200 square foot retail building. This building will have a slab at grade and a structural steel braced frame with a flat roof.

Retail Building K... is a new one story 2,000 square foot retail building. Because of the sloping site, retaining walls will be required at the east and south sides of the building to confine the controlled compacted fill upon which the building will be constructed.

New Roc Center Mall

Value Engineering and Structural Design

Location

New Rochelle, New York

Client

Cappelli Development
Group

Project Type

Value Engineering

Services

Value Engineering
Structural Design
Construction
Administration

Contract Period

April 1999 - March 2000

Construction Cost

\$170,000,000

Reference

Cappelli Development
Corporation
115 Stevens Avenue
Valhalla, NY 10595
Mr. Frank Van Zandt
(914) 287-7676

Project Description

Cappelli Development Group retained McLaren Engineering Group (McLaren) to provide value engineering and structural design services during the construction phases of this \$170 million, 450,000 square foot retail, sports, and entertainment complex. The project includes the New Roc Center Retail/Entertainment Complex, a 22,000 square foot parking garage, an office building, as well as a residence hotel.

New Roc Center was designed to incorporate unique requirements for each tenant, including the design of structures that are stacked on top of each other while still providing column-free support systems. The solution was a complicated transfer girder system of beams and trusses to transfer the loads down through the transfer beams with separate divergent columns for each specific use. Services provided by McLaren included the design of a 100-foot-long pedestrian bridge connecting the mall to the parking/hotel/office complex. McLaren also designed a 190-foot-high tower cantilever off-the-floor structure, otherwise known as "Space Shot" (an entertainment ride developed by S&S Power, Inc.), provided design of structural supports for a 20-foot-diameter carousel, a helicopter and a bumper car ride.



Location

Philadelphia, Pennsylvania

Client

Design Collective, Inc.

Services

Geotechnical
Structural

Contract Period

2009 - Present

Construction Value

\$30,000,0000

Reference

Design Collective, Inc.
601 East Pratt Street
Suite 300
Baltimore, MD 21202
(410) 685-6655
Mr. Richard Marietta, AIA

Project Description

Philly Live contains approximately 57,000 s.f. of entertainment/ retail space that includes 5 restaurant/bars on the ground level and a VIP area with private dining on a mezzanine level. The central “market” space is approximately 30 feet tall. Both points of entry include 55 tall truss towers on either side of the entrance (4 total). Two (2) large “billboard” signage element flank the building creating a stadium appearance which enables it to blend into the surrounding Philadelphia Sports Complex (baseball stadium, football stadium, and indoor arena)

McLaren’s Role

Geotechnical engineering services provided:

- Subsurface investigation and report
- Develop ground modification specification
- Monitor ground modification and foundation installation

Structural engineering services provided:

- Base building
- Truss Tower elements and entry vestibule
- Billboard Sign frames
- 50’x50’ Porte Cochere
- Canopies for outdoor dining

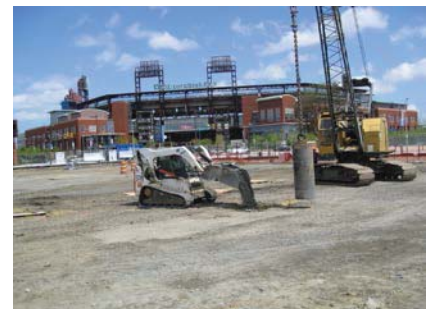
Project Challenges/Client Benefit

All surrounding structures are supported by deep foundation systems and the river deposits had prevented anyone from considering other options. McLaren performed a detailed soils investigation which included in-situ testing methods (dilatometer) to obtain actual in-place modulus of the soils. This enabled McLaren to determine that if we could reliably consolidate the fill layer; we could safely support a 2 story building on the existing material. McLaren developed a performance specification for a technique called “dynamic aggregate replacement” that provided the necessary ground consolidation. This resulted in a foundation savings of in excess of \$500,000 over a pile foundation.

Project was designed from the inside out. As a result the column grid and structural frame had to fit within interior walls on a hexagonal building that is rotated 45 degrees and has 5 different tenants on the first floor. McLaren utilized conventional retail “big box” framing where possible and supplemented with steel beams were necessary. Because the building was designed with 5 different roof levels and a full height market space in the center, the building behaves as 2 separate buildings which required 2 separate lateral load resisting systems.



*View from Northeast
Corner of Pattison Ave and South 11th Street
Philadelphia, PA*



*Ground Improvements at project
Site - Dynamic Aggregate
Replacement*

Tanger Outlets at Foxwoods Casino

Location

Mashantucket, Connecticut

Client/Owner

Design Development
Architects/Gordon Group
Holdings

Project Type

Structural Engineering
Site/Civil Engineering

Services

Structural Design
Feasibility Study
Geotechnical Services
Construction
Administration
Cost Estimates
Environmental Services

Contract Period

2011-2012

Construction Cost

\$120 million

Reference

Design Development, PLLC
237 Mamaroneck Avenue,
Suite 400
White Plains, NY 10605
Mr. Ron Hoina
(914) 949-4272

Project Description

McLaren Engineering Group (McLaren) provided Structural and Site/Civil Engineering services for the development of a 312,000 square foot retail complex at the Foxwoods Casino in Mashantucket, CT. The Foxwoods Designer Outlets will connect the Pequot Casino and the MGM Casino by an elevated structure that is 3-stories and 2-stories high respectively. A roof structure will cover the walkway to provide access to the retail stores and will be incorporated in the design. The site topography varies significantly in elevation and varies geotechnically from exposed rock to soils. We anticipate that the foundations for this structure will include both spread footings and deep foundations.



Foxwoods Designer Outlets

McLaren's Role

McLaren provided structural design services in two Phases. The Schematic Phase of the project included:

- Site Visit and Investigation
- Assessment of conceptual plan
- Preparation of a Schematic Site Plans
- Construction Cost Estimates
- Project Meetings

The Design Development Phase included:

- Overall Site Plan of entire project
- Environmental Services
- Stormwater Pollution Prevention Plan (SWPPP) in conformance with the Connecticut Department of Environmental Protection (CTDEP) Stormwater Quality Manual
- Construction Documents
- Geotechnical Engineering (boring plan, full geotechnical report and foundation recommendations)

Additional services include Construction Administration, Cost Estimates and Bid Support.



Foxwoods Designer Outlets

Long Branch Ferry Terminal Design & Entertainment Pier

Location

Long Branch, New Jersey

Client

City of Long Branch

Project Type

Ferry Planning & Operations
Pier Planning

Services

Project Management
Marine Engineering
Site/Civil Engineering
Geotechnical Engineering
Structural Engineering
Surveying
Sustainable Design
Permitting
MEP Services
Public Outreach
Cost Estimating
Pier Planning
IT Technology

Contract Period

2009-2014

Construction Value

\$89 million (est.)

Reference

BBPCA, Inc.
Nichols Center
177 Defense Highway,
Suite 10
Annapolis, MD 21401
Mr. Brian Dowling
T: (410) 266-7800
F: (410) 266-7866

Project Description

The redevelopment of the Long Branch Oceanfront Pier and Ferry Terminal represents an opportunity for the City of Long Branch to re-establish its public identity for the 21st century, for the benefit of residents and visitors alike.



McLaren's Role

McLaren Engineering Group (McLaren) is providing overall Program Management, as well as marine, site/civil, structural, geotechnical engineering and surveying services needed for design and construction of a new oceanfront pier in Long Branch, New Jersey. The \$89 million pier will include a multi-functional retail and entertainment facilities, a ferry terminal providing commuter access to New York City, renewable energy resources, and a learning center. The pier is a critical aspect of the City's redevelopment plan, enhancing its identity as a premier United States destination.

As part of this contract, the McLaren project team will identify funding opportunities for the terminal and pier to become a long-term source of sustainable economic development for the City. In order to keep the community fully engaged in the vision of the new pier, McLaren will lead an inclusive, collaborative public process that will strengthen the design and execution as the project moves forward. McLaren will convene a series of facilitated workshops, known as "charrettes," to identify important questions and articulate the shared priorities. We believe this process is the most effective means of achieving broad support for this environmentally, socially, and economically sustainable project over the long term.



Tree House Sculpture – The Crystals at City Center

Location

Las Vegas, Nevada

Client/Owner

WestWorks(!)

Services

Structural Analysis
Structural Engineering

Contract Period

2007-2009

Reference

WestWorks(!)
155 Woodward Ave.
South Norwalk, CT 06854
Mr. Jason West
(203) 280-3310



Project Description

“The Tree House” is the sculptural centerpiece of the new Sobella Retail space of The Crystals at City Center in Las Vegas. It is housed in an innovative mall space with angular rooflines and two stories of shopping. The Tree House is a free form, wood clad structure that seems to defy gravity, sitting precariously on a narrow base, spreading out to envelope part of the mezzanine floor, and then reaching away from its support to the skylight above. It appears to be made from horizontal and vertical slices of curved wood, and contains illuminated faces. The upper “oculus” allows light to shine inside the encapsulated bar, which bulbs out from the mezzanine.

McLaren’s Role

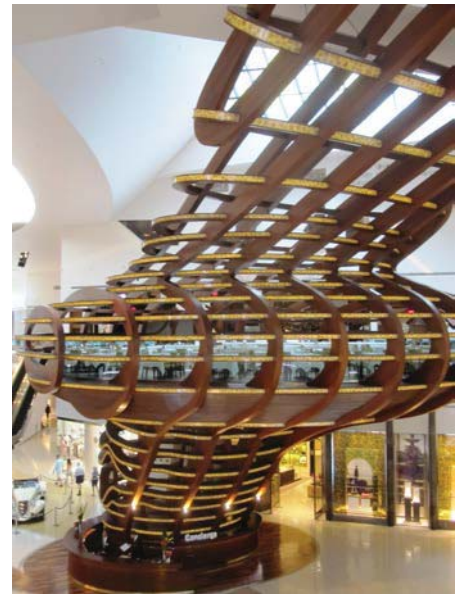
McLaren provided complete structural engineering for the Tree House structure down to the main floor, the bulbed-out mezzanine floor, and support from the roof. The structural design considered weights of steel, wood cladding, lighting, electrical wiring, sprinklers, and pendant lighting. It also considered earthquakes. The irregular member size and form made the design process extremely challenging – their orientations were based on aesthetics, not structural efficiency – and the system behaves like a large, 3-D moment frame.

Each member and connection experiences unique stresses, so each had to be analyzed individually. The connections of the secondary “ring” members to the primary “vertical” members were accomplished with bolts inside tapped holes, hiding the connection from view. Connections consist of four, six, eight, or ten bolts; connections with excessive forces required field welds. The shallow connection geometry (5” deep holes spaced only 2½” apart vertically) required stiffener plates to span across the primary members inside the joint, further complicating fabrication. Electrical wiring, recessed lighting units, and sprinkler pipes had to be installed along and through members without affecting the clean finished profiles, further complicating member intersections.

The cantilevered “oculus” needed to be supported from wire ropes at the roof in order to make the framing work within the size constraints. There are four splayed wire ropes with turnbuckles, attached via ball joints to the roof truss members and via swivel hoist rings to the Tree House.

The main floor structure was reinforced to support the Tree House’s weight. The mezzanine floor was framed with steel beams and a lightweight concrete slab that receives the upper primary members and delivers these loads onto the mezzanine floor framing. These connections involved severely curved members bolted via thick base plates onto receiving beams.

The Tree House is a very ambitious design in which each piece affects every other piece, and no two pieces are alike. The fabricator produced precise steel and wood elements that fit perfectly when assembled on site, and the result is a one-of-a-kind sculptural assembly of “wood” elements that defies gravity.



Location

Yonkers, New York

Client/Owner

Rising Development Company, LLC

Services

Site/Civil Engineering

Contract Period

2012

Reference

Rising Development, LLC
3261 Broadway
New York, NY 10027
Mr. Nick Sprayregen
(212) 368-1717

Project Description

McLaren Engineering Group (McLaren) was retained to provide site/civil services for the Yonkers Rising Project, located at the corner of Warburton Avenue and Nepperhan Street in Yonkers, NY. The Larkin Center Project is a development that will include a tower containing 233 residential units, associated parking, amenity space for residents; and approximately 17,000 square feet of space available for retail, restaurant, or office use. The 20-story tower will contain 248,000 square feet. The parking structure will utilize a mechanized retrieval system in order to achieve the necessary capacity. Additional development is planned along Nepperhan and Main Street, which includes a new 6-story building consisting of approximately 43,000 square feet for office use and 15,000 square feet for retail and restaurant use. An additional 180-car parking structure will also be designed for this building.



Rendering of Proposed Larkin Tower

McLaren's Role

McLaren prepared site drawings for Rising Development based on McLaren's assessment of the conceptual plan with regard to layout, circulation, grading, drainage, and utilities. This site plan included a location map with zoning data and the existing conditions at the site. The plan also included proposed buildings, sidewalks, parking, roadways, landscaped areas, traffic signs, striping, and utilities for the area. McLaren also provided site grading and utilities plans for these proposed areas, including stormwater management, sanitary sewer, and water distribution. Sediment and erosion control plans, civil construction details, and a construction phasing plan were also generated. McLaren also assisted the environmental consultant in the preparation of the full Environmental Assessment Form (EAF). McLaren also produced a Stormwater Pollution Prevention Plan (SWPPP) in accordance with the New York State Department of Environmental Conservation requirements and assisted the project team to obtain site plan approval.



Rendering of Proposed Office Building

McLaren Engineering Group

**Project Samples
Casino Structures**

Cirque du Soleil's "Viva Elvis" at City Center

Location

Las Vegas, Nevada

Client/Owner

Stage Technologies, Cirque du Soleil, Setpoint Design and Productions

Services

Mechanical Engineering
Structural Engineering

Contract Period

2009

Role

Prime

References

Stage Technologies
6651 Schuster Street
Las Vegas, Nevada 89118
Mr. Kevin Taylor
(702) 990-0864

Cirque du Soleil
8400 2nd Ave
Montreal H1Z 4M6 Canada
Mr. Michel Tremblay
(514) 723-7646 ext 8206

Setpoint Design and
Productions
2548 Desert Inn Rd.
Las Vegas NV 89109
Mr. Joel Svoboda
(702) 400-1369

Project Description

"Viva Elvis" is a Cirque du Soleil production at Aria Resort and Casino, which is part of the City Center complex in Las Vegas. The show opened in December 2009 and marks the seventh resident Cirque du Soleil production in Las Vegas. McLaren Engineering Group (McLaren) has contributed significantly to all of these productions.

"Elvis" contains some of the largest pieces of scenery and performer flying equipment ever built for a theatrical production. Hired by Cirque Du Soleil, Stage Technologies and Setpoint Design & Production, McLaren provided structural and mechanical engineering for various parts of the show.

McLaren's Role

McLaren engineered a variety of elements associated with overhead equipment in the stage house. The firm provided complete structural engineering for the large track structure supporting three multi-axis performance trolleys. The trolleys traverse the stage house and contain winches rated for performer flying. The tracks are supported by a 125-ton trussed structure that hangs from the roof via 64 hangers and is braced to the gridiron. The structure is subjected to moving and performer dynamic loads from any combination of the three trolleys, earthquakes, emergency stop forces, and end-of-travel shock absorber forces. It was assembled on the stage floor and then hoisted into place with a several chain motors, which minimized conditions in which installers were working at height.

Additionally, McLaren engineered the LED Truss supporting eight tall, tracking LED panels. This lightweight steel truss could only weigh 10 tons and is supported by four electric winches at the gridiron, in order to permit the truss to be stored out of audience view. Passive aluminum scissor frames stabilize the truss. The challenge was to make the truss sufficiently rigid to minimize deflections from the tracking panels, since the panels need to appear to be in contact in certain positions, while staying within the weight limitations. The final design included the introduction of counterweight arbors that lift up select points on the truss in order to improve deflections.

Services also included:

- Evaluation of all self-bailing electric winches, as well as supports and rigging for the storage of the "Got-a-Lot" Wagon
- Engineering of a selection of loft and mule sheave blocks, as well as overhead rigging beams and their connections
- Engineering of a variety of performer and technician access platforms, scenic element storage structures, and guardrails
- Third-party reviews of the "Got-a-Lot" Wagon and loads on the gridiron

"Elvis" contains state-of-the-art theatrical equipment and features and is sure to thrill theatergoers and Elvis fans for years to come.



Location

Lake Kiamesha, New York

Client/Owner

New Concord
Development, c/o
Cappelli Enterprises

Project Type

Structural Design

Services

Structural Engineering
Schematic Design
Design Development
Geotechnical Engineering
Construction
Administration

Contract Period

2008-Present

Reference

New Concord Development
c/o Cappelli Enterprises
115 Stevens Avenue
Valhalla, NY 10595
Mr. Kevin McManus
(914) 750-6319

Project Description

McLaren Engineering Group (McLaren) was recently tasked by Cappelli Enterprises to provide structural engineering and design development services for a large-scale Hotel and Resort complex in Lake Kiamesha, NY.

The project is broken into three primary aspects – Concord Monster Golf Clubhouse, a two-story, 60,000 square foot structure; Concord Spa/Hotel, which consists of two buildings and approximately 197,000 square feet; and Concord Downs Grandstand/Clubhouse, Paddock Building & Maintenance Storage Building, which comprise various facilities and amenities for the proposed horse racing track, including general viewing seats, viewing suites, a simulcast room, kitchens, a betting office, general offices, operations rooms, horse stalls, and equipment storage.

McLaren's Role

McLaren, as structural engineer of record, is providing full design services in three phases: schematic design, design development, and construction administration. Construction administrative duties will include site visits, shop and erection drawing review and response to Contractor's written Requests for Information (RFI).



Concord Downs – Trackside Elevation



Golf Club Clubhouse – Rear Elevation

The Feature Bar at The Cosmopolitan, Las Vegas

Location

Las Vegas, Nevada

Client

Themeing Solutions, Inc.

Project Type

Structural Design

Services

Structural Engineering
Architectural Themeing

Contract Period

2008-2010

Reference

Themeing Solutions Inc.
151 Gallagher Crest Road
Henderson, Nevada 89074
Mr. Peter Mensching
(702) 633-4950

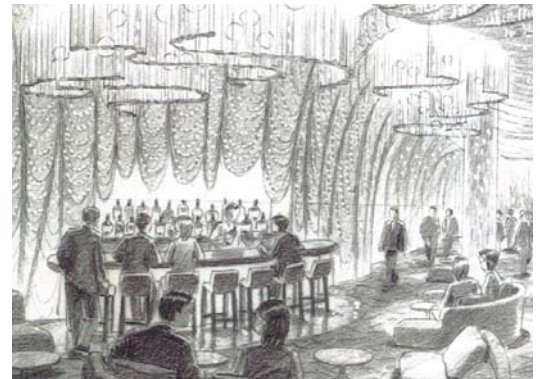
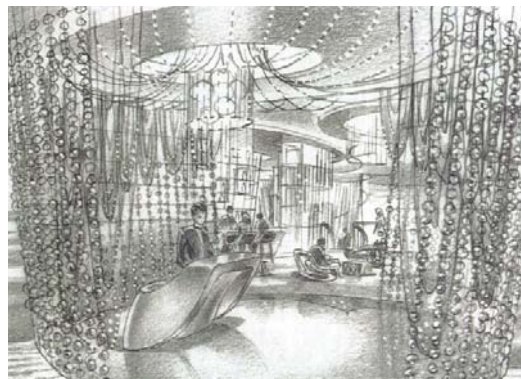
Project Description

McLaren Engineering Group (McLaren) was retained by Themeing Solutions Inc., to provide structural engineering and design services for The Feature Bar, a cornerstone element of the Cosmopolitan Hotel and Casino. The Casino, which opened in late 2010, is the first condominium-hotel complex located directly on the Las Vegas strip.

The Feature Bar is adorned with millions of glass beads on cables that appear to be woven together, and closely spaced white strings, all illuminated by a variety of colored lighting. The result is a unique, three-story space that envelops patrons in veil upon veil of shimmering glass and light. This Rockwell Group-designed feature is regarded as the world's largest chandelier.

McLaren's Role

The structural engineering services provided by McLaren included the structural analysis of the cables strung with glass beads, anchorage hardware for wire ropes, framing supporting wire ropes and associated lighting and finished surfaces, and secondary steel supports located throughout this multi-level structure. McLaren's structural details were all developed considering ease of installation and visual appearance of the architecturally exposed framing and connections. McLaren also produced engineering calculations and facility impact load statements.



Artist Renderings
Rockwell Group - Interior Designer

Hard Rock Hotel & Casino Chandelier, Las Vegas

Location

Las Vegas, Nevada

Client

Themeing Solutions, Inc.

Project Type

Structural Design

Services

Structural Engineering
Architectural Themeing

Contract Period

2009-2010

Reference

Themeing Solutions Inc.
151 Gallagher Crest Road
Henderson, NV 89074
Mr. Peter Mensching
(702) 633-4950

Project Description

McLaren Engineering Group (McLaren) was tasked to provide expert engineering services for this unique, cloud-shaped ceiling chandelier feature for the Vanity Night Club at the Hard Rock Hotel & Casino in Las Vegas. The feature includes a 3-D undulating metal ceiling shape with 20,000 LED color changing lights, covered with 3” diameter textured “potato chip” shaped glass lenses. The ceiling elements converge into an illuminated column that dives into the floor and spreads out beneath. The secondary steel above the drywall lid is interfaced with electrical, mechanical, and sprinkler systems; all within an extremely tight space. This centerpiece also includes a digital control system, which allows the owner a multitude of programming opportunities from graphic images to complete video streaming.

McLaren’s Role

McLaren provided structural engineering services that included the analysis of the complex, secondary steel structure; ceiling structure supports; illuminated column framing; plexi-covered floor framing; and associated hardware racks.



Harrah's Atlantic City Wayfinder Globe

Location

Atlantic City, New Jersey

Client/Owner

PRG/Scenic Technologies

Services

Mechanical Engineering
Structural Engineering

Contract Period

2007

Role

Prime

Reference

PRG/Scenic Technologies
539 Temple Hill Road
New Windsor, NY 12553
Mr. James Lehner
(845) 567-5740

Project Description

McLaren Engineering Group (McLaren) engineered a new mechanized sculpture for Harrah's Casino in Atlantic City, NJ.

This 11 foot diameter freestanding globe is located in the casino lobby. The globe revolves twice a minute about its tilted axis, and is formed with rolled aluminum tubing to represent latitude and longitude. Fiberglass elements, containing fiber optics, create the shapes of the continents. There is also a large media ring that houses plasma screens, and allows the overall sculpture to meet stringent safety requirements for permitting. The globe revolves on bearings located at the poles, and is powered by an electric motor at the south pole.

Since the structure contains many permanent installations, the main concerns during the design and evaluation were patron safety and quality of form and finish. The design considered ease of maintenance for the media and mechanical elements.



Location

Hanover, Maryland

Client/Owner

The Cordish Company /
PPE Casino Resorts, LLC

Architect

Klai Juba Architects

Services

Structural Design &
Engineering
Design Development
Construction Documents
Roadway Engineering
Permitting
Geotechnical Engineering
Site/Civil Engineering
Surveying

Contract Period

2010-2012

Construction Value

\$200,000,000 Overall
\$6,000,000 Roadway
\$80,000,000 Garage

Reference

The Cordish Company
601 E. Pratt Street, 6th Floor
Baltimore, MD 21202
Mr. Tunnie Ping
(410) 752-5444

Project Description

Maryland Live! is the largest and highest revenue generating gaming facility in Maryland, featuring 4,750+ of the latest slot and table games (including black jack, roulette, craps and poker). This 2 million square foot structure, includes the 300,000 square foot gaming facility, (5) nationally-acclaimed restaurants and entertainment venues are part of the project. Parking spaces are provided for approximately 4,300 cars on the six-level (1,500,000 square foot) parking structure. The design also provided for a 20,000 square feet Central Utility Plant to service the casino. ***This project was fast tracked, including design and construction being completed in just 17 months.***



North Elevation of Maryland Live!

McLaren's Role

Geotechnical Engineering Services...included preparation of subsurface investigation plan, supervising the soil boring operations and in-situ soil testing, and coordination of the laboratory testing.

Structural Engineering Services...included design of the foundation system, structural steel for casino, porte cochere, and central utility plant superstructures, precast parking garage layout (with precast concrete columns, structural steel for level 2, and precast concrete for levels 3 through 7), and review of calculations and shop drawings for precast concrete garage above. Design also included structural support of 2 LED (23'x150' at north and south façade) signs and Static Signage on east and west facades of the building.

Civil Engineering Services...included final design grading plan and 14 different off-site and on-site roadway improvements. This also included Maryland's first Diverging Diamond Intersection at MD 295 B-W Parkway and Arundel Mills Boulevard. The bridge and both roadway approaches were redesigned and reconstructed.



Diverging Diamond Intersection

Project Challenges/Client Benefit

This project was delayed by one (1) year due to a referendum on the required zoning modification that was necessary to make the project possible. As a result, the client engaged a contractor from the beginning in a delivery method that behaved much like a conventional design-build project, which included release of mill order set, foundation, precast, and structural steel bid packages. This was done to ***accelerate the overall project schedule.***

The onset of our subsurface investigation was delayed due to Mall operations. Foundation designs were progressing as McLaren received information from the field. Since McLaren was responsible for both the geotechnical investigation and the structural design, we were able to proceed ***with foundation designs in advance of a completed geotechnical report.***

Although conventional spread footings are typically more economical, the magnitude of the gravity loads on the building columns made them too large to construct on undisturbed soils, which included fills of up to 40 feet. We utilized in-situ (DMT) testing to conclude that, by using a ground improvement method called "Dynamic Aggregate Replacement" (similar to dynamic compaction), we could increase the allowable soil bearing pressure to 10,000 psf; thereby ***eliminating the need for a pile foundation system (saved more than \$2 million).***

Mohegan Sun Casino Architectural Theming

Location

Uncasville, Connecticut

Client

Alexander Manufacturing

Project Type

Structural Engineering
Services

Services

Structural Engineering
Theming Elements

Contract Period

2000-2001

Construction Cost

\$8,000,000

Reference

Alexander Manufacturing
802 SE 199th Street
Portland, Oregon 97233
Mr. Brian Van Zandt
(503) 666-9491

Project Description

McLaren Engineering Group (McLaren) was retained by several theming contractors to assist with various architectural design components for a Phase 2 expansion at the Mohegan Sun Casino. For Alexander Manufacturing, McLaren provided structural engineering services associated with the development of several project components including a barrel vault ceiling, a variety of column covers, and torchieres throughout the casino.

McLaren performed structural analysis of the components and supports and developed calculations confirming code and specification compliance.



Barrel Vault Ceiling



Torchiere



*Mohegan Sun Casino
Column Cover*



Column Cover

Mohegan Sun Casino

Various Architectural Themeing Solutions

Location

Uncasville, Connecticut

Client

Themeing Solutions

Project Type

Structural Engineering
Services

Services

Structural Engineering
Themeing Elements

Contract Period

2000-2001

Construction Cost

\$8,000,000

Reference

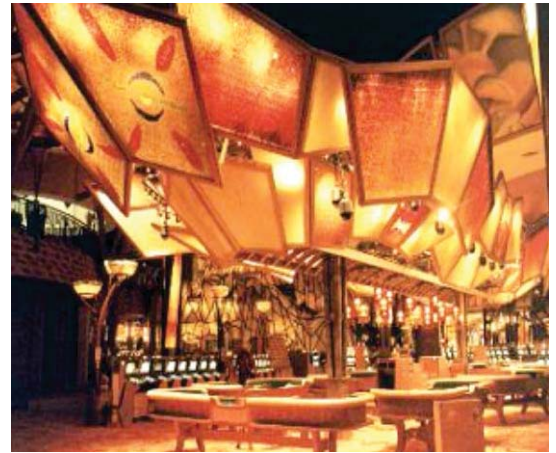
Themeing Solutions
2629 Craig Rd., Suite C
North Las Vegas, NV 89030
Mr. Peter Mensching
(702) 633-4950

Project Description

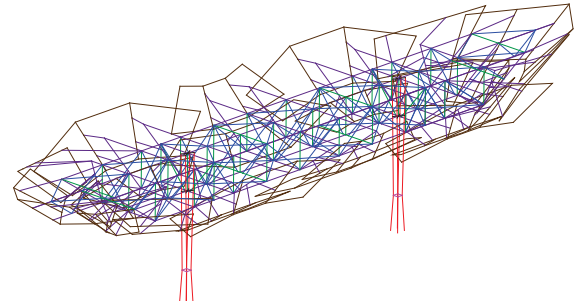
McLaren was retained by several themeing contractors to assist with various architectural design components for the Phase 2 Expansion at the Mohegan Sun Casino. For Themeing Solutions, McLaren provided structural engineering services associated with the development of several project components, including: the Lobby Trees and two types of Column Covers; Pit Trellises; Skylight Canopy; and Memory Piles.

The installation was made challenging by the curved soffits above, the lack of overhead rigging, and the limitations for handling equipment on the floor. The contractor, Themeing Solutions of North Las Vegas, Nevada, developed a winch-operated handling and lifting carriage to install each tree. Further complicating matters was the installation of the lower bead canopy, since the tree had to be erected while encircled by the lower canopy. A custom, trussed assembly was moved into place to lift and then tension the bead canopy. One by one, each corner was transferred to the branch tip connection. Finally the canopy rigging hardware was adjusted so that the canopy was correctly placed.

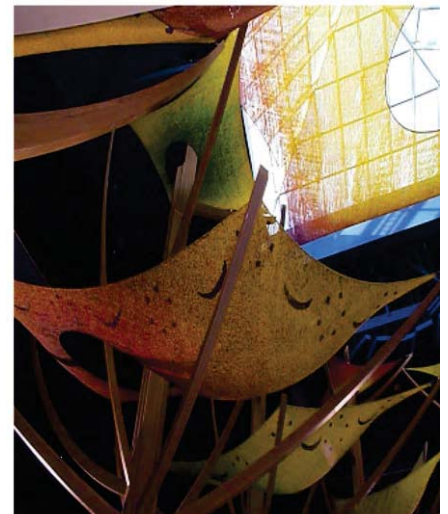
McLaren performed structural analysis of the components and developed a calculation submittal package confirming code and specification compliance. We also provided assembly material call-outs and connection details. Our engineers reviewed fabrication in the shop and erection on site in order to verify conformance with the design intent.



Pit Trellis



Column Covers



Lobby Trees

Mohegan Sun Casino Cabaret Bar and Showroom

Location

Uncasville, Connecticut

Client

Roger B. Phillips, Inc.

Project Type

Structural Engineering
Services

Services

Structural Engineering
Theming Elements

Contract Period

2000-2001

Construction Cost

\$8,000,000

Project Description

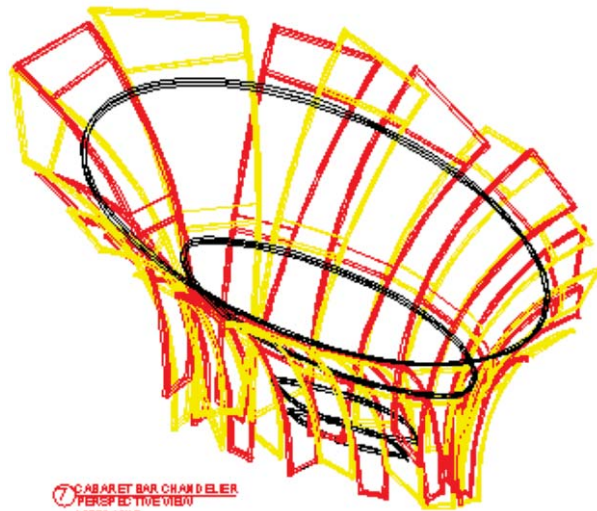
McLaren Engineering was retained by several themeing contractors to assist with various architectural design components for Phase 2 expansion at Mohegan Sun Casino. For Roger B. Phillips, McLaren provided structural engineering services associated with the development of various components in the Cabaret, including the bar and showroom chandeliers, stage surround, ceiling panels, and column covers.

These elements incorporate multicolored glass beads, art glass, parchment, limestone, tile and other textures into unusual three-dimensional forms to create a visually thrilling, one-of-a-kind environment.

McLaren performed structural analysis of the components and supports and developed calculations confirming code and specification compliance.



*Mohegan Sun Casino
Cabaret Bar*



7 CABARET BAR CHANDELIER
PERSPECTIVE VIEW
NOT TO SCALE

*AutoCad Model
Cabaret Bar Chandelier*

Mohegan Sun Casino Architectural Theming for Retail Areas

Location

Uncasville, Connecticut

Client

MJM Studios

Project Type

Structural Engineering
Services

Services

Structural Engineering
Theming Elements

Contract Period

2000-2001

Construction Cost

\$8,000,000

Project Description

McLaren Engineering was retained by several theming contractors to assist with various architectural design components for Phase 2 expansion at Mohegan Sun Casino. For MJM Studios, Inc., McLaren provided structural engineering services associated with the development of the Tree of Life, Retail Trees and Retail Bead Canopies. These elements incorporate multicolored glass beads, natural wood, birch bark and parchment into unusual sweeping forms to create a rich and exciting environment.



*Mohegan Sun Casino
Tree of Life*

McLaren performed structural engineering of the components and supports and developed calculations confirming code and specification compliance.



Retail Trees and Bead Canopies

Location

Las Vegas, Nevada

Client

Wynn Las Vegas

Services

Structural Engineering of
Special Structures
Fabrication Inspection
Complex 3D Analytical
Modeling

Contract Period

2004-2005

Reference

Themeing Solutions
2629 East Craig Road
Suite C
Las Vegas, NV 89030
Peter Mensching, President
(702) 633-4950

Project Description

The new Wynn Las Vegas Hotel and Casino contains striking architectural features, some of which McLaren helped design. A public space centerpiece features an atrium with eighteen unique, colorful “parasol” styled hanging elements. These elements rise and lower very slowly to create an ever-changing visual effect highlighted by sunlight through a large, adjacent glass wall. Another notable feature is a large porte cochere at the north side of the building.



Parasol Hanging Elements

McLaren’s Role

McLaren provided structural engineering services for the framing and overhead rigging schemes of the parasol elements, and for the curved polycarbonate lighting panels with its steel framing that surround the chandelier at the north porte cochere. McLaren engineers worked closely with the contractor to develop the fabrication and construction techniques and conducted a shop visit to view the fabrication progress.

Project Challenges

- Parasol elements needed to be modular and lightweight, while remaining sufficiently rigid when in place. Several elements were analyzed using 3D matrix structural models.
- The project required fast-tracked, early erection of steel to accommodate cable rigging equipment that arrived later during construction.
- Porte cochere panels required a sophisticated analysis for wind loads on thin, 3D curved Lexan® panels.
- Porte cochere details required modular designs with hidden fasteners. Carefully detailed hole and panel dimensions were needed to accommodate changes of shape due to wind loads and temperature changes.



North Porte Cochere Lighting Panels

Client Benefit

McLaren Engineering worked in close collaboration with the Contractor to develop framing and rigging schemes and installation approaches. Assemblies were developed using the preferred methods of the Contractor. McLaren utilized its extensive experience in rigging, specialty framing, and advanced analytical experience to solve the challenges posed by the designs.

The Kinetic Atrium at Wynn Macau Casino

Location

Macau, China

Clients

Wynn Design and
Development/Show
Canada Industries

Services

Structural Engineering
Mechanical Engineering
Engineering Analysis
Bidding Support

Contract Period

2005-2008

Reference

Wynn Design and
Development
Las Vegas, NV 89119
Mr. Rick Gray
(702) 770-3701

AWARD

2009 Outstanding
Achievement
Thea Award

Project Description

Wynn Design and Development retained McLaren Engineering Group (McLaren) to engineer the *award-winning* (2009 Thea Award for Outstanding Achievement) Kinetic Atrium at their Casino in Macau, China. The elegant and unique atrium, driven by several large, custom mechanical assemblies, morphs from one architectural form to another in front of the patrons, creating an inspiring spectacle unlike any other.

The star of the show – the golden “Tree” – is unveiled through a partial dome in the atrium’s floor, which breaks into six parts and creates an opening for a mechanical lift to elevate the Tree into full view. The Tree revolves as it rises and is a symbol of good luck in the local culture.

The show also features a 65 ft. diameter sculpted dome ceiling featuring the Chinese zodiac that opens into a 12-section iris. The iris opens to reveal an overhead LED screen, which in turn, later splits into two halves to reveal a black void filled with a massive chandelier. The 30 ft. diameter chandelier changes shape vertically as it lowers into the space, and it contains 15,000 crystals each embedded with an LED for dynamic illumination.

McLaren’s Role

McLaren was involved in this project beginning with concept level feasibility studies and continued all the way to fabrication and construction. In between, the firm performed computerized pre-visualization animations, preliminary engineering, development of technical specifications, bidding support, and final design of the major effects. The firm’s participation also included full-time technical representation on behalf of the Owner in the fabrication shop and then on site during installation.



McLaren assisted in the design of the various methods of actuating the different systems, including rack and pinion actuators, large-bore pneumatic actuators, ball-screw linear actuators, and wire-rope winches. There were large-scale protective interlocks incorporated to the specifications, as well as precise synchronization issues (such as for coordinated, moving architectural elements).



Personnel Resumes

Malcolm G. McLaren, P.E., SECB
President & Chief Executive Officer

Education:

Bachelor of Science, Civil Engineering, Cornell University, 1973
Master of Science, Structural Engineering, Rutgers University, 1975

Professional Registration:

Licensed Professional Engineer in 42 States
Association of Diving Contractors (ADC) Certified Diver
National Association of SCUBA Diving Schools (NASDS) Certified Diver

Experience:

Mr. McLaren has more than 40 years of design, engineering and inspection experience for structural, bridge/highway/rail, site/civil, geotechnical, marine, and forensics projects nationwide. He has participated as engineer or manager on more than 11,000 projects varying in scope and difficulty. Design specialties include design of mixed-use high rise building structures; land use development; waterfront structure inspection and rehabilitation, especially relative to marine borer activity; design of unique bridge and rail structures; waterborne transportation facility design; intermodal transportation planning; the design and use of composite materials; forensics investigations and litigation testimony; and the design of complex theatrical staging and mechanized effects. Representative projects include:

- **Maryland Live! Casino, Hanover, Maryland @ Arundel Mills Mall (Anne Arundel County);** Project Executive for the 1,700,000 sq ft building. The building is comprised of a 115,000 sq ft steel framed casino ground floor with a six (6) story precast concrete parking structure above the casino. The casino structure is 300 feet wide by 1,000 feet long and provides approximately 4,500 parking spaces. The aggressive schedule called for a fast track process that included design and construction to be completed in just over a year.
- **Live – Hotel & Casino – Stadium District, Philadelphia, PA; for The Cordish Company;** Project Executive responsible for the schematic site/civil engineering and final site/civil engineering for a World Class Gaming Casino and Entertainment facility at the northern portion of the property Philadelphia Stadium District property. The new facility consists of approximately 1.4 million square feet of space that consists of renovated hotel, hotel amenities, casino gaming floor, restaurants, live entertainment venue, and structured parking. Project tasks included Pre-License Schematic Design, Design Development; Construction Documents, and Construction Phase Services.
- **Pier 5 Columbus Center Garage; Baltimore, MD; for The Cordish Company;** Project Executive for this seven-level 207,000 square foot double helix parking garage that provides parking for approximately 640 cars on Pier 5 of Baltimore's Inner Harbor. The project involved coordinating a deep foundation system around existing concrete tie-backs that are used to support an existing bulkhead on the east side of the project, in which the elevated ramps and parking areas are constructed using one-way post tensioned concrete slabs supported on post-tensioned concrete beams. The exterior of the garage was designed to look like an ancillary building to the Christopher Columbus Center, which is located directly adjacent to this project.
- **Foxwoods Retail Outlets; Mashantucket, CT;** Senior Engineer for the structural design of a 370,000 square foot retail outlet center addition to the Foxwoods Casino complex. Structural design consists of a conventional structural steel frame with composite floor slabs, concentrically braced frames, and shallow and deep foundations. The outlet center connects into the MGM Grand Casino at the north end, bridges over the road and bears on the rock hill across the casino; and bridges over the road again to connect into the Grand Pequot Casino at the south end.

Malcolm G. McLaren, P.E., SECB
President & Chief Executive Officer

- **The Feature Bar at the Cosmopolitan Hotel/Casino; Las Vegas, NV; for Themeing Solutions, Inc.;** Project Executive for three story architectural themeing installation, which creates the world's largest single chandelier. The elements include thousands of strings of glass beads on cables draped from level to level, and supported by suspended tubular "spines" at the ceiling and by mezzanine edges. The 200 spine tubes are supported by 200+ hanger tubes from secondary steel and braced laterally to resist cable thrust and seismic forces. The Feature also includes tensioned strings, cantilevered hoop supports for glass beads, and architectural fascia enclosures.
- **Cirque Du Soleil "Zumanity" at the New York New York Hotel and Casino; Las Vegas, NV; for J.R. Clancy, Inc.;** Project Executive providing concept development services, design of custom stage equipment associated stage and pit framing systems, and the engineering of rigging systems. The project also included an entire thrust stage assembly featuring a 21-foot diameter, belt-driven turntable, a 2-stage revolving pod lift driven by ball screws, one large and two smaller ball-screw lifts, stage infill framing, structural supports, pit framing stairs, rails, machine guards, contact sensors and cable management.
- **Kinetic Atrium at Wynn Casino; Macau, China; for Wynn Design and Development / Show Canada Industries;** Project Executive for concept development phase for a public show in the atrium, in which engineered bid drawings and specifications were developed. Project Executive for subsequent engineering design of custom, Kinetic Atrium show-action architectural features, including a lift, turntable, stage wagons, traversing LED ceiling, chandelier that flies and reshapes, and two sculpted domes that open into a number of sections.
- **Architectural Fit-Out at Wynn Las Vegas; Las Vegas, NV; for Themeing Solutions;** Project Executive for structural engineering services for the framing and overhead rigging schemes of moving "parasol" styled hanging elements, and for curved polycarbonate lighting panels with steel framing that surrounds a chandelier at the north porte cochere of the Wynn Las Vegas Hotel and Casino. In addition to structural design, McLaren performed fabrication inspection as well as analysis of several elements using 3D matrix structural models.
- **Mohegan Sun Casino; Uncasville, CT; for Themeing Solutions;** Project Executive for the design and analysis of a variety of interior architectural themeing elements throughout the casino. Responsibilities included the design of a barrel vault ceiling, various retail storefronts, beaded canopies and torchieres, as well as performing site observations of completed work.
- **New Roc Center Mall; New Rochelle, NY; for Cappelli Development Group;** Project Executive for a \$170 million, 450,000 square foot retail, sports, and entertainment complex, which includes a 22,000 square foot parking garage, an office building, and a residence hotel. McLaren provided engineering and structural design services for the construction phase of the complex, which include a 100-foot-long pedestrian bridge connecting the mall to the parking/hotel/office complex, as well as, the design of a 190-foot-high tower cantilever off-the-floor structure.
- **Formula One - PIR Temporary Structures, Grandstand Platform; Weehawken, NJ; for Port Imperial Racing Associates, LLC;** Project Executive for the structural, marine, geotechnical, and specialty engineering services associated with the development of temporary and permanent structures; associated with the annual installations for the Formula One event at Port Imperial. Elements included the grandstand platforms, bleachers, signage, and other necessary structures. Mr. Shuman also created the permit package to be submitted for the Army Corps.
- **Colonie Center Expansion & Redevelopment; Albany, NY; for spg3 Architects;** Project Executive overseeing for the structural design of an expansion and redevelopment of the Colonie Center Mall. McLaren is designing this new 74,000 square foot structure on the third floor above the roof of the existing mall to house a new Regal Cinema multiplex theater.

David W. McLaren, P.E.
Maryland Regional Director

Education:

B.S./Civil Engineering, University of Maryland, 1989

Professional Registration:

Professional Engineer: Maryland #21164-1995; Virginia #31184-1997

Experience:

Mr. McLaren has over 25 years of experience in structural engineering analysis and design. His expertise includes detailed design of the structural systems and the preparation of contract drawings and specifications. He is frequently involved in the review of shop drawings and submittals, and makes periodic site visits during the construction administration phase of work. He also possesses a specialty in providing preliminary design evaluations required to select appropriate and economical structural systems for each project. Mr. McLaren has worked on facilities ranging from parking garages to multi-story residential and mixed-use structures, as well as pedestrian bridges, university housing projects and performing arts centers. Representative projects include:

- **Maryland Live! Casino; Arundel Mills, MD;** As Project Manager provided structural design services including schematic design, design development, preparation of construction documents, and provisions of construction administration for the development a 10± acre site on the west side of the Arundel Mills Mall property. The proposed structure contains approximately 310,000 square feet of Casino space on the north end of the site and a 6-level garage for approximately 4,500 cars above the casino.
- **Towson Circle Parking Garage; Towson, MD; for Cordish Company;** Project Manager for this 4.2 acre, 850 car precast parking garage, with a 16 screen cinema on top. Provided structural and geotechnical engineering services for this project. Provided design solutions to the project challenges including expanding the design to the property line edge to avoid extensive excavation and designing the building structure to fit the urban building facade.
- **Carden Beach Phase III; St. Croix, U.S. Virgin Islands;** Project Engineer responsible for provision of light gage shop drawings and engineering computations for all structural light gage walls, which includes load bearing walls, shear walls, exterior walls, floor and roof trusses. Project consisted of ten (10) two- and three-story units.
- **Embassy Suites Light Gage Wall Panel Shop Drawings; Elizabeth, NJ;** Project Manager for the structural engineering services provided for the provision of light gage shop drawings and engineering computations for all structural light gage walls, which include load bearing walls that support precast plank ends and shear walls identified in the structural engineer of record's drawings. The eight-story building (7 levels of hotel on top of 1 level of hotel/retail/amenity space) with a brick/EIFS/curtainwall veneer and approximately 18,000 square feet of hotel area on the typical floors and 35,000 square feet of hotel/retail/amenity area for a total building area of approximately 160,000 square feet.
- **Trinidad Hotel; Port of Spain, Trinidad & Tobago;** Project Manager for 15-story, 236,000 square foot hotel and conference center with two (2) levels of underground parking on an urban site. Amenities include a rooftop pool/terrace/lounge and ground level retail.
- **Cartier Dome; Miami, FL;** Structural Engineer for floor and foundations for a 70' diameter latticed geodesic dome and entrance to accommodate sales facility with safe for Jeweler for temporary installation in Miami Botanical Gardens during Art Basel.

David W. McLaren, P.E.
Maryland Regional Director

- **Grandview Building C; West New York, NJ;** Project Manager for redesign of 10-story, 860,000 square foot mixed-use building to utilize prefabricated light gage metal bearing walls and floors for all residential portions of the building. Thirty-inch thick reinforced concrete transfer levels occurred at the 5th floor central terrace above the parking garage and at the 3rd floor above the 2-story grade level retail space.
- **Holiday Inn Express; Cambridge, MD;** Project Manager for hotel project that featured a four-story, 40,000 square foot precast concrete plank and masonry bearing wall on auger-cast piles.
- **Columbus Center Garage; Baltimore, MD;** Project Engineer for a 7-level 207,000 square foot double helix parking garage that provides parking for approximately 640 cars on Pier 5 of Baltimore's Inner Harbor. The most challenging part of the project involved coordinating a deep foundation system around existing concrete tie-backs that are used to support an existing bulkhead on the east side of the project. The elevated ramps and parking areas are constructed using one-way post tensioned concrete slabs that are supported on post-tensioned concrete beams. The skin of the garage was designed to look like an ancillary building to the Christopher Columbus Center, which is located directly adjacent to this project.
- **Bayonne Club House; Bayonne, NJ;** Project Manager responsible for provision of light gage shop drawings and engineering computations for all structural light gage elements, which includes roof structures and tower walls for the new golf clubhouse.
- **Hopkins Plaza; Baltimore, MD;** Project Manager for repairs to the reinforced concrete girders that support the AASHTO beams that support the entire south end of the plaza. Remedial repairs to elevated slab structure at the entrance to the Fallon Building. Services included preparation of temporary shoring through all four (4) levels of the underground parking structure.
- **Center for Aquatic Life & Conservation, Feasibility Study, National Aquarium, Baltimore, MD;** Project Manager for structural and geotechnical feasibility study for 20 acre site, which includes an existing Department of Public Works (DPW) garage and parking lot. When complete, there will be facilities for the Marine Animal Rescue Program (MARP), countless varieties of research, classrooms for conservation education programs, and public tours through exhibits.
- **Waterfront Lutheran Center; Baltimore, MD;** Project Manager for a \$5 million, six-story structural steel office building overlooking Baltimore's Inner Harbor. All four major facades of the building featured a different veneer, including brick, block, EIFS, and metal panel.
- **Mt. Vernon Center Office Building; Baltimore, MD;** Project manager for renovation to existing 3-story structure including the addition of a new elevator to serve all floors. Wood-framed floors were upgraded for a higher live load due to change in use.
- **Legal Aid Bureau Office Building; Baltimore, MD;** Project Engineer for a five-story, 53,000 square foot triangular-shaped structural steel office building on deep foundations. The building is situated immediately adjacent to and connects with an existing parking garage.
- **Lyric Opera House; Baltimore, MD;** Project Manager for three-story, 24,000-square foot addition encompassing dressing rooms, rehearsal rooms, and leasable space. Included the addition of a new exit stairway on the north side of the existing stage of the opera house.
- **R/C Theatres – The Movies Ten; Baltimore, MD;** Project Manager for Renovations to an existing 38,000 square foot warehouse space to accommodate a ten-cinema movie theatre. The warehouse was located in the middle of a large strip-type shopping center. The existing structure was re-used and the roof was raised approximately 10 feet to avoid a costly foundation system.

Thomas W. Broderick, P.E., LEED AP
Director of Structures Division
Lead Structural Engineer

Education:

B.S. Civil Engineer, Worcester Polytechnic Institute, 1984

Professional Registrations and Certifications:

Professional Engineer: New York #066594; Pennsylvania #079380; Washington #49124

Experience:

Mr. Broderick has more than 29 years of experience in structural inspection, design, engineering, quality control, and project management. His experience includes all types of structures such as high and low-rise buildings; office complexes; museums; hotels; hospitals; libraries; performing arts centers; parking facilities; marine terminals; and mixed-use facilities. He is experienced in managing large, complex, multi-discipline projects. Mr. Broderick has served as Project Manager, Lead Structural Engineer or Quality Control Manager as represented by the following assignments:

- **Foxwoods Designer Outlets, Foxwoods Resort Casino; Mashantucket, CT; for Design Development Architects, PLLC;** Lead Structural Engineer responsible for the structural engineering services required to develop a new retail complex at the Foxwoods Resort. This proposed complex will connect the Pequot Casino and the MGM Casino by an elevated structure resulting in approximately 400,000 square feet of retail space and walkways to accommodate public access to the stores. Mr. Broderick's responsibilities included schematic design, design development, preparation of construction documents and construction administration services.
- **One Seaport Square Facade Design; Boston, MA; for Permasteelisa North America Corp;** Project Manager for the fabrication and installation of the facade walls. Provided structural engineering design assist services to provide schematic designs and preliminary member sizes. Analyzed and design of the steel and glass framing members, selection of the member sizes, and design of connections, based upon the design criteria. Designed the different glass panels at the North Atrium Lobby Entrance Wall and Skylight, spider fittings, and Type 1 and Type 2 Channel Glass Wall glass and glass connections to the base structure. Also provided conceptual design assistance, final design and sealed calculations, review of erection and detail drawings for conformance, and construction phase services.
- **Formula One Temporary Structures, Grandstand Platform; Weehawken, NJ; for Port Imperial Racing Associates, LLC;** Lead Structural Engineer responsible for the structural, marine, geotechnical, and specialty engineering services for the development of temporary/permanent structures; associated with the annual installations for the Formula One event at Port Imperial. Elements included the grandstand platforms, bleachers, signage, and other necessary structures.
- **RJ Reynolds Warehouse/Manufacturing Plant Conversion/Renovation Project; Winston-Salem, NC; for Design Collective/ Wexford Science and Technology;** Structural Engineer participated in the structural design services for the conversion and renovation to redevelop two existing buildings known as buildings within the North District of the Piedmont Triad Research Park for Wake Forest University. These buildings were formerly part of the RJ Reynolds warehouse and manufacturing plant. Responsibilities included schematic design, design development, construction documents, structural demo documents and construction administration.
- **Structural Engineering Design Services On-Call Agreement Citywide; for New York City Department of Parks & Recreation; Superstorm Sandy Damage Assessment, Installation of Safety Measures and Reconstruction of Damaged Facilities;** Division Director Structures responsible for the engineering services needed to assess widespread damage caused by Superstorm Sandy and recommend specified courses of action. This Work Order included the assessment of damages on

Thomas W. Broderick, P.E., LEED AP
Director of Structures Division
Lead Structural Engineer

selected sites throughout the five Boroughs to determine the immediate actions necessary to preserve public safety. FEMA reimbursement stipulations are being incorporated into all design and construction contracts for future tracking and reporting. **Phase I Beach Restoration Project**; Division Director Structures responsible for overseeing the preparation of construction documents for over of \$140M worth of construction in response to beach damage caused by Superstorm Sandy within six (6) weeks. This unprecedented effort yielded the production of over 950 drawings in four (4) separate contracts within the construction deadline. Public access to the beaches was restored by the Summer of 2013 with all the amenities as in previous seasons.

- **Emergency Contract for Engineering and Inspection Services as a Result of Superstorm Sandy; for New York City Department of Buildings**; Structural Engineering involved with providing rapid safety assessments and detailed inspections of buildings impacted by Superstorm Sandy in Staten Island, Manhattan, Brooklyn and Queens, NY. The assessments were performed in accordance with the standards set forth by the Applied Technology Council (ATC) document ATC-45, "Safety Evaluation of Buildings after Windstorms and Floods".
- **Islandia Office Building, Islandia, NY; for Panelization Systems Internl**; Project Engineer responsible for designing and developing aluminum extrusions to meet stress and deflection requirements for an aluminum and glass curtain wall.
- **Nyack Phase II; Nyack, NY**; Senior Engineer involved in the design of a 12-story reinforced concrete flat plate condominium and a four-story reinforced masonry condominium carried on a pile supported post tensioned concrete flat plate.
- **West Nyack, NY; for Fisher Skylights**; Design Consultant on long-span aluminum skylights to conform to regional and national building codes.
- **Pier 57 Renovation; New York, NY**; Structures Division Director responsible for overseeing the renovation of the existing pier into a retail center with shops and restaurants. McLaren's structural design included the addition of elevators, stairs, and MEP shafts through the pier deck and down into the caisson. Some of the elevator pits needed to be suspended from the pier deck beyond the extents of the caisson, over the Hudson River. Design challenges included structural detailing for shaft construction through a marine environment and structural capacity analysis of the floating caisson. Mr. Koklanos was involved all phases of design; project is ongoing.
- **West 28th Street; NY, NY; for M. Cohen and Sons, Inc.**; Project Manager for the fabrication and installation of external panel systems for a new building at 520 West 28th Street. The new building is a concrete framed structure and consists of "split level" floors. Metal panels screen the concrete spandrel floor edges from view. At floor level transitions the metal panels are fabricated into chevrons on the North and South Elevations. Analyzed the proposed metal panel connections to the mullions and concrete floor/wall in order to support the metal panels gravity loads, lateral wind pressure, thermal loads and other code defined loading. Refined and redesign the base scope of service items to achieve the desired outcome.
- **Fort Bliss Curtain Wall - Entrance; El Paso, TX; for M. Cohen and Sons, Inc.**; Project Manager for the design of three new glass façade systems and one glass skylight system. The new façade system consists of a laminated glass system supported by architecturally exposed steel trusses. The design of the glass façade took into account gravity loads, wind loads, seismic loads, and blast loads. Performed engineering design and calculations during the concept design phase. Analyzed of the glass at the skylight, the environmental analyses of the three truss systems, and the dynamic analyses of the façade system under blast loading.

Steven L. Grogg, P.E.
Chief of Site/Civil Division

Education:

Bachelor of Science, Civil Engineering, University of Maryland, 1975

Professional Registrations and Certifications:

Professional Engineer: New York #062708-1; New Jersey #GE31830; Pennsylvania #057056-E; Delaware #14877; Maryland #11677; California #50883;

Experience:

Mr. Grogg is Vice President of McLaren's Site/Civil division and has 39 years of civil engineering experience encompassing: site development plans, infrastructure design, subdivision plans, environmental impact statements, storm water management, construction support services and green storm water and infrastructure design. His diverse and extensive experience includes preparation of storm water pollution prevention plans, hydrologic/hydraulic analysis, utilities and infrastructure coordination, drainage, sanitary and water supply, public outreach, expert testimony, parking layout and demand analysis, highway design, traffic signal design, airport design, parking garage functional design. Relevant project experience includes:

- **Arundel Mills Maryland Live! Casino; for Cordish Company;** Site/Civil Engineer for the re-design of the Casino Building and the design of on-site and off-site roadway improvements relative to the proposed Maryland Live! Casino. Mr. Grogg is involved with the preparation of schematic sketches, public roadway improvement plans, a formal submission package, and permit applications. He will oversee field run topographic surveys, preparation of a schematic and final public stormwater management plans, permitting and construction administration.
- **Engineering Design Services On-Call Agreement Citywide; for NYCDPR; Superstorm Sandy Damage Assessment, Installation of Safety Measures and Reconstruction of Damaged Facilities;** Lead Engineer responsible for the engineering services needed to assess widespread damage caused by Superstorm Sandy and recommend specified courses of action. Work included the assessment of damages to NYCDPR facilities in Brooklyn and Queens to determine the immediate actions necessary to preserve public safety. Mr. Grogg coordinated the preparation of five (5) contracts for the removal of sand and debris and repairs to safety. **Phase I Beach Restoration Project;** Project Manager for the preparation of construction documents for over of \$140M worth of construction in response to beach damage caused by Superstorm Sandy. Mr. Grogg managed seven (7) A&E sub-consultants for this project. This unprecedented effort yielded the production of over 950 drawings in four (4) separate contracts within a 6 week period. The construction completion date was set by Mayor Bloomberg for May 24th, 2013. Once completed, public access to the beaches was restored for the Summer of 2013. Mr. Grogg managed engineering design for the Boardwalk repairs, repairing damaged ramps and stairs, reconstructing damaged concrete boardwalk and ramp/stairs, design of facades, slope stabilization, beach access paths and ramps, ADA accessibility, utility rehabilitation, and reconstruction and repair of DRR comfort station, concession, and lifeguard buildings.
- **Briarcliff Senior Housing; Briarcliff Manor, NY; for Briarcliff Manor Investors;** Project Manager for the development of a Continuing Care Retirement Community (CCRC) plan at the former Kings College site in Village of Briarcliff Manor. Mr. Grogg is responsible for the stormwater management and utility design for this 58-acre site, which features considerable terrain, drainage and utilities challenges and will include 385 units of independent and assisted living space when complete.
- **White Plains Hospital Renovations and Reconstruction Project; for White Plains Hospital Center.** Project Manager for the full Site/Civil engineering services associated with the renovations and reconstruction of the White Plains Hospital Center. Services includes the preparation of the preparation of Site Plan Approval Drawings (including Site Grading and Utility

Steven L. Grogg, P.E.
Chief of Site/Civil Division

Plans, Sediment and Erosion Control Plans, Stormwater Management/Water Quality drawings and details, Staging and Phasing Plan as well as Site Lighting Isometric drawings), preparation of a full Environmental Assessment Form (EAF), Stormwater Pollution Prevention Plan, NYSDEC SPDES Site Inspections, preparation of Construction Documents and Construction Support Services.

- **North Street Community; White Plains, NY; for Bettina Equities Company;** Project Manager for the site/civil engineering services associated with the North Street Community which is a planned integrated community of senior residential housing, health care, and wellness services in a campus-like setting located on the former St. Agnes Hospital property on North Street in White Plains. Services include, Site Demolition and Phasing, Stormwater Pollution Prevention Plan, Permits, Erosion Control Plan, Layout and Grading Plan, Utility Design, the preparation of Construction Documents and Construction Support Services.
- **Teachers Village – Geotechnical Investigation; Newark, NJ; for RBH Group;** Lead Civil Engineer provided geotechnical and value engineering services for the development of a workforce housing project called Teacher’s Village at Four Corners. Services included field investigation, the development of boring plan and specifications for exploratory work, supervision of borings and field investigation including coordinating all activities of the Drilling Contractor, preparation of field reports, coordination of boring/testing logs as well as the preparation of Geotechnical Report that included all data collected, engineering analysis, and foundation recommendations.
- **Maxwell House Site Development; Hoboken, NJ; for ICCI Construction;** Lead Site/Civil Engineer for conversion design of the former Maxwell House Coffee industrial site to a residential mixed-use facility. Plans prepared included conversion design and modifications of existing buildings, design of roadways that connect to local streets, site and utility development, and the addition of a connecting two-level underground parking area to Elysian Park on Sinatra Drive as well as the conversion of one industrial pier and full replacement of one pier for use as a pedestrian park as part of Hudson River Waterfront Walkway.
- **Roseland Port Imperial, Buildings 2 & 3 Settlement Monitoring; West New York, NJ; for Roseland Properties;** Project Manager responsible for the site/civil and geotechnical engineering services associated with subsurface investigation involving soil borings, soil testing, surveys and installation of two inclinometers. The project goal was to provide additional monitoring to confirm the stability of Buildings 2 & 3.
- **New Residential Development; Highbourne Cay, Bahamas; for Highbourne Cay Yacht Club;** Project Manager responsible for the site/civil engineering services associated with a new residential development on Highbourne Cay, Bahamas. This 500-acre island is a private island in the Exuma Sound, approximately 60 miles south of Nassau. Development includes the design of 6 guest cottages, a new marina bar and restaurant, and planning for 3 private residences on the island. Created contour map using existing survey data, proposed grading and utility plans for six units with driveways and provided site-specific details for roads, curbs and retaining walls.
- **Transmitter Park; Brooklyn, NY; for NYCEDC/NYCDPR/AECOM;** Lead Civil Engineer for this contract involving open space improvements that include a pier, waterfront esplanade, and a waterfront park with the objective of giving the community much needed recreational space, connecting residents to the waterfront. Services included design of park infrastructure and grading, stormwater design and permitting, DEP connection permit and construction phase services, and consultation for the proposed park.

Piero “Pete” V. Mellits, P.E., LEED AP
Site/Civil Engineering Manager

Education:

Bachelor of Science, Civil Engineering Technology, Old Dominion University, 1986

Professional Registrations and Certifications:

Licensed Professional Engineer: Maryland, #21875; Virginia, #0402025104; LEED Accredited Professional

Experience:

Mr. Mellits has over 27 years of engineering experience and as the Site & Civil Engineering Manager he oversees the Maryland operations, as necessary, to include project delivery and business development. His areas of expertise include land redevelopment; land development; land planning, stormwater management, storm drain, water, sanitary sewer, dry utilities, paving design, sediment control, roadway improvement design and surveying; permit processing, bonding procedures and permit releases. Mr. Mellits' project management experience includes residential, commercial, retail, industrial and institutional projects within the public and private sectors.

- **Maryland Live! Casino Hanover, MD;** Principal for the 12 acre site, which received specific legislative zoning. The project includes surveying and engineering efforts from Site Development Plan and Grading Permit Plan through Final Engineering. Additionally, permitting and construction oversight will be completed. This site includes a single story, 115,000 sf specialty building with an attached eight (8) story parking structure for approximately 4,500 parking spaces. Work includes the delineation of on-site roadway modifications (5 intersections) and offsite roadway improvements (6 intersections) including the first Divergent Diamond Intersection in the State. With respect to SWM for these various project areas, the areas were all evaluated for necessary facility upgrades and/or justification that the existing SWM facilities meet the additional SWM requirements for water quality/quantity measures, while honoring the existing facilities in place/operational and other fixed/environmental constraints.
- **Stadium Live! Casino; Philadelphia, PA;** Principal for the 9 acre site, which is subject to specific legislative zoning. The project includes surveying and preliminary site engineering efforts including; partial demolition of the existing structure while preserving the existing hotel 25 story tower, grading, paving and utility designs. This site proposes a single story, 80,000 sf specialty building with an attached six (6) story parking structure for approximately 3,000 parking spaces. Work includes the delineation of on-site roadway modifications adjacent to the site, as well as anticipated offsite roadway improvements. A variety of Best Management Practices are proposed to meet the SWM requirements.
- **Hard Rock Café Promenade Renovation/Expansion, Baltimore City, MD;** Principal for the renovation and expansion of the outdoor promenade; including restaurant access and elevated outdoor seating, to compliment the restaurant pier seating area in the downtown Baltimore Inner Harbor, adjacent to the National Aquarium. The project included bulkhead modifications to facilitate utilities (water, gas and electric) and utility relocations for the construction of the expanded, elevated seating area. The project required specific coordination with BGE for their gas and electric services, the City Water Department given the age and unknowns of the existing lines, and City Permitting.
- **Dick’s Last Resort Restaurant, Baltimore City, MD;** Civil Services Manager for the design, together with the Structural Services group of MEG, to install a 3,000 sf restaurant pier for outdoor seating to compliment the downtown Baltimore Inner Harbor, adjacent to the National Aquarium. The project includes bulkhead modifications to facilitate utilities (water, sewer, gas and electric) to the pier, MDE Permitting, City Permitting and Federal Permitting over the State regulated waters.
- **Ocean Landing; Berlin, MD;** Engineering Manager for the 9-acre site, which is zoned CM (Commercial). The project is currently in preliminary site planning with general engineering efforts to date. It is anticipated that the site will include a fuel station, retail and restaurant uses. Site Development Plan preparation through Final Engineering and Surveying is anticipated.

Piero “Pete” V. Mellits, P.E., LEED AP
Site/Civil Engineering Manager

- **Largo Fairfield Inn Hotel; Largo, MD;** Principal for the 3.6-acre site, which is zoned I-3 and located within the Inglewood Business Park. The project proposes a 4 story, 120 room facility with pool and amenities. The project has progressed through Detailed Site Plan with Final Engineering pending.
- **Kettle Hill; Baltimore City, MD;** Principal for the addition of an outdoor, partially enclosed entertainment structure located within the Market Place/Power Plant Live Plaza area. The structure is in the southwest quadrant of the plaza, just north of the Market/Water Street intersection. The structure will provide covered, outdoor seating for the new restaurant to occupy the former corner restaurant building.
- **Mechanicsville Volunteer Fire Company; Mechanicsville, MD;** Principal for the development of a project site located in the Mechanicsville. The property is approximately 5.0 acres and consists of demolishing the majority of the existing fire station, with the exception of the existing social hall and the parking lot(s) to the north of the site. The new fire station is approximately 31,500 sf of new construction; including office, training, day room, kitchen, bunk room and apparatus bays. Tasks include site planning and layout, grading, erosion and sediment control, stormwater management design utilizing MDE Environmental Site Design guidelines, utility design (storm, sanitary and water), and preparation of other associated land development plans.
- **Piney Orchard Development; Odenton, MD;** Engineering Manager for this project, which evaluated an areas of “sink holes” adjacent to Amber Orchard Court West. The sites lie on the east side of Piney Orchard Parkway and south of Amber Orchard Court West. The tasks included evaluations of the “sink hole” areas and assessments for the reason for numerous sink holes near the existing utilities. Subsequently, we prepared sketches to delineate the recommended repairs and provide associated documents to facilitate the recommended repairs.
- **Crofton Farms Subdivision; Crofton, MD;** Engineering Manager for project that includes the evaluation of an existing townhome condominium development with existing graded yards, which are either poorly draining or do not drain at all with ponding water, to the rear of four (4) townhome strings of units. The site lies on the north side of Carbondale Way, east of Cheyenne Drive and west of Ogden Way. The tasks consist of engineering evaluations and recommendations for a resolution.
- **Crown Farm, Condominium Plats; Gaithersburg, MD;** Engineering Manager in the preparation of condominium plats for two (2) proposed, five (5) story buildings with a total of 107,000 sf of commercial space and a total of 538 residential units above the first floor commercial uses. The buildings are part of a mixed use development over 9 acres of land; proposed “Building A & Parking Structure A” to the west of Ellington Boulevard, within Lot 1 - Block A - 774 parking spaces and proposed “Building B-2 & Parking Structure B” to the east of Ellington Boulevard, within Lot 2 - Block B – 700 parking spaces.
- **Crown Farm Parking Garage, Condominium Plats; Gaithersburg, MD;** Engineering Manager in the preparation of condominium plats for single proposed five (5) story building with a total of 738 parking spaces to serve residential and retail uses. The building is part of a mixed use development over 9 acres of land; proposed “Building C2” to the west of Ellington Boulevard, within Lot 2 - Block A.
- **Town & County Movers; Gaithersburg, MD;** Engineering Manager for the proposed 31,820 sf commercial in-fill, moving and storage warehouse. The warehouse will be for storage only. Minimal offices are intended to be incorporated within the proposed structure. The property is currently an open graveled parcel with a zoning of I-4 (Light Industrial). The Lot is approximately 2.1 acres. Tasks include site planning and layout, grading, erosion and sediment control, stormwater management bioretention and permeable paver/pavement design utilizing MDE Environmental Site Design guidelines, utility design (storm, sanitary and water), paving; and the preparation of other land development plans, while honoring the existing neighboring developments and other fixed/environmental constraints.

W. Richard Mahoney, P.E.
Senior Associate – Structures Division

Education:

Bachelor of Architectural Engineering, The Pennsylvania State University, 1971

Registration:

Professional Engineer: New York 54101; New Jersey GE31085; Maryland 29631; Delaware 14874

Societies:

American Society of Civil Engineers; Structural Engineers Association of New York (SEAoNY)

Experience:

Mr. Mahoney has more than 40 years of experience in structural design, engineering, quality control, and project management. His experience includes high and low-rise buildings, office complexes, museums, hotels, hospitals, libraries, performing arts centers, parking facilities, marine terminals and mixed-use facilities. He is experienced in managing large, complex, multi-discipline projects as represented by the following assignments:

- **Maryland Live! Casino; Arundel Mills, MD;** Structural Engineer provided structural design services including schematic design, design development, preparation of construction documents, and provisions of construction administration for the development a 10 ± acre site on the west side of the Arundel Mills Mall property. The proposed structure contains approximately 310,000 square feet of Casino space on the north end of the site and a 6-level garage for approximately 4,500 cars above the casino.
- **Foxwoods Retail Outlets; Mashantucket, CT;** Senior Engineer for the structural design of a 370,000 square foot retail outlet center addition to the Foxwoods Casino complex. Structural design consists of a conventional structural steel frame with composite floor slabs, concentrically braced frames, and shallow and deep foundations. The outlet center connects into the MGM Grand Casino at the north end, bridges over the road and bears on the rock hill across the casino; and bridges over the road again to connect into the Grand Pequot Casino at the south end.
- **Ritz-Carlton; Rose Island, Bahamas;** Quality Control Manager responsible for the structural design review of this seven-story post-tension concrete hotel structure and amenity structures. Participates in review sessions with architect, mechanical, electrical and plumbing engineers.
- **164 Kent Street; Williamsburg, NY;** Project Manager responsible for providing gravity and lateral analysis (utilizing ETABS and SAFE) for a 32-story concrete tower, six-story podium structure, and three-story parking garage during schematic and design development phases. Also designed slabs, columns, and piles. Attended project coordination meetings with architect and owner.
- **Waterside Plaza Building Condition Assessment; New York, NY; for Waterside Plaza;** Project Manager for the due diligence condition survey of the entire Waterside Plaza building. Survey included a visual evaluation of approximately 25% of piles, pile-caps and pre-cast slabs of the foundation system, and approximately 25% of the slabs, beams, columns and walls of the superstructure to obtain adequate information to allow us to offer an opinion of the structural condition of all the buildings in the complex and their foundations. The condition survey of the residential structures included the common areas, back of house areas and four (4) representative residential units in each of the four (4) tower buildings.
- **City Center Mall; White Plains, NY; for Cappelli Development Group;** Project Manager for a 35-story mixed-use retail and residential use complex including 650,000 s.f. of retail space and three
- **World Trade Center, Tower One Cable Net Wall; New York, NY;** Structural Engineer for the design and detailing of the \$12 million entranceway cable net walls and the supporting stainless

W. Richard Mahoney, P.E.
Senior Associate – Structures Division

steel canopy and jamb plate structure on each of the four sides of the building. The cable net walls and entrance canopies were designed to take a significant blast force due to the high profile nature and history of the site. At over 60 feet tall, the four entry walls are highly visible and therefore made of custom built-up stainless steel shapes with plates up to 2" thick. Nearly every piece of the structure is a custom engineered and manufactured element that requires tolerance of one quarter of that allowed for typical steel construction.

- **PSAC II Metal Panel Façade/Curtainwall; Bronx, NY; for Island International Exterior Fabricators;** As Structural Engineer, provided design services for the fabrication and installation of a new metal panel façade system for the Public Safety Answering Center II (PSAC II). The new façade for the tower structure consists of a complex, sawtooth-shaped composite aluminum panel system supported by aluminum tube backup frames and window washing system tracks, both of which are supported from the building's exterior reinforced concrete walls. The design of the metal panel façade accounts for gravity loads, wind loads, and seismic loads.
- **Colonie Center Expansion & Redevelopment; Albany, NY;** Project Manager responsible for the structural design of a new 74,000 sq. ft. structure on the third floor above the roof of the existing Colonie mall to house a Regal Cinema multiplex theater. The structural design included a new project mezzanine, third level framing as required, a new roof structure, a new lateral system for the altered portion of the building and the reinforcement of foundations and structural steel beams, columns, connections as required. The project also encompasses the design of a 20,000 sq. ft. addition to a Barnes & Noble Bookseller on the ground level.
- **Battery Park City Ferry Terminal; New York, NY;** Quality Assurance/Quality Control Engineer for the structural design of this 32,000 square foot floating terminal valued at \$40 million in construction cost. Responsible for the conformance of all report and design documents to the Port Authority's policies, procedures and specifications.
- **University of Delaware Center for the Performing Arts; Newark, DE;** Project Manager responsible for the foundation and structural engineering design services associated with this new 90,000 s.f. Performing Arts Center, which includes 3 performance halls, 2 practice halls, a 450-seat proscenium theater, a 300-seat orchestra rehearsal hall, a 200-seat recital hall, lobby, practice rooms and supporting spaces.
- **Concord Hotel and Resort; Lake Kiamesha, NY;** Senior Engineer for structural engineering and design development services for a large-scale Hotel and Resort complex. The project is broken into three primary aspects – Concord Monster Golf Clubhouse, a two-story, 60,000 sq. ft. structure; Concord Spa/Hotel, which consists of two buildings and approximately 197,000 sq. ft.; and Concord Downs Grandstand/Clubhouse, Paddock Building & Maintenance Storage Building, which comprise various facilities and amenities.
- **LIRR Jamaica Station Headquarters Structural Rehabilitation;** Senior Engineer for the structural rehabilitation, design and construction phase services associated with the exterior rehabilitation of the Jamaica Station Building. Services include structural inspection, material testing, preparation of a rehabilitation report, structural and architectural design, painting, and lighting upgrades.
- **Trump Parc; Stamford, CT;** Project Manager for peer review of structural designs for 38-story post-tensioned concrete condominium tower.
- **Trump Plaza; New Rochelle, NY;** Project Manager for peer review of structural designs for 43-story post-tensioned concrete condominium tower.

Thomas James Crawley, P.E.
Civil Engineer

Education:

Bachelors of Science Civil Engineering, Brucknell University, Lewisburg, PA 2003

Professional Registrations:

Professional Engineer: Pennsylvania #075789; Maryland #38633

Software:

AutoCAD Civil3D 2009 & 2011; Auto CAD Land Desktop Companion 2009, AutoCAD Land Desktop 2004/2005; AutoTURN; StormCAD V8; Hydraflow Hydrographs 2009; Hydroflow Express; Hydroflow StormSewers; HEC-RAS; HY-8, VTPSUHM 7, WIN TR-20, Microsoft Office; Adobe Acrobat Standard.

Experience:

Mr. Crawley's is a civil engineer with 10 years of experience. His experience encompasses design of commercial, residential and industrial land development projects for both private and public sector clients, as well as watershed hydrology and hydraulic analysis, flood studies using HEC-RAS, subdivision layout, roadway and streetscape design, horizontal and vertical roadway geometry, site grading, storm and sanitary sewer design, erosion and sediment control, storm water management, water quality best management practices, and plan preparation, zoning plans, development of preliminary and final land development plans and permit authorization packages. Representative projects include:

- **Maryland Live Casino, Arundel Mills; for Cordish Company;** Civil Engineer involved with the site civil engineering services for the development of Arundel Mills Maryland Live! Casino. Specific project tasks include the re-design of on-site and off-site roadway improvements which include Public Off-Site Traffic/Roadway Improvements, preparation of schematic sketches, Public Roadway Improvement Plans, a formal permit submission package, and permit applications; Field Run Topographic Survey for all of the proposed Public Off-Site Traffic/Roadway Improvements; preparation of a schematic and final Public Storm Water Management Plans as well as a field survey and final grading permit plans for the Offsite BGE Conduit Extension (Approximately 600 LF) for submittal to BGE and Anne Arundel County Permit Application Center.
- **Live – Hotel & Casino – Stadium District, Philadelphia, PA; for The Cordish Company;** Staff Engineer for the schematic site/civil engineering and final site/civil engineering for a World Class Gaming Casino and Entertainment facility at the northern portion of the property Philadelphia Stadium District property. The new facility consists of approximately 1.4 million square feet of space that consists of renovated hotel, hotel amenities, casino gaming floor, restaurants, live entertainment venue, and structured parking. Project tasks included Pre-License Schematic Design, Design Development; Construction Documents, and Construction Phase Services.
- **Planning and Site/Civil Engineering Services at LPC AA Site; Anne Arundel County, MD; for Lincoln Property Company;** Civil Engineer involved with the Site/Civil Engineering services associated with a feasibility study for the development of a commercial site to include flex-warehouse / office uses. The study will be used to determine the development options and high-level development constraints for the parcel of land located within Anne Arundel County, Maryland. The site lies on the east and west sides of Race Road, north of MD Route 100 and south of Park Circle Drive. The property is an assemblage of lots and is approximately 17-18 acres of wooded area with some environmental features such as wetlands. The Feasibility Study includes Zoning/Land Use Assessment, Environmental (wetlands, etc.) Assessment, Existing Topography

Thomas James Crawley, P.E.
Civil Engineer

Assessment, Existing (Built) Conditions Assessment, Existing Utility Assessment, Existing Access Assessment, Adjacent Land Use Identification and Use Options / Recommendations.

- **Surveying, Planning and Civil Engineering Services at 34 Market Street; Baltimore, MD;** Civil Engineer involved with the civil, structural and electrical design services for the addition of an outdoor, partially enclosed entertainment structure located within the Market Place / Power Plant Live Plaza area. The new structure is located in the southwest quadrant of the plaza, just north of the Market Street and Water Street intersection. Project tasks include design development, preparation of construction documents, permit support and construction administration services.
- **Surveying, Planning and Site/Civil Engineering Services at 213 West Street; Annapolis, MD; for Bozzuto Homes Inc.;** Civil Engineer involved with the Site/Civil Engineering services for the redesign of the project from 7 single family dwelling units and a condominium building to 5 single family dwellings, 1 duplex dwelling and 22 traditional townhomes. The project site is located in the City of Annapolis within Anne Arundel County, Maryland. Project tasks include Surveying, Planning, Final Site Engineering, Construction Support and Construction Stakeout Services.
- **Tri Town EMS-Site Engineering; Westernport, MD; for Manns Woodward Studios;** Site/civil engineer providing surveying and planning services including site planning and layout, grading, erosion and sediment control, stormwater management design utilizing MDE Environmental Site Design guidelines, utility design (storm, sanitary and water), and preparation of land development plans.
- **Laytonsville Fire Department - Site Engineering; Gaithersburg, MD; for Manns Woodward Studios;** Civil Engineer involved with the engineering services associated with the expansion of the fire station which included a 2,500 sf building addition, additional parking area, and relocated of a drive isle. The project also provides reallocated space for administrative, residential and training uses. Tasks include site planning and layout, grading, erosion and sediment control, stormwater management bioretention design utilizing MDE Environmental Site Design guidelines, utility design (storm, sanitary and water), paving; and the preparation of other land development plans.
- **Montgomery County Air Park; Gaithersburg, MD; for Rickenbacker Associates, LLC; Staff Engineer involved with the** Surveying, Planning and Site/Civil Engineering Services required for the Town & County Movers at Montgomery Airpark. Project tasks included Survey Services, Planning Services, Final Site Engineering Services, and Construction Services.
- **Carroll Island Shopping Center (Baltimore County, MD); for Carroll Island Associates;** Staff Engineer for preliminary engineering related to partial redevelopment of an existing shopping center in Baltimore County, MD containing an existing Wal-Mart and strip shopping center building. Owner plans to provide space for expansion of the existing Wal-Mart into a Super Center. Tasks included site layout and design, preparation of red-lined plans for the Baltimore County Development Review Committee review/approval process, preparation of a Stormwater Management Concept Plan, and coordination of the County submission/approval process.
- **Harbor Point, Baltimore, Maryland; for Beatty Development Group, LLC;** Staff Engineer involved with the site/civil engineering services associated with the development of a site that lies within the Harbor Point Redevelopment Area. Project tasks included Field Survey Services, Lot Consolidation Record Plat (Horizontal); Lot Consolidation Record Plat Rendering; Land Condominium Plat(s)/Condominium Regime; Reciprocal Easement Agreement (REA) Exhibit & Description; and P2 Holdings Parcel.

Luke Daur, P.E., LEED AP
Senior Civil Engineer

Education:

Bachelor of Science, Civil Engineering, Manhattan College, 1989
US Navy Civil Engineering Corp Training 1992 (6 months)

Professional Registrations and Certifications:

Professional Engineer: New York, 090149 – 2012; LEED Accredited Professionals (LEED AP), 2009

Experience:

Mr. Daur holds a BS degree in Civil Engineering, PE license in NY and is a LEED Accredited Professional, he has 20 years of experience in a wide variety of site development and design projects in which he has supervised the design, field investigations and construction management of a wide range of construction activities. He possesses in-depth knowledge in civil, geotechnical and structural design, inspection and evaluation, drainage/water filtration, local and state permitting, and utility design and contract administration. His expertise includes foundation design, retaining wall design, bulkheads, slope stability, consolidation settlement, dam inspections, computer modeling and design recommendations for deep foundation support of piers and structures, forensic analysis of structural settlement, design of surcharging program, mass fill placement and compaction, laboratory testing and analysis of soil samples and pavement design. His experience and training in the US Navy (Civil Engineering Corp), as well as his practical experience in the civilian engineering world gives him a large pool of experience and knowledge in all aspects of the engineering industry. Representative projects include:

- **Arundel Mills Maryland Live! Casino; for Cordish Company;** Site/Civil/Geotechnical Engineer for the re-design of the Casino Building and the design of on-site and off-site roadway improvements relative to the proposed Maryland Live! Casino. Mr. Daur was involved with the preparation of schematic sketches, public roadway improvement plans, a formal submission package, and permit applications, field run topographic surveys, preparation of a schematic and final public stormwater management plans, permitting and construction administration.
- **White Plains Hospital Renovations and Reconstruction Project; for White Plains Hospital Center;** Civil Engineer associated with the full Site/Civil engineering services for the renovations and reconstruction of the White Plains Hospital Center. Services includes the preparation of the preparation of Site Plan Approval Drawings (including Site Grading and Utility Plans, Sediment and Erosion Control Plans, Stormwater Management/Water Quality drawings and details, Staging and Phasing Plan as well as Site Lighting Isometric drawings), preparation of a full Environmental Assessment Form (EAF), Stormwater Pollution Prevention Plan, NYSDEC SPDES Site Inspections, preparation of Construction Documents and Construction Support Services.
- **Briarcliff Senior Housing; Briarcliff Manor, NY; for Briarcliff Manor Investors, LLC;** Project Manager for the development of a Continuing Care Retirement Community (CCRC) plan at the former Kings College site in Village of Briarcliff Manor. Mr. Daur performed calculations, was involved with stormwater management, and provided utility design support for the 58-acre site, which features considerable terrain, drainage and utilities challenges and will include 385 units of independent and assisted living space when complete.
- **Mountainview at Valhalla; Mt. Pleasant, NY; for Mountainview NY, LLC;** Civil Engineer for the design of a 48-unit age restricted residential development. Responsibilities include hydraulic calculations, utility layout and stormwater management. Other services provided included environmental studies and permitting, traffic studies and preparation of contract drawings in accordance with NYSDOT requirements and standards.

Luke Daur, P.E., LEED AP
Senior Civil Engineer

- **Transmitter Park; Brooklyn, NY; for NYCEDC/NYCDPR/AECOM;** Lead Design Engineer for this contract involving open space improvements that include a pier, waterfront esplanade, and a waterfront park with the objective of giving the community much needed recreational space, connecting residents to the waterfront. Services included design of park infrastructure and grading, stormwater design and permitting, DEP connection permit and construction phase services, and consultation for the proposed park.
- **Roseland Port Imperial, Bldgs. 2 & 3 Settlement Monitoring; West New York, NJ; for Roseland Properties;** Civil Engineer assigned to the subsurface investigation involving soil borings, soil testing, surveys and installation of two inclinometers. Observed and coordinated all fieldwork. The project goal was to provide additional monitoring to confirm the stability of Buildings 2 & 3.
- **Kraft Foods Facility Drainage Study; Tarrytown, NY; for Kraft Foods;** Lead Civil Engineer for this contract who performed a drainage study in order to investigate flooding, which occurred at the Kraft Foods facility. Included development of alternate solutions to alleviate or minimize the flooding, including design of trash racks for culverts, as well as topographic survey services.
- **Engine No. 12 Drywell and Drainage Repair; Yonkers, NY; for City of Yonkers Department of General Services** Civil Engineer for drainage repairs and improvements at the Engine No. 12 Firehouse, 75 Fortfield Avenue in Yonkers. Responsible for site visits and the provision of preliminary design drawings for defective basement floor drains and existing exterior drywells. Also responsible for providing a field report describing system defects and related repair recommendations. The overall project goal was to improve the operation of basement floor drains and minimize water seepage into the basement.
- **Mercy College Gabion Wall Monitoring West Parking Lot; Dobbs Ferry, NY;** Civil Engineer involved with the engineering services necessary to monitor the movement of the two (2) gabion retaining walls at the east and west side of a newly paved parking lot at the western side of the Mercy College campus. The eastern gabion wall is approximately 600 feet long and the western gabion wall is approximately 700 feet long. The monitoring of these walls required establishing permanent markers on the walls, an initial survey of the markers, a second survey at a one-week interval to establish a base line for the survey values and then periodic surveys at one-month intervals. Services included plotting the movement, in a graphical form, which would show movement trends. Project task also included the preparation of a letter with graphs detailing our opinion concerning movement of the walls after each periodic survey.
- **Emergency Engineering Response at 41-57 Waterview; Staten Island, NY; for New York City Department of Buildings;** Civil Engineer assigned to the emergency engineering response team for the erosion of an earthen slope and collapse of a retaining wall supporting a multi-family residential building. The primary goal was to stabilize the slope where the wall collapsed in order to prevent further damage and eliminate the risk of building movement. Also performed routine surveys to ensure emergency crews were not in jeopardy. Prepared permitting, soil boring logs and a report recommending allowable bearing pressure, foundation type, groundwater elevations, and specifications for the placement of fill or working of soils. In addition, designed a long-term solution for the residence that complied with local and federal regulations.
- **West Nyack Library Parking Lot Expansion;** As Lead Civil Engineer, prepared construction documents of the proposed drainage improvements. The document plan included details and specifications required for the construction of the improvements. He prepared the necessary building permit application and submitted it to the Building Department. He also provided construction assistance on an as requested basis.

Bradford E. Fallon, EIT
Structural Engineer

Education:

B.S. Civil Engineering, University of Maryland, 2010

Professional Registration:

Engineer-In-Training: Maryland 2010

Experience:

Mr. Fallon's experience includes structural engineering analysis and design. His experience includes detailed design of the structural systems and the preparation of contract drawings and specifications. He is frequently involved in the review of shop drawings and submittals, and makes periodic site visits during the construction administration phase of work. Mr. Fallon has worked on facilities ranging from Aquariums to multi-story medical, residential and mixed-use structures, as well as power plants, pedestrian bridges and casinos. Representative projects include:

- **Arundel Mills Maryland Live! Casino; Hanover, MD; for Klai Juba Architects;** Junior Structural Engineer for the structural design services including schematic design, design development, preparation of construction documents, and provisions of construction administration for the development a 10± acre site on the west side of the Arundel Mills Mall property. The structure contains approximately 310,000 sq ft of Casino space on the north end of the site and a 6-level garage for approximately 4,500 cars above the casino.
- **Arundel Mills Maryland Live Casino – Civil; Hanover, MD; for The Cordish Company;** Junior Engineer involved with the on-call structural design services for the site civil engineering program for the development of Arundel Mills Maryland Live! Casino. Specific project tasks include the design of a custom storm drain inlet cover to withstand HS-20 truck loading.
- **Maryland Live! Casino - Poker Room Addition; Hanover, MD; for Klai Juba Architects;** As Project Manager provided a comparative analysis of alternate framing schemes, based upon preliminary drawings; developed of a subsurface exploration plan; assisted in developing details for curtain wall and facade system; and assessed appropriate construction materials and methods. Designed spread footing foundations. Provided observation visits during construction to assist in quality control, coordination, and conformance with drawings and specifications, but do not guarantee Contractor's performance.
- **Philly Live! - Structural Engineering; Philadelphia, PA; for The Cordish Company;** Junior Structural Engineer involved with the structural engineering design services for the re-develop an approximately 18 acre site on the Philadelphia Sports Complex property. The structure contains approximately 559,110 sq ft of mixed-use space, 257,245 sq ft of Retail Space on the Ground Level; 107,726 sq ft of Retail Space on the 2nd Level; a 44,139 sq ft of Hotel Amenities on the Ground Level and 150,000 sq ft of Hotel Space above the 1st Floor and surrounds a covered open air Live! Plaza. Mr. Fallon was involved in the following phases of this project: schematic, preparation of construction documents, and construction administration.
- **Stadium Casino - Hotel & Casino - Structural; Philadelphia, PA; for The Cordish Company;** Junior Structural Engineer for the structural design services including schematic design, design development, preparation of construction documents, and provisions of construction administration for the development multi-level casino and parking garage in Philadelphia's stadium district. The proposed structure contains approximately 150,000 sq ft of Casino space and a separate 7-level garage to be constructed around an existing 11-story hotel tower
- **Power Plant Live! Renovation; Baltimore, MD; for The Cordish Company;** Junior Structural Engineer involved with the structural design services necessary for the renovation of the existing

Bradford E. Fallon, EIT
Structural Engineer

Power Plant Live site. Modifications include moving the driving circle to the north so that it encircles an existing fountain, re-work the outdoor bars on the plaza, provide a new performance stage, open up the Unit 6 Building on the west and south facades to permit more interaction between indoors and outdoors, re-work the interior to permit multiple tenants, the addition of a new pavilion building and new bathroom building. Project tasks include schematics/field investigation, design development, preparation of construction documents and construction administration services.

- **Towson Square Parking Garage; Towson, MD; for The Cordish Company;** Junior Structural Engineer for a three level precast parking garage with structural steel cap platform to interface with a cinema theatre building designed by others. Provided construction administration services to respond to contractor requests for information & review of precast concrete design calculations and corresponding shop drawings for compliance with design criteria. Additionally, Mr. Fallon was involved in the structural design and engineering services for two separate low-rise retail buildings on the north end of the property, providing design development and construction document packages
- **Towson Square Retail Pads B2 & C; Towson, MD; for Curry Architects;** As Junior Structural Engineer, involved in the structural design and engineering services for two proposed low-rise restaurant buildings in the Towson Square retail complex. The scope of services includes the preparation of design development and construction documents, as well as construction administration services for both buildings.
- **1760 Greenspring Valley Road Retaining Wall; Owings Mills, MD; for The Cordish Company;** Junior Structural Engineer involved with site visits to assess conditions as well as soils testing to determine lateral earth pressure for design of new site retaining wall. Slope stability analysis was performed based on results of soils testing and topography of site to determine its impact on wall construction type selection and design of selected wall type. Signed drawings for the new site retaining walls that separates main house parking from wooded area at the northwest side of the residence was prepared to the level of detail suitable for obtaining building permit and competitive bids.
- **Phillips Restaurant – Power Plant Landord; Baltimore, MD; for The Cordish Company;** Junior Engineer tasked with the design & preparation of an infill composite steel floor framing system as part of landlord improvements to a restaurant space in Baltimore, MD
- **Spirit of Baltimore; Baltimore, MD; for Entertainment Cruises, Inc.;** Junior Structural Engineer involved with the site visit and assessment of the finger pier at the west end of Baltimore Harbor to provide docking and mooring of the Spirit of Baltimore. Project tasks included the preparation of a written assessment that will determine if the pilings, pier, fender system and mooring hardware are adequate or if these items need improvement or augmentation.
- **Electrical Distribution and Structural Engineering Services for the FMC Renewable Energy Plant-Electrical; Baltimore, MD; Energy Answers International;** Junior Structural Engineer involved with the engineering services required for the development of a large renewable and alternative energy electric generating plant in the Fairfield area of Baltimore City. The electric generation plant will be connected to the BGE transmission system by a new 115,000 volt, 4.2 mile long underground transmission line to be constructed from the Fairfield plant site to BGE's Pumphrey substation in Baltimore County. Mr. Fallon provided engineering support for the subsurface boring investigation of the new transmission line.

Shing-Wai Chris Leung, LEED AP Civil Engineer

Education:

Bachelor of Engineering, Civil Engineering, Ryerson Polytechnic University, 1999

Professional Registrations and Certifications:

LEED Accredited Professionals (LEED AP), 2009

Professional Societies:

American Society of Civil Engineers

Experience:

Mr. Leung has over 5 years experience in site/civil engineering inspection and design for commercial and residential developments. His experience encompasses grading and drainage design for both new and redesigned sites. Mr. Leung is proficient in the use of Land Development Desktop (LDD), PondPack, and HEC-RAS software applications. He has a particular interest in city, urban, and master planning for commercial and residential development. Representative projects include:

- **Arundel Mills Maryland Live! Casino; for Cordish Company;** Site/Civil Engineer for the re-design of the Casino Building and the design of on-site and off-site roadway improvements relative to the proposed Maryland Live! Casino. Mr. Leung was involved with the preparation of schematic sketches, public roadway improvement plans, a formal submission package, and permit applications. He will oversee field run topographic surveys, preparation of a schematic and final public stormwater management plans, permitting and construction administration.
- **Harbors at Haverstraw; Haverstraw, NY; for Ginsburg Development Companies, LLC;** Civil Engineer for this waterfront site development project, which includes marina development, geotechnical engineering, bathymetric survey of the shoreline, shoreline investigation and assessment, and shoreline design alternatives. Mr. Leung coordinated with upland civil engineers and performed design services for the promenade walkway.
- **Work Dock Relocation; Weehawken and Hoboken, NJ; for New York Waterway;** Site/Civil Engineer for the development of a new state-of-the-art working facility for the repair and maintenance of ferry vessels. Mr. Leung is involved with dredge volume calculations for the new facility's design options.
- **Rockland Community College, New Technology Center; Suffern, NY; for Einhorn Yaffee Prescott/ Rockland County Department of General Services;** As Civil Engineer, provided site design services for this project, which involved the design of a new three-story structure with a 30,000sf footprint.
- **Maxwell House Waterfront Site Development; Hoboken, NJ;** Civil Engineer for this project which involved the conversion design of the former Maxwell House coffee industrial site to a residential mixed-use facility. Mr. Leung provided grading design, sewer redesign and permitting services.
- **111 & 114 Hale Condos; White Plains, NY;** Civil Engineer for this development project, which comprised two 10-story residential condominium complexes each with their own multi-level underground parking garage. Mr. Leung performed a zoning analysis and designed the preliminary site plan.
- **Riverwalk, Geotechnical, Port Imperial; West New York, NJ; for Roseland Property Company;** Civil Engineer responsible for generating contour lines for bedrock profile and plan view as well as for assisting in developing drawings to define soil layers using Land Development Desktop.

Shing-Wai Chris Leung, LEED AP
Civil Engineer

- **Pompton Plains Reformed Church; Kinnelon, NJ; for Pompton Plains Reformed Church;** Civil Engineer for site design of a new church for the local community. Mr. Leung participated in town planning board meetings and provided site design and septic field design services.
- **Central Nyack Storm Drain Project; Central Nyack, NY; for Town of Clarkstown Department of Environmental Control;** Civil Engineer for this project which involved site/civil services to modify, improve, and correct the existing storm drain system due to drainage deficiencies. Mr. Leung provided detention pond design and design of onsite drainage improvements using PondPack, HydroCAD, and HEC-RAS. The drainage improvements include the construction of a detention basin, upgrading the existing storm drainage system and repair/improvement of the existing streets. The total Project area for the new detention basin and the street drainage improvements will be approximately 17.5 acres
- **Quaspeck Park Storm Drain Project; Valley Cottage, NY; for Town of Clarkstown Department of Environmental Control;** Civil Engineer for this project which involved site/civil services to improve the existing storm drain system to eliminate drainage deficiencies. Mr. Leung designed improvements to the drainage infrastructure using PondPack and HydroCAD.
- **Structural Evaluation of Crane Installations; for New York City Department of Buildings;** Serves as Civil Engineer/ Inspector at various locations throughout New York City. Site observations include: tower crane erections, routine inspections of tower mast, tie-ins to the building and mast foundations; tower crane mast jump up and jump down including the installation/dismantling of tie-ins, and tower crane disassembly.
- **Mountainview at Valhalla; Mt. Pleasant, NY; for Mountainview NY, LLC;** Civil Engineer for the design of a 48-unit age restricted residential development. Services being provided by McLaren include environmental studies and permitting, traffic studies, stormwater management studies and design, and preparation of contract drawings in accordance with NYSDOT requirements and standards.
- **Briarcliff Senior Housing; Briarcliff Manor, NY; for Briarcliff Manor Investors, LLC;** Civil Engineer for the development of a Continuing Care Retirement Community (CCRC) plan at the former Kings College site in Village of Briarcliff Manor. The 58-acre site, which features considerable terrain, drainage and utilities challenges, will include 385 units of independent and assisted living space, critical care, townhouses, villa homes, and various recreation facilities when complete.
- **Kraft Foods Facility Drainage Study; Tarrytown, NY; for Kraft Foods;** Lead Civil Engineer for this contract who performed a drainage study in order to investigate flooding, which occurred at the Kraft Foods facility. Included development of alternate solutions to alleviate or minimize the flooding, including design of trash racks for culverts, as well as topographic survey services.
- **Vessel Siting Study; Beacon, NY; for City of Beacon;** As Civil Engineer, Mr. Leung assisted in the study and assessment of the City of Beacon's Harbor Management Plan. The Plan defines how the Beacon Harbor could accommodate research vessels, vessel facilities, and a docking pier associated with the addition of a state-of-the art research center. McLaren is assessing the potential locations of the research vessels and their facilities, performing site and environmental studies, selecting a preferred location, obtaining regulatory permits and approvals, and designing the associated vessel facilities and pier.

Nathan D. Shuman, P.E.
Senior Engineer

Education:

Bachelor of Architectural Engineering, Pennsylvania State University, 2001

Professional Registration:

Licensed Professional Engineer: Pennsylvania PE074350; New York 086727-1

Training/Certification:

NYC Suspended Scaffolding Course

ICC Certified - Structural Steel and Bolting Special Inspector; Structural Welding Special Inspector

Computer Software:

RAM Steel and RAM Frame, SAP 2000, ETABS, SAFE, PCA Column, Beam and Slab, ADAPT PT and APAPT RC, AutoCAD

Experience:

Mr. Shuman is a structural engineer with over 14 years of experience in the structural design of buildings, bridges, marine structures, specialty façades, blast mitigation, forensic analysis and construction administration for such projects. His work has included new building design, renovation, static and dynamic computer modeling, linear and non-linear gravity and lateral analysis, construction documents, construction administration, and site inspections. Project experience ranges from design of a 200-story residential building in Dubai to reinforcement of the Empire State Building to meet current building codes. Representative projects include:

- **Maryland Live! Casino, Hanover, Maryland @ Arundel Mills Mall (Anne Arundel County);** Mr. Shuman served as Lead Project Engineer for the 1,700,000 sq ft building. The building is comprised of a 115,000 sq ft steel framed casino ground floor with a six (6) story precast concrete parking structure above the casino. The casino structure is 300 feet wide by 1,000 feet long and provides approximately 4,500 parking spaces. His duties included working closely with the Construction Management Team and Design Team during design to find a mix of steel framing with precast concrete to provide optimum cost efficiency for the parking garage while allowing for a steel framed casino below with speed of construction as a driving force due to the Owners demand of a very aggressive open date. Other duties included designing the buildings structural systems, managing the preparation of detailed Construction Documents, and management of the Construction Administration.
- **Concord Monster Golf Clubhouse; Lake Kiamesha, NY; for New Concord Development;** Senior Structural Engineer for the design services of this 2-story building with locker rooms, banquet rooms, restaurant and other support areas and is approximately 60,000 square feet in area. Provided a comparative analysis of alternate framing schemes, and an assessment of appropriate construction materials and methods. Assisted in developing details for curtain wall and facade system. Designed spread footing foundations, and lightgauge metal framework for canopies and soffits. Also provided construction administration services.
- **Foxwoods Hotel and Casino; Mashantucket, CT;** Structural Engineer responsible for various design facets of a 30-story post-tensioned concrete hotel tower, with 825 rooms and a gross area of approximately 600,000 sq. ft. Designed the columns for the full height of the building; conventional flat plate slabs at lower floors; and building's shear wall lateral system, including the concrete "hat beam" at the peak. Also provided construction administration for the intricate shear wall reinforcement and prepared construction documents.
- **Mt. Airy Resort and Casino; Poconos, PA;** Project Engineer responsible for managing the design team and coordinating with the architect and other consultants during the design and construction

Nathan D. Shuman, P.E.
Senior Engineer

phases for this \$90 million casino complex. Was involved with the structural design of the seven-story steel and plank hotel and the two-story casino, which is supported by the hotel. Also directed the construction administration phase, a key role because the design and construction was to be completed in less than 18 months.

- **Revel Resort & Casino; Atlantic City, NJ;** Project Engineer responsible for management of the design production team for the twin 55-story Reinforced Concrete hotel buildings, totaling 3.6 million sq. ft. of usable floor space and a 1.4 million sq. ft. steel framed casino. Other duties include layout, analysis, and design of the coupled shear wall system; and preparation of conceptual and schematic design documents for post-tension and filigree floor design, column design and shear wall lateral system. Composite link beams were used at every floor, to account for the hallway through the center of the building, to tie shear walls together. Coupled with a composite “hat beam” at the roof, the two walls effectively worked as one uniform wall 68’ deep.
- **World Trade Center, Tower One Cable Net Wall; New York, NY;** Project Manager for the design and production of detailed shop and fabrication drawings. He designed the stainless steel structure, connections and attachment to the building. He provided oversight for the linear, time-history analysis of the structure for the blast loading, the preparation of design drawings, preparation of the erection sequence design and shop drawings. This project encompasses the design and detailing of the \$12 million entranceway cable net walls and the supporting stainless steel canopy and jamb plate structure on each of the four sides of the building. Nearly every piece of the structure is a custom engineered and manufactured element that requires tolerance of one quarter of that allowed for typical steel construction.
- **Jamaica Station Headquarters Facade Rehabilitation; for Long Island Railroad;** Structural Engineer for the facade rehabilitation (including extensive terra cotta repairs/replacement), design and construction phase services associated with the exterior rehabilitation of the Jamaica Station Building. Services include facade inspection, material testing, preparation of a rehabilitation report, structural and architectural repairs and design, painting, and lighting upgrades.
- **Long Branch Pier & Millennium Pier; Long Branch, NJ; for City of Long Branch;** This project includes the inspection, survey, marine and structural engineering services needed to design and construct a new, \$89 million oceanfront pier in Long Branch, New Jersey. The pier will include multi-functional retail and entertainment space, a learning center, a ferry terminal providing commuter access to New York City and incorporating renewable energy resources. The pier is a critical aspect of the City’s redevelopment plan, which will enhance its identity as a premier United States destination. Mr. Shuman has provided structural oversight for the design and constructability of the massive structure required to provide a safe harbor for a ferry terminal nearly 1000 feet into the ocean with wave depths of over 50 feet.
- **One Seaport Square Facade Design; Boston, MA; for Permasteelisa North America Corp;** Technical Director and Quality Assurance Manager for the fabrication and installation of the vertical parallel cable wall for the main entry on the north and northwest corner of the building. As part of the design assist phase, MEG assisted the building architect and engineer with providing supplementary reinforcing and framing to support the large forces from the cable system (as much as 100,000 pounds). Mr. Shuman provided oversight and QA reviews of the analysis and design of the cable wall system, insulated glazing units, stainless steel portal frames and connections of the specialty façade elements to the base building. This work also included assisting the fabricator in creating shop and erection drawings and determining the erection sequencing and jacking procedures for installing the cable system.

Jon Skinner, PE
Staff Engineer

Education:

Bachelor of Science, Civil Engineering, Arkansas State University, 2008

Registration:

Professional Engineer: Arkansas 15420

Certifications:

ICC Certified Structural Steel and Bolting Special Inspector

Software:

SAP 2000, SJ MEPLA, WinGard, ETABS, SAFE, RAM Structural Systems, RAM Connection, RISA 3D, ANSYS, Revit, Inventor, AutoCad, AutoCad Structural Detailer, STAAD Pro, Matlab, Visual Basic

Experience:

Mr. Skinner is an engineer whose responsibilities include a wide scope of building design, blast mitigation, forensic analysis, specialty facades and diverse projects in the entertainment field. Primary responsibilities include new building design, specialty façades, computer modeling, performing static and dynamic analysis of complex structures, gravity and lateral analysis, construction documents, construction administration, site visits and project management. Representative projects include:

- **Maryland Live Casino and Parking Structure; Hanover, MD;** Staff Engineer for this \$190 million project consisted of a 6-story precast concrete parking garage over top of a 300,000 sq ft steel framed casino with a steel framed partial basement housing the BOH spaces. The casino structure is 300 feet wide by 1,000 feet long and the gross area of the parking garage above is approximately 1,700,000 sq ft. The aggressive schedule called for a fast track process that included design and construction to be completed in 13 months. Mr. Skinner worked closely with the Construction Management Team and Design Team during design to find a structural framing solution that incorporated a mix of steel framing and design-build precast. This was optimal in order to provide cost efficiency for the parking garage while allowing for a steel framed casino below with speed of construction as the driving force due to the Owners demand of a very aggressive open date. He also designed the buildings structural systems, assisted in preparing detailed construction documents and construction administration.
- **Milford Plaza Hotel; New York, NY; for United Structural Works, Inc.;** Project Manager providing structural engineering services for the building renovation work at Milford Plaza Hotel; which opened in 1928 and is a 28-story building with approximately 1300 guest rooms. Mr. Skinner provided a structural peer review in accordance with the 2008 New York City Building Code. He provided a review of the structural design loads and design factors and compared them to the design parameters that were stated in the Code. He provided a general review of the structural drawings to determine if reasonable standard of care has been performed in developing the contract drawings. He performed design checks of typical beams, girders and columns for the design gravity loads. He evaluated capacity of existing footings to support eccentric column loads. He evaluated the existing columns for changes to the framing. He also reviewed adequacy of new built-up transfer girder on 8th Avenue below third floor framing. Additionally, Mr. Skinner provided engineering design assistance for three (3) procedures for the removal of existing transfer girders and transferring column loads into new concrete walls. He also provided step-by-step procedures for the removal of each transfer girder and for transferring column loads to the walls below. As well as sizes of members and connections required for the jacking sequence.

Jon Skinner, PE
Staff Engineer

- **Cosmopolitan Feature Bar; Las Vegas, NV; Themeing Solutions, Inc.;** Staff Engineer for the structural engineering of cables used as aesthetic elements (coated, strung with glass beads), anchorage hardware for wire ropes, framing supporting wire ropes and associated lighting and finished surfaces, and secondary steel supports at P1.5, P2 and P3 floor levels. Mr. Skinner produced engineering calculations and facility impact load statements.
- **World Trade Center Tower One Cable Net Wall; New York, NY;** Lead project engineer for the production of detailed shop and fabrication drawings. He designed the stainless steel structure, connections and attachment to the building. He also performed linear, time-history analysis of the structure for the blast loading. He assisted in the preparation of design drawings, and in the preparation of the erection sequence design and shop drawings. This project encompasses the design and detailing of the \$12 million entranceway cable net walls and the supporting stainless steel canopy and jamb plate structure on each of the four sides of the building. The cable net walls and entrance canopies were designed to take a significant blast force due to the high profile nature and history of the site. At over 60 feet tall, the four (4) entry walls are highly visible and therefore made of custom built-up stainless steel shapes with plates up to 2 inch thick.
- **One Seaport Square Facade Design; Boston, MA; for Permasteelisa North America Corp;** Project Manager and Lead Engineer for the fabrication and installation of the vertical parallel cable wall for the main entry on the north and northwest corner of the building. As part of the design assist phase, Mr. Skinner assisted the building architect and engineer with providing supplementary reinforcing and framing to support the large forces from the cable system (as much as 100,000 pounds). Mr. Skinner was in charge with the analysis and design of the cable wall system, insulated glazing units, stainless steel portal frames and connections of the specialty façade elements to the base building. He also worked closely with the fabricator to create shop and erection drawings and to determine the erection sequencing and procedures for installing the cable system.
- **Fort Bliss Curtain Wall - Entrance; El Paso, TX; for M. Cohen and Sons, Inc.;** Staff Engineer involved with the design of three new glass façade systems and one glass skylight system. The new façade system consists of a laminated glass system supported by architecturally exposed steel trusses. The design of the glass façade took into account gravity loads, wind loads, seismic loads, and blast loads. Mr. Skinner was involved with the Engineering Design and Calculations during the concept design phase. His primary tasks included the analysis of the glass at the skylight, the environmental analyses of the three truss systems, and the dynamic analyses of the façade system under blast loading.
- **195 Broadway Glass Lobby Wall; NYC, NY; for W & W Glass;** Staff Engineer provided structural engineering services for the structural engineering and design of a new 30' tall interior structural glass lobby partition wall system at 195 Broadway in New York City. Services included the design of the glass, glass fittings, and miscellaneous structural steel above the lobby ceiling and below the lobby floor required for the support of the glass wall system. Responsibilities include overall project management, structural assessments, design drawings and construction administration.
- **Dralion Arena Tour; for Cirque du Soleil;** Staff Engineer for the structural engineering services for this successful show that artistically interprets Earth's elements. Mr. Skinner provided structural engineering services for the mainstage, mainstage wall, traveling grid, and mainstage turntable. McLaren also provided its services for the centerpiece of the show, a suspended wall measuring approximately 25 feet tall and approximately 60 feet across, with its peak about 21 feet above stage level. The wall was supported on a framework of a custom aluminum and steel box truss.

John M. Speer, PE, PP
Senior Site/Civil Engineer

Education:

Bachelors of Science, Civil Engineering, 2001, New Jersey Institute of Technology

Professional Registrations and Certifications:

Professional Engineer: New Jersey; Professional Planner: New Jersey

Professional Societies:

American Society of Civil Engineers

Computer Software:

Proficient in AutoCAD, Land Development Desktop and Civil 3D, MS Project, MS Excel, MS Word, MS PowerPoint, Hydraflow, and HEC-RAS

Experience:

Mr. Speer has over 14 years of experience as a Site/Civil Engineer, and 14 years experience in boundary, topographic and construction layout surveying projects. His project engineering experience include the design and permitting of sites for new commercial and residential developments, roadway improvements, construction support and coordination, cost estimating and specifications for retail, educational, large residential development, and municipal entities. Mr. Speer also has significant experience in hydraulics and hydrology as well as expert testimony and site plan reviews for municipal boards. A sampling of his significant project experience includes the following:

- **Engineering Design Services On-Call Agreement Citywide; for NYC Department of Parks & Recreation; Superstorm Sandy Damage Assessment, Installation of Safety Measures and Reconstruction of Damaged Facilities;** Site/Civil Project Manager responsible for the engineering services needed to assess widespread damage caused by Superstorm Sandy, development of documents detailing the reconstruction of Parks facilities; and providing on-site representation of the design team. ***Phase I Beach Restoration Project***; Senior Engineer for the preparation of construction documents for over of \$140M worth of construction in response to beach damage caused by Superstorm Sandy. This unprecedented effort yielded the production of over 950 drawings in four (4) separate contracts within a 6 week period. The construction completion date was set by Mayor Bloomberg for May 24th, 2013. Once completed, public access to the beaches was restored for the Summer of 2013. Mr. Speer worked on the engineering design for the Boardwalk repairs, repairing damaged ramps and stairs, reconstructing damaged concrete boardwalk and ramp/stairs, slope stabilization, beach access paths and ramps, ADA accessibility, utility rehabilitation, and reconstruction and repair of DPR comfort station, concession, and lifeguard buildings. Mr. Speer also served as the on-site design team liaison to the Owner, Construction Manager & Contractor.
- **Mercy College Dormitory; Dobbs Ferry, NY; for Kirchhoff Consigli Construction Management;** Project Manager and Senior Civil Engineer for topographic survey and engineering services for the construction of a new dorm at Mercy College in Dobbs Ferry, NY. McLaren is providing site plan approval documentation including storm water management, site grading and utilities plans, and existing condition surveys. McLaren also assisted in preparing a full environmental assessment of the site.
- **Federal Express Ground; South Windsor, CT; for SunCap Property Group;** Project Manager for the construction of a proposed Fed-Ex Ground facility in South Windsor, CT. Provided value-engineering services centered on stormwater management, utilities, and site grading.

John M. Speer, PE, PP
Senior Site/Civil Engineer

- **Mariners Landing - Sewer Line Repair Drawings; for BlackRock;** Lead Civil Engineer responsible for the preparation of plans and specifications detailing necessary repairs and reconstruction to damaged sewer infrastructure.
- **Repair and Rebuild Portions of Route 42, for New York State Department of Transportation;** Lead Hydraulic Engineer responsible for the emergency engineering services required as a result of Hurricane Irene in August 2011. The project included the Replacement Design and Construction of NYSDOT Bridges Along Route 42 in Lexington, Greene County, New York, including the removal and replacement of BIN 1025190 and BIN 1025200 crossing the West Kill; reconstruction of the roadway embankment and pavement section at various locations, repair of shoulder and pavement washouts; replacement and resetting of guiderail, cleaning and reestablishing ditches; removal of debris from highway ROW; and cleaning and replacement of culverts as necessary.
- **Oak Tree Road Bridge Replacement Design/ Sparkill Creek Flood Mitigation; for Town of Orangetown Highway Department;** Lead Civil/Hydraulic Engineer responsible for the civil engineering and hydraulic drainage analysis required as part of the replacement design of the Oak Tree Road Bridge. Responsibilities included development of site and bridge alternatives, preliminary bridge plans, detailed construction plans, easement plans, contract specifications, and cost estimates.
- **Avon Bank Stabilization Project; Suffern, NY;** Project Manager responsible for the design, construction documentation, permitting, and construction administration of the Avon Bank Stabilization Project in the Village of Suffern. The project restored 300 feet of high riverbank that was dangerously eroded by Hurricane Irene.
- **Maione Solar Ground Mount; Wantage, NJ; for G&S Investors;** Civil Engineer responsible for the design and permitting of the soil erosion and sediment control program required to address the disturbance of 35 acres of hillside land. The project constructed 34,000 solar panels that will provide 10 MW of electrical power.
- **Energy Project Phase II; Queens, NY; for St. John's University;** Project Manager responsible for the design, construction documentation, and construction administration of the project. This phase of the energy program entailed the construction of 3,600 feet of ductbank throughout the congested urban campus. Construction administration services included rapid response to contractor questions so as not to impact the critical construction and campus schedules.
- **Volvo Drive Parking Expansion; Rockleigh, NJ; for Crestron Electronics, Inc.;** Project Manager responsible for the design, construction documentation, local zoning approvals, and construction administration of the Volvo Drive Parking Lot. Responsible for engineering support of the applications to NJDEP for an Individual Flood Hazard Area Permit and an Individual Wetlands Permit. The project provides an additional 403 parking spaces on a constrained site.
- **55 Catherine Street Culvert Replacement; Nyack, NY; for Village of Nyack;** Project Manager for the immediate replacement of a collapsed culvert, that caused a sinkhole. Mr. Speer utilized Rockland County topographic mapping to determine the drainage area contributing to the culvert. He also reviewed the video of the culvert inspection. Mr. Speer analyzed the available data in order to estimate stormwater flow in the existing culvert system. A preliminary assessment of the capacity of the culvert upstream and downstream of the replacement culvert was provided. Options for the replacement of the collapsed culvert were also investigated. A recommendation of the preferred option, and preliminary sketches of the structure required to connect the replacement culvert to the existing culverts to remain on the downstream and upstream sides were provided.

Donald O. Viele, P.L.S.
Survey Division Chief / Principal Surveyor

Education:

Mohawk Valley Community College, Survey Technology, 1983

Professional Registrations:

Licensed Land Surveyor: New York #050454-1

Professional Societies:

New York State Association of Professional Land Surveyors

Software/Equipment Proficiency:

Carlson 2014 Survey Software, AutoCAD, GPS and Total Station Equipment, Microsoft Word, Outlook, Excel, Theodolite and Levels

Experience:

Mr. Viele has over 33 years of land surveying experience, 10 of which as President/Owner/Operator of a Land Surveying firm in Livingston Manor, NY. His experience incorporates all aspects of the Land Surveying industry including sub-divisions, boundary surveys, zoning easements, topographic surveys, flight control, line and grade, residential housing, commercial buildings, state highways and bridges. He is thoroughly familiar with the requirements of various agencies such as Army Corps of Engineers, various Departments of Environmental Protection, Departments of Environmental Conservation relating to wetland delineations and location of wetlands and buffer zones. He has also served as an expert witness, in the New York State Circuit Court, on property disputes and accident cases. Work experience includes:

- **Xfinity! Live; Philadelphia, PA; for The Cordish Company;** Principal Surveyor responsible for the field run survey assessment of the Harrah's Casino for the Xfinity! Live Development.
- **Professional Surveying Services at Various Locations; Coney Island, Brooklyn, NY; for Barbara Thayer Associates/New York City Department of Design and Construction (NYCDDC);** Project Manager providing topographical surveying services for various infrastructure projects in Brooklyn, NY. As part of this project McLaren conducted setting project control monuments with tie downs using Real Time Kinematic GPS, Total Station Instruments and leveling runs. Project was set with accurate stationing through surveyed streets. Location of water, sewer, electric, phone, sidewalks, buildings, street edges, curbs, poles, trees, and a tight grid for contouring and cross sections where surveyed. Property lines & Street right of ways were researched and established from location of property monuments found in the field with deed research for accurate solutions. Preparation of the mapping was at NYCDDC Standards. McLaren utilized Carlson Survey & Civil 2014 programs with AutoCAD 3d software. Maps included, multiple layering, stationing to identify locations & distances, labeling & identifying of objects, contours, spot grades, inverts of manholes / catch basins, cross sectioning of manhole structures and specified areas. Right of ways & boundaries were added to the survey for controlling project limits.
- **Nyack Hotel Survey, Cemetery Lane; Village of Nyack & Town of Clarkstown, Rockland County, NY; for 400 High Ave Nyack, NY LLC;** Principal Surveyor responsible for the Topographic and Boundary Survey encompassing the entire Nyack Hotel property. Services also included a topographic survey of the Oak Hill Cemetery adjacent to the Nyack Hotel site.
- **Instrumentation Monitoring, Box Storm Sewer in 126th Street from Willets Point Boulevard to Flushing Bay; Queens, NY; for Hunter Roberts Construction Group/NYC Economic Development Corporation.** Principal Surveyor responsible for the geotechnical instrumentation and structure monitoring, including drilling and Instrument Installation, using Geotechnical

Donald O. Viele, P.L.S.
Survey Division Chief / Principal Surveyor

Monitoring Equipment, such as an Inclinometer System, Magnet Extensometer System, Remote Vibration Monitoring Systems, Crack and Structural Monitoring, Location Monitoring XYZ Survey, and Installation of Instrumentation.

- **Oceanfront Pier & Ferry Terminal; City of Long Branch, NJ;** Principal Surveyor responsible for the surveying services associated with the design and construction of the new oceanfront pier.
- **NJDOT - FEMA Category B - EPM – Sonar/Bathymetric Surveys; Ocean, Middlesex, Monmouth, Burlington, Atlantic, & Cape May Counties; for Parsons Brinkerhoff / New Jersey Department of Transportation;** Principal Surveyor responsible for the sonar/bathymetric surveys for approximately 100 nautical miles of state channels, utilizing single beam sonar of sufficient density to determine the depth and 3D contour of the channel bottom in an effort to locate and map debris as part of the NJDOT Hurricane Sandy Recovery FEMA Category B - Emergency Protective Measures effort.
- **Investigation Study and Bridge Reconstruction for 9 Park Bridges; for New York City Office of Management and Budget;** Principle Surveyor for the investigative study and preparation of Bridge Reconstruction Project Reports for nine (9) City owned park bridges (vehicular and pedestrian) located in Manhattan, Queens, and Staten Island. The effort involves in-depth inspection, topographic and ROW surveying, hydraulic analysis, geotechnical investigations, conceptual design and preparation of Bridge Reconstruction Reports to define the final design scope and requirements for repair/replacement of these bridges. The requested services include providing cost effective solutions for the improvement / rehabilitation / reconstruction for these structures and increase their functional life avoiding future failures.
- **Route 42 Emergency Design Build Contract #C030792; Greene County, NY; for New York State Department of Transportation;** Principal Surveyor for the inspection, design, and rehabilitation services required to expedite the infrastructure repairs to portions of Route 42. This was due to the severe flooding, as a result of Hurricane Irene and Tropical Storm Lee. Work will include the removal and replacement of BIN 1025200 and BIN 1025190 crossing the West Kill; reconstruction of the roadway embankment and pavement section at various locations; repair of shoulder and pavement washouts; replacement and resetting of guiderail, cleaning and reestablishing ditches; removal of debris from highway ROW; and cleaning and replacement of culverts as necessary. Some of Mr. Viele specific responsibilities are the super elevated curves, complete bridge layout and positioning, complete water analysis of topography for FEMA stationing, and coordinating all information with agencies for design.
- **Avon Bank Stabilization Survey Stake-Out; for Conserv Construction;** Principal Surveyor responsible for the construction stakeout for the site work associated with the Avon Bank Stabilization Project in Suffern, NY.
- **Henry Hudson Quadricentennial Park and Waterfront Promenade; for Town of Haverstraw;** Principal Surveyor responsible for the Topographic survey, boundary and property surveys associated with the design and construction of the new park.
- **The Castle; Tarrytown, NY; for KTGy;** Principal Surveyor responsible for the boundary and topographic surveys for the planned expansion at The Castle in Tarrytown, NY.
- **Port Imperial, Buildings 2 & 3 Settlement Monitoring & Survey; for Roseland/Riverbend Urban Renewal II, L.L.C;** Principal Surveyor responsible for the settlement monitoring and observation of the crack monitoring devices; Survey of Building 2's Second Floor Corridor; obtain and compare inclinometer readings, compile and review monitoring data.



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