LOUISIANA CIVIL ENGINEER

Journal of the Louisiana Section **http://www.lasce.org**

ACADIANA • BATON ROUGE • NEW ORLEANS • SHREVEPORT

Cameron Parish Shoreline Restoration Project

Active project site, looking east towards the Calcasieu Ship Channel jetties in the background

FEATURE:

Cameron Parish Shoreline Restoration Project (CS-33 SF)

NEWS:

Quality Control/Quality Assurance Practice on a
US Army Corps of Engineers Construction Contract
(A Case Study on the Construction of a Floodwall)

FEBRUARY 2014
VOLUME 22 • NO 2

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The Louisiana Section of the American Society of Civil Engineers was founded in 1914 and has since been in continuous operation. The Section consists of the entire state of Louisiana and is divided into four branches that directly serve over 2000 members. They are the Acadiana Branch centered in Lafayette, the Baton Rouge Branch, the New Orleans Branch, and the Shreveport Branch.

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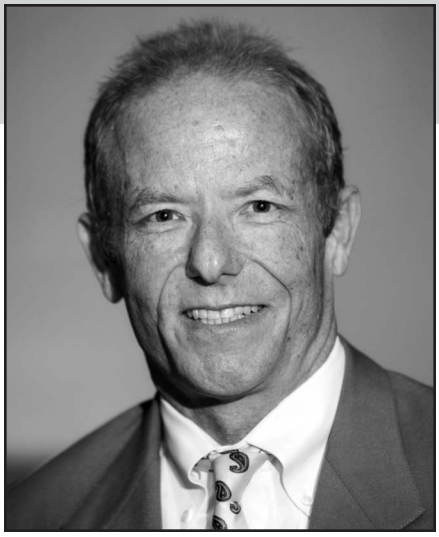
President's Message

By Robert W. Jacobsen, PE



Robert W. Jacobsen, PE

A few weeks ago Scott Adams gave us one of his all-time great Dilbert comic strips. (See http://www.dilbert.com/strips/comic/2014-02-02/ for the full color version.) The punch line is when the pointy-haired boss shouts "**STOP BEING ENGINEERS!**"

In my last message I noted that the term "engineer" derives from the same root word that gives us the adjective "ingenious." Engineers, as Scott constantly reminds us, never tire of tinkering—of engaging our brains in the quest to improve things—whether it's a bridge, a damaged ecosystem, an organization, or even a meeting. There are two very important aspects of this quest. The first part—analysis—is where we seek to understand, to know, how a "thing" really works; to define that "thing" as a functioning system—the minute details of both its structure and its dynamics. We then work to represent that system quantitatively—often to an extreme degree—so that we can accurately and precisely replicate and predict the effect of small changes. The second part—design—is where we develop our own specific recommendation for the improved "thing" that will best meet our client's needs. I'll talk more about this second part in my next column. Today, I'd like to just focus on the first part.

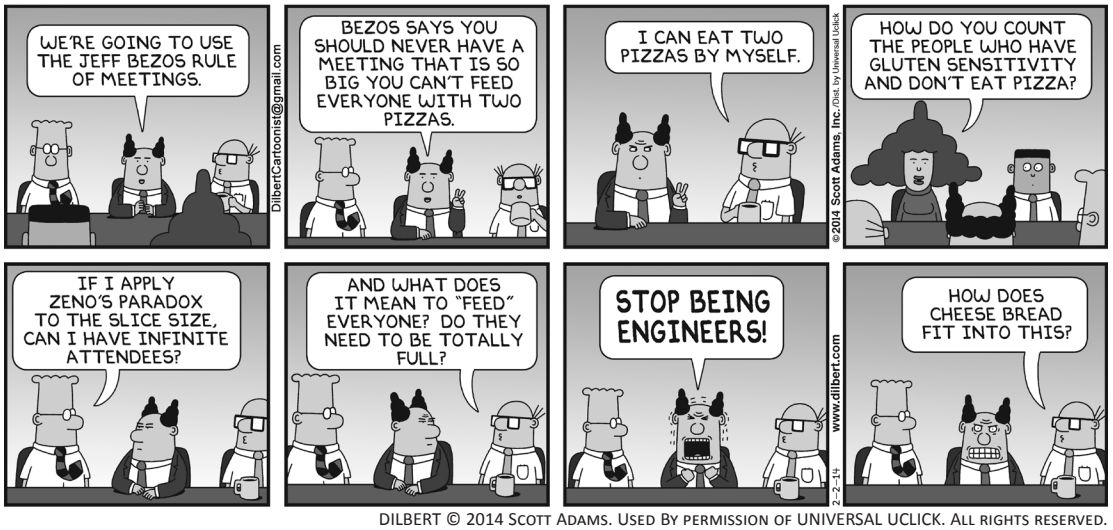
As Scott's strip shows, engineers like to analyze. We enjoy asking questions. But more than this, we relish asking questions that matter—questions that get to the heart of things and not superficial, small-talk/chit-chat questions; awkward questions; questions that don't have easy answers. And we don't accept an answer "just because" it's in a book, or it's always been good enough, or it's what so-and-so says, or it's what the boss says (even though we agree to go with the boss' answer). We are good at avoiding what logicians call fallacies, what psychologists call cognitive dissonance, what behavioral economists call confirmation bias, and what today is often referred to as magical thinking. This is especially true when you put a group of engineers together—that's when the fun really starts. Everyone ups their game and the questions get sharper and deeper.

In some circles asking difficult questions might jeopardize one's reputation as a "team player." But engineers get that there is a big difference between earnest skepticism and corrosive cynicism. Engineers cherish skepticism—the notion that ultimate understanding requires a lot of effort and you have to prove your point with solid, painstaking—e.g., mathematical—reasoning. Engineering fosters a "BS free zone." Unlike a cynic though, we aren't frustrated by the need for a perfect answer. Instead we recognize and appreciate the utility of a best answer—one that advances the State of the Practice. Of course, we are not above a bit of sarcasm to make a point (Wally.)

Have you had a chance to play a game of fifty questions with some fellow engineers recently? If not, you're missing out on perhaps the BEST part of being an engineer. So let me help you out. Get some colleagues together—maybe around a couple pizzas—and get the sparks flying with some of the following questions:

- What is everyone working on?
- What are our biggest challenges?
- What are we learning about the State of the Practice and how to apply it/advance it with respect to those challenges?
- Is there a senior engineer around here (or in town) who can help us out?
- What would we really like to work on?
- What "ingenious" work is going on around here/town?
- Where do we see ourselves in five years?
- Do we see ourselves becoming a Principal Engineer where we have the ultimate responsibility and authority for projects?
- What is the path for becoming a Principal Engineer?
- How can we make this a better place to work?
- Who is a member of ASCE?
- What do you get out of ASCE?
- Are the ASCE monthly luncheons any good?
- What is this Centennial Celebration of the Louisiana Section all about?
- Should we consider helping out our local ASCE Branch more?

Don't ever stop being an engineer. Don't ever stop asking tough questions—especially when it comes to ASCE! And while you're at it, pass the cheese bread!



2014 ANNUAL LOUISIANA SECTION SPRING CONFERENCE
CELEBRATE 100 YEARS OF ASCE IN LOUISIANA!

Cajundome Convention Center
Lafayette, Louisiana
Thursday, April 24, 2014 & Friday, April 25, 2014

Crawfish Boil Social on Thursday at 6:00 p.m. at Hilton Garden Inn

EARN UP TO 11 PROFESSIONAL DEVELOPMENT HOURS

Speakers	Topic
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For additional information call Tyler Roy, E.I. at (337) 945-8301 or Ronke Osibajo, P.E. at (337)347-5599

LOUISIANA SECTION CENTENNIAL CELEBRATION

OVER THE NEXT SIX MONTHS THE LOUISIANA SECTION IS WORKING ON SEVERAL AMBITIOUS UNDERTAKINGS TO MARK OUR 100-YEAR ANNIVERSARY:

- ❏ Completing a list of Louisiana Civil Engineering Historic Projects. Starting in March our Branch, Institute, and Section History and Heritage Committees will begin revising the list and collecting information on all the projects. If you have some ideas for important projects it's not too late to get involved with those Committees.
- ❏ Preparing a series of posters—one for the Section, each Branch, and our three Institutes (L.T&DI, L.COPRI, and NO.SEI)—to commemorate the Centennial. In the coming weeks, the Committees will be selecting photos of outstanding projects for the posters, which will be available for purchase beginning at the Section's Annual Spring Conference, April 24th in Lafayette. We will also send an email to all Section members at that time with information on how to order posters.
- ❏ Holding a Centennial Celebration Gala to recognize outstanding civil engineering accomplishments over the past 100 years. The Gala is scheduled for Saturday August 9th at the Renaissance Hotel in Baton Rouge. The draft program includes an opening cocktail reception, a Keynote Address by DOTD Secretary Sherri Le Bas, a sit-down dinner, and awards. The formal program will be followed by dancing with live music. The event will be open to all Louisiana Section members; however seating is limited to about 450 and tickets will be sold on a first-come basis. Tickets are expected to go on sale in mid-May—HOLD THAT DATE and look for an email announcement!
- ❏ Publication of a coffee table book highlighting 100-Years of Civil Engineering in Louisiana. The Section History and Heritage Committee is hoping to have book ready in time for the Gala!

The various History and Heritage Committees would very much welcome more volunteers. Please consider pitching in!

- ❏ Section History and Heritage Committee, chaired by Miles Bingham (S-HHC)
- ❏ Branch History and Heritage Committees, contact the Branch Presidents or Institute Directors (B/I-HHC)
- ❏ Section Gala Program Committee, chaired by Rudy Simoneaux (S-GPC)

The Louisiana Section Centennial Committee is currently undertaking the planning of the 100 Year Celebration of the ASCE Louisiana Section, 1914 - 2014.

Please contact the Centennial Committee if you would like to help with the planning or have a contribution: l.asce100year@gmail.com

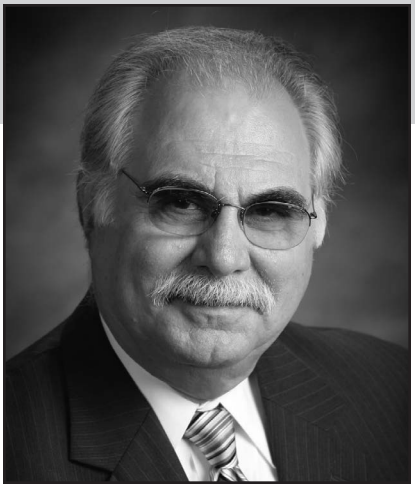
We are looking for information for a potential commemorative edition which would feature stories, photographs, including unique and historical images that offer insight into the growth of the Louisiana Section in the last 100 years. The book would spotlight significant achievements in construction and unique engineering projects in Louisiana.

2014 CALENDAR FOR THE LOUISIANA SECTION CENTENNIAL CELEBRATION

Date	Who	What
Feb 28	S-HHC	Website for soliciting Historic Project ideas closes.
Mar 7	S-HHC	Draft Section Poster (template for Branch and Institute posters) complete.
Mar 7	B/I-HHC	Draft Historic Project Master List reviewed/revised; photos selected for Centennial Posters.
Mar 14	S-HHC	Comments submitted on Draft Section Poster.
Mar 14	S-HHC	Draft Historic Project Master List reviewed/revised; identify and reach out to other experts for additional input if necessary.
Mar 28	S-HHC & B/I-HHC	Final Proof of posters received for approval
Mar 28	S-HHC	Preliminary Final Historic Project Master List prepared for circulation to Board and others along with list of info requirements on each project (to be prepared by Branches); CC Gala Awards Process under development; Book Outline drafted
Mar 28	S-GPC	Draft CC Gala Program prepared
Apr 4	S-HHC & B/I-HHC	Final poster revisions submitted
Apr 11	S-HHC & B/I-HHC	Poster pdfs complete and sent for reproduction
Apr 18	S-HHC	Historic Project Master List and CC Gala Awards Process finalized; Book Draft Outline revised; chapters assigned.
Apr 24		**Section Spring Conference in Lafayette; CC POSTERS GO ON SALE**
Apr 25	S-GPC	CC Gala Preliminary Program and plans for publicity discussed at Section meeting.
May 9	B/I-HHC	Info on all Historic Projects due
May 16	S-HHC	Historic Project info reviewed; revisions/additional info requirements identified; Book Chapter progress reviewed
May 16	S-GPC	CC Gala Program finalized; **CC GALA TICKETS GO ON SALE**
May 30	B/I-HHC	Final info on Historic Projects due
Jun 13	S-HHC	Final Decision on CC Gala Awards; coordinate with CC Gala Program on Plaque/Trophy Design and plan for Awards Presentations; Book Chapters drafts forwarded to Chapter review teams
Jun 27	S-HHC	Revised Draft Chapters complete; Book submitted to Printer
Aug 9		**CC GALA AT RENAISSANCE HOTEL IN BATON ROUGE – CC BOOK GOES ON SALE**

Look for an email announcement in mid-May with program details on The Louisiana ASCE Centennial Celebration Gala August 9th at the Renaissance Hotel in Baton Rouge Details will include ticket purchase information and special offers from your Branch!

Louisiana Highways and Transportation Hall of Honor Induction



Kam Movassaghi, PhD, PE

Kam Movassaghi, PhD, PE was the 42nd person inducted into the Louisiana Highways and Transportation Hall of Honor on November 13, 2013. The Hall of Honor was established by the Louisiana Good Roads and Transportation Association in cooperation with the Louisiana Associated General Contractors, the Louisiana Department of Transportation and Development, the Louisiana Department of Public Safety, the Louisiana Engineering Society, and the American Council of Engineering Companies of Louisiana for the purpose of honoring those outstanding citizens of the State of Louisiana who have made significant and remarkable contributions to the highway, street, bridge and transportation systems and programs. The ceremony and reception was held at the Louisiana Department of Transportation and Development to honor Dr. Movassaghi's work and career.

ASCE Louisiana Section Monroe Outreach Event

The Louisiana Section of ASCE, as part of its continuing efforts to provide benefits to our members across the entire State, is sponsoring a FREE half day seminar and luncheon in Monroe. The seminar will include two presentations, one before lunch and one after. The first speaker will be Tyson Rupnow with CAAL who will speak on Roller Compacted Concrete. The second will be Chris Knotts the Head of Public Works & Water Resources at DOTD who will speak on Dams and Levees.

Any and all ASCE members and student members are encouraged to attend at no charge. You may also bring a co-worker or other guests who are non ASCE members at a cost of $25.00 each.

The seminar includes a complimentary luncheon, entree selection will be taken at the event. Please contact us if you have any special dietary needs.

If you would like more information, please contact Kurt Nixon, ASCE Louisiana Section Past-President (knixon@nixoneng.com or 318-747-9669), or Mitch Guy Shreveport Branch President 337-268-9755.

Thank you for your support of ASCE. We look forward to seeing you in Monroe!

Kurt Nixon
ASCE Louisiana Section

WHERE: Copeland's of New Orleans
3851 Pecanland Mall Drive, Monroe, LA 71203

WHEN: Thursday March 6, 2014
from 11:00 AM to 1:30 PM CST

First President of New Orleans Branch Passes Away

Alfred Joseph "Al" Diamond

Alfred Joseph "Al" Diamond, a retired Civil Engineer and Manufacturer's Representative born March 18, 1926, died Jan 17, 2014 in New Orleans, LA. He is survived by his wife of 63 years, Janet Abadie Diamond, son Rick and daughter Jan Lapre of New Orleans, son Mark and daughter-in-law Kelly of Irvine, CA, grandchildren Meredith and Genevieve Lapre, Amanda, Mark, and Austin Diamond, and sister Betty Alessandra. A New Orleans native, he was valedictorian of his 1943 high school class at St. Paul's School, Covington, LA, and received his Bachelor of Science degree in Civil Engineering from Tulane University in 1949 after serving in the navy as an Aviation Electronic Technician's Mate during WWII. After 12 years of engineering design he established A.J. Diamond, Inc., Industrial Door Sales and Service, retiring in 1992. Mr. Diamond was a former Cub Master, Pack 105, Jean Gordon Elementary School. Vice-President-Secretary of the Boy Scout's Bienville Trail Committee, member of the YMBC Toastmasters, lector at St. Francis Cabrini Church (after Katrina, lector at St. Joseph's Church, Ponchatoula, LA). He was the first elected President of the New Orleans Branch of The American Society of Civil Engineers, received their Lifetime Achievement Award in 1997, and was a member of the Louisiana Engineering Society. Al was a member of the St. John Golf Club (City Park), the New Orleans Golf Association, and an Art History student at the University of New Orleans. According to his son Mark, "Some of just a few of his engineering accomplishments that I know of: Al worked on the bomb shelter--the civil defense bunker buried in the dirt of what used to be the new basin canal. Al was the structural engineer for the US Embassy in Saigon and a sewerage treatment plant in Nashville, Tennessee. The embassy was never designed for a helicopter to land on the roof, but one did, successfully, during the evacuation after the fall of Saigon in the Vietnam War in 1975, as immortalized in that iconic photo. Dad was very proud of that, I know."

Cameron Parish Shoreline Restoration Project (CS-33 SF)

By Josh Carter, PE

Josh Carter, PE

Project Overview

The Cameron Parish project site shoreline, located in the chenier plain of southwestern Louisiana, extends from the Calcasieu Jetty west 8.7 miles to the most eastern breakwater at the Holly Beach-Constance Beach breakwater field, as shown in Figure 1. The shoreline in the project site has been retreating at a high rate, ranging from 5 ft/yr to as much as 30 ft/yr in. Along much of the shoreline, the sand chenier, which historically acted as a barrier between the Gulf of Mexico and 40,000 acres of freshwater wetlands and parish infrastructure is severely or completely eroded, as shown in Figure 1. Because the chenier is now extensively eroded on much of the project site, Highway 82/27 is the only barrier that separates the Gulf from the uplands and wetlands for much of the project site. If the remainder of the sandy chenier or Highway 82/27 barrier is breached, both the wetlands and infrastructure are in danger of being severely damaged or destroyed.

The Coastal Protection and Restoration Authority of Louisiana (CRPA) undertook this project with the goals of increasing the Cameron Parish barrier headland (i.e., beach) longevity in a manner that will delay further shoreline retreat and to prevent breaching of the sandy chenier / highway barrier in the next 20 years. The project goal is for the shoreline position along the project site in 20 years to be at or seaward of the current shoreline position.

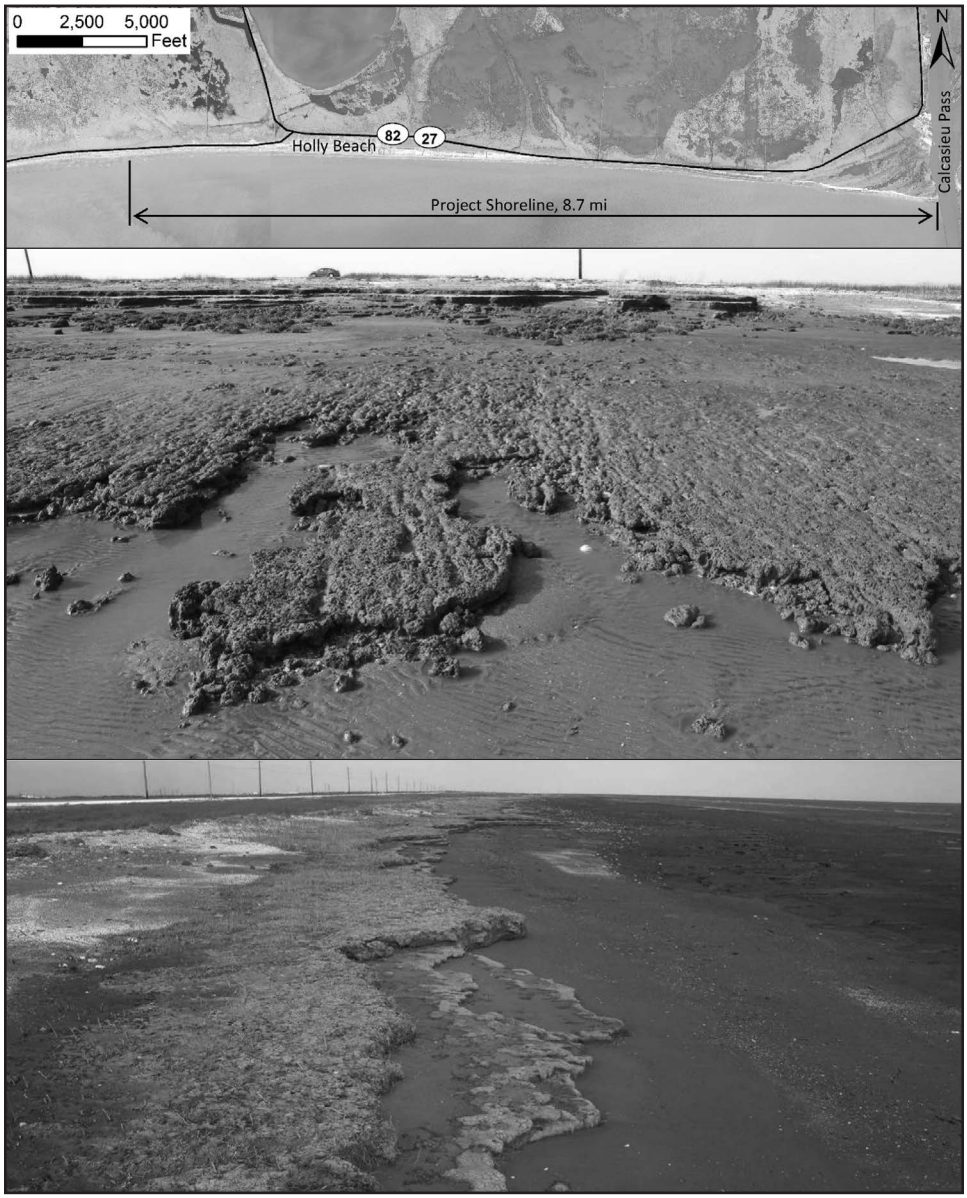


Figure 1. (top) Project extents and reaches along the Cameron Parish shoreline, (middle) typical pre-construction project shoreline looking northward at Highway 82/27, and (bottom) typical project shoreline looking eastward showing clay shore face with thin sand veneer

Beach nourishment was proposed to meet this goal. Delivering beach nourishment for this project site required completing three elements: identification and permitting of a sand borrow source with sufficient quantity and quality to accomplish the goals, delivery of the sand to the site in a cost effective and permittable manner, and the placement of sand as nourishment in a manner to achieve the goals.

Project Elements

Site Morphology

The project shoreline is primarily composed of bare clay with no sand or only a thin veneer of sand as shown in Figure 1. A small dune ridge is present in some locations formed from overwash material composed primarily of shell hash with a small amount of fine sand. The land landward of the dune ridge is primarily composed of marsh. For approximately 1 mile the shoreline has receded so that the shoreline is at the road embankment. The shoreline at the Holly Beach community is an exception to this characterization: the shoreline along this reach is composed of a relatively wide sandy beach 400 to 500 ft wide with back berm heights of approximately +6 ft NAVD88. The beach of this region is composed of fine grained sand (d50 ~ 0.11 mm) with some shell fragments.

A coastal engineering analysis was conducted to develop an understanding of the coastal processes and morphology acting at the project site. This analysis identified a unique morphological event along the project site: a sediment wave propagating from east to west through the project site at a rate of approximately 700-1000 ft per year, with its crest currently located at the Holly Beach community. The sediment wave results in accretion as the crest arrives at and passes through a location, followed by large erosion once the crest has passed. This sediment wave distorts the long-term shoreline change patterns and makes modeling of future conditions difficult with traditional coastal engineering methodologies. Therefore, a methodology was developed to separate the impacts of the sediment wave from the background shoreline change processes and a sediment budget was developed for the project shoreline that included the sediment wave for existing conditions and removed the sediment wave effect for the future, post-project sediment budget. Results of these analyses show longshore transport if dominantly net westward, and that predictions of future shoreline change rates along the shoreline vary from about -5 ft/yr along Holly Beach to almost -30 ft/yr adjacent to the Calcasieu Pass Jetty.

Beach Nourishment Alternatives Analysis

Beach nourishment alternatives were developed to determine which configuration best meets the project goals. Five alternative nourishment layouts were developed; each were designed to work with the site morphology and to maximize both short-term and long-term erosion protection along the project site. All alternatives consist of placing sand from the borrow source through hydraulic dredging to create a beach and dune with beach nourishment template similar to that shown in Figure 2. Due to possible variations in price, the final design project template was laid out using several additive bids, including the dune as an additive bid feature. In addition, a sand fence is to be installed near the landward edge of the template along the entire project extents in order to reinforce and build dune and reduce windblown sand blowing onto the highway.

Performance Evaluation

Alternative nourishment configurations were evaluated based on their ability to keep the shoreline seaward of the 2009 shoreline position for the 20-year project design life. The alternatives analysis consisted of comparing predicted 2029 shoreline positions and quantifying the beach width, length of shoreline, and volume of remaining fill seaward of the existing 2009 shoreline position along the project site. A new methodology termed the dynamic sediment budget (DSB) was developed, calibrated, and validated during this study to perform the required analysis. This methodology is similar to traditional one-line numerical models such as GENESIS (Hansen and Kraus, 1989) but is modified to account for the complicated cross-sectional geology present in the chenier plain.

The DSB method showed that the best performing alternative, shown in the lower panel of Figure 2, protected more of the project shoreline during the project life and retained more sand within the project site than the other alternatives. With the construction of the proposed beach nourishment alternative, the 2029 beach width from Holly Beach to the west will remain almost unchanged from the 2009 beach width. Eastward from Holly Beach, the beach was predicted to be approximately 40% wider in 2029 on average (but with some localized erosion on the far eastern end) with the construction of the proposed beach nourishment than it was in 2009.

The proposed nourishment template consists of a wide beach area of approximately 285 ft where the highway is closest to the existing shoreline, and approximately 150 ft for the remainder of the project extents, shown in Figure 2. This configuration is a balance between the long-term and the short-term protection to the most critical areas of the project site. This template was designed to enhance protection to the part of the shoreline and highway that are in immediate threat of breaching, while also using the longshore transport processes to provide long-term protection for the entire project site. To construct this template, a range of between 2 and 3 million cubic yards of sand would be used depending on available funds and project bids.

Borrow Site Investigation

Analysis of the morphology of the project site and expected performance of the beach nourishment indicated that approximately 2 to 3 million cubic yards of beach fill would be required. In order to ensure sufficient sand material would be available during construction, a borrow source investigation was undertaken during June of 2009 with the goal of locating 5 million cubic yards of beach quality sand. The contingency volume above the required fill volume allows for reduction in quantities that may occur due to

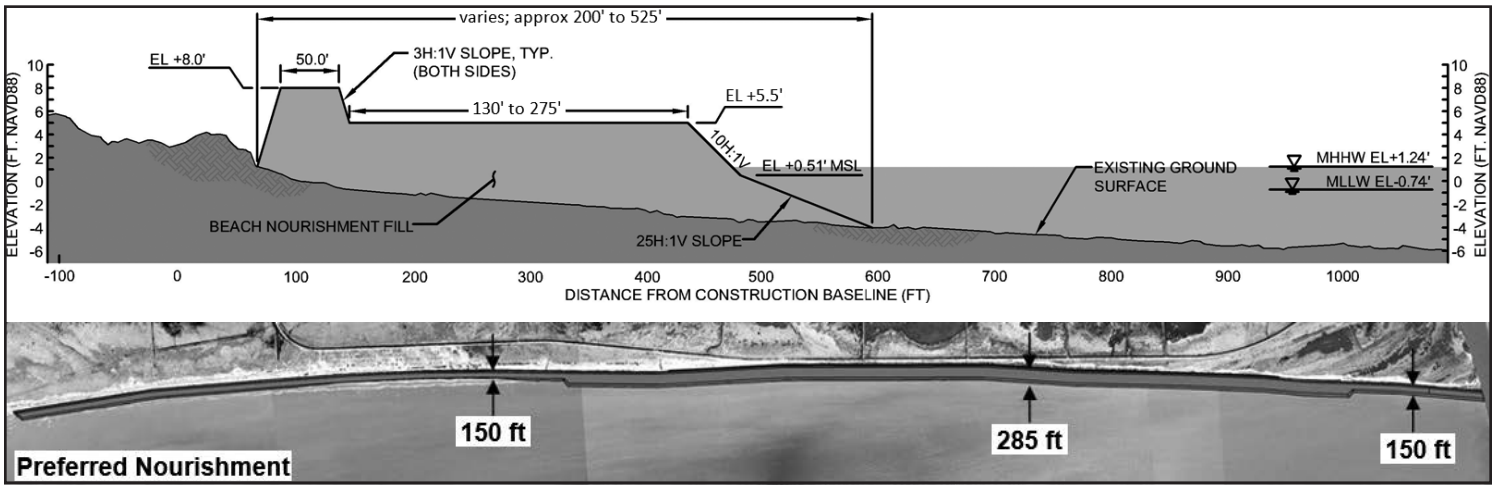


Figure 2. (top) Typical cross-section of beach nourishment and (bottom) plan-view layout of preferred beach nourishment configuration

regulatory limitations, dredging equipment limitations, or other issues that may limit use.

Prior to field investigations, a literature review was performed to identify the types of features likely to contain beach quality sand in large quantities. Gulf Coast geology that could lead to sediment resources usable for beach nourishment typically result from depositional and erosional features associated with historical sea level fluctuations. During sea level regressional periods, land which is now the seabed was exposed and subject to terrigenous weathering processes. The most recent sea level low stand for this region occurred during the Wisconsinan glaciation, when streams and rivers were more common in this region. Fluvial systems migrated seaward in response to the lowered sea levels then, upon retrogradation, fluvial channels were covered by marine sediments. These fluvial systems often contain pockets of high quality sand. Farther offshore relic geologic features containing large quantities of sediment were identified on the continental shelf and characterized in previous work by Morton and Gibeaut (1993; 1995) and by CPE (2002). Sand accumulations at or near the seafloor are present as shore-aligned sand bodies were deposited during the most recent transgression (Paine et al., 1988). These features are identified as the Sabine Banks, and are generally delineated by the 30 ft bathymetric contour. The banks are large lens-shaped sand bodies approximately 24 nmi long with a width of approximately 4 nmi. Morton and Gibeaut (1993) estimated that at least 195 million cy of sand is present from the eastern portion of the Sabine Banks offshore from the State of Louisiana.

A review of existing geological and geotechnical data in the region identified eight potential sites for field investigation. The sites included four nearshore sites (within 6 miles of the shoreline) where a possible buried river channel may be located, and four offshore sites (within 20-25 miles of the shoreline) on sandy shoals along the Sabine Banks approximately 20-25 miles offshore.

The borrow site field investigation was performed by Alpine Ocean Seismic Survey, Inc. A preliminary field investigation was conducted to identify viable sand borrow sites. Then, upon review of preliminary data, the most promising site (or sites) are delineated for permitting and design. Total field data collection for the investigation included 245 miles of geophysical data collection (subbottom profiler, sidescan sonar, fathometer, magnetometer) and 79 vibracore borings along with 307 grain size analysis tests. The preliminary investigation utilized approximately half the geophysical data collection and approximately one third of the vibracore and grain size tests.

The preliminary investigation of the nearshore sites showed a minimal likelihood of containing sand of sufficient quality and quantity. Two areas investigated showed no indications of sand material. Two others located between 6 and 9 miles offshore, showed complicated stratigraphy. Borings used to calibrate the geophysics did not correlate with stratigraphy between sites under the preliminary data collected. The site is characterized by highly intermixed and interlayered fine sand, silts, and clays. Sand was identified under 5 feet of overburden, with a small sand grain size (d50 from 0.16 to 0.19 mm) and a moderate fine content (5-7% fines), but not in a consistent manner. Some samples from in the site had fine content ranging from 12% to 53% and medium grain size of 0.1 mm on average. To utilize the nearshore areas, a large number of borings would be required to delineate the site, as geophysics poorly defined the stratigraphy. The best estimate based on the preliminary investigation showed the nearshore borrow site had between 750,000 cy and 1.0 million cy of sand with low grain size and high fine content. Therefore, it was determined that the nearshore area is unlikely to contain sufficient volumes of beach quality sand material for a successful project.

The preliminary investigation of two offshore sites showed a large quantity of high-quality sand with a coarser grain size as compared to the native sand. The geology and stratigraphy at these sites are similar; they are composed of 3 to 15 feet thick medium sand that is coarsest near the seabed with the grain size decreasing with depth in the sand body. Deeper in the sand body, the fine content increases to a silty sand with some clays then to a sandy silt with higher clay content, and finally to a very stiff clay deposit of more than 5 feet in thickness. The average median grain size of the sandy portions of the offshore sites is 0.22 mm, but varies from 0.18 to 0.32 mm. No overburden is present at these sites. The preliminary estimated quantity of sand at the offshore borrow sites was 14 million cubic yards; this does not represent the usable quantity as some of the material is deposited in a layer too thin to dredge economically. Previous investigations of the Sabine Banks indicated large deposits of shell on the more seaward sides of the Banks. High shell contents were not found in any of the preliminary borings during this investigation. Few shell hash layers were noted in the borings. More typical is a well-mixed top layer of coarse sand and shell hash which is estimated to make up less than 15% of the material.

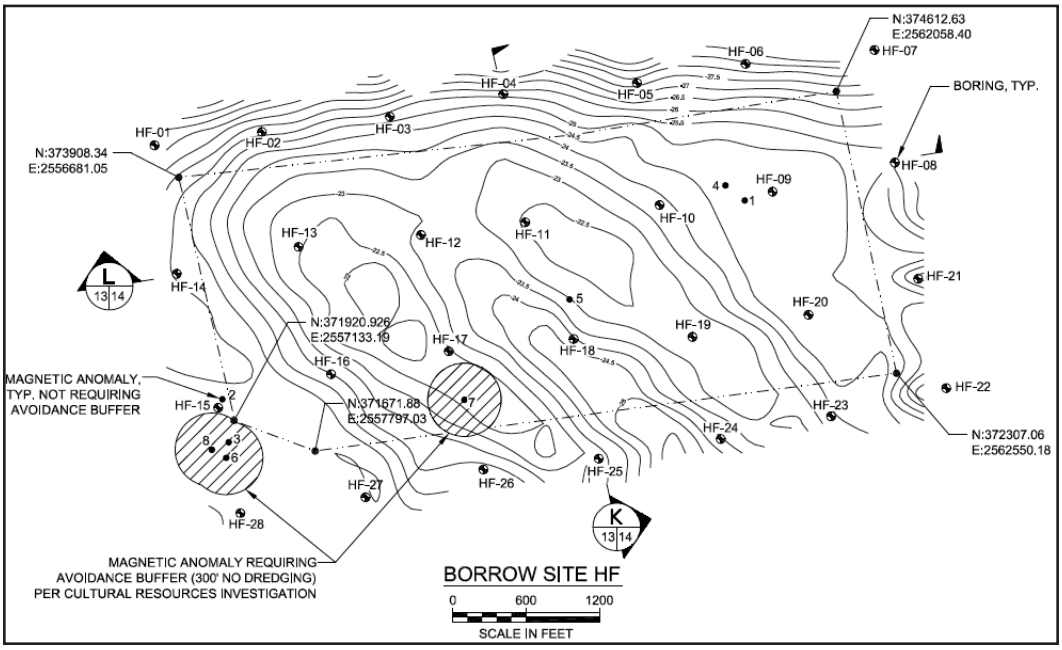


Figure 3. Area HF borrow site bathymetry and borings

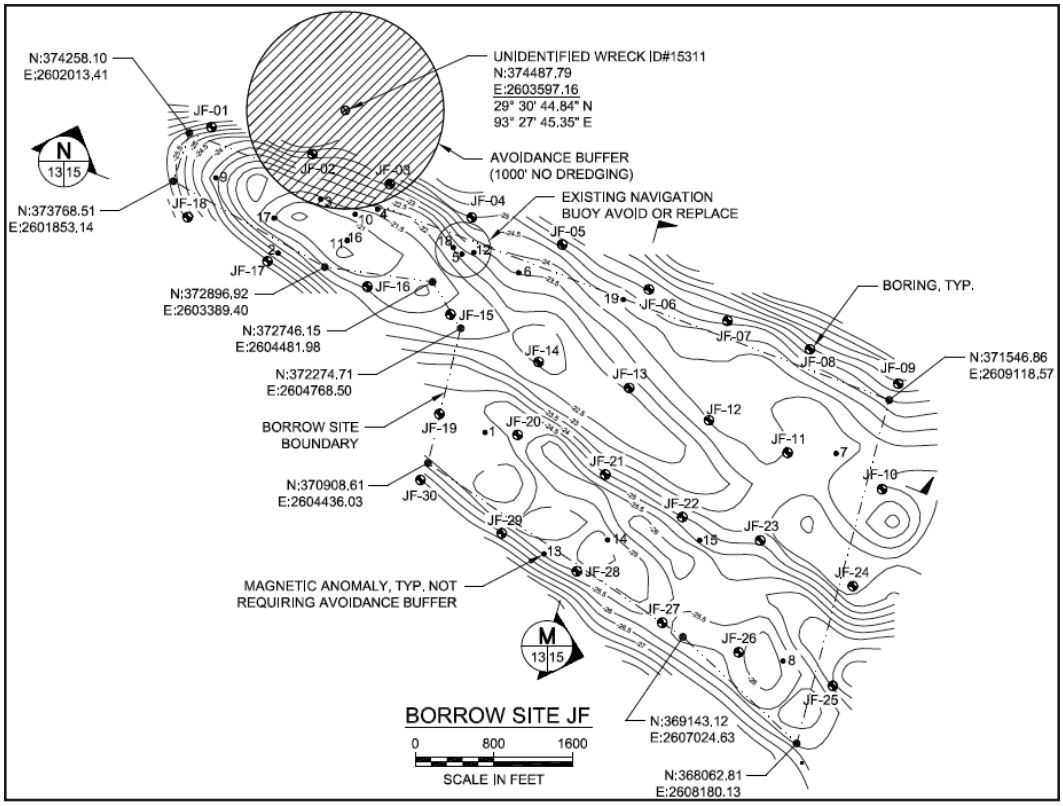


Figure 4. Area JF borrow site bathymetry and borings

Some challenges exist in utilizing the sand from the offshore sites. Accurately delineating the bottom of the usable sand body is challenging due to a weak reflector indicating the bottom of the sand body due to the gradual fining of material with depth as opposed to a sudden change in material. Therefore, delineation of the bottom of the sand was based on borings with grain size analyses performed using greater resolution near the boundary of the bottom of the sand body. Another challenge consists of the sand body being relatively thin, which requires covering a larger area in order to properly delineate and permit the borrow site. Modifications based on the preliminary investigation plan were made to reallocate resources to the final site delineation.

The final delineation of the sand borrow sites identified two borrow sites along the Sabine Banks that together contain at least 9 million cy

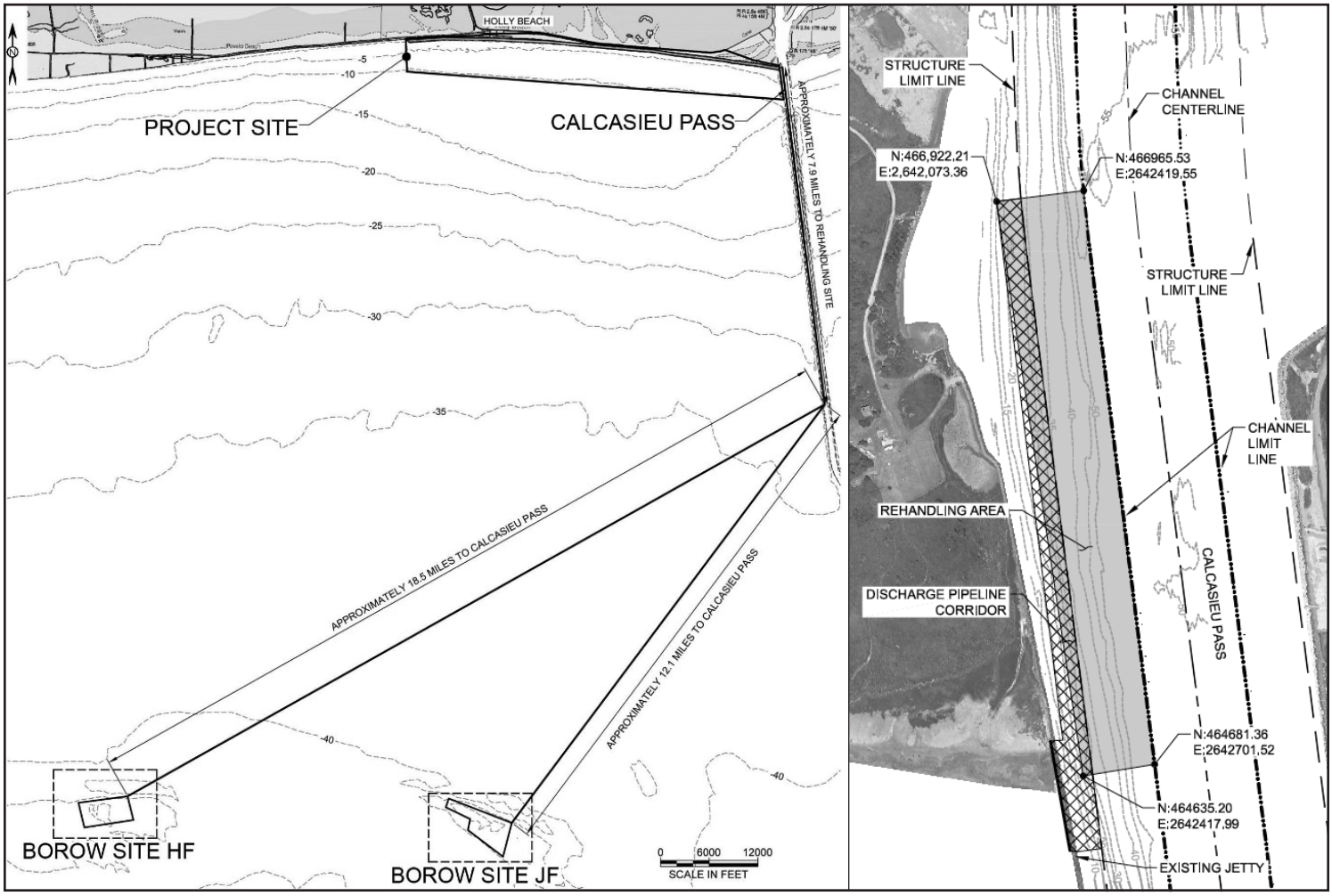


Figure 5. (left) Borrow Site locations and (right) rehandling site in Calcasieu Pass

of high quality, fine to medium sized sand (d50 = 0.22 to 0.25 mm), with a very low percentage (less than 2% on average) of silt and clay. The final borrow site delineation acquired geophysical data (subbottom profiler seismic lines, bathymetry, sidescan sonar, and magnetometer) at 100 ft line spacing over the borrow site for a total of 100 line miles of geophysics. Fifty nine (59) vibracores were acquired to a 20 ft depth at a 1000 ft spacing encompassing the borrow site and correlated with the layout of the geophysical lines. The site boundaries were laid out to encompass the expected usable sand with a thickness of at least 3 feet. The identified sand layer is between 5 and 15 ft thick (10 ft on average), and has no overburden to be removed prior to dredging. The borrow sites are located approximately 20 miles offshore along the Sabine Banks, shown in Figure 3 and Figure 4.

Sand Delivery

The size of the project is ultimately controlled by available funding. As with most beach nourishment projects the unit price of sand is a direct result of the ability to efficiently deliver sand from these borrow sites to the project site with equipment available to the contractors. Five alternative sand delivery methods were developed and evaluated to determine which methods were the most cost-effective and most likely to succeed with lowest risk. The analysis on cost-effectiveness is extremely sensitive to assumptions; any variation in the assumptions could result in modifications to the best sediment delivery methodology and the estimated volume of material attainable from the identified borrow sites. Two methods were made available for contractor selection: (1) pump-out from a hopper dredge from within Calcasieu Pass and (2) rehandling from a temporary disposal site within Calcasieu Pass.

The pumpout method consists of utilizing one or more hopper dredges to dredge material from the borrow site, transport the material via the dredge to a pumpout site adjacent to the project site along the Calcasieu Ship Channel, and pump the material out of the dredge's hopper to the project site via a pipeline.

The rehandling method includes coupling a hopper dredge and cutterhead dredge to increase project efficiency. The hopper dredge excavates sand from the borrow site and transports it to an area inside the Calcasieu Jetties where the sediment is bottom-dumped in a rehandling site (bottom dumping is a relatively fast operation). A cutterhead dredge stationed in the rehandling site then re-dredges the sandy material in the rehandling site and pumps it for placement on the project shoreline. This method was determined to be the most cost effective based on assumptions of equipment availability, market competition, and production rates. However, this method also increases the risk to the contractor in that sand would be temporarily stored in a stockpile in deep water adjacent to the Calcasieu Ship Channel, subject to loss due to storm

Figure 6. R.N. Weeks dredging a load of sand - view is of the hopper being loaded with dredged material

Figure 7. R.N. Weeks moored alongside booster pump in Calcasieu Pass for pumpout of sand onto the project site

Figure 8. View from R.N. Weeks as it pumps the second load of sand onto the project site

Figure 9. R.N. Weeks moored alongside the booster pump in the Calcasieu Ship Channel pumping sand onto the project site where the active discharge area in this photo is 2 miles away

events, and also subjecting the Contractor to risk in the event material would cause sedimentation of the Calcasieu Ship Channel in some way.

Analyses showed that both methods could deliver the required project quantities within the project budget given proper market conditions. However, any variability in several factors may result in one or the other methods being the most effective project delivery method. Therefore, both methods were permitted and designed in order to maximize the likelihood of successful project delivery.
The location and use of the rehandling site within Calcasieu Pass was subject to extensive coordination with all stakeholders, including US Army Corps of Engineers, the Port of Lake Charles, the Lake Charles Pilot's Association, West Cameron Port Commission, Cameron Parish, Louisiana Department of Wildlife and Fisheries, local property owners, and local fishing interests. Mitigation measures were developed to minimize the potential impacts to navigation if sedimentation resulting from construction activities were to occur. The location for the rehandling site is shown in Figure 5.

Regulatory Compliance

Typical permits for work along the Gulf of Mexico coast were acquired including a section 10/404 permit from the New Orleans District of the US Army Corps of Engineers; a Coastal Use Permit and Coastal Zone Consistency Certification from the Louisiana Department of Natural Resources, Coastal Management Division; a Section 401 Water Quality Certification from the Louisiana Department of Environmental Quality; Letters of No Objection from the Cameron Parish Police Jury, the Louisiana Department of Wildlife and Fisheries, the U.S. Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NMFS), and the U.S. Environmental Protection Agency. Additionally, a Biological Opinion from the USFWS on the impacts of the project on Threatened and Endangered Species located in the area (Piping Plover and Manatees) and a Biological Opinion from the NMFS on the impacts of the project on Endangered Sea Turtles. Finally, the sand borrow site is located in federal waters on the outer continental shelf and therefore requires a lease agreement through the Bureau of Ocean Energy Management (BOEM) to extract the sand. The leasing process encompasses the entire regulatory compliance process with BOEM as the action agency.

Construction

The project was bid for construction in October 2012, and awarded to Weeks Marine, Inc. (WMI), in February 2013 for $40,495,691 to place 1.94 million cubic yards of sand. The project budget and bids allowed for awarding only the base bids which included beach fill and sand fencing for approximately 5.25 miles from immediately adjacent to the Calcasieu Jetty westward. The sand dune feature was not included in the award.

Weeks utilized two trailing suction hopper dredges, the R.N. Weeks and the B.E. Lindholm. Both dredges have a maximum hopper capacity of 4,000 cy; operations and material type on this project resulted in an effective hopper capacity of approximately 2,500 cubic yards. Figure 6 shows the R.N. Weeks dredging at the project borrow site and loading sand into its hopper.

The dredges utilize on-board pumps to pump out material to the site. In order to pump the full project extents, WMI utilized a 10,000 HP floating booster pump moored in the rehandling area adjacent to the Calcasieu Ship Channel jetties. Figure 7 shows the R.N. Weeks moored alongside the booster pump in Calcasieu Pass adjacent to the jetty.

The sand material was pumped onto the beach through a 30 inch diameter steel pipeline. Figure 8 shows the second load being pumped out onto the project site over the Calcasieu Jetty and through the short 40 ft sections of shore pipe. As the active discharge site moved further away from the pumpout site, 360 ft sections of sub-line pipe were welded into place. This allows for higher discharge pressures to be used to achieve longer pumpout distances. Figure 9 shows the pumpout operations and pipeline reaching approximately 2 miles from Calcasieu Pass.

Prior to sand being discharged into the template, dozers at the discharge site build training dikes to contain the discharged slurry and allow for the sediment to drop out of suspension. The need for and length of training dikes depends on the beach and wave conditions as well as the discharge velocity and material type. The sand material placed for this project is fine to medium sized sand with a low fine content (less than 2%), and therefore required short to no training dikes. Once the sand is discharged into the template, as shown in Figure 10 and Figure 11, the material is allowed to settle. It is then graded with dozers to the template lines and grades.

Figure 10. Sand being discharged from pipeline into beach template, training dikes are being employed on the seaward edge (left side of photo) of the discharge zone

Figure 11. Dozers working sand material being pumped into the 285 ft wide beach template

The sand was measured and paid based on the volume of material placed on the beach within the designed beach template. Surveys are conducted before dredging while the active discharge site is at least 2,500 ft away from the survey site to ensure no material that has been placed already has migrated into the survey section. Then, after the sand has been placed to grade, an after-dredge survey is conducted out to 100 ft seaward of the designed beach fill template toe. The pay volume is computed using these two survey transects. The beach fill template extends under water to a depth of 5 to 6 feet in the deepest locations. Placing material at this depth requires an understanding of the behavior of sand on the beach face and careful adjustment of the use of training dikes to build the underwater slope and not lose material offshore out of the template. During times of high wave energy, WMI utilized the compensating slope methodology where excess volume of sand equal to the underwater toe volume is placed at the water line above the template grade and allowed to naturally redistribute across the beach face to achieve the underwater slope. During low energy times, WMI utilized the natural discharge to achieve the underwater slope. The overfill ratio, or the ratio of the volume of material measured for payment divided by the volume of material pumped out of the hopper dredge, is anticipated to be 7%.

The dredging operations began on August 19, 2013 and were completed on February 13, 2014. WMI achieved an overall average production rate of approximately 11,000 cy per day placed on the beach.

Sand fencing was installed near the landward edge of the beach fill. The sand fence was installed within approximately 30 days of completion of a section of beach to minimize the loss of sand due to wind-blown transport. A total of 27,262 ft of sand fence was installed through the project.

Figure 12 and Figure 13 show the beach nourishment in January 2013 near the end of construction. Figure 14 shows a before and after beach fill photo on the eastern end of the site approximately 1 mile from Calcasieu Pass, and Figure 15 shows a before and after beach fill photo where the pre-construction shoreline was at the road embankment.

Figure 12. Active beach fill project site, with freshwater marsh system in the background

Construction Challenges

The primary challenge for the first two miles of constructing the beach were weak soils. Access to the site was provided through private property and a private road. This road required regular maintenance to handle the required traffic. Prior to sand placement on the first two miles of beach, weak soils required the use of marsh buggies and careful operations by dozers.

These soft soils also provided challenges during measurement and payment. During a particularly energetic cold front, several vertical feet of silt accreted into a section of beach where a before-dredge survey had already been conducted. If not accounted for, this material could appear as sand material if the sand was placed on top of the newly accreted silt. WMI modified their placement operations to wash this silt out of the beach template prior to discharging sand; the washout was observed to effectively clear the material from the template prior to sand placement.

The primary challenge impacting efficient production was weather at the borrow site. Endangered species conservation measures required the use of turtle trawling in the borrow site at all times during dredging operations to ensure no turtles would be injured or killed through dredging. The trawling operations become unsafe due to weather in conditions that would otherwise allow for dredging to occur. Shutting down trawling operations resulted in shutting down dredging until weather allowed for safe trawling to resume. Seven sea turtles were relocated through trawling for the project. The trawler conducted approximately 2800 trawl tows at project completion.

Future Work

Upon completion of construction, the shoreline is expected to remain landward of the 2009 shoreline for 20 years. No future beach renourishment has been planned at this time. Breakwaters have been proposed as a possible mechanism to increase the project lifetime; a cost-benefit analysis of a breakwater system should be conducted to determine if the breakwater investment is beneficial. The sand fencing is expected to capture wind-blown sand and create dunes. This sand fencing is vulnerable to damage during storm events and will require ongoing maintenance.

Figure 13. Active project site, looking east towards the Calcasieu Ship Channel jetties in the background. The vegetation line on the landward edge of the beach represents the pre-construction shoreline location

Figure 14. Project site (left) before and (right) after beach nourishment on eastern end of site

Figure 15. Project site (left) before and (right) after beach nourishment on western end of site

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Quality Control/Quality Assurance Practice on a US Army Corps of Engineers Construction Contract

(A Case Study on the Construction of a Floodwall)

By John Yanguba, PE, MSCE, MASCE

John Yanguba, PE, MSCE, MASCE

The enormous rebuilding efforts of artificial protections (levees, floodwalls, flood control gates and pumps) around the city of New Orleans, Louisiana and the immediate surrounding areas by the US Amy Corps of Engineers (USACE) after the destruction from Hurricane Katrina in 2005 progressed with successful quality control and assurance practices.

Using huge quantities of structural concrete, improved Quality Control/Quality Assurance programs were adopted to ensure that concrete material arriving on the site conformed to the required strength in accordance with the contract specifications. This practice was adopted to build public confidence that the structures will not fail in the event of another hurricane with Katrina strength.

This paper evaluates some of the concrete strength results for one of the floodwall contracts using statistical concepts and the benefits of improved quality control and assurance practices, which helped to minimize the production of lower strength concrete.

Contract Specification

The contract specification for the construction of the Bayou Segnette Floodwall cited ACI Code 214R (2002)-Recommended Practices for Evaluation of Strength Test Results of Concrete. According to ACI Code 214R, "the strength of the concrete is considered Satisfactory when the average of three consecutive test result equals or exceeds the specified concrete strength (f's = 4000 psi) and no individual test result falls below the specified strength by more than 500 psi." The specification further defined a "test result" as the average of two companion cylinder samples prepared from the same concrete sub-lot or if only one cylinder sample is prepared, the result of a single cylinder test.

As part of concrete mix design acceptance criteria, USACE required the sample average strength of a mix design to be greater than the average strength determined by ACI Code 214 "Average Strength (f'cr)."

QC/QA Practice

To satisfy the recommendation of ACI Code 241R and the specifications, daily concrete cylinder samples (min. of 8) were prepared to represent the quantity of the daily supply of concrete for the construction of the floodwall. Equal amounts of cylinder samples were divided between the USACE laboratory and the contractor's laboratory. This practice made the USACE's laboratory to serve as a Quality control laboratory rather than role of Quality Assurance as both laboratories performed equal amount of tests.

Laboratory strength results for the 7-day and 28-day strength from the two laboratories were compared and were found that the differences between the two data were very minor (differences less than 100 psi) in more than 90% of the results. Based on this finding, the analysis of one laboratory result was adequate to show the strength characteristics of the concrete.

This paper evaluates the USACE 28-day strength data for the first hundred cylinder strength data representing about 7000 cubic yard of the total 18,000 cubic yard of structural concrete used to construct the wall. The 100 test results obtained were analyzed in two sets of 50 results.

The first Fifty Results

The first fifty results covered concrete work, which started on May 21, 2010 through August 13, 2010, and the results were analyzed as follows.

Below is the graphical representation of the data

Statistical measurements in accordance with ACI Code 241R

Description	Value	Comment
Average Strength of 50 samples	4144 psi	Sample Average > Required specified Strength
Sample Standard Deviation (S)	445 psi	
Average strength in accordance with ACI Code 214 Min. Average Strength fcr'=fc'+ 1.34*S or fc'+ 2.33*S-500	4596 psi or 4537 psi	fcr'> Average Sample Strength

Observations

These were the observations of the first set of results

1. The sample average strength (4144 psi) exceeded the specification strength (f'c) by 4%.

2. The ACI Code 214 Min. Average strength (f'cr) exceeded the sample average strength.

3. About 25% of the 3-consecutive average results were below the specified strength (f'c).

4. Two individual results fell below 3500 psi.

From the observations, the QC and QA teams concluded that a review of the concrete mix design was necessary to recommend changes that will improve the concrete strength that will be satisfactory in accordance with the specifications.

Cement Content in the Mix Design

The concrete mix design approved by USACE for the construction of the wall has the following characteristics:

Cement content = 367 lb/Cu Yd of concrete
Fly Ash = 197 lb/Cu Yd of concrete

To improve the quality of the concrete, the cement content in the mix was considered as the primary characteristic that influences the concrete strength; recognizing that increase in cement content will significantly increase the concrete strength. Cement Efficiency phenomenon was then adopted to determine necessary changes in cement content that will provided improved concrete strength.

Cement Efficiency

By definition, Cement Efficiency is the ratio of the quantity of cement (in lbs.) in a cubic yard of concrete to the concrete strength (psi).

The Cement Efficiency for the average strength of 4144 psi = 367 lb/CY/4144 psi (= 0.088562 lb/CY/psi).

The cement content was adjusted to provide the ACI Code Strength of 4596 psi (f'cr) using the above Cement Efficiency.

Therefore, a concrete sample with strength of 4596 psi will require
= 0.0886*4596 lbs of cement/CY of concrete
= 402.21 lbs (402 lbs) of Cement/CY of concrete

From this determination, the contractor was advised to increase the cement content by not less than 35 lb per cubic yard of concrete (the difference between 402 lb/CY and367 lb/CY of concrete). This change was projected to provide concrete of a minimal average strength of 4500 psi.

The Second Set of 50 Results

Following the above determination and making the recommended change, the 28 –day strength data was improved. The result below showed a marked difference between the first set of 50 sample test results and the second set of results.

Statistical measurements in accordance with ACI 241R

Description	**Value**	**Comment**
Average Strength of 50 samples	4970 psi	Sample Average > Required Strength
Sample Standard Deviation (S)	610 psi	
Average strength in accordance with ACI 214 Min. Average Strength fcr'=fc'+ 1.34*S or fc'+ 2.33*S-500	4817 psi or 4921 psi	Average Sample Strength

Comparison of the results

Parameter	**First Set**	**Second Set**
Sample Average Strength/Specified Strength	Average Strength Exceeded the specified strength by 4%	Average Strength Exceeded the specified strength by 24%
Sample Average Strength/ACI Required Strength	Average Strength was less than ACI Required strength	Average Strength exceeded ACI Required strength (f'cr) by 153 psi.
3-Consequitive Sample Average Strength/Specified Strength	About 25% the 3-consecutive average results were below the specified strength (f'c).	No 3-consecutive average results was less than the specified strength (f'c).
Individual Strength Data	Two individual results fell below 3500 psi.	No individual cylinder strength was below 3500 psi.

Conclusion

Except for the first 3400 CY, of the total of about 18,000 CY of structural concrete used to construct more than 8,000 feet of reinforced concrete floodwall, the 28-day strength variation satisfied the requirements of the specifications and ACI Code 214R respectively as the average of three consecutive test results exceeded the specified concrete strength (f's = 4000 psi) and no individual test result was less than the specified strength by more than 500 psi.

It will be prudent to say that this excellent result was only achievable because of the proactive action of the field team. The team's immediate recognition of the problem by way of relentless inspection and monitoring of the concrete material changed the trend of unsatisfactory results into satisfactory results.

The effect of fly ash on the strength of concrete was discussed after the first set of results was analyzed since the mix design contains 197 lb/CY of concrete (35% 0f cementitious content). In general, concrete containing fly ash has a slower rate of strength development but often results in higher later-age strength. Though the team recognized that the presence of fly ash may have contributed to the low trend of the 28-day strength data for the first set of cylinder breaks, the requirement for Satisfactory concrete strength, in accordance with the specifications and the ACI Code 121R, was quite demanding. To achieve this result, the cement content was increased by 6% of the cementitious content thereby reducing the fly ash from 35% to 33% of the cementitious content. The resulting trend for the 28-day concrete strength met the minimum requirement for three consecutive strength data exceeding the specified strength of 4000 psi and no individual concrete strength was less than 3500 psi.

In accordance with the specifications, non-destructive tests (NDT) were performed to determine later-age strength of the concrete in sections of the wall that were constructed from the first 50 sample batches. The standard NDT Schmidt Rebound hammer method measured strength exceeding 4000 psi in all areas; indicating continued development of concrete strength due to the action of the fly ash.

The QC and QA teams did not relent in their inspection duties at the achievement of this standard of concrete quality but maintained more rigorous quality inspections as the construction of the floodwall and other associated contract work items progressed to the end. The rewarding consequence of this effort resulted in very limited deficiencies in concrete strength that needed additional non-destructive tests on the structure.

It is fair to say that this simple public/government quality inspection helped to build public confidence that the structures built to defend New Orleans and the surrounding areas will stand the test in the event of a hundred year storm.

John Yanguba, PE, MSCE, MASCE *served as the Team Leader for the USACE QA team. After working for California Department of Transportation for over sixteen years, he moved to New Orleans to help in the rebuilding effort of the Hurricane and Storm Damage Risk Reduction System.*

This article is dedicated to the hard working crew of the contractor's QC team: P. J. Pearson and Steve Pesko, USACE's Inspector Jeffery Livingston, workers at the NAIRN Concrete Plant and employees of USACE New Orleans Laboratory. In partnership, we all worked together to produce a structure with high probability to withstand the natural forces of hurricane storms.

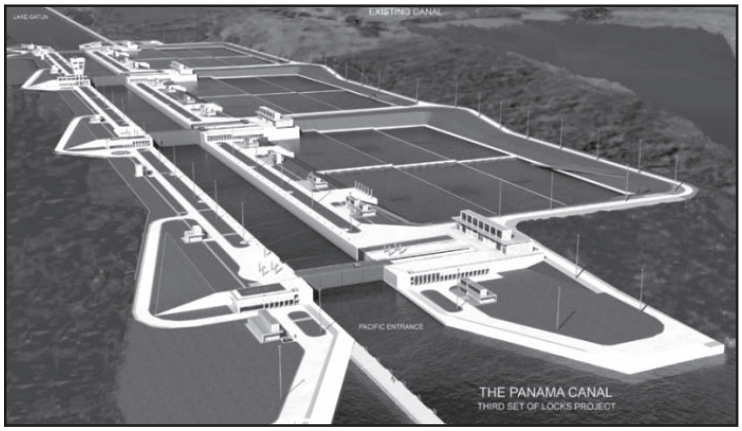
ASCE-COPRI Louisiana Chapter News

By Dennis G. Lambert, PE, Newsletter Editor

COPRI
COAST, OCEANS, PORTS AND RIVERS INSTITUTE
Louisiana Chapter

The Louisiana Chapter of the American Society of Civil Engineers (ASCE) Coasts, Oceans, Ports, and Rivers Institute (L.COPRI) is continuing to promote membership and visibility throughout the State of Louisiana by conducting joint seminars with local Branches and State Sections of ASCE.

Currently, a seminar is planned for the Panama Canal Expansion – Third Set of Locks Project. The seminar is scheduled for March 27, 2014 at the Port of New Orleans and is being hosted by the Port of New Orleans and co-sponsored by ASCE T&DI. The speakers included Gary Lagrange, President and CEO of the Port of New Orleans, and Juan Quiroz, PhD, PE, Lead Structural Engineer for MWH Global.



Rendering Courtesy of MWH Global

In April, ASCE Ports 2016 will hold its first planning meeting to begin developing the efforts for this conference to be held in New Orleans. Updates regarding this important initiative will be announced in the coming months as L.COPRI will be represented in the planning committee.

On February 17, 2014, Garret Graves, Chair of the Coastal Protection and Restoration Authority (CPRA) stepped down. Jerome Zeringue is Mr. Graves replacement. Maury Chatellier, PE of the CPRA Engineering Division also has announced his departure. CPRA updates will continue to be announced in the coming months.

Outgoing CPRA Chair, Garret Grave (left), CPRA Pubic Information Coordinator, Chuck Perrodin (seated) and Current CPRA Chair, Jerome "Zee" Zeringue (right)

ASCE's Outstanding Civil Engineering Achievement (OCEA) Award is annually recognized as an exemplary civil engineering project. Established in 1960, this prestigious award honors the project that best illustrates superior civil engineering skills and represents a significant contribution to civil engineering progress and society. Honoring an overall project rather than an individual, the award celebrates the contributions of many engineers. The winner of the 2014 OCEA award will be announced at the OPAL Gala on March 20, 2014 in Arlington, VA. One of the finalists is the IHNC Lake Borgne Surge Barrier, the largest civil works design-build project undertaken by the U.S. Army Corps of Engineers as part of the Greater New Orleans Hurricane Storm Damage Risk Reduction System (HSDRRS). Stay tuned for the announcement of the winner. The Huey P. Long Bridge Widening project is another Louisiana engineering marvel being considered. For more details, visit http://www.asce.org/ContentWide.aspx?id=12884905743.

The activities of L.COPRI will arrange seminars, workshops and other activities to benefit all ASCE and COPRI members. One does not have to be an Engineer to join COPRI. These Institutes are formed for the benefit of ASCE and non-ASCE members to participate and interact with other professionals interested in coastal restoration efforts in the Gulf of Mexico. If you have any questions or to add your name to our mailing list, please contact Tyler Ortetgo, L.COPRI Membership Committee Chair at tortego@gmail.com.

ASCE Government Relations Committee Report

By Jeffrey Duplantis, PE, FASCE

ASCE | GOVERNMENT RELATIONS

The ASCE Louisiana Section Government Relations Committee (GRC) worked hard in 2013 to begin preparations for 2014. If you recall our article in the last Journal we were in the process of organizing a Legislative Drive-In at the Louisiana State Capital. In order to better focus our message to the legislatures we have changed the name of our event to "Infrastructure Awareness Day". We have continued to involve ASCE National in our deliberations and preparations, but we have also recently reached out to ACEC, LES and Louisiana Good Roads to get their assistance and support for this event. Their insight and past experiences have been a huge help to the GRC Committee and has provided a much needed lessons learned perspective to our efforts.

For our first Infrastructure Awareness Day event we will be targeting the House and Senate Transportation Committees as these members are at the forefront of the issues affecting both planning and funding for Louisiana's infrastructure. Since this will be our first attempt at such an event we are planning on inviting select representatives from each of the participating organizations with a focus on getting members from all corners of the state. Our hopes are that this inaugural event will be a success and that at future events we can begin opening the attendance to more of our membership.

In order to catch the legislatures early on in their 2014 session, we have scheduled the Infrastructure Awareness Day for Thursday, April 3rd. We are going to have a representative from ASCE National present to provide a briefing for the engineering organization attendees. Later that morning we will host a luncheon for the Transportation Committee members and their respective staff. During the time that they will be eating we hope to educate them on why our organizations feel that mere recognition of our state's inferior infrastructure is not enough. We need to begin considering how we are going to fund upgrades on a near term and long range basis. We can't afford to continue along the same path and mindset as we have in the past. We must establish the means and methods for investing in our state's infrastructure now so that we are being much more proactive in the future of our state's economic development.

Just prior to the Louisiana Infrastructure Awareness Day, members of the Louisiana GRC Committee will be attending the 2014 Legislative Fly-In in Washington DC. This year's National event is scheduled for March 18-20. ASCE members from across the country will gather to learn about public policy issues affecting the profession of civil engineering and how they can influence the legislative process.

In conjunction with the above efforts, the GRC has also secured an ASCE National representative to speak at the upcoming Spring Conference in Lafayette (April 24-25). Their talk will focus around government relations and how you can get involved. They will also have a booth set up to recruit Louisiana members who are interested in being more involved on the political side of our profession. This is ASCE National's Key Contact Program. For those who may not be aware of this program, ask yourself these questions:

Are you interested in influencing the policy process?

Are you interested in helping ASCE make its mark on legislation considered and passed in Congress and state legislatures?

ASCE Key Contacts do just that by developing relationships with elected officials. By meeting and making contacts with your elected officials in several ways, you can achieve true conversations about issues important to the profession with your elected officials and/or staff, and become a trusted advisor when bills are drafted or considered. The Louisiana Section currently has 143 Key Contact members and we are hoping that over the course of the next several months we are able to both get these existing members more active, and to also increase the number of Key Contacts in Louisiana.

If you would like to be involved with the GRC, please contact any of the executive committee members - Joey Coco, Kirk Lowry, Nedra Davis, Kahli Cohran or myself – and we would be glad to fill you in on what we have been working on. Our focus moving forward is going to be towards educating the Section members by providing interfaces with local governmental leaders and updates on policies that may affect the engineering discipline. We are very open to ideas that you might have, so please feel free to send us your thoughts and feedback. We want this committee to be a service to the membership.

Remember: Influencing elected officials and increasing investment in infrastructure starts at the local level!

Get the Latest Version of the Report Card App

Recently, ASCE released a new update to the mobile and tablet Report Card apps!

If you've already downloaded the Report Card to your phone or tablet, the new version is only a few clicks away. To get the latest and greatest version, just go to your app store of choice (iTunes or Google Play) and click on "Updates." Hit "Update," and you'll have all the new information automatically loaded.

While you're in the iTunes or Google Play store, we'd really appreciate it if you'd take a few minutes to rate our app and tell others why they should download it too.

ASCE-T&DI Louisiana Chapter News

By Michael Paul, PE, Newsletter Editor

TRANSPORTATION & DEVELOPMENT INSTITUTE
LOUISIANA CHAPTER

One of the long-term goals of the T&DI Louisiana chapter was to start and sustain a scholarship program and this goal was achieved during FY2012. With funding provided by our seminar proceeds, T&DI formed a subcommittee (composed of Dr. Louay Mohammad, Om Dixit, PE, and Dan Aucutt, PE) whose purpose was to solicit, review, and award scholarships to deserving junior and senior university students that intend to pursue a career in the field of transportation. The announcement was issued to Louisiana universities in September, 2013. Each applicant was required to provide a transcript along with two academic recommendations, and an essay regarding their interest in transportation studies. In December, the T&DI subcommittee selected Ms. Alyse Aldridge (LSU) and Mr. Vernell Banks (Southern University) as the recipients of the Scholarship Awards. Each awardee received a $500 stipend, which was sent to their respective engineering departments for distribution. Congratulations to the 2013-2014 recipients for their accomplishment!

Alyse Aldridge

Vernell Banks

In November 2013, the T&DI Louisiana Chapter presented the Louisiana Rail: Past, Present and Future - A Case Study on Passenger Rail along Freight Rail Corridors seminar at the University of New Orleans, Milneburg Hall. This event was cosponsored with the UNO Transportation Institute. The topic of the seminar was passenger rail history, growth, deterioration, and it's resurgence with an emphasis on the importance of intercity service in the New Orleans region. Seminar speakers were Alan Tobias (HNTB) and Thomas L. "Todd" Stennis III (Amtrak).

T&DI is preparing to participate in the Louisiana Engineering and Science Fair that will be held during March 24-26 at the LSU Union in Baton Rouge. As was done last year, T&DI will provide judges and present awards to the top transportation and development projects.

If you are interested in co-sponsoring a seminar at your branch, the T&DI Louisiana Chapter has prepared a Seminar Coordinator's Check List to assist you in your preparation. Contact David Kanger, PE, at DAKanger@modjeski.com for a copy of the checklist. Our seminars are two hours in length and are typically presented from 5:30-7:30 pm in either the New Orleans or Baton Rouge area. As indicated, we are open to co-hosting seminars in additional Louisiana cities, with proper planning. In keeping with the intent of the Institute to provide training and networking opportunities for all professionals involved in transportation projects, the Chapter is planning the following future seminars:

- I-49 South Corridor
- Louisiana ITS
- Hurricane Mooring Regulations
- Toll Road Feasibility for I-10/LA 1 connector in Baton Rouge
- Pavement Engineering (Part 3 of 3) Application of Earthwork and Embankment Materials
- New Pavement Design / Empirical Methods
- Mitigation Banking
- Louisiana P3

NEW ORLEANS BRANCH

By Stephen Johns, PE, Branch President

On November 13, 2013, the New Orleans Branch hosted a luncheon at Five Happiness restaurant. Our speaker, Mr. Miles Bingham PE gave a very interesting presentation on "How Does ASCE designate a National Historic Civil Engineering Landmark". This was a very timely presentation in that The Causeway was the latest landmark to be so designated by ASCE National the previous Friday afternoon. Mr. Bingham was a member of the ASCE National Historic Civil Engineering Landmark Committees for both the Huey P. Long and Causeway Bridge Nominations and Dedications and provided the details about the process and discussed the four projects in Louisiana that have achieved this status. He also provided insight into the next project for which he is preparing a nomination package, the Bonnet Carré Spillway.

Our January 14 luncheon presentation was given by Mr. Thomas Podany, Chief of the Protection Restoration Office of the New Orleans District of the Corps of Engineers. His topic was "Completing the Post-Katrina Risk Reduction Work - Where We are Today and Where Will We Be Tomorrow". Mr. Podany gave us an overview of what the Corps of Engineers has accomplished, the value to the nation and state of La., what remains to be done, and how the roles and responsibilities are shifting from the federal government to the state of Louisiana. Starting with January's luncheon in an effort to bring UNO engineering students into our professional world, the New Orleans Branch initiated the practice of charging half price to UNO engineering students, and not just civil engineering students. Some of our finest CE's started college in other disciplines. As part of the Louisiana ASCE Section 100 year anniversary celebration, we gave out 50 of their Centennial Celebration Calendar to all that came to the January luncheon.

As a service to our north shore membership we emailed a survey soliciting interest in having a luncheon on the north shore in Slidell or the Covington area. The survey is part of our Constant Contact web service that we have found to be very useful in sending notices to our membership. If there is enough interest a luncheon meeting will be held on the north shore sometime in the spring.

On February 1st we held our yearly E-Week function. This year it was a two part event with a planting of trees in City Park in the morning and then an afternoon tour of the London Ave Permanent Canal Closure & Pumps (PCCP) site which is now under construction. The station will be composed of permanent gated storm surge barriers and brick façade pump stations near the lakefront. The pumps will move rainwater out of the canal, around the gates and into Lake Pontchartrain during a tropical weather event. It will be equipped with a stand-alone emergency power supply capacity so that it can operate independently of any publically provided utility. When complete, the PCCP at London Avenue will consist of four 1,800 cfs pumps and two 900 cfs pumps and have a total pumping capacity of 9,000 cfs.

Our President Elect, Lee Alexander, attended the ASCE Leadership conference Feb 7-8 in Indianapolis. The two day conference is for ASCE Regions 1, 2, 4, & 5 and provides valuable workshops and tools needed by those in leadership roles.

The New Orleans Branch is continuing our practice of sponsoring UNO students and student activities. We have sponsored Gregory Mattson to present his paper at the annual Geo-Congress Conference February 23-26, 2014 in Atlanta. His presentation will showcase thesis research that he has conducted on the characterization of dredged materials used in marsh creation projects. Gregory is a UNO student ASCE member studying for his Civil Engineering Master's Degree. Congratulations, Gregory.

As always the board is interested in hearing from our members and encourages your input. You can always contact me at Steve.Johns@WSNelson.com with any questions, comments or ideas on how we can better serve our members.

The New Orleans Branch ASCE volunteers after the planting of 115 trees in City Park as part of E-Week

After the tree planting we toured the London Ave PCCP site

ACADIANA BRANCH

By William Tyler Roy, EI, Branch President

The ASCE Acadiana branch has been busy planning the Annual 2014 Louisiana Section Spring Conference and activities. The conference will be on April 24th and April 25th, 2014 at the Cajundome Convention Center in Lafayette, Louisiana. This year's conference will celebrate the Louisiana Section's Centennial Celebration. We have a great lineup of speakers and presenters for the conference and are excited to be the host during such a significant year for the section. On Thursday evening will be a crawfish boil for all attendees and guest to come relax and enjoy cajun country's most popular fare. Attendees, exhibitors, and sponsors may all register online at www.asceacadiana.net. For information or help regarding registration feel free to contact Ronke Osibajo, PE at oluronke.osibajo@hdrinc.com. We look forward to seeing you there!

On November 6, 2013 the Acadiana Branch held a luncheon at Don's Seafood and Steakhouse Downtown. Andrew Juneau, E.I., Billy Fontenot, E.I., and Chris Giglio, E.I. did a presentation on "Bridge Joint Repair Using Polymer Concrete". The presenters did a great job and the attendees completely maxed out the capacity in the restaurant. On Tuesday, December 10, 2103 the Acadiana Branch and the Louisiana Engineering Society celebrated the holidays with a joint social at Social Southern Table in Lafayette. Attendees enjoyed great food and had a good time catching up and networking with other engineering professionals. The branch kicked off the 2014 luncheon schedule with an event on February 5, 2014 at Don's Downtown. Mr. Ricardo Johnson, PLS with John Chance Land Surveys, Inc. presented on "Geoid Models – Calculating Orthometric Heights and Unique Application Problems in South Louisiana". This was a very informing presentation and Mr. Johnson was able to show examples of actual issues surveyors and engineers face working along the gulf coast. On behalf of the branch board, I would like to thank all of our luncheon presenters and we hope to continue the success of serving our members.

Mrs. Jasmine Galjour, PE has been inducted as the Acadiana Branch Secretary for the 2013 and 2014 year. I thank her for her service and commitment and welcome the needed help as we work through a busy year. She recently represented the Acadiana Branch at the Multi Region Leadership Conference in Indianapolis on February 6 – 8, 2014. The branch had not sent a member to the conference in a few years and it is great to be able to represent ourselves there again. She had a wonderful time and the conference was a success despite the frigid below freezing temperatures in Indianapolis this time of year (Recorded -7 Fahrenheit on Feb. 7th).

We look forward to the rest of 2014 and hope everyone had a safe Mardi Gras Season.

BATON ROUGE BRANCH

By Joey Coco, PE, Branch President

The Baton Rouge Branch ended 2013 with a wonderful Christmas Party. The party was held at Bocage Racquet Club in Baton Rouge, LA where approximately 100 members and guests attended. The event, which has a deep history within the branch, allows members the opportunity to network about engineering and life in general. Spouses of members always seem to have a good time as they poke fun about what it is like being married to an engineer. We are looking forward to our 2014 Christmas Party and hope that you have the chance to make it.

The Branch held its first meeting of the year with a representative providing a technical lecture on Insulfoam products and their use in below grade applications, wall applications, and under-slab applications. We are planning an ethics presentation for our March 2014 meeting, and a few months soon thereafter we will be joining LES in a joint societies luncheon. We have many wonderful speakers lined up for this year and look forward to a continued strong meeting attendance by our membership.

Notably, the Baton Rouge Branch was successful on receiving two SPAG grants. SPAG stands for State Public Affairs Grants and are used to promote the profession. The branch received one from the Louisiana ASCE Section, along with ASCE national, to support "Engineer It." This pilot program was established through the Louisiana Arts and Sciences Museum (LASM) to teach young children about engineering concepts. We hope that the efforts and investments made by the Baton Rouge Branch surrounding this program will lead to a permanent course at LASM for many years to come.

We are encouraging members to like our Baton Rouge Branch Facebook page. We are up to approximately 70 members on the facebook page. Friends of The Baton Rouge Branch of ASCE enjoy the benefits of meeting notifications, photos, branch events, and any other posts that friends make. Please take a moment to go to our page and "like it."

The Baton Rouge Branch officers enjoying the Christmas Party: Kahli Cohran, Blake Roussel, Kirk Lowery, Joey Coco, Danielle Welborn, Rudy Simoneaux and Jennifer Shortess

Baton Rouge Branch Members enjoy the Christmas Party

SHREVEPORT BRANCH

By Mitch Guy, PE, Branch President

On Thursday, December 19th, we hosted our annual Christmas Party at Santa Fe Cattle Co. Restaurant in Bossier City. Each year, our Christmas Party is hosted free of charge for members and door prizes are given away. This year, 13 of the 25 attending members went home with prizes. With Christmas just a few days away, everyone was able to relax and enjoy good food and good company.

Our January Meeting on Thursday, January 16th was attended by 22 members at the Petroleum Club in Downtown Shreveport. Our guest speaker was Andy Brown of D&W Systems and Sales who talked to us about restrained joint PVC piping as an alternative to HDPE. Despite some technical difficulties, Andy did a wonderful job presenting and generated some quality discussions amongst the attendees.

On Thursday, February 20th, we held our joint meeting with the Shreveport Chapter of LES. Joe Harman and Tyson Ducote traveled up from Baton Rouge to deliver an ethics presentation on Firm Licensure. The meeting was attended by over 50 members from ASCE and LES.

Also on Thursday, February 20th, Louisiana Tech University held its annual Civil Engineering and Construction Engineering Winter Banquet. Ali Mustapha and Daniel Thompson traveled to LA Tech to present scholarships to this year's Outstanding Senior and Outstanding Junior Award recipients. As an added bonus, our very own Kurt Nixon was the Keynote Speaker. The funding for the scholarships stems from the proceeds of our annual Golf Tournament; I'd like to give a special thanks to all of this year's Golf Tournament participants and sponsors for making this possible. Special congratulations to the LA Tech Award Recipients listed below:

Outstanding Seniors – Salvatore Pellittieri and Seth Strong
Outstanding Junior – Patrick Reilly

The Shreveport Branch will be helping the Section host the Monroe Outreach event on March 6th at Copeland's of New Orleans in Monroe. The event will be from 11:00 a.m. – 1:30 p.m. and will be free for ASCE members (2 PDH's available). I want to give a special thanks to the Monroe Chapter of LES for their aid and advice in planning the event.

The celebration of our Section's Centennial is well underway and the Shreveport Branch is playing its role in commemorating the history of our branch. Over the next few months, we are looking forward to diving deeper into the projects we've selected so they can get the attention they deserve.

Salvatore Pellittieri, Outstanding Senior

Seth Strong, Outstanding Senior

Daniel Thompson

Kurt Nixon, Keynote Speaker

ASCE-SEI New Orleans Chapter News

By Om Dixit, PE, FASCE, Newsletter Editor

Since our report in November 2013 issue of this magazine, ASCE SEI New Orleans Chapter was busy planning for future seminars and hosted one seminar during this period in New Orleans.

The seminar was held on October 24, 2013. SEI New Orleans Chapter invited Edward P. Wasserman, PE (former Director, Structural Division, Tennessee DOT) to present the seminar "Innovations in Highway Bridge Design and Construction". Keith provided an overview of the new techniques being used to minimize the joints in concrete structures. He also discussed several case histories to show the problems with design and detailing and how to avoid these. The seminar was attended by about 72 members.

The following future Seminars are in process of being finalized:

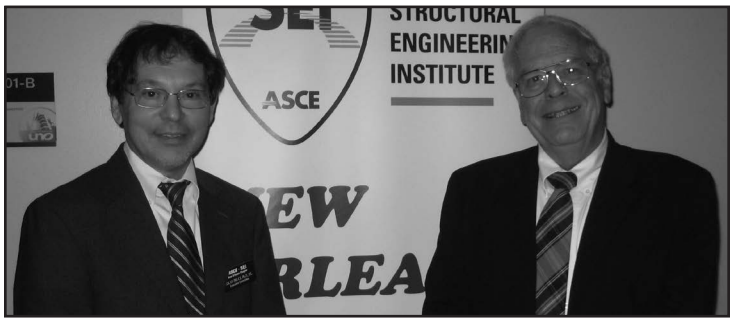
April 15, 2014 David Hunter Annual Lecture
June 3, 2014 Strength Design of Masonry by Dr. Richard Bennett

The other topics for the future seminars are being considered Panama Canal Expansion Overview, New Orleans Pump Stations, Concrete Filled Steel Pile Design, Joplin Missouri Tornado Investigation Study Report and a few more current topics.

The committee is looking for good topics and speakers for future presentations. Members with expertise in the field of structural engineering would be welcome to join the Executive Committee. For any suggestion and information on joining the Executive Committee, contact Chairman Stevan M. Fall, PE, at sfall@cox.net.

Due to increasing cost of mailing, SEI New Orleans Chapter has decided to stop mailing for the seminar notices. The seminar notices will be emailed using our email list. If you are not sure whether your correct email address is on our list, please email your correct email address to Om P. Dixit.

All seminars are held at the University of New Orleans. Seminar dates, pertinent information, and registration can be found on the New Orleans Branch website at www.asceneworleans.org. To add your name to our mailing list, e-mail Om P. Dixit, PE at om@fenstermaker.com.



At the SEI New Orleans Chapter Seminar on October 24, 2013 the speaker Edward P. Wasserman, PE (Right) with Executive Committee Members Zolan Prucz, PE (left)

Student Chapter News

UNIVERSITY OF LOUISIANA AT LAFAYETTE

By Michelle Campbell, Student Chapter President

This Spring, University of Louisiana at Lafayette's ASCE Student Chapter is working hard. The Spring is the busiest time of the year for us. We have many students graduating including our President and Vice President. At our school we also have an Engineering week we have started preparing for.This year the engineering week is March 24-28. During the week we have paper, poster, and mystery competitions. The most important day is Engineering day that Wednesday the 26th. This is the day where students who are interested in our program come and tour our engineering buildings. The UL chapter of ASCE prides itself on being able to interest people enough to where they come to our school and join the major of Civil Engineering, We keep very busy preparing for it, but above all, we have our annual Deep South Conference to prepare for. The UL chapter attends this conference every year and participates in all of the competitions including the steel bridge and concrete canoe. The teams are working very hard and putting in a lot of time in order to sweep the competition this year at Christian Brother University in Memphis, Tennessee.

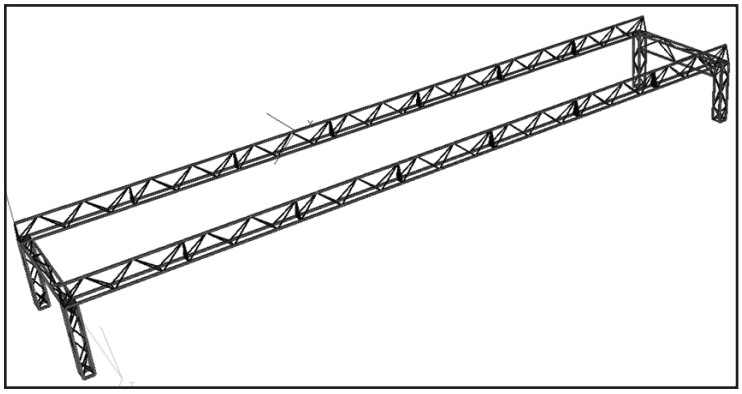
Concrete canoe during pour day

LOUISIANA TECH UNIVERSITY

By Seth Strong, Student Chapter President

This winter quarter, we have been focusing on our concrete canoe and steel bridge projects. For each of our projects we have had multiple interest meetings to attract new members to ensure longevity of our projects. Even though the main focus has been on building and managing concrete canoe and steel bridge, we have also had several general chapter meetings. We also have continued our tradition of sponsoring the Louisiana Tech Civil Engineering and Civil Engineering Technology Department Banquet alongside our student chapters of Association of General Contractors, North American Society for Trenchless Technology, and Chi Epsilon. At this banquet, our outstanding juniors and seniors are recognized for their participation in ASCE and AGC as well as for exemplarily scholarship.

Our student chapter was also proud to have three members receive Louisiana DOTD Scholarships.



This is a STAAD model of this year's steel bridge. We are looking forward to competing at the regional conference at Christian Brother's University

The Concrete Canoe team has completed pouring and drying the canoe for this year. Efforts are being made now to sand the canoe to a smooth finish and to trace sketches of the final paint scheme on the surface right now. Staining will begin in the next few weeks along with aesthetical presentation stands and displays. Paddling has also started this year so that we can continue to do well in the racing portion of the competition. We are also in the process of submitting the concrete canoe report.

This year's Steel Bridge team has had a large increase in membership. The team is looking to continue its previous success and reach the National Competition later this year. The team has decided to go with a single beam bridge which is a challenge since this year's bridge is 18' long and must support a 2500 pound load. Currently fabrication on the bridge is underway and looks promising to be finished ahead of schedule in order to put in many hours of practice for the assemble portion of the competition.

This is the concrete canoe during pour day

LOUISIANA STATE UNIVERSITY

By Emily Weigand, Student Chapter President

ASCE at LSU has already had a busy semester! Our first three meetings for the spring semester were well attended. At our first meeting, representatives from the LSU E. J. Ourso College of Business came to speak about the MBA program. On February 4, Ron Reichert from Rinker Materials spoke to the students about concrete pipes and box culverts. Emily, President, and Jabari, Vice President, traveled to snowy Indianapolis, IN in February for the ASCE Workshop for Student Chapter leaders. The steel bridge and concrete canoe teams are currently working hard to get everything prepared and ready for the Deep South Regionals at the end of March in Memphis, TN.

February 4, 2014 Meeting with Ron Reichert from Rinker Materials

Emily and Jabari at the ASCE Workshop for Student Chapter Leaders (WSCL) in Indianapolis, IN

Email asce@lsu.edu for speaking opportunities or to get involved with the ASCE student chapter at LSU!

MCNEESE STATE UNIVERSITY

By Katie Hinson, Student Chapter Secretary

The McNeese State University ASCE student chapter has had quite a busy start to the spring semester. We are currently preparing to compete in the 2014 regional conference hosted by Christian Brothers University in Memphis, Tennessee on March 27-29th. We will compete in the concrete canoe, surveying, Mead paper, and mystery events. This year's canoe mold is a new method for the McNeese crew; we have designed a cost effective mold which will serve not only as the mold and method of the canoe transportation, but it has also been designed so that we can reuse the mold for years to come even if the dimensions change. This years theme will reflect the 75th anniversary of McNeese State University.

Planting Vegetation: Jessica Trahan (Student President) and Alvin Trahan (Freshman Representative)

Concrete Canoe: Dr. Uppot supervising concrete canoe construction

Along with conference preparations, several students have been volunteering their time since the fall semester with a coastal project located in Cameron, Louisiana. We are testing LA Ash's material called OPF42 in a levee design to test the sustainability, strength, and integrity of the material against the wave action from the Gulf of Mexico. When the project is complete, it will determine if the material can be used with roads and levees which are susceptible to erosion and damage from wave action. McNeese's ASCE members volunteered with a beach clean up and surveying the area. Two students conducted an experiment where they planted local plants on a controlled soil (the existing soil) and on the OPF42 material to see if the plants would thrive on the new material.

Canoe Mold: Jessica Trahan, Justin Jordan, Alvin Trahan, Evan Geerts, Benny Nero

Surveying the beach: Justin Jordan and Luke Kinney

UNIVERSITY OF NEW ORLEANS

By Ryan Gerken, Student Chapter President

On November 20th, the University of New Orleans ASCE student chapter welcomed Mr. Jon Risinger and his colleagues from COPRI and Oldcastle Precast for an informative presentation at our monthly luncheon. The presentation included an introduction to coastal engineering, COPRI (Coasts, Oceans, Ports and Rivers institute), Warfarer Environmental Technologies, and a real world project that brought all three of these topics together.

The main topic of the presentation was the OysterBreak systems that are being installed along the coasts of Louisiana. These "OysterBreak" semi-artificial oyster reef systems consist of precast concrete cylinders that are placed in series along the coast to promote oyster habitat growth. These systems function as both a breakwater to protect the coasts and also as a vital part of the local eco-system. Mr. Risinger and his colleagues were able to provide an enriching presentation that portrayed many unique perspectives on how the engineering process works in the real world.

Jon Risinger presenting to the UNO ASCE chapter

I would like to thank Jon Risinger and his colleagues Andrew Woodroof, Tyler Ortego, and Dale Robicheaux once more for taking time out of their busy schedules to come speak to our chapter.

If you would like to become a member or contact UNO ASCE to work with us on a future project, please contact us at asceuno@gmail.com.

— CALENDAR OF EVENTS —

MARCH 2014	
March 18-20, 2014	**ASCE's 2014 Legislative Fly-In – Washington, DC**
APRIL 2014	
April 24-25, 2014	**2014 Louisiana Section Spring Conference – Cajundome Convention Center – Lafayette, LA**
April 24th, 2014	**Centennial Posters available at Spring Conference**
AUGUST 2014	
August 9, 2014	**Centennial Gala – Renaissance Hotel – Baton Rouge, LA**
August 9, 2014	**Centennial Books available at Centennial Gala**
OCTOBER 2014	
October, 2014	**144th Annual Conference 2014 – Panama City, Panama**

Please check for latest updates online: **http://www.lasce.org/calendar.aspx**

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