



ARLINGTON
NATIONAL CEMETERY
HONOR · REMEMBER · EXPLORE



Arlington National Cemetery Monumental Makeover

14 May 2024

Ms. Karen Durham-Aguilera, P.E.

Mr. Babur Mian, P.E.

Mr. Matthew Karlinchak, P.E.

Mr. Andrew Farver, P.E.



HOUSEKEEPING ITEMS

Take Note of Exits

Silence Your Mobile Devices

Presentations and Audio Recordings will be available in the Attendee Service Center until August 30, 2024

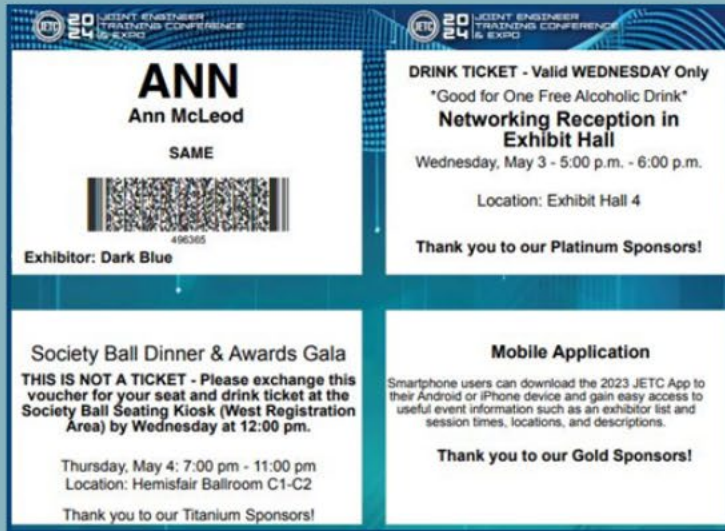
Download your PDH record in the Attendee Service Center before August 30, 2024

Thank You to our Education Session Sponsors



Opening Reception at Universal CityWalk

(Minimum age 18 - No Children)



Bring Your Name Badge
with Drink Tickets)
+ Your ID



Get Your Wrist Band
TODAY at the
Registration Help Desk
or SAME Booth



Buses depart Gaylord
& Caribe Royale,
beginning at 6:00 p.m.





Moderator: Mike Darrow, P.E., USACE Norfolk District

Speakers:

- Karen Durham-Aguilera, P.E., *Executive Director*, Office of Army Cemeteries and Army National Military Cemeteries
- Babur Mian, P.E., *President*, Terra Constructs
- Matt Karlinchak, P.E., *Branch Chief*, USACE Norfolk District
- Andrew Farver, P.E., *COR*, USACE Norfolk District



US Army Corps
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Moderator



Michael Darrow, P.E., PMP

USACE Norfolk District

Deputy District Engineer

Fun Facts

- Retired Army Engineer Officer – 2 of 3 kids + wife are engineers
- Long Suffering Buffalo fan - Go Bills! Go Sabres
- A "wanna be" professional sandcastle builder – lots of holes on the Outer Banks
- Love being on the water



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Speaker



Karen Durham-Aguilera, P.E.
Army National Military Cemeteries
Executive Director

Fun Facts

- Road to Bionic: replacing/repairing one body part at a time
- Spare time: riding my Harley-Davidson and supporting veterans
- First two bullets not related 😊
- Vacation time: Beach and tequila!



Speaker



Babur R Mian, P.E.

Terra Constructs
President and CEO

Fun Facts

- Traveled to 60+ countries
- Welcome to America
- Met Eric Clapton
- Millenia Concord Ride
- Keeping up with a 6-year-old





Speaker



Matthew Karlinchak, P.E.

USACE Norfolk District
Branch Chief, ANC Program

Fun Facts

- Lived in Europe for 11 years
- Maryland Native – Go Ravens and Terps
- Running 1st marathon in Berlin this year
- Regular ball donor to the ponds and forests of America's golf courses!



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Andrew Farver, P.E.
USACE Norfolk District
Project Engineer / COR, ANC Program

Fun Facts

- Getting married this November!
- Own a 90-pound lap dog.
- Chicago Native (Go Bears and Cubs!!).
- Trying to visit every baseball stadium.



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1. History of the Arlington National Cemetery and the Pylons, *Ms. Karen Durham-Aguilera, P.E.*
2. Understanding USACE Sole Source Procurement Process, *Mr. Matthew Karlinchak, P.E.*
3. Engineering Challenges in Monument Preservation, *Mr. Babur Mian, P.E.*
4. Expertise in Structural Stabilization, Push Piers and Helical Piles, and Structure Lifting, *Mr. Babur Mian, P.E.*
5. Video of Pylon Lifting Process, *Mr. Babur Mian, P.E.*
6. Construction Management Best Practices in a National Cemetery, *Mr. Andrew Farver, P.E.*
7. Completion Photos, *Mr. Andrew Farver, P.E.*



Honoring Our Veterans and Families





Great people honoring service and sacrifice to a Grateful Nation

Office of Army Cemeteries Mission



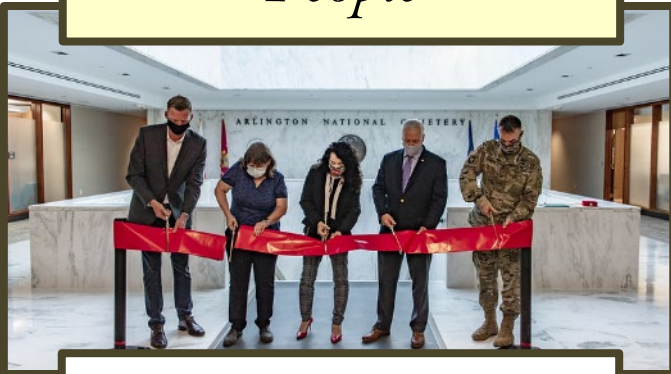
As the Army's cemeterians, OAC provides oversight and expertise for all Army cemeteries through policy, program management, inspections, training, and assistance, honoring those laid to rest in perpetuity.

Army National Military Cemeteries Mission



Arlington National Cemetery represents the American people for past, present, and future generations by laying to rest those few who have served our nation with dignity and honor while immersing guests in the cemetery's living history.

People



People are at the heart of everything we do

Modernization



Our cemeteries are a perpetual tribute to those at rest. We focus on **Modernization** to sustain and extend this tradition for future generations

Readiness



We deliver on our sacred mission by maintaining **Readiness** through the optimal management of our valuable resources



Connecting Visitors to a Rich History

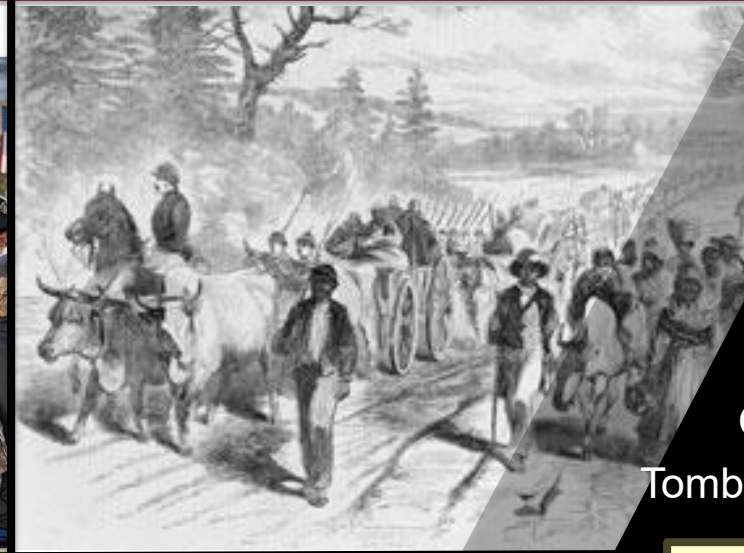
*Over 3M Visitors a Year
Open 365 Days*

- National Observances:
 - Memorial Day
 - Veterans Day
- Wreaths Across America
- Historic Tours



Education and Interpretation Program

- Webinars, Lectures, Blogs, And Display Room Tours
- Physical Interpretation Plan
- Online Educational Modules
- Tomb of the Unknown Centennial



*Distinguished Visitor/
Public Events*

- Congressional Engagements
- ~200 Distinguished Visitor Wreath Ceremonies
- ~400 Honor Flight Buses
- ~3100 Wreath Laying Ceremonies
- Symbolic Visit for World Leaders



Hundreds of Engagements with Congress and the Media

- International, National, & Local Photographers & Film Crews
- Responses to Queries



**A continuous challenge to strike a balance:
Funeral services (private) & a National Shrine (public)**

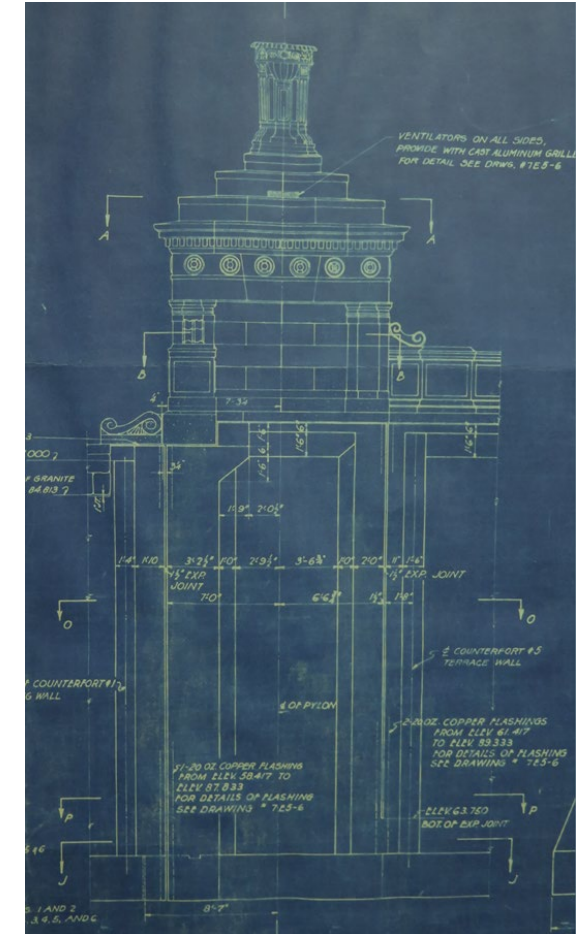
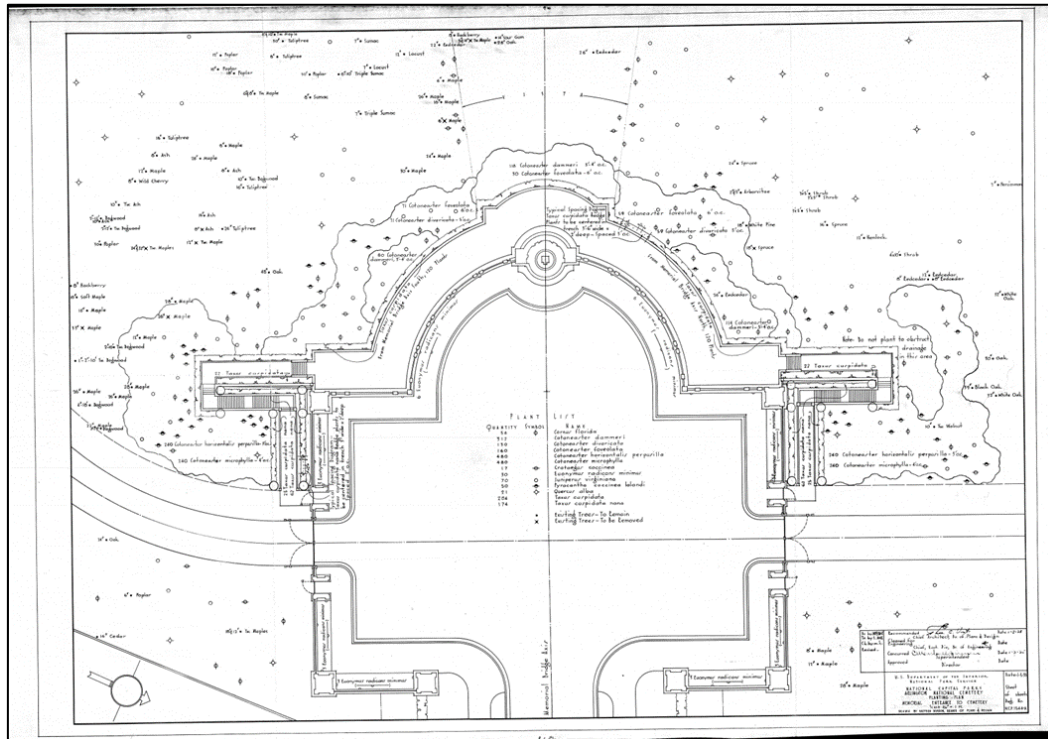


1901 Senate Park Commission conceived an “Avenue of Heroes” from the Lincoln Memorial to a “Court of Honor” at the ANC entrance





The “Court of Honor” design included a hemicycle, pylons and gates. Dedicated in 1932.



The pylons are 59' foot tall, 17' square granite clad octagons poured-in-place mild steel reinforced concrete foundations.



History – “ANC Grand Entrance”

Since the 1932 dedication, Memorial Avenue and the “Court of Honor” has welcomed all processions and funeral attendees





History - Toppled Pylon (1996)



July 1996, Pylon 2 toppled due to the excavation of a utility trench



In 2016, NPS began monitoring Pylons 1, 3, & 4, assessing overall condition as poor

In 2020, portions of Memorial Avenue and the “Court of Honor” transferred from NPS to ANC including project designs to straighten pylons

Temporary fencing placed around Pylon 1 to protect public in event of collapse





Big push to execute before a Pylon tipped over!!!

- Transfer of Property from NPS brought with it an existing design.
 - Execute work as a **Design-Build (Firm Fixed Price – Sole Source 8A)**
 - **Most efficient way to utilize an existing design**
 - **Sole Source 8a enabled Government to pick the right firm based on: Qualifications and Project/Management approach**

Acquisition Process:

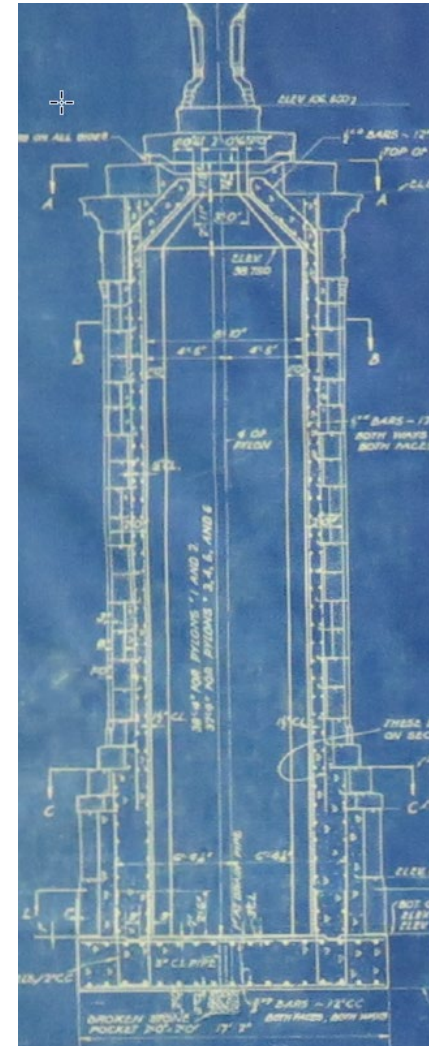
- Evaluation of the Project Scope and Complexity.
- Market Research and Sources Sought through SAM.gov.
- Promotion of Opportunity at events such as SAME Small Business Conference, JETC, and National/Local Industry Events to engage industry.
- Review of Sources Sought Market Research and determination of available qualified firms to perform the contract with Small, Socio-Economic Disadvantaged, HUBZone and Veteran Owned businesses.
- Perform interviews with potential firms meeting the qualifications and past performance requirements. Verify with the SBA of eligibility. Make final selection determination.
- Issue RFP documents, conduct site visit, respond to RFI's, review proposal, enter negotiations, finalize proposal and cost, issue contract.





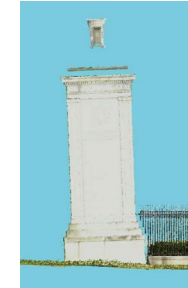
Identified Project Challenges:

1. 750 Ton Monument installed on 3' D Foundation
2. Shallow Foundations on Unsuitable Soils; Foundation dimensions same as Pylon Base dimensions
3. Pylon settled 6"-10"- Tilting as much as 5 Degrees.
4. Temporary stabilization as Pylon continued to move during the RFP process- Potential of Pylon Collapse during construction
5. Design to withstand seismic events, extreme temperatures and excessive rainfall
6. Historic integrity of structure; Lidar Scanning to document conditions
7. Prevent cracking of stone cladding while jacking and lifting the Pylon
8. Protecting ANC Visitors and Staff



As-Built Blueprint

Lidar and Existing Photos



Pylon #1 - Eastern Elevation



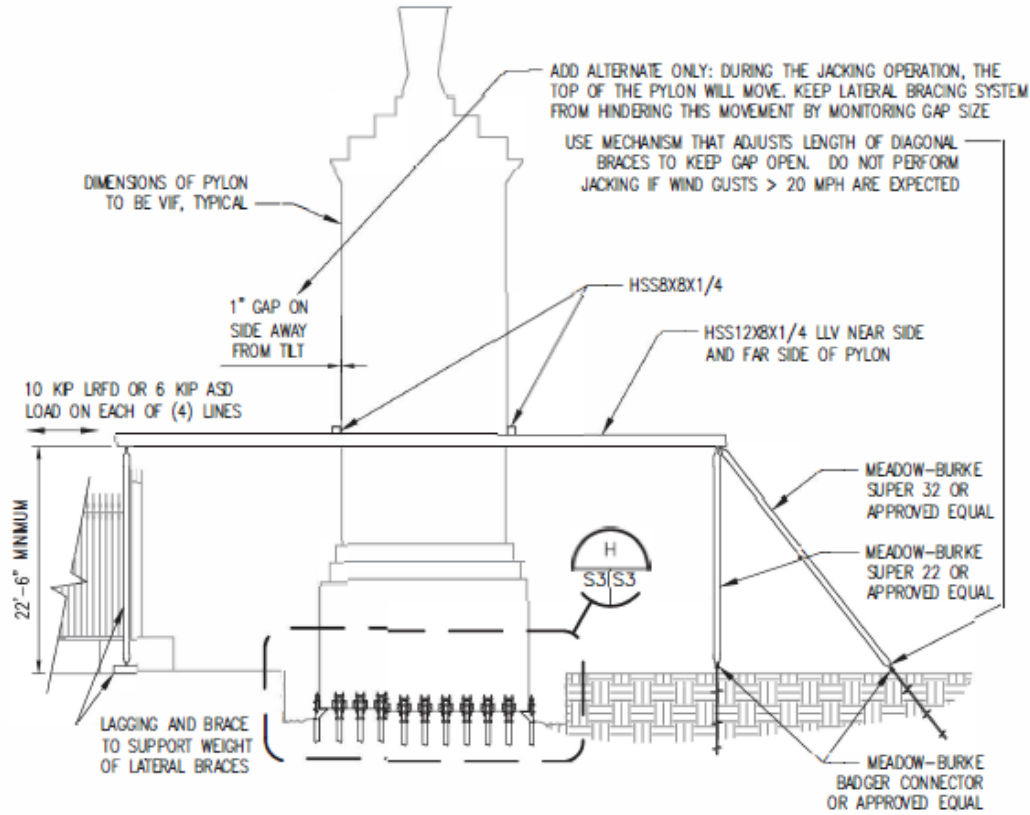
Pylon #1 Western Elevation



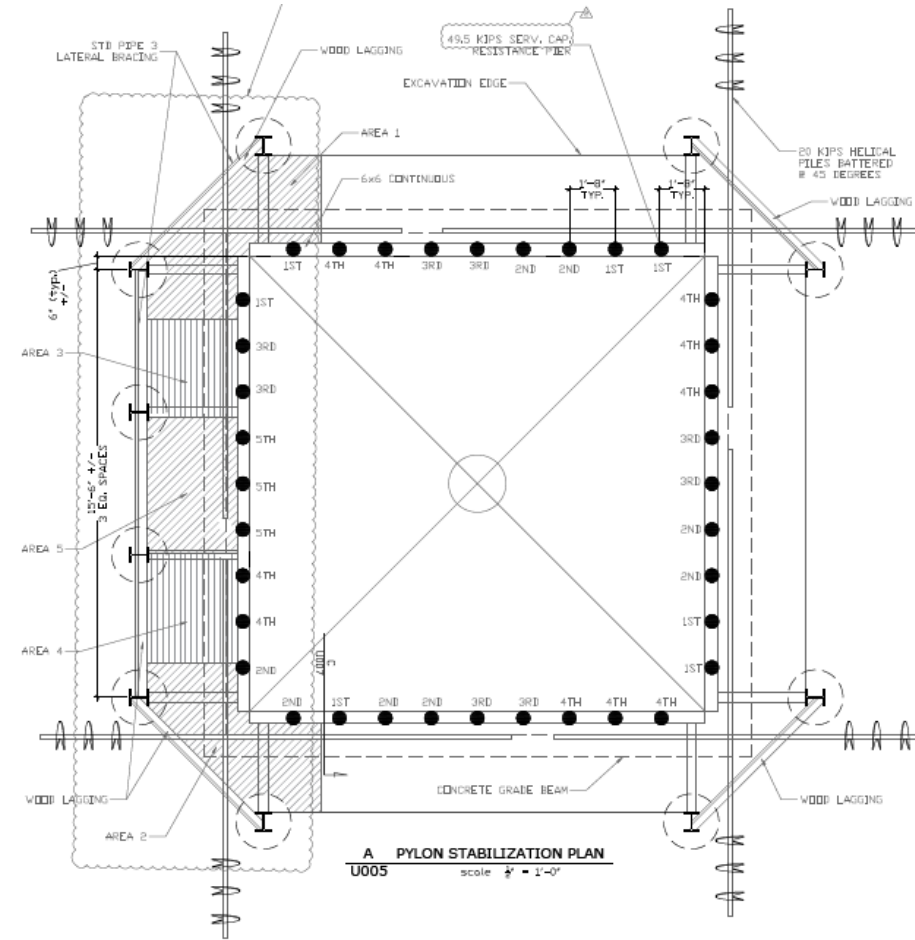
Pylon #1 - Southern Elevation



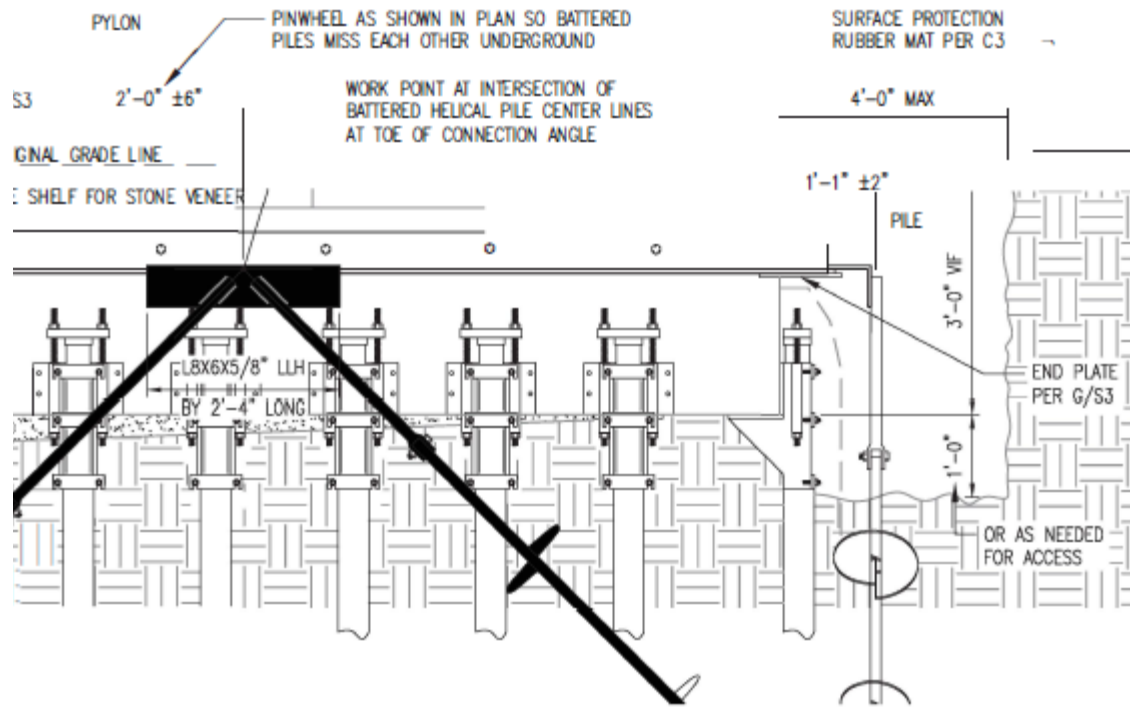
- Special thanks to the Sub-Contractors involved:
 - » Alpha Corporation
 - » Colliers Engineering & Design
 - » Atlas Foundations of Washington, LLC
 - » Janeiro, Inc.
 - » Empire Landscape, LLC
 - » Muller, Inc.
 - » Ruppert Landscape Inc



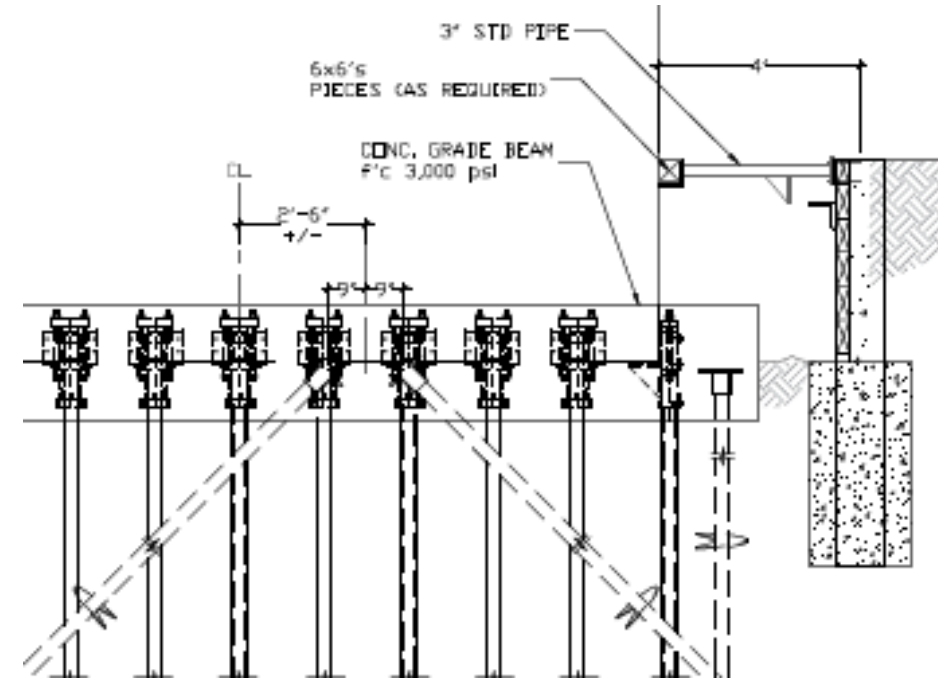
RFP Concept Drawing for Temporary Stabilization of Monument. Potential Monument Damage.



Final Design Utilizing Piles and Horizontal Bracing Beams Below Monument Face. Eliminated Potential Damage.



RFP Concept Drawing for Permanent Stabilization of Monument. Push Piers, Brackets, and Helical Anchors.



Final Design Added Reinforced Grade Beam and Perimeter Base Extension. Pressure Grouting Completed After Grade Beam Installation.



H Piles & Support Beams



Support Bracket and First
Push Pier



Completed Support Bracket
Installation



Push Pier Installation



Use of Hydraulics for
Lifting



Laser leveling



Helical Anchor
Installation



Concrete Grade Beam
Reinforcement



Concrete Grade Beam
Placement



Clay Foundation



Placed Grade Beam with
High Pressure Grout Ports



High Pressure Grout
Placement





Respect the mission of national cemeteries; coordinate effectively.

- Funerals, Honor Flights, Special events.
- Security, Operations, Horticulture, Plumbing, Electrical, Cultural Resources, Conservation, Public Relations.

Strong communication partnership between ANC, USACE, and Terra Constructs field teams.

- Coordinate work stoppages during funerals.
- Immediate communication if unaware of a funeral nearby.
- Maintain site security and cleanliness.
- Camouflage project site with temporary fencing and controls.-
Minimize intrusion on visitor experience.
- Enforce professional conduct, no yelling or unbecoming behavior.
- Integrate conduct requirements into preparatory meetings.





THANK YOU

Please take a few minutes to complete a short survey about this session. Your feedback will help us improve future programming for JETC.

 **conferences** i/o



or browse to
jetc.cnf.io



Arlington National Cemetery Monumental Makeover: Leaning Pylon Foundation Repairs

- Ms. Karen Durham-Aguilera, Karen.L.Durham-Aguilera.civ@army.mil
- Mr. Babur Mian, BMian@terraconstructs.com
- Mr. Matthew Karlinchak, Matthew.S.Karlinchak@usace.army.mil
- Mr. Andrew Farver, Andrew.C.Farver@usace.army.mil

Q&A



