



**DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE DISTRICT OF WASHINGTON**

27 May 21

Mr. Jeff Szatanek
Chief, Civil Engineer Division
Air Force District of Washington
1500 W Perimeter Rd. Suite 5700
Joint Base Andrews, MD 20762

Mr. Marcel Acosta
Executive Director
National Capital Planning Commission
401 9th St NW, Suite 500N
Washington, DC 20004

Re: Air Force Memorial Lighting Replacement
Final Review Submission Request

Dear Mr. Acosta:

The U.S. Army Corps of Engineers (USACE) on behalf of the Air Force requests consideration on the subject project to replace the existing failing lighting at the Air Force Memorial in Arlington, VA. If the attached meets your approval and warrants discussion during the 1 Jul 21 National Capital Planning Commission meeting, we would ask that it be included on the agenda. After meeting with your staff, if you agree that we that we have performed our due diligence in coordinating with your agency sufficiently and that the work associated with the proposed project does not warrant a formal action by the Commission, USACE and the Air Force would be equally pleased if the Executive Director makes a determination that this project be handled through the NCPC Consent Calendar.

Submission materials will be submitted under separate cover. Should you require additional information, please feel free to contact Art Shenk, at 410-294-3213 or Arthur.E.Shenk@usace.army.mil.

Sincerely

JEFFERY S. SZATANEK, GS-14, DAF
Chief, Civil Engineer Division



United States Air Force Memorial Lighting Replacement

Arlington, VA

Project Statement

National Capital Planning Commission &
Commission of Fine Arts
Final Review Submission

Prepared for:

USACE Baltimore District and the United States Air Force

Prepared by:

AECOM
3101 Wilson Boulevard
Suite 900
Arlington, VA 22201

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Project Statement

AECOM Technical Services, Inc. (AECOM) and George Sexton Associates, LLC (GSA, LLC) on behalf of our client the United States Army Corps of Engineers (USACE) and the United States Air Force (USAF) is pleased to submit for the enclosed Final Review Submission for replacement of the existing lighting at the US Air Force Memorial. This report provides substantive information regarding the proposed project with the most salient project details summarized immediately below for your convenience.

The Project

United States Air Force Memorial Lighting Replacement
1 Air Force Memorial Drive, Arlington, VA 22204

Projects Purpose

Replace existing lighting fixtures throughout the memorial for the following reasons:

- Existing metal halide fixtures are not energy efficient.
- Water infiltration entering the existing fixture housings has resulted in reliability issues.
- Many of the fixtures are no longer produced and/or replacement parts are expensive.
- Many fixtures are only available through non-US suppliers resulting in delivery delays.
- Several fixtures within the pedestrian plaza create tripping hazards.

Key Project Objectives

- Replacement will be with white light only (no colored holiday lighting capabilities).
- All replacement fixtures will be energy efficient low-emitting diode (LED) resulting in a reduced energy consumption of approximately 34%.
- Light color (temperature in Kelvin) will match the existing lighting (3500 K).
- Improvements will remove existing tripping hazards. All proposed fixtures will be subsurface or concealed from view.
- Fixture replacements will increase reliability by solving current water infiltration issues.
- Fixtures are dimmable and will be fine-tuned to achieve the desired intensity during the Commissioning process at the conclusion of each phase and at the project conclusion.
- NCPC and CFA will be invited to witness the final Commissioning process to assure that project objectives have been achieved.
- Replacement of parking lot and walkway lighting are excluded and will be replaced as part of a separate Arlington National Cemetery Expansion project.

Key Changes Since the Preliminary/Concept Review Approval by NCPC and CFA

- Glass Contemplation Wall on Pedestrian Plaza – The Project Team made a decision to include replacement of the lighting fixtures used to illuminate the glass contemplation panel on the Pedestrian Plaza. Please refer to Attachment C2 for the results of the lighting test that was conducted by AECOM and GSA, LLC.
- Star Points on Promontory – The Project Team made a decision to include replacement of the lighting fixtures used to illuminate the five (5) star points on the Promontory. The star points provide illumination to the interior facets of the spires. Please refer to Attachment C2 for the assessment that was conducted prior to selecting the fixtures.

Key Documents Provided for Commission Consideration

- Project Statement – Summarizes in an abbreviated format the historic significance of the memorial, the current problems which this project is intended to correct, the scope of the proposed solution, and changes since the previous Commission approvals.
- CFA/NCPC Follow-Up Discussion – Describes the scope of the proposed lighting replacement project and the strategy for achieving a favorable outcome.
- Preliminary Fixture Selections by George Sexton Associates, Inc. – Provides detailed information for all lighting fixtures that are being proposed for the memorial.
- Lighting Tests – Describe several tests that the Project Team has undertaken to assure that the appropriate fixtures are selected for the memorial.
- Approvals – Provides evidence of the various approvals that the Project Team has received in advance of seeking Final Review approval from the Commissions.

Executive Summary

AECOM Technical Services, Inc. and George Sexton Associates, LLC are pleased to submit the attached Initial Submission for the US Air Force Memorial Lighting Replacement Project.

Over the course of the design, our team has been diligently working to:

- Confirm the project requirements.
- Survey the existing memorial.
- Develop an electronic model of the entire memorial for the purposes of advancing the lighting replacement design.
- Make preliminary selections for all proposed lighting fixtures.
- Performed a limited lighting fixture test using the proposed fixture that will be used to light the spires.
- Performed a lighting test using the proposed fixture that will be used to light the glass contemplation panel.
- Evaluate and develop solutions for improving reliability by enhanced drainage to underground fixtures.
- Met with various approval agencies and key stakeholders including the USACE, USAF, Arlington National Cemetery, the State Historic Preservation Office (SHPO), the National Capital Planning Commission (NCPC), and the Commission of Fine Arts (CFA).

Using the electronic model we have made initial fixture selections for all of the monument lighting elements. In making the initial fixture selections our team has carefully considered a wide range of design criteria including: the performance requirements for each lighting each element of the memorial; that the fixtures be energy efficient light-emitting diode (LED) and dimmable; that the fixtures be easily serviceable, readily available, have a long service period and affordable; and that the fixture manufacturers be well respected and that they be American made to the greatest extent possible. With only a few exceptions, we are pleased that each of our initial selections fulfill all of these criteria.

We look forward to continued success of this project as we take the next steps in further advancing the design and seeking the necessary Final Review approvals from USACE, the USAF, NCPC, CFA, and other stakeholders that have a vested interest in the success of this important project.

Memorial Design & Historical Perspective

In January 1992, the Air Force Memorial Foundation was formed to begin development of a national memorial to honor the people in the United States Air Force. After considering various sites the current location on a naturally high piece of ground in Arlington Virginia on the grounds of Ft. Myer was selected. The site can be easily viewed as part of the Washington DC skyline and from several major arterials leading into and out of Washington DC. With the site selection complete, internationally renowned architect James Ingo Freed of Pei Cobb Freed & Partners was commissioned to develop the inspirational design that can be viewed today. Ground breaking for the memorial was held in September of 2004 and construction was completed by Centex Construction Company in September of 2006. The memorial was dedicated in October 14, 2006.

The memorial was constructed entirely by private contributions at a cost of \$30M.

Numerous public events are held at the site as the memorial is one of the primary venues for the United States Air Force Bands Summer Concerts series, Air Force and Department of Defense ceremonies hosted by senior officials, wreath-laying ceremonies for national military holidays, and occasionally private events by request.

The primary element of the memorial includes a Promontory containing three spires ranging in height from 201 feet to 270 feet high. The stainless steel spires are intended to portray an image of the "contrails of the Air Force Thunderbirds as they peel back in a precision 'bomb burst' maneuver." Only three of the four contrails are depicted, at 120 degrees from each other, as the absent fourth suggests the missing man formation traditionally used at Air Force funeral fly-overs. Between the spires embedded in the ground is the Air Force "star". The spires are illuminated at night by metal halide lamps installed on lighting stands that are concealed from view at opposite ends of a Pedestrian Plaza.

The Pedestrian Plaza is located between the Promontory to the east and the adjacent the entrance drive to the west. The surface of the plaza is a combination of granite and turf. The north and south ends of the plaza terminate at granite inscription walls behind which the spire lighting stands are located. The walls are 56 feet in length, 10 feet in height and one foot thick. Both walls are made of polished, highly-reflective monolithic "Jet Mist" granite and both include a two and a half inch outer inscription panel made from "Absolute Black" granite. The north wall bears the names of Air Force recipients of the Medal of Honor and the south wall describes the heritage of the US Air Force listing military campaigns and also bears inspirational quotations regarding the Air Force's three core values; "integrity first, service before self, and excellence in all we do". Near the south end of the plaza stand four 8-foot-tall bronze statues sculpted by Zenos Frudakis that represent the United States Air Force Honor Guard. To the north, a stone plaza, known as the "runway", leads to a free-standing glass contemplation wall depicting the images of four F-16s flying in a Missing man formation engraved on both sides of the 5-ply panel. All Pedestrian Plaza elements are accented with subgrade lighting.

Existing Conditions

Refer to appendices for Photographic Documentation of Existing Conditions.

A. Lighting Fixtures

The features of the memorial are lit with several different fixtures types as depicted in the attached drawings and photographs (see Appendices). Over the last several years, several deficiencies have been cited relative to the lighting fixtures and the initial installation. These deficiencies have become more problematic in recent years and contributed to an unreliable installation and safety concerns. The primary deficiencies that have been cited include:

- Water infiltration contributing to shorting of the fixtures.
- Many of the fixtures are no longer produced and/or replacement parts are expensive or not available.
- Many fixtures are only available through non-US suppliers that cannot respond in a timely manner.
- Existing fixtures are not energy efficient.
- Some of the fixtures create tripping hazards.
- Concern over diminishing illumination levels of the Spires for compliance with FAA waiver authority.

In September of 2018, AECOM and George Sexton Associates, LLC (Design Team) were commissioned to explore corrective actions to improving reliability and correct the existing deficiencies without significantly changing the lighting approach for the monument. The scope of work as recently amended specifically includes replacement of approximately 185 different fixtures as noted below:

Air Force Memorial Lighting Fixture Replacement Schedule								
Fixture Location	Fixture Quantities							
	AL-10	AL-15	AL-16	AL-20	AL-30	AL-22	AL-24	AL-25
Flag Poles							4	
Gate West Inscription Wall	5							
Gate East Inscription Wall	5							
Support Bldg. Inscription Wall	3							
North Inscription Wall	7							
North Spire Stand								42
South Inscription Wall	7							
South Spire Stand								30
Honor Guard	2					5		
Contemplation Chamber		*6						
Memorial Steps (retaining walls)			32					
Promontory					*5	3		

Spire 1				11				
Spire 2				9				
Spire 3				9				
TOTAL	29	6	32	29	5	8	4	72

* It is worth noting that the project scope has recently been amended to include lighting replacement for the “points” of the star on the Promontory (fixture AL-30), the lighting beneath the glass contemplation wall (fixture AL-15). The scope continues to exclude replacement of lighting for the Guardhouse and Service Building. Additionally, the pole-mounted roadway lighting and bollard walkway lighting are excluded since they are intended to be replaced under a separate contract.

B. Surface and Subsurface Concerns

Fixture types AL-10 and AL-22 are in-ground lights that are used throughout different areas of the memorial to primarily to illuminate the inscription wall surfaces and the Honor Guard.

AL-10 is the only existing fixture that is slightly tapered to project above the surface of the adjacent granite pavers. Although the fixtures is technically ADA compliant, it was noted during the field survey that the fixtures; which are typically several feet away for the adjacent lighted surfaces; are positioned such that pedestrians could inadvertently step on them, potentially contributing to a loss their balance. This may be particularly concerning in the case of wounded veterans or the elderly. The Design Team took note of this deficiency and will propose a directional fixture that is flush with the adjacent pavers.

During the preliminary investigation, the Design Team noted that most of the fixtures were installed in hollowed out areas of concrete and not seated securely in their housings. This flaw allows them to become easily dislodged or even picked out of the ground. Upon further inspection several fixtures exhibited wear, including where the conductors (wires) enter the fixtures. Further, many of the subject fixture cavities were filled with dirt and debris. The Design Team took note that this situation would require remediation which could require collateral repairs to the adjacent granite pavers.

In interviewing on-site staff, the Design team learned that several AL-10 and AL-22 fixtures occasionally flood which contributes to periodic shorting; especially during heavy rains. Through further investigation and interviews, this situation appears to be a localized condition at only a handful of in-ground lighting fixtures. As mentioned above, the Design Team was able to remove some of the fixtures from their housing and determined that several of the fixture housing did show standing water along with dirt and debris. The Design Team obtained the original construction documents and discovered that an underdrain system was originally included in the design which was intended to remove water from the housings. Given the amount of dirt and debris, the underdrain is likely to have become clogged over the years. The Design Team took note that this situation may require localized remediation of any debris that is preventing proper drainage of the lighting system housing. At the request of the Design Team, the USAF attempted to clear the underdrain system with only limited success.

Architectural

It is anticipated that there will be limited architectural improvements associated with the lighting fixture replacement. The anticipated conditions are identified below and will be further expanded once the fixture selections are finalized.

A. Granite Pavers

Selective removal and replacement of the existing granite panels will be necessary in areas where light fixture housings and new drainage lines need to be installed.

Replacement of granite panels will be necessary when replacement lighting fixtures are not aligned with the current penetrations and where subsurface work will require removal of the existing pavers. Where possible, existing pavers will be indicated to be carefully removed and salvaged for reuse. The Design Team has explored the source (Lorton Stone, LLC) for the original granite used at the memorial and determined that an appropriate match is available should replacement stones be necessary due to existing damage, breakage, or modifications during construction operations.

Lorton Stone, LLC
7544 Fullerton Ct.
Springfield, VA 22153
Telephone: 703-923-9440

B. Light Stands

The upper portions of the spires are lit with high intensity lights located on stands behind the granite inscription walls on either end of the central plaza. The existing stands are constructed of stainless steel and they are in excellent condition but may require retrofitting and/or refinishing in order to accommodate new brackets for the lighting fixture heads.

C. Glass Contemplation Wall

The glass contemplation wall is supported by a structural frame contained in a shallow concrete vault below the granite pavers. The glass panel is lit by six (6) 18-inch long fixtures that are centered below the glass panel. To access the fixtures it will be necessary to remove the surrounding granite, glass panel, and support frame.

Electrical

The proposed Electrical design is in accordance with the RFP requirements, the codes and standards listed in Section A. All products to be incorporated into the design shall provide reliable trouble free service in a similar installation environment. All products shall be UL-listed and UL-approved where applicable. All conductors shall be copper.

A. Codes & Standards

NFPA 70, 2017: National Electrical Code.
NFPA 70E: Standard for Electrical Safety in the Workplace.
IESNA Lighting Handbook, Version 10.
ASHRAE/IES Standard 90.1, 2010: Energy Standard for Buildings except Low-Rise Residential Buildings.
IBC, 2015: International Building Code.
IECC, 2015: International Energy Conservation Code.
UFC 3-530-01: Interior and Exterior Lighting Systems and Controls.

B. Load Calculations

The lighting load is computed based on the lighting fixture selections. All lighting fixtures are LED and are shown in the table below. By using LED fixtures, the total power consumption wattage will decrease by approximately 37%. The total load will go down from 30 kW to 19 kW.

TABLE: LOAD CALCULATIONS

FIXTURE TYPE	DESCRIPTION	EXISTING FIXTURE WATTAGE (W)	NEW FIXTURE WATTAGE (W)	QTY.	TOTAL WATTAGE (kW) - EXISTING FIXTURES	TOTAL WATTAGE (kW) - NEW FIXTURES
AL-10	RECESSED IN-GRADE	39	24	29	1.13	0.70
AL-15	SURFACE MOUNT	192	105	1	0.19	0.11
AL-16	WALL RECESSED WALL WASH LIGHT	13	3	32	0.42	0.10
AL-20	RECESSED IN-GROUND UPLIGHT WALLWASH	150	46	29	4.35	1.33
AL-22	RECESSED IN-GRADE DIRECTIONAL UPLIGHT	39	20	8	0.31	0.16
AL-24	RECESSED IN-GRADE ADJUSTABLE UPLIGHT	400	54	4	1.60	0.22
AL-25A	DIRECTIONAL UPLIGHT	250	200	64	16.00	12.80
AL-25B	DIRECTIONAL UPLIGHT	250	200	8	2.00	1.60
TOTAL LIGHTING LOAD					24.00	15.41
125% CONTINUOUS LOAD AS REQUIRED BY NEC					30.00	19.26

C. Power Distribution System

Existing power distribution system will remain, unless otherwise notes.

a. Panelboards (ETR)

The Existing 250A, 208/120V, Siemens two section panelboard labeled "RP-Site-A" and "RP-Site-B" located in the electrical room will be removed and replaced with a new two section panelboard that will serve the existing and new lighting in the Plaza.

The panelboard will have copper for phase, neutral, and ground bussing and will feed the lighting fixtures in the Plaza and other areas via a new lighting control panel. The new RP-Site-A and RP-Site-B panelboard schedules are shown on the electrical drawings to be issued separately with this narrative.

b. Surge Protection

During the electrical survey no surge protection device was found in the existing power distribution system. A surge protection device (SPD) will be added to the new RP-Site-A/B panelboard. The SPD device will be located external to the panel in a separate enclosure. It will not be integral to panel.

c. Circuit Protection

Circuit breakers installed in the new panelboards shall be molded-case, type bolt-on. Circuit breakers are as old as the panelboard. The breaker will be re-used for the new Plaza lighting.

d. Branch Circuits

All existing conductors will be removed and replaced with new conductors. New branch circuit conductors shall be single-conductor copper, 600V rated THHN/THWN-2 insulation with continuous color coded at all connections in all pull and junction boxes. All branch wiring will be individually insulated copper conductors in conduit. Run new green ground wire in all existing conduit system.

e. Raceways

Existing raceways will be re-used unless otherwise noted. Raceways found damaged shall be replaced with new with prior approval from the Government. New raceways shall be Electrical Metallic Tubing (EMT), rigid steel and intermediate steel conduit systems complete with outlets, connections, couplings, and fittings for installation of electrical conductors. Minimum conduit size shall be 3/4-inch. Conduit for below grade use shall be non-metallic, schedule 80 PVC for direct burial and schedule 40 for concrete encasement. Conduit for exposed exterior locations shall be Rigid Galvanized Steel (RGS).

f. Boxes

Outlet boxes shall be non-gangable with cover plates. Power raceways systems shall be interconnected with metal boxes. Junction and pull-boxes shall be provided as required and installed to maintain accessibility to cover. Boxes shall be secured to structurally stable member. Existing boxes will also be used where feasible and meet NEC size requirement.

g. Grounding & Bonding

The existing grounding and bonding systems shall remain and will be tested for continuity. The system consists of a direct buried copper ground ring bonded to copper ground rods. Equipment grounding conductor will be provided for new luminaires and will be sized according to upstream overcurrent device.

h. Lightning Protection System

The Plaza has an existing lightning protection system (LPS). Each Spire is grounded for lightning protection. The base of the spires has cadweld conductor connected to the existing ground loop.

D. Exterior Lighting

a. Plaza Lighting

The Plaza lighting will include energy efficient LED light fixtures, gasketed and sealed for exterior use. The lighting will be moisture resistance and will be installed in the existing light locations so as to provide efficient illumination. An automatic lighting control system is provided for the Plaza lighting fixtures; refer to lighting control section.

TABLE: LIGHTING FIXTURE SELECTIONS

FIXTURE TYPE	DESCRIPTION	WATTAGE	VOLTAGE	BASIS OF DESIGN	NOTE
AL-10	RECESSED IN-GRADE	24W	120V	ERCO LIGHTING - 35108.023	2
AL-15	SURFACE MOUNT	14W/FT	120V	I2 LIGHING - V2355-B-1-1-2	
AL-16	WALL RECESSED WALL WASH LIGHT	3W	120V	COLE LIGHTING - L286W-MOD	1, 2
AL-20	RECESSED IN-GROUND UPLIGHT WALLWASH	46W	120V	LUMENPULSE LIGHTING -LOI-HO-120-36-40K-WW-DIM-ASL	
AL-22	RECESSED IN-GRADE DIRECTIONAL UPLIGHT	12W	120V	ERCO LIGHING 35130.023 + 33988.000 KIT	2
AL-24	RECESSED IN-GRADE ADJUSTABLE UPLIGHT	54W	120V	HYDREL LIGHTING - M9820-A-LED-WHT30K-MVOLT-NSP-FCL-TBD-IHL-LDIM-LP-TBD	3
AL-25A	DIRECTIONAL UPLIGHT	200W	120V	ACCLAIM LIGHTING - DDK-2#TBD-AA-TBD-N + DDH2FSG	3
AL-25B	DIRECTIONAL UPLIGHT	200W	120V	ACCLAIM LIGHTING - DDK-2#TBD-AA-TBD-N + DDHSL10+DDH2FSG	2
AL-30	POINT STAR LIGHTS	-	-	LED LAMP	2
NOTE: 1- MODIFIED 6" DIAMETER FACEPLATE TO MATCH EXISTING 2- LED FIXTURES SHALL INCLUDE DIMMING CAPABILITY 3- HOUSING FINISH TO BE SELECTED BY ARCHITECT. COLOR TEMPERATURE TO BE DETERMINED (TBD).					

b. Lighting Control

The existing lighting control panel that controls the existing Plaza light fixtures operates at 120V and has 48 relays. The control panel is from Acuity Controls model GR2400, it is located in the electrical room and is 12 years old.

The existing control panel will be removed and replaced with a new control panel that offers the same lighting control capabilities and will also incorporate the dimming option, which prevents damage to the lighting fixtures and increase LED lamp life.

The new lighting control panel basis of design is Lutron LCP128. The control panel will have the combination of switching and dimming with integrated astronomical time clock and Liquid Crystal Display (LCD) controller for programming. The light fixtures

will be grouped and controlled by zones. The lighting fixtures will turn ON and OFF based on a programmed lighting control schedule and preset lighting levels.

The existing lighting override switches station located in the administration office is more than 10 years old and shows signs of wear and tear. These override switches will be removed and replaced with a new Master override switch that will be compatible with the new lighting control panel.

Project Approvals Summary

Refer to attachments for evidence of Project Approval documentation.

Design began with the Notice to Proceed on September 29, 2018. Design is anticipated to be completed by July 31, 2021. Specific design considerations included in this schedule include:

A. US Army Corps of Engineers (USACE)

The design received 100% Submission Design Approval through the standard project review cycle.

B. US Air Force (USAF)

The design received 100% Submission Design Approval through the standard project review cycle.

C. National Capital Planning Commission (NCPC)

Preliminary Approval for the project was received from NCPC on July 11, 2019 via the Consent Calendar. The Project Team now seeks Final Approval.

D. Commission of Fine Arts (CFA)

Concept Approval for the project was received from CFA on June 19, 2019 via the Consent Calendar. The Project Team now seeks Final Approval.

E. Site Categorization

A Site Categorization Memorandum was provided by the Department of the Army on December 18, 2019. The memorandum indicates no findings of significant impact.

F. National Environmental Policy Act (NEPA)

NEPA Categorical Exclusion was received from US Air Force on January 13, 2020. The documentation indicates that due to failing and inefficient conditions, there are no alternatives except to replace the existing fixtures.

G. State Historic Preservation Office (SHPO) Section 106 Determination

Section 106 compliance was received on February 16, 2021. The documentation indicates a finding of no adverse on historical resources.

H. Federal Aviation Administration (FAA)

There are existing "Determinations of No Hazard to Air Navigation" as previously provided by the FAA inclusive of the following:

- a. Aeronautical Study for the original Memorial dated January, 08, 2003.
- b. Aeronautical Study for cranes dated August 25, 2004.
- c. Marking & Lighting Recommendation rendered on March 31, 2005.
- d. Marking & Lighting Recommendation rendered on April 07, 2016.

Attachment A

On February 19, 2019, an Informational Meeting was held in AECOM's Arlington, VA Office to share details with regard to the subject project. This attachment responds to comments received from participants during the Informational Meeting and it was shared with staff of the National Capital Planning Commission and the Commission of Fine Arts on May 22, 2019.

Key Considerations Regarding "Attachment A" Include:

1. Views provided of the US Air Force Memorial from various locations in Washington.
2. View provided of Washington from the US Air Force Memorial.
3. A review of the scope of the lighting fixtures that are schedule to be replaced as part of the project.
4. The process used for developing lighting models of the proposed lighting solution.
5. Various views comparing photographs of the existing memorial with the proposed lighting solution.

Note that this information was previously included in the materials that received Preliminary/Initial Approval from the National Capital Planning Commission and the Commission of Fine Arts.

Repair of Air Force Memorial Lighting

Arlington, VA

CFA/NCPC Follow-Up Discussion

May 22nd, 2019



Views from the National Mall



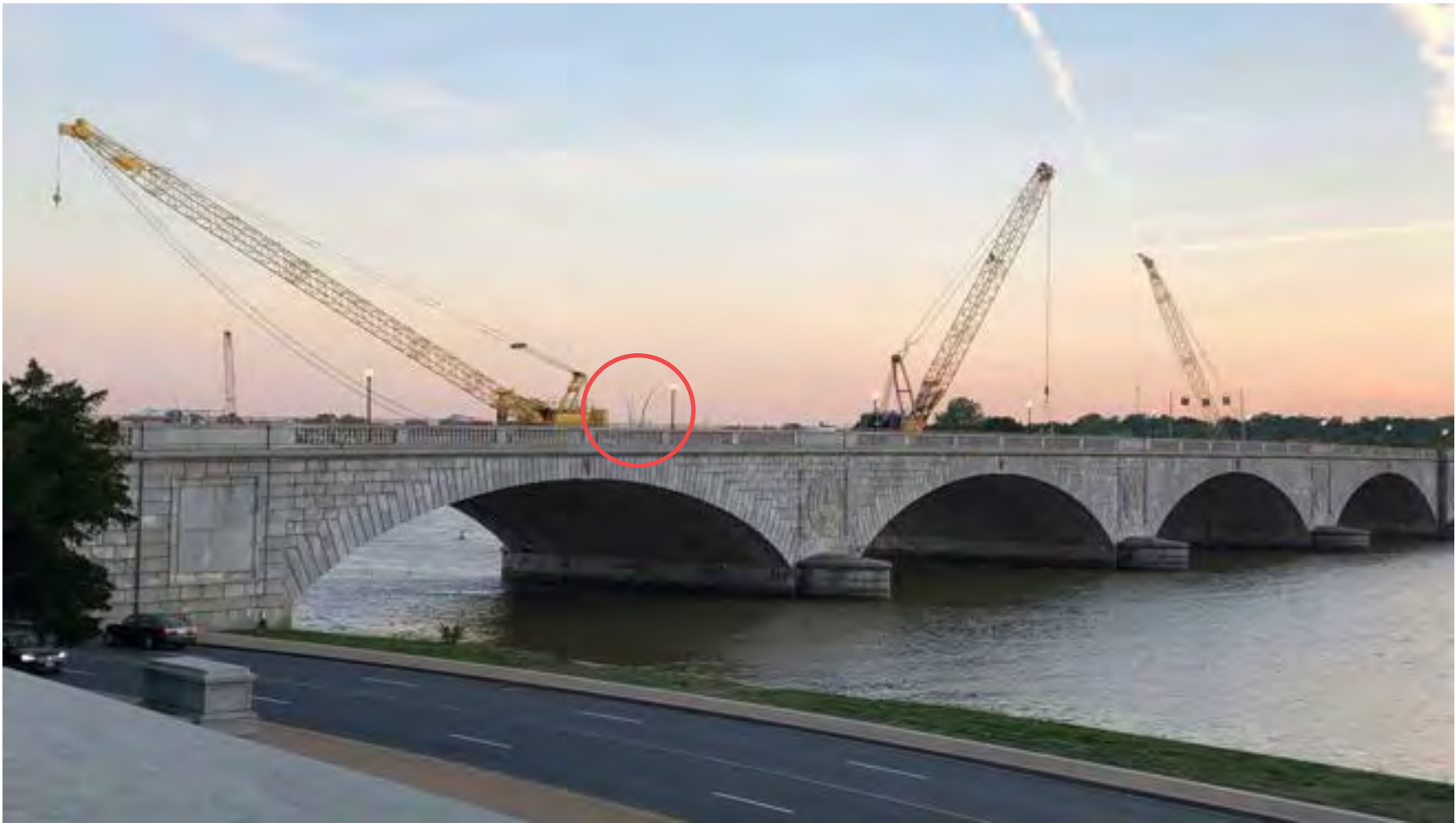
View of Air Force Memorial from the Washington Monument



Air Force memorial not visible from Lincoln Memorial



Views to/from the National Mall

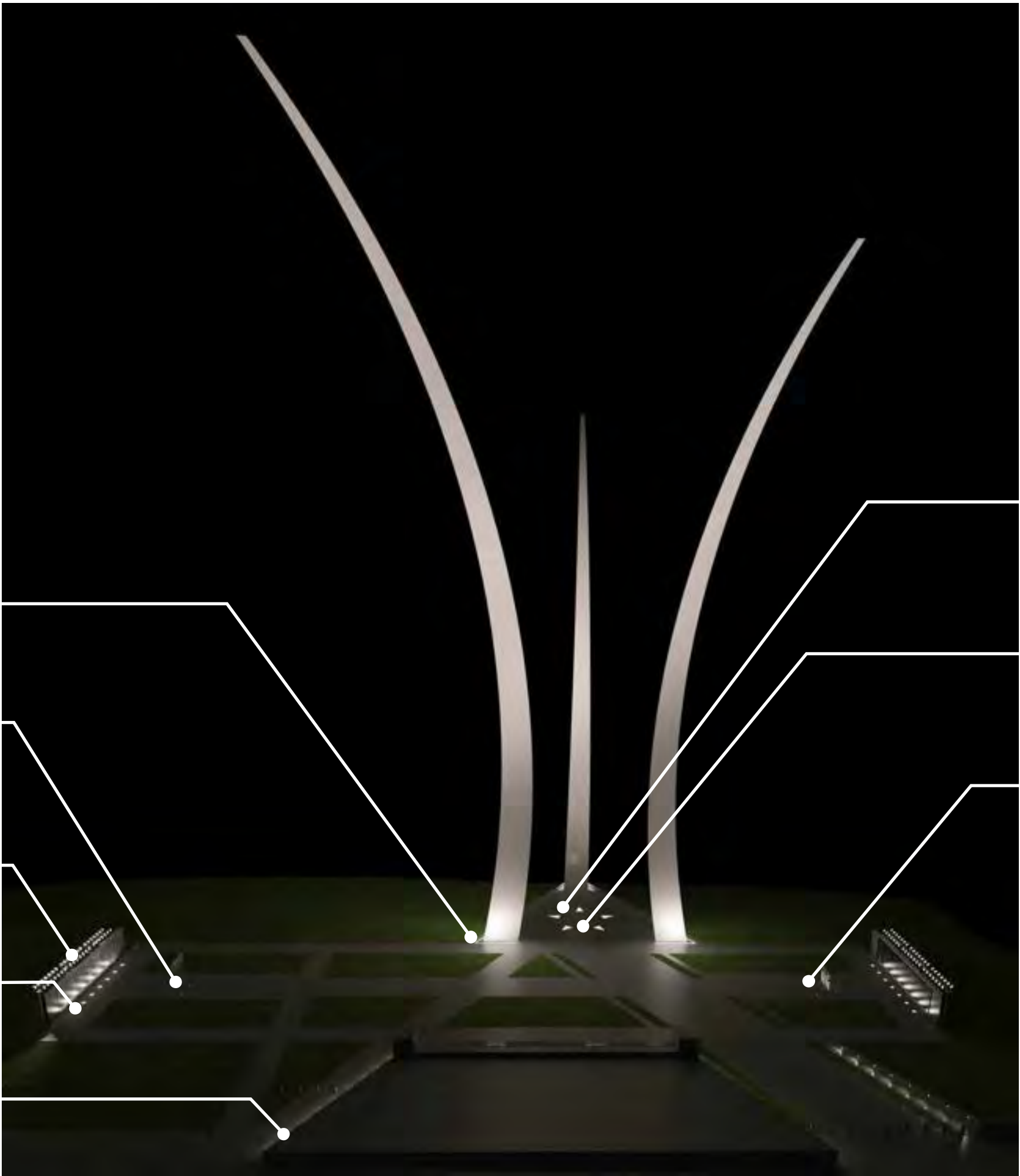


View of Air Force memorial from the Watergate Steps



View of The National Mall from the Air Force Memorial

Lighting Updates

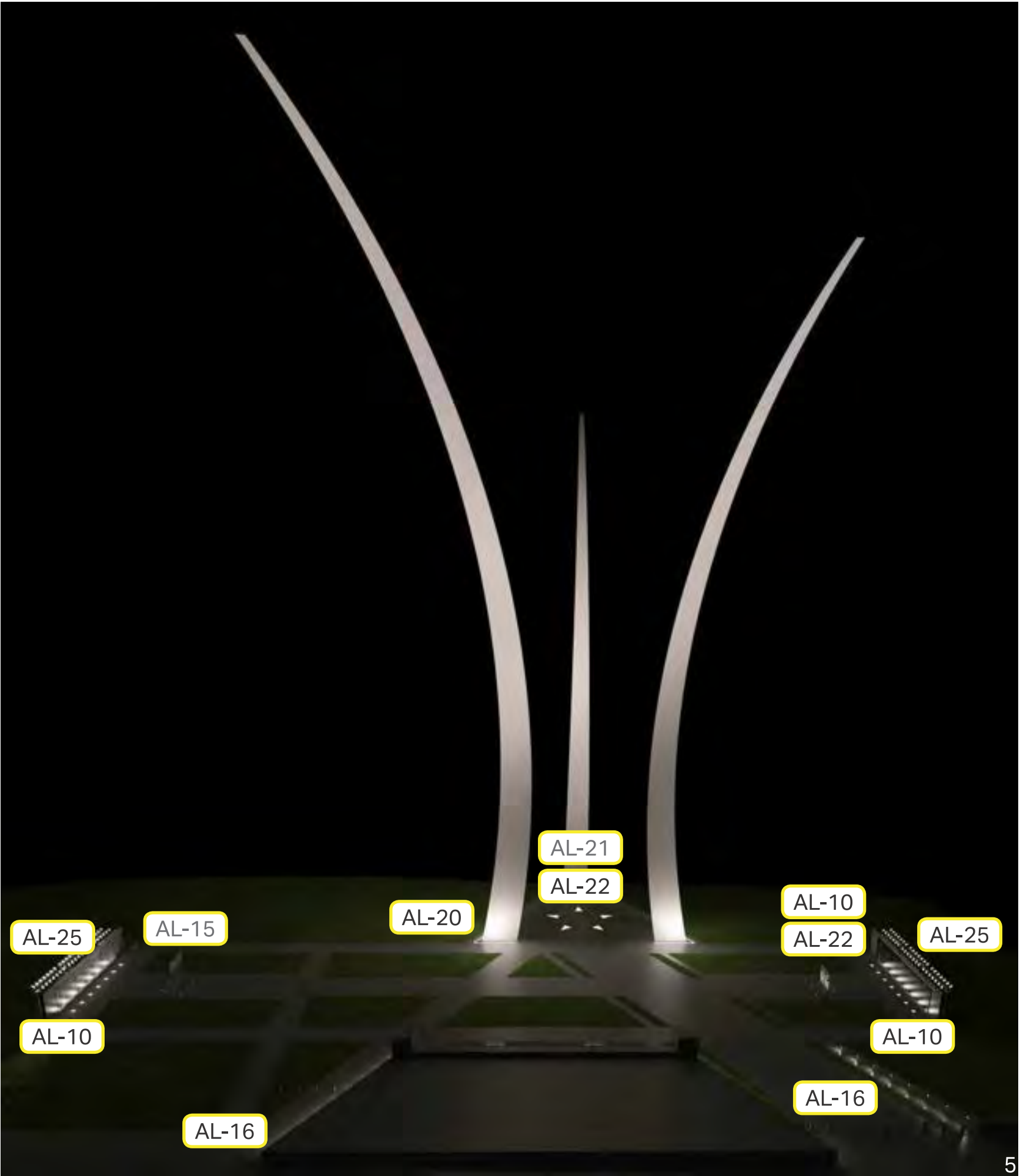


- Ground mounted up-light
Light lower outside of spires
AL-20 Fixtures
- Recessed continuous light bar In-ternally lights the glass panel
AL-15 Fixtures
(Excluded from current scope)
- Above ground directional up-light
Lights upper portion of spires
AL-25 Fixtures
- Recessed in-grade fixtures
Lights vertical granite inscription wall
AL-10 Fixtures
- Wall-recessed floor wash light
Lights memorial walkway
AL-16 Fixtures

- Recessed in-grade up-light
Lights lower inside of spire
AL-21 Fixtures
(Excluded from current scope)
- Recessed in-grade up-light
Lights lower inside of spire
AL-22 Fixtures
- Recessed in-grade fixtures
Light honor guard statuary
AL-10 + AL-22 Fixtures
- In addition:
Recessed in-grade fixtures
Light flag poles
AL-24 Fixtures
- Recessed in-grade fixtures
Entrance wall illumination
AL-10 Fixtures

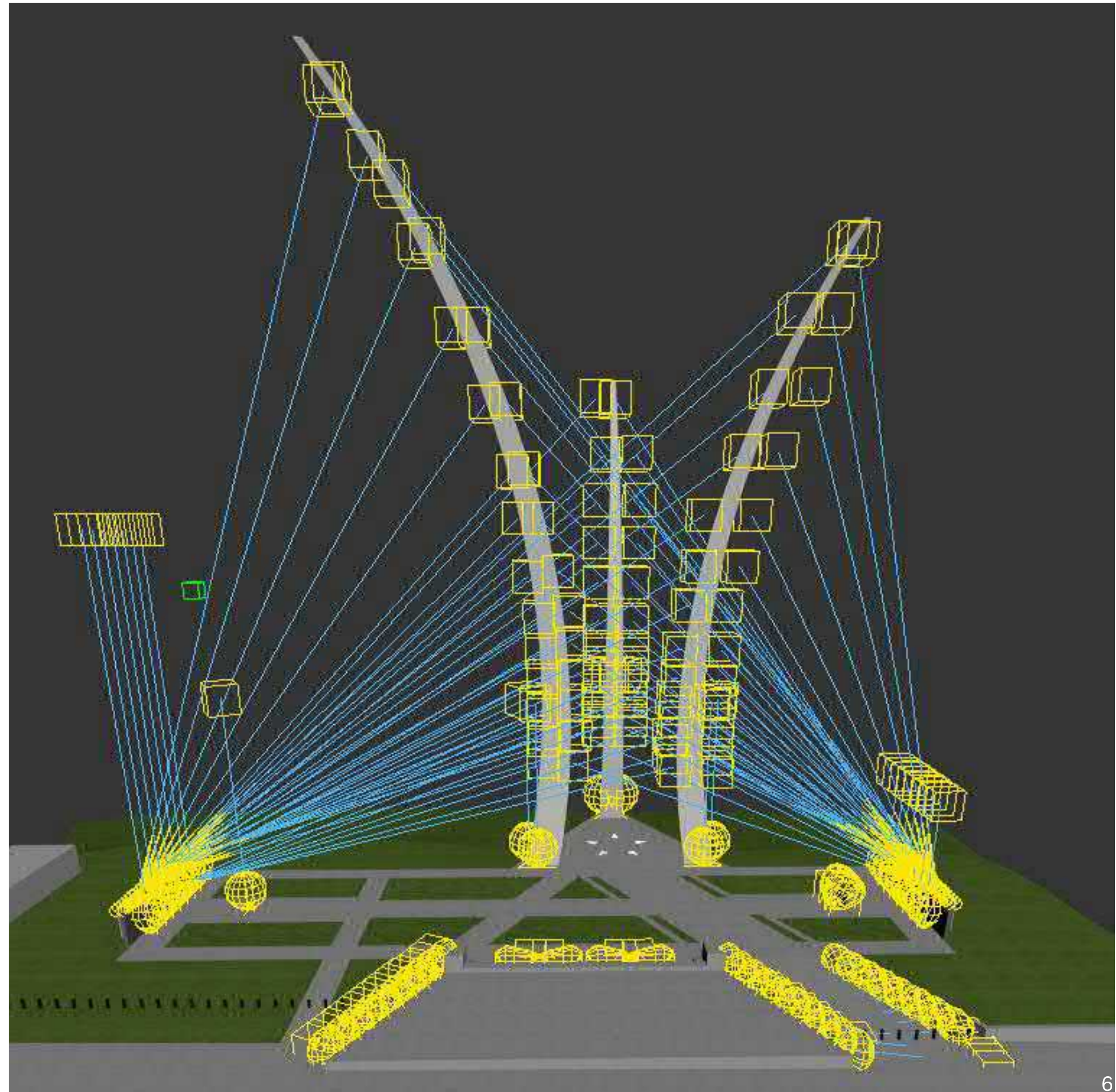
Lighting Updates

Air Force Memorial Lighting Fixture Replacement Schedule								
Fixture Location	Fixture Quantities							
	AL-10	AL-15	AL-16	AL-20	AL-21	AL-22	AL-24	AL-25
Flag Poles							4	
Gate West Inscription Wall	5							
Gate East Inscription Wall	5							
Support Bldg. Inscription Wall	3							
North Inscription Wall	7							
North Spire Stand								42
South Inscription Wall	7							
South Spire Stand								30
Honor Guard	2					5		
Contemplation Chamber		Excl.						
Memorial Steps (retaining walls)			32					
Promontory					Excl.	3		
Spire 1				11				
Spire 2				9				
Spire 3				9				
TOTAL	29	Excl.	32	29	Excl.	8	4	72



Light Modeling Precision

The following lighting renders were fine tuned to mimic the proposed lighting scheme as closely as possible.



Highway View



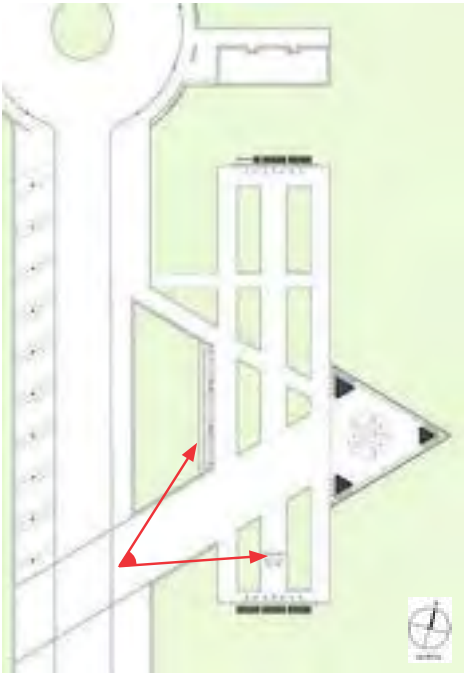
(Photo taken from Prospect Hill Park)



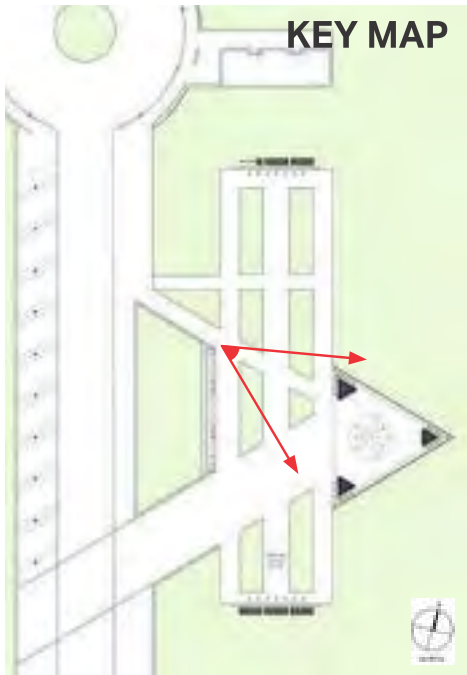
Southern Approach



KEY MAP



Northern Approach



Attachment B

Attachment B describes each of the proposed light fixtures as selected by George Sexton Associates, LLC.

Key Considerations Regarding “Attachment B” Include:

1. All fixtures were selected based on the specific light requirements at each feature of the memorial.
2. The points of the star on the Promontory have been added to the project scope.
3. Lighting the glass contemplation panel at the Pedestrian Plaza has been added to the project scope.
4. All fixtures are intended to be subsurface or concealed from direct view.
5. All fixtures will be energy efficient low emitting diode (LED).
6. The temperature (i.e. color) of the light will match the existing fixtures that will be replaced.
7. All fixtures are fully dimmable and will be fine-tuned during the project Commissioning process.
8. Tripping hazards will be removed with the proposed fixtures.
9. Fixture replacement will solve current water infiltration problems.
10. All fixtures are made or assembled in the US.

Additional Considerations:

1. The project does not include holiday lighting.
2. Parking and walkway lighting are not included in the scope of the project.

Note that a modified version of this information was previously included in the materials that received Preliminary/Initial Approval from the National Capital Planning Commission and the Commission of Fine Arts.

AIR FORCE MEMORIAL

TYPE	LAMPS/ VOLTAGE	MANUFACTURER	DESCRIPTION
AL-10	24W 120V Light Emitting Diode CCT: 3000k CRI: 92	ERCO Lighting 35108.023 + 33989.000 Mounting kit as required	Recessed in-grade wallwash LED luminaire. Housing dimensions are 11.25" by 11.25 by 7.50" deep. Provide standard luminaire with a 3000K color temperature and an integral electronic dimming driver. Optical cut-off 40° from horizontal. Allow for drainage as required per landscape architect or engineer. Contractor shall provide electrical and mechanical installation hardware as required, including footing for stability as required per landscape architect or engineer.
AL-15	14W/ft 20-30V* LED Luminaire uses remote power supply with 120-277V input	I2 Lighting V2355-A-1-1-TBD*-2 + E10PW 280W Power box + VLA-20 Fixed U clip * Color temperature TBD	Surface mounted exterior wet listed linear LED grazing luminaire. Fixture dimensions are 1.75" wide by 2.02" tall by 12.57" long. Refer to drawings for linear dimensions. Provide 10-degree optical distribution. Provide remote power supply in accessible location below pavers (refer to drawings for details). Provide leader and jumper cables as required. Contractor shall provide mechanical and electrical mounting hardware as required.
AL-16	10.4W 120V-277V LED	Kim Lighting EL817 / 9L3KUV-BL	Wall recessed floor washlight. Housing dimensions are approximately 5" diameter by 5" deep with 6" diameter faceplate. Luminaire finish to be standard black. Provide standard integral power supply. Contractor shall provide electrical and mechanical installation hardware as required.

AIR FORCE MEMORIAL

TYPE	LAMPS/ VOLTAGE	MANUFACTURER	DESCRIPTION
AL-20	46W 120V-277V LED	Lumenpulse Lumenfacade Inground LOI-HO-120/277-36-40K- WW-DIM-ASL	Recessed in-ground exterior wet listed LED uplight wallwash luminaire. Fixture housing dimensions are 8.5" wide by 5.56" tall by 37.38" long. Refer to drawings for fixture layout and details. Provide fixture with asymmetric wallwash optic and anti-slip lens. Provide integral 0-10V dimming driver. Provide leader and jumper cables as required. Contractor shall provide mechanical and electrical mounting hardware as required.
AL-22	12W 120V-277V LED	Erco Lighting 35130.023 + 33988.000 Mounting kit, as required	Recessed in-grade LED directional uplight luminaire for honor guard. Housing dimensions are 11.25" diameter by 11.688" deep. Luminaire to allow for 0-30° tilt and 360° rotation. Provide standard luminaire with a 3000K color temperature and integral electronic driver. Contractor shall provide electrical and mechanical installation hardware as required.
AL-24	54W 120V LED	Hydrel Lighting M9820-A-LED-WHT30K- MVOLT-NSP-FLC-TBD*-IHL- LDIM-LP-TBD** * Conduit entry location to be selected by architect ** Finish to be selected by architect	Recessed in-grade LED directional uplight luminaire for flag pole. Housing dimensions are 18" diameter by 18.7" deep. Provide narrow spot distribution, flat clear lens and internal honeycomb louver. Luminaire to allow for 0-15° tilt and 360° rotation. Provide standard luminaire with a 3000K color temperature and integral electronic driver. Contractor shall provide electrical and mechanical installation hardware as required.

AIR FORCE MEMORIAL

TYPE	LAMPS/ VOLTAGE	MANUFACTURER	DESCRIPTION
AL-25A	200W 120V LED	Acclaim Lighting DDK-2#TBD*-1-A-A-TBD**-N + DDH2FSG (Snoot) +TM4 Tenon mount * Housing finish to be selected by architect **Color temperature TBD	Directional LED up-light luminaire for spires. Fixture dimensions are 15.47" diameter by 8.22" deep. Provide standard 5-degree narrow spot distribution, clear lens and full snoot. Contractor shall provide electrical and mechanical installation hardware as required.
AL-25B	200W 120V LED	Acclaim Lighting DDK-2#TBD*-1-A-A-TBD**-N + DDHSL10 (Spread Lens) + DDH2FSG (Snoot) +TM4 Tenon mount * Housing finish to be selected by architect **Color temperature TBD	Directional LED up-light luminaire for spires. Fixture dimensions are 15.47" diameter by 8.22" deep. Provide standard 5-degree narrow spot distribution, 10 degree spread lens and full snoot. Contractor shall provide electrical and mechanical installation hardware as required.
AL-30	6W per square foot / 58V* LED * Luminaire uses remote power supply with	Cooledge Lighting TILE-EXT-600-40-R2 +TACC-EXT-CUT-600-40-R2 (cut-out tile*) + EPSD-090-1CH-58V-010 (power supply, one per triangular lightbox) * Refer to cutsheets for approximate lightbox dimensions for pricing. Contractor to provide field dimensions to manufacturer prior to final tile production	Exterior IP65 rated surface mounted LED grid lighting sheet in architectural lightbox. Refer to cutsheets for approximate lightbox dimensions. Contractor to verify dimensions of existing lightbox in field prior to final tile production. Manufacturer to factory cut and seal tiles as required to fit lightbox dimensions. Provide remote power supply with 0-10V dimming in exterior enclosure. Provide electrical and mechanical installation hardware as required.

Attachment C1

On April 03, 2019 the Project Team conducted a lighting test at the memorial to evaluate the reflective quality of the surface of the spires relative to the proposed fixtures. The results of this limited test are presented on the attachment.

Key Considerations Regarding "Attachment C1" Include:

3. Only the light fixture that illuminates the upper portion of the spires was tested.
4. Fixtures were tested at 100% output. Final fixtures will be fully dimmable.
5. The test only included 4 fixtures. 72 fixtures will ultimately be used to light the upper portion of the spires.
6. Only four fixtures were used for the preliminary test. Three test fixtures were 35000K which match the output of the existing fixtures. One of the test fixtures was 4000K and it was determined to be incompatible with the existing memorial due to the light quality (perceived as too "white", too "bright").

US Air Force Memorial Lighting Replacement Arlington, VA

Spire Limited Lighting Test

April 03, 2019

Test Qualifications

– Spire Light Fixtures

- Test fixtures are only intended to light the upper 2/3 of the spires.
- Existing fixtures are metal halide. Proposed fixtures will be LED and US made.
- Proposed design intends to replace the existing fixtures at a 1:1 ratio.
 - 42 fixtures on the north stand.
 - 30 fixtures on the south stand.

– Test Criteria

- Weather during the test was clear.
- Fixtures were aimed at the top of the one spire at a time proceeding downward.
- The lighting test utilized only 4 proposed fixtures.
 - 2 – 3500K (matches existing fixture).
 - 1 – 3500K with cut-off baffle (matches existing fixture).
 - 1 – 4000K (produces “whiter” or “brighter” light than the current fixtures). 4000K fixture was always the lowest of the 4 fixtures.
- Test fixtures were utilized at 100% output. Final design will be fully dimmable.

– Test Conclusions

- The Design Team has mutually agreed that the 4000K fixture is too bright.
- The proposed solution will only use 3500K fixtures (matched existing fixture).

Spire Limited Lighting Test – Fixture Comparison



Existing Fixture
Erco Lighting
“Beamer IV”



Proposed Fixture
Acclaim Lighting
Dyna Drum HO White

Acclaim Lighting Dyna Drum HO White

DYNA DRUM HO WHITE™





Client:

Project:

Type:

Order Code:

Quantity:



Dyna Drum HO White is a high output, outdoor rated, white color LED floodlight. It features an internal 100-277VAC power supply, onboard DMX+RDM driver, and each unit carries Acclaim's Aria wireless DMX technology inside. The optical system and high power LED provide exceptional output and efficacy. It comes with a narrow 5° beam standard, with optional quick-change spread lenses for wider applications. It is ideal for facade lighting applications, and as an area floodlight.

SPECIFICATIONS

Colors	2700K, 3000K, 3500K, 4000K, 5700K
Beam Angles	5° standard, 20°, 40°, 60°, 10° x 60° spread lens options
Photometrics	Up to 16,418 lumens, 1,101,345 cd; see page 4 for details
Effective Projected Area	1.75 ft²
Control	DMX+RDM, Manual color setting in menu, photocell included, Aria wireless direct connect
Max Fixtures in Series	32 via DMX, power local to each fixture
Power Consumption	200W
Operating Voltage	100-277VAC, 50/60 Hz
Lumen Maintenance	L70 @ 150,000 hours (25° C)
Mounting	Surface mount bracket included, optional tenon mount and pipe clamp available
Finish	Gray standard (RAL 7047), black, white, and custom colors optional
Material	Die cast aluminum, glass top lens, optional marine coating available
Ambient Operating Temperature	-40° F to 125° F (-40° C to 51° C)
IP Rating	IP66, wet location
IK Rating	IK07, protection against 2 joule impact
Fixture Connectors	Attached 5' (1.5m) IP66 hybrid cable, AC power +DMX/RDM
Warranty	5 Years limited
Weight	30 lbs. (13.6 kg)
Dimensions	L: 14.8" x W: 15.4" x D: 8.2" (378mm x 393mm x 209mm)
Certifications	


acclaimlighting.com

SPECIFICATION SHEET 04/17

Specifications subject to change without notice

Acclaim Lighting Dyna Drum HO White

DYNA DRUM HO



Dyna Drum HO White is a high output, outdoor, on-board DMX+RDM driver, and each unit carries LED provide exceptional output and efficacy. It is ideal for facade lighting.

SPECIFICATIONS

Colors	27
Beam Angles	54
Photometrics	Up
Effective Projected Area	1
Control	DM
Max Fixtures in Series	32
Power Consumption	20
Operating Voltage	10
Lumen Maintenance	L
Mounting	S
Finish	C
Material	D
Ambient Operating Temperature	-40
IP Rating	IP
IK Rating	IK
Fixture Connectors	A
Warranty	5
Weight	30
Dimensions	L
Certifications	C

DYNA DRUM HO WHITE™

ACCLAIM
LIGHTING

ORDER CODES

* indicates special order

DDK - 2 # 1 - A A # N

Version: DDK = Dyna Drum HO White (Gen 2)

Control: 2 = DMX+RDM

Housing Finish: 1 = Black (RAL 9005)
2 = White (RAL 9003)
4 = Gray (RAL 7047)
Z = Custom* (Provide RAL #)

LED Color: A = 2700K
C = 3000K
D = 3500K
E = 4000K
F = 5700K


Beam: A = 5°

Size: A = Standard


Input Voltage: N = 100-277VAC

RELATED COMPONENTS


Optional Beam Accessories




DDHSL10
10° Spread lens for Dyna Drum HO



DDHSL20
20° Spread lens for Dyna Drum HO




DDHSL40
40° Spread lens for Dyna Drum HO




DDHSL60
60° Spread lens for Dyna Drum HO

DDHSL1060
10° x 60° Spread lens for Dyna Drum HO



DDH2FSG
Full snoot for Dyna Drum HO, Gray



DDH2HSG
Half snoot for Dyna Drum HO, Gray

ACCLAIM LIGHTING

specifications subject to change without notice

5

US Air Force Memorial Lighting Replacement, Arlington, VA

AECOM

Acclaim Lighting Dyna Drum HO White

DYNA DRUM HO

Dyna Drum HO White is a high output, round, on-board DMX+RDM driver and each unit carries 100 LEDs provide exceptional output and efficacy. It is ideal for facade lighting.

SPECIFICATIONS

Colors	27
Beam Angles	54
Photometrics	Up
Effective Projected Area	1
Control	DM
Max Fixtures in Series	32
Power Consumption	20
Operating Voltage	10
Lumen Maintenance	L3
Mounting	SA
Finish	GA
Material	DI
Ambient Operating Temperature	-40
IP Rating	IP6
IK Rating	IK0
Fixture Connectors	At
Warranty	5
Weight	30
Dimensions	Li
Certifications	

acclaimlighting.com

DYNA DRUM HO

ORDER CODES

* indicates special order

DDK - 2 # 1 -

Version: DDK = Dyna Drum HO White (Gen 2)

Control: 2 = DMX+RDM

Housing Fin: 1 = Blue, 2 = White, 4 = Grey, 7 = Custom

RELATED COMPONENTS

Optional Beam Accessories

DDHSL10
10° Spread lens for Dyna Drum HO

DDHSL20
20° Spread lens for Dyna Drum HO

DDHSL40
40° Spread lens for Dyna Drum HO

DDHSL60
60° Spread lens for Dyna Drum HO

DDHSL1060
10° x 60° Spread lens for Dyna Drum HO

acclaimlighting.com

DYNA DRUM HO WHITE™

ACCLAIM
LIGHTING

RELATED COMPONENTS

Optional Mounting Accessories

TM2
Use with 2" pipe, schedule 40 tenon mount
(2.51" 56mm inner dia.)

TM4
Use with 3.5" pipe, schedule 40 tenon mount
(4.13" 105mm inner dia.)

PC2
Use with 2" pipe, schedule 40 pipe clamp
mounts 1 or 2 fixtures

PC4
Use with 4" pipe, schedule 40 pipe clamp
mounts 1 or 2 fixtures

DIMENSIONS

acclaimlighting.com

SPECIFICATION SHEET 11
Specifications Subject to change without notice

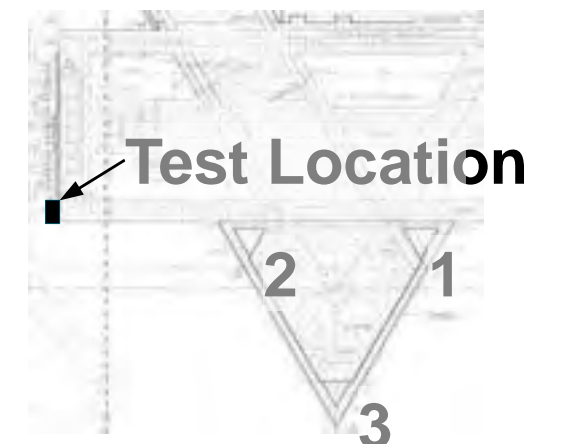
Test Set-Up



Test Fixtures Non-Energized



Test Fixtures Energized



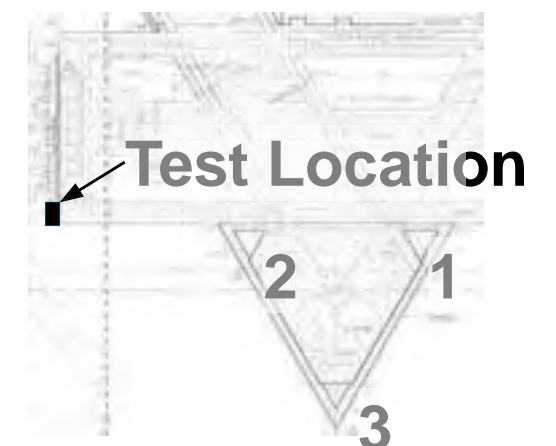
Spire 1 Test (approx. distance = ½ mile)



Existing Fixtures Only



Test Fixtures Energized



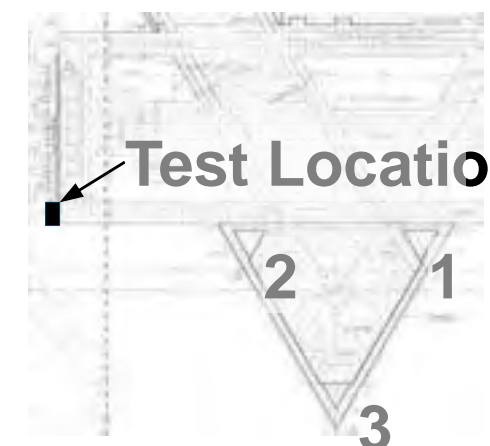
Spire 2 Test (approx. distance = ½ mile)



Existing Fixtures Only



Test Fixtures Energized



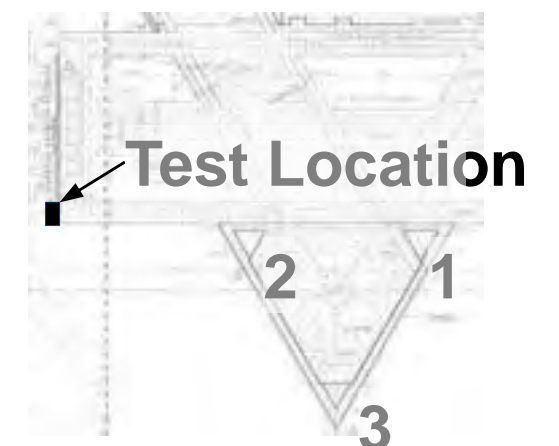
Spire 1 Test (approx. distance = 50 feet)



Existing Fixtures Only



Test Fixtures Energized



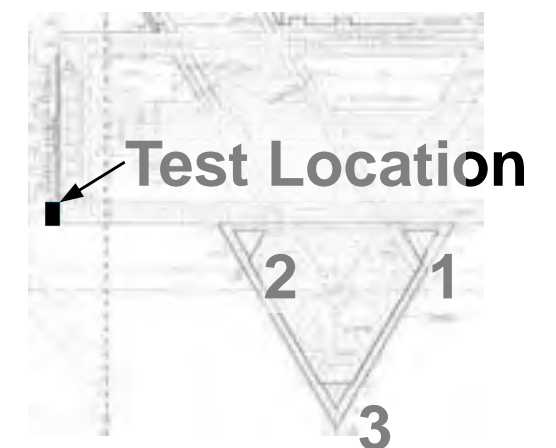
Spire 3 Test Various Angles (approx. distance = 50 feet)



Test Fixtures Energized



Test Fixtures Energized



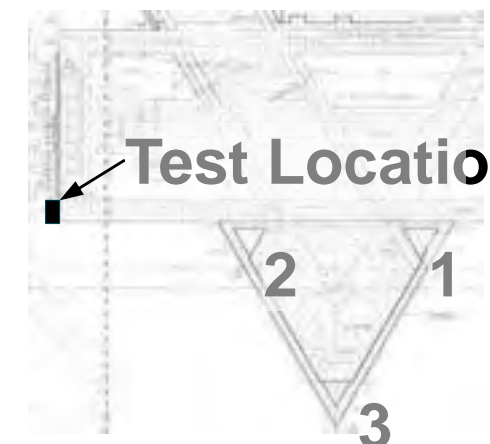
Spire 2 Test Various Angles (approx. distance = 0 – 50 feet)



Test Fixtures Energized



Test Fixtures Energized



Attachment C2

On March 5, 2020 the Project Team conducted a lighting test at the memorial to evaluate the proposed fixture selections for lighting the glass contemplation wall at the Pedestrian Plaza. The results of this limited test are presented on the attachment along with an assessment of the star points at the Promontory that were also added to the project scope.

Key Considerations Regarding “Attachment C2” Include:

1. The existing glass panel includes 5 laminated glass panels of which the etching is provided on the panels 1 and 5. The existing lighting is provided by a single row of fixtures aligned over panel 3 which does not effectively illuminate the etchings.
2. Only 1 fixture was provided for the test.
3. The fixtures test was conducted on the side of the glass panels due to access issues. The proposed fixtures will be fully concealed below the glass in a manner similar to the existing installation.
4. The proposed design will provide for the placement of two continuous parallel rows of fixtures centered over panels 1 and 5 to enhance the etchings as intended in the original construction documents for the memorial.
5. Fixtures were tested at 100% output. Final fixtures will be fully dimmable.

US Air Force Memorial Lighting Replacement Arlington, VA

NCPC/CFA Final Submission Preparatory Meeting

March 15, 2021

Star Point Fixture Assessment

Existing Fixture Removal



Existing Fixture Cleaning



Star Point Light Fixture Selection

AIR FORCE MEMORIAL LIGHTING REPLACEMENT

COOLEDGE™

SYSTEM OVERVIEW

GENERAL

Manufacturer	COOLIDGE
Model	AL-30
Material	Aluminum
Finish	White
Weight	1.5 lbs
Dimensions	12" x 12" x 12"
Installation	Surface Mount
Warranty	5 Years

SPECIFICATIONS

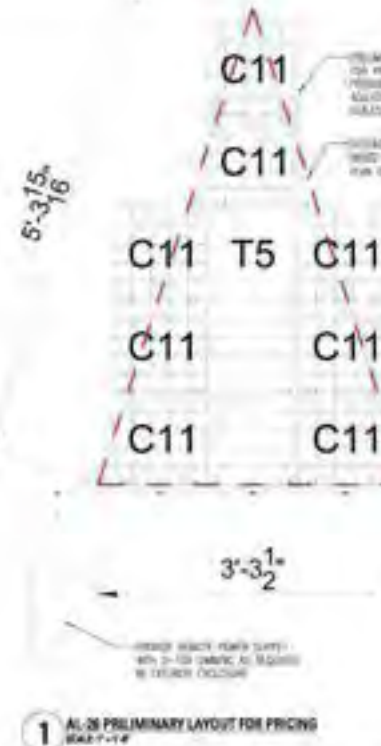
Input Voltage	120V AC
Output Voltage	120V AC
Power Consumption	15W
Beam Angle	60°
Color Temperature	4000K
Life Span	50,000 Hours

FEATURES

- High Quality LED Chips
- Energy Efficient
- Long Life Span
- Easy Installation
- No Flicker
- No Hum
- No Heat
- No Noise
- No Vibration
- No Electromagnetic Interference
- No Radio Frequency Interference
- No Infrared Radiation
- No Ultraviolet Radiation
- No X-Ray Radiation
- No Gamma Radiation
- No Neutron Radiation
- No Cosmic Radiation
- No Ionizing Radiation
- No Radioactive Material
- No Hazardous Material
- No Toxic Material
- No Flammable Material
- No Corrosive Material
- No Volatile Organic Compounds
- No Heavy Metals
- No Lead
- No Mercury
- No Cadmium
- No Chromium
- No Nickel
- No Copper
- No Zinc
- No Silver
- No Gold
- No Platinum
- No Palladium
- No Iridium
- No Rhodium
- No Rhenium
- No Osmium
- No Selenium
- No Tellurium
- No Polonium
- No Astatine
- No Francium
- No Actinium
- No Thorium
- No Protactinium
- No Uranium
- No Neptunium
- No Plutonium
- No Americium
- No Curium
- No Berkelium
- No Californium
- No Einsteinium
- No Fermium
- No Mendelevium
- No Nobelium
- No Lawrencium
- No Rutherfordium
- No Dubnium
- No Seaborgium
- No Bohrium
- No Hassium
- No Meitnerium
- No Darmstadtium
- No Roentgenium
- No Copernicium
- No Nihonium
- No Flerovium
- No Tennessine
- No Oganesson

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Issue Date: 30 January 2020 – FOR REVIEW AND COORDINATION

AIR FORCE MEMORIAL LIGHTING REPLACEMENT



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AIR FORCE MEMORIAL LIGHTING REPLACEMENT

COOLIDGE™ AL TILE EXTERIOR R2 - SPECIFICATIONS

1 TILE EXTERIOR R2

HOW TO ORDER

Quantity	1
Part Number	AL-30
Material	Aluminum
Finish	White
Weight	1.5 lbs
Dimensions	12" x 12" x 12"
Installation	Surface Mount
Warranty	5 Years

2 TILE EXTERIOR R2 CUT-OUT KIT

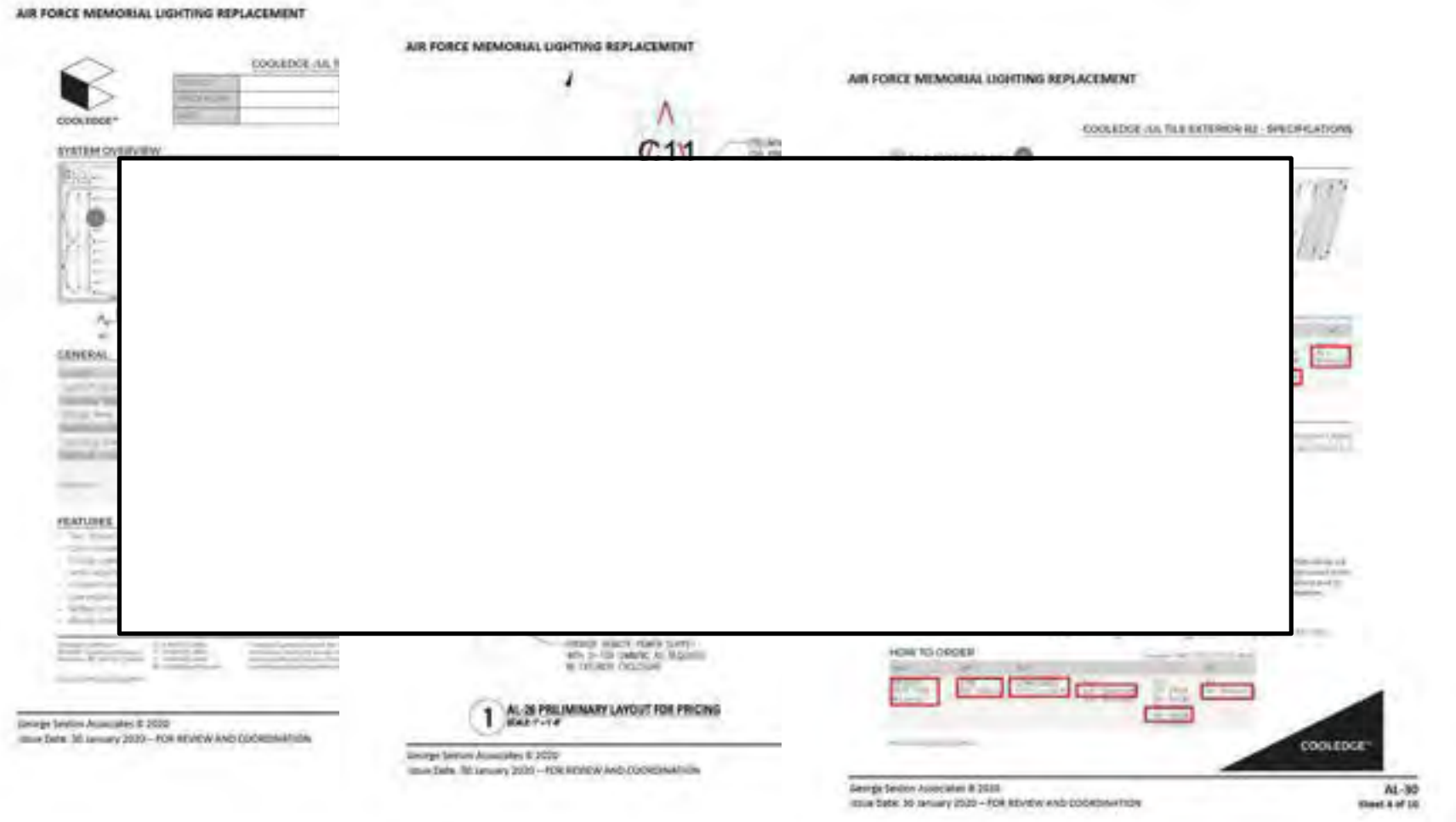
HOW TO ORDER

Quantity	1
Part Number	AL-30
Material	Aluminum
Finish	White
Weight	1.5 lbs
Dimensions	12" x 12" x 12"
Installation	Surface Mount
Warranty	5 Years

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Issue Date: 30 January 2020 – FOR REVIEW AND COORDINATION

AL-30
Sheet 4 of 16

Star Point Light Fixture Selection



Glass Contemplation Wall Fixture Assessment

Glass Lighting Vault

View of Existing Fixture

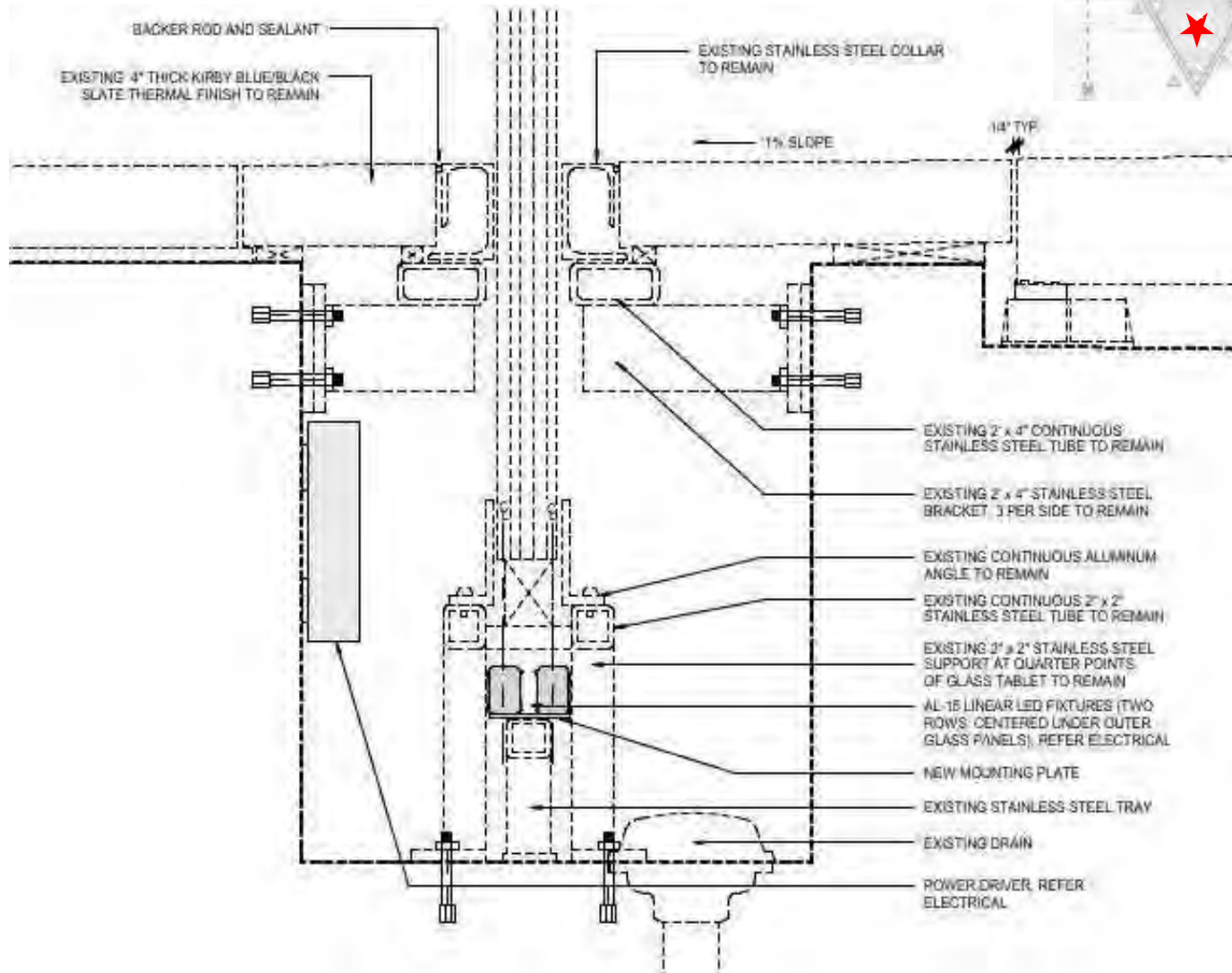


Glass Contemplation Wall Fixture Assessment

Fixture at Center of Glass Panel Poorly Illumination



Glass Contemplation Wall Fixture Assessment

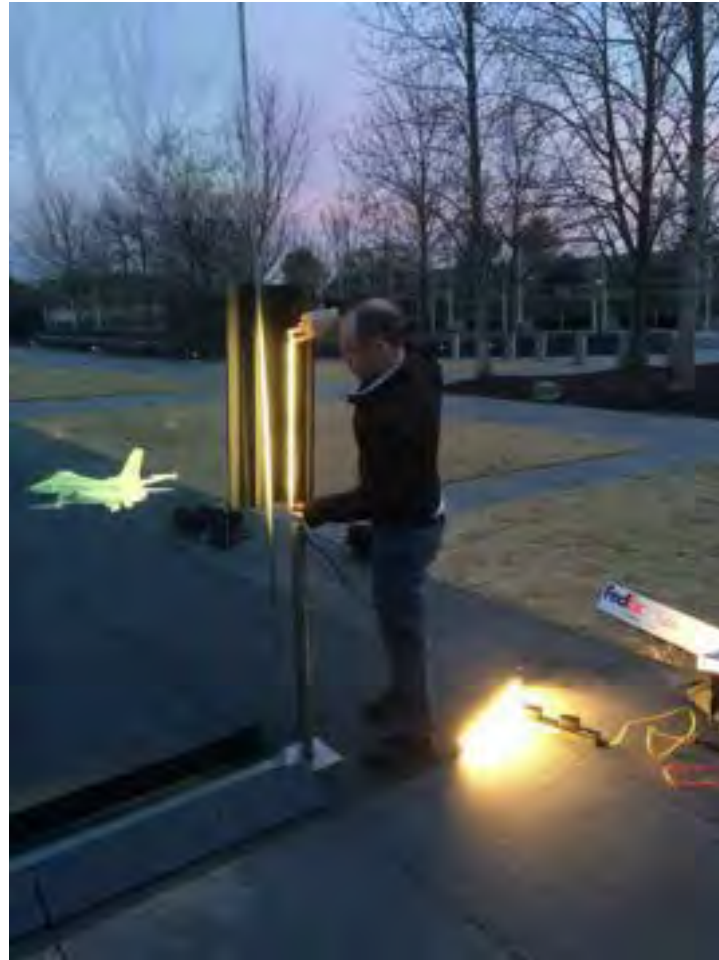


Glass Contemplation Wall Fixture Test

Proper Light Placement



Enhanced Etching Detail



Glass Contemplation Wall Fixture Test

Proper Light Placement



Glass Contemplation Wall Fixture Comparison



Poorly Lit Etchings

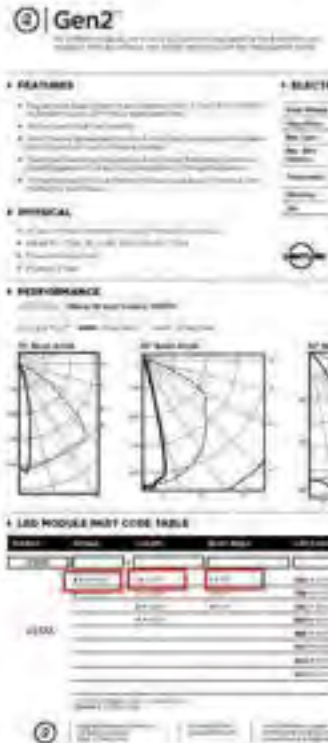


Properly Lit Etchings



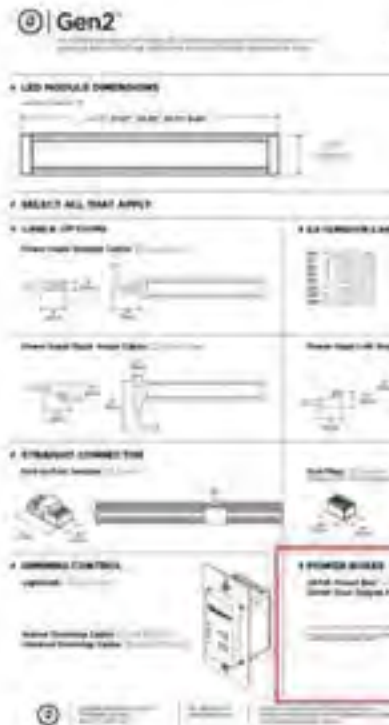
Glass Contemplation Wall Light Fixture Selection

AIR FORCE MEMORIAL LIGHTING REPLACEMENT



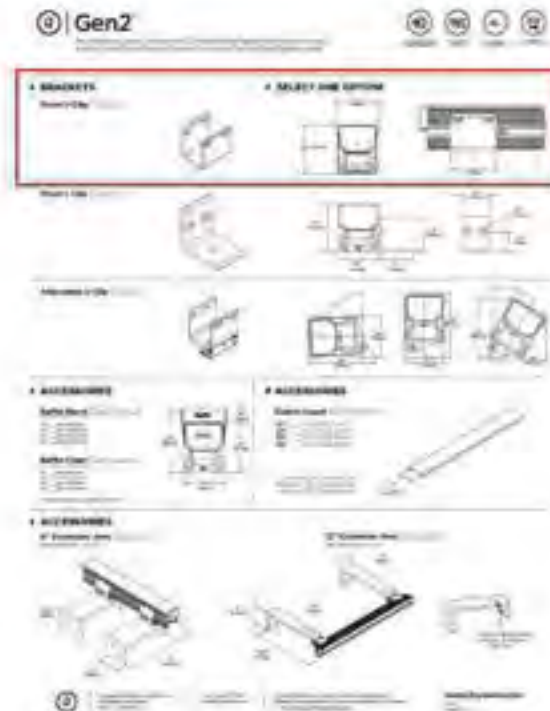
George Simon Associates II 2020
Issue Date: 20 January 2020 – FOR REVIEW AND COORDINATION

AIR FORCE MEMORIAL LIGHTING REPLACEMENT



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 First Date: 10 January 2020 - FCM Physical And Environmental

AIR FORCE MEMORIAL LIGHTING REPLACEMENT



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Issue Date: 30 January 2010 – RMA Address and Coordination File

A1-15
Sheet 3 of 4

Glass Contemplation Wall Light Fixture Selection

AIR FORCE MEMORIAL LIGHTING REPLACEMENT

Gen2

FEATURES

- High quality, durable, and long-lasting LED lighting
- High quality, durable, and long-lasting LED lighting
- High quality, durable, and long-lasting LED lighting
- High quality, durable, and long-lasting LED lighting
- High quality, durable, and long-lasting LED lighting
- High quality, durable, and long-lasting LED lighting

BLADE

- Blade
- Blade
- Blade
- Blade
- Blade
- Blade

AL-15 14W/ft 20-30V*
LED

Luminaire uses remote power supply with 120-277V input

12 Lighting
V2355-A-1-1-TBD*-2

- + E10PW 280W Power box
- + VLA-20 Fixed U clip
- * Color temperature TBD

AIR FORCE MEMORIAL LIGHTING REPLACEMENT

Gen2

BRACKETS

SELECT ONE OPTION

Surface mounted exterior wet listed linear LED grazing luminaire. Fixture dimensions are 1.75" wide by 2.02" tall by 12.57" long. Refer to drawings for linear dimensions. Provide 10-degree optical distribution. Provide remote power supply in accessible location below pavers (refer to drawings for details). Provide leader and jumper cables as required. Contractor shall provide mechanical and electrical mounting hardware as required.

George Seaton Associates, Inc. 2020
Issue Date: 30 January 2020 - FOR REVIEW AND COORDINATION

George Seaton Associates, Inc. 2020
Issue Date: 30 January 2020 - FOR REVIEW AND COORDINATION

George Seaton Associates, Inc. 2020
Issue Date: 30 January 2020 - FOR REVIEW AND COORDINATION

AL-15
Sheet 1 of 1

Questions?

Attachment D1 – Approvals – National Capital Planning Commission (NCPC) Preliminary Approval



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE DISTRICT OF WASHINGTON

6 June 2019

Maj Anthony Hylko, USAF
Deputy Division Chief, Civil Engineering
Air Force District of Washington
1500 W Perimeter Rd, Suite 5700
Joint Base Andrews, MD 20762

Mr. Marcel Acosta
Executive Director
National Capital Planning Commission
401 9th St NW, Suite 500N
Washington, DC 20004

Re: Air Force Memorial Lighting Replacement
Preliminary Review Submission Request

Dear Mr. Acosta

The United States Army Corps of Engineers (USACE) on behalf of the United States Air Force (USAF) requests consideration on the subject project to replace the existing failing lighting at the Air Force Memorial in Arlington, Virginia. If the attached meets your approval and warrants discussion during the July 11, 2019 National Capital Planning Commission Meeting, we would ask that it be included on the agenda. After meeting with your staff, if you agree that we that we have performed our due diligence in coordinating with your agency sufficiently and that the work associated with the proposed project does not warrant a formal action by the Commission, the USACE and the USAF would be equally pleased if the Executive Director makes a determination that this project be handled through the NCPC Consent Calendar.

In conducting your review, please note that while we have invited the State Historic Presentation Office to Informational Meetings on the subject project, they have not participated up to this point possibly due to the limited Repair and Maintenance nature of this project.

Please note also that the original scope of this project was limited to replacement of the existing lighting and as such the subsurface impacts did not warrant NEPA consideration in our opinion. We will advise if this situation changes during further development of the project.


Submission materials will be submitted under a separate cover. Should you require additional information, please feel free to contact Mr. Art Shenk at 410-294-3213 or arthur.e.shenk@usace.army.mil.

Sincerely

A handwritten signature in blue ink, appearing to read "A. Hylko", is positioned above the printed name and title.

ANTHONY E. HYLKO, Maj, USAF
Deputy Division Chief

PRIDE...TEAMWORK...SUCCESS

1. Point of Contact Name Maj Anthony Hylko, USAF	2. Agency or Organization AFDW/A4C	3. Mailing Address 1500 W. Perimeter Rd, Suite 5700 Joint Base Andrews, MD 20762
4. Phone Number 240-612-6232	5. Email Address anthony.e.hylko.mil@mail.mil	
6. Authorization Officer's Name Maj Anthony Hylko, USAF	7. Authorization Officer's Organization AFDW/A4C	8. Mailing Address 1500 W. Perimeter Rd, Suite 5700 Joint Base Andrews, MD 20762
9. Phone Number 240-612-6232	10. Email Address anthony.e.hylko.mil@mail.mil	
I authorize and approve the submission of this project to the National Capital Planning Commission for review.		11. Signature HYLKO.ANTHONY.EDWARD.1283421518  Digitally signed by HYLKO.ANTHONY.EDWARD.1283421518 Date: 2019.06.06 15:15:55 -04'00'
12. Does this submission contain any confidential or For Official Use Only (FOUO) information? YES NO		
13. Project Name Air Force Memorial Lighting Replacement		
14. Project Address or Location 1 Air Force Memorial Drive, Arlington, VA 22204		15. Is the Project on federal land? YES NO
16. Type of Project	17a. Is this project part of an approved Master Plan? YES NO	
18. Scheduling Issues (explain): Project is limited to design only and is not expected to enter into construction until FY 2020/2021 (TBD) pending funding.	17b. Master Plan Name:	
19. Project Description (3 or 4 sentences) Replacement of failing lighting with energy efficient LED fixtures. Light temperature (i.e. color) will match existing. Holiday lighting will not be provided. Removal of tripping hazards. Water infiltration will be corrected. Roadway lighting is excluded.		20. NCPC Review Phase Preliminary Review
<div style="display: flex; justify-content: space-between;"> <div> 21. Was the NEPA Review Initiated? <input type="checkbox"/> YES - Please Explain: <input checked="" type="checkbox"/> NO - Expected Schedule: <input type="checkbox"/> N/A - Please Explain: </div> <div> <input type="checkbox"/> YES - Please complete Section C <input checked="" type="checkbox"/> NO - Please skip to Section D </div> </div>		
22. What is the level of NEPA Analysis? <input checked="" type="checkbox"/> Categorical Exclusion (CATEX) <input type="checkbox"/> Environmental Assessment (EA) <input type="checkbox"/> Environmental Impact Statement (EIS)		
23. Is the Appropriate NEPA Documentation Attached? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	24. Who is the Lead Agency?	
25. Is Consultation with SHPO Under Section 106 of the NHPA Required? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> Other - Please Explain:	26. Was Consultation Initiated? YES NO - Expected Schedule:	

Please List Other Agency Approvals and Consultations Required (or planned) for the Project.

27a. Commission of Fine Arts (CFA)	Concept Approval	June/July 2019	Frederick Lindstrom
27b. Other Federal Agency			
27c. State Government			
27d. Local Government			
27e. Other			

Submissions to NCPC also require a Project Report. The details of the Project Report requirements are available in the Submission Guidelines. In general, the Project Report includes a more details project description and an explanation of how the project complies with NCPC's plans and policies that guide the

28. Is the Project Report Included? YES NO – Please Explain:



Commission Action

July 11, 2019

PROJECT United States Air Force Memorial Lighting Replacement 1 Air Force Memorial Drive Arlington, Virginia	NCPC FILE NUMBER 8085 NCPC MAP FILE NUMBER 1.61(73.10)44952
SUBMITTED BY United States Department of Defense Department of the Air Force	APPLICANT'S REQUEST Approval of preliminary site development plans
REVIEW AUTHORITY Advisory per 40 U.S.C. § 8722(b)(1)	ACTION TAKEN Approved preliminary site development plans with comments

The Commission:

Approves the preliminary site development plans to replace 174 existing lighting fixtures at the United States Air Force Memorial located in Arlington County, Virginia to address deficiencies in their function, installation and operation.

Notes the memorial is located in Arlington County and sites on a hillside at an elevation of 130 feet above sea level. With spires 201 to 270 feet in height, the memorial is visible during the daytime and nighttime from multiple, long-range vantage points, including from Washington, DC.

Notes that the Air Force Memorial has been included as a Tier 2 site, within the draft Lighting Policy and Framework that NCPC has developing in consultation with other agencies, defining it as a structure that should be visually less prominent than Tier 1 sites, which include the Washington Monument and the U.S. Capitol.

Recommends that the Department of the Air Force coordinate with NCPC, the U.S. Commission of Fine Arts, the Federal Aviation Administration and others to determine the appropriate lighting levels for the memorial after the replacement lighting is installed to ensure it fits within the overall lighting hierarchy established for the Monumental Core while meeting the safety requirement for aviation.

JULIA KOSTER Digitally signed by JULIA KOSTER
Date: 2019.07.11 16:22:10 -04'00'

Julia A. Koster
Secretary to the National Capital Planning Commission



Executive Director's Recommendation

Commission Meeting: July 11, 2019

PROJECT United States Air Force Memorial Lighting Replacement 1 Air Force Memorial Drive Arlington, Virginia	NCPC FILE NUMBER 8085 NCPC MAP FILE NUMBER 1.61(73.10)44952
SUBMITTED BY United States Department of Defense Department of the Air Force	APPLICANT'S REQUEST Approval of preliminary site development plans
REVIEW AUTHORITY Federal Projects in the Environs per 40 U.S.C. § 8722(b)(1)	PROPOSED ACTION Approve preliminary site development plans with comments ACTION ITEM TYPE Consent Calendar

PROJECT SUMMARY

The Department of the Air Force, Air Force District Washington has submitted preliminary site development plans for a lighting replacement project for the United States Air Force Memorial. The current memorial is lit with many different fixture types. Over the last several years, the Air Force has learned of several deficiencies relative to these lighting fixtures and the initial installation. The deficiencies have become more problematic in recent years and contributed to an unreliable installation. The primary issues they have cited include:

- Water infiltration contributing to shorting of the fixtures.
- Availability of the fixtures for replacement.
- Lack of energy efficiency.
- Above ground tripping hazards.

As part of this proposal, the Air Force will replace approximately 174 fixtures at the memorial to address these deficiencies.

In January 1992, the Air Force Memorial Foundation was formed to begin development of a national memorial to honor members of the United States Air Force. The site can be easily viewed as part of the capital skyline and from several major arterials leading into and out of Washington, DC. Renowned architect James Ingo Freed of Pei Cobb Freed & Partners was commissioned to develop the inspirational design that can be viewed today. Groundbreaking for the memorial was held in September of 2004 and construction was completed by Centex Construction Company in September of 2006. The memorial was dedicated in October 14, 2006.

The primary element of the memorial includes a promontory containing three spires ranging in height from 201 feet to 270 feet high. The stainless-steel spires are intended to portray an image of the "contrails of the Air Force Thunderbirds as they peel back in a precision 'bomb burst'

maneuver." Only three of the four contrails are depicted, at 120 degrees from each other, as the absent fourth suggests the missing man formation traditionally used at Air Force funeral fly-overs. Between the spires is the Air Force "star". The spires are illuminated at night by metal halide lamps installed on lighting stands that are concealed from view at opposite ends of a Pedestrian Plaza.

The Pedestrian Plaza is located between the promontory to the east and the adjacent entrance drive to the west. The surface of the plaza is a combination of granite and turf. The north and south ends of the plaza terminate at granite inscription walls behind which the spire lighting stands are located. The walls are 56 feet in length, 10 feet in height and one foot thick. The north wall bears the names of Air Force recipients of the Medal of Honor, and the south wall bears inspirational quotations regarding core values, particularly the Air Force's three core values; "integrity first, service before self, and excellence in all we do". Near the south end of the plaza stand four 8-foot-tall bronze statues sculpted by Zenos Frudakis that represent the United States Air Force Honor Guard. Near the north end of the plaza, a free-standing glass contemplation wall depicts the images of four F-16s flying in a "missing man" formation engraved on both sides of the 5-ply panel. All Pedestrian Plaza elements are accented with subgrade lighting.

KEY INFORMATION

- The Commission approved the final design for the United States Air Force Memorial in August 2004.
- The memorial was completed and opened in 2006 and is located adjacent to Arlington National Cemetery in Arlington County, Virginia.
- James Ingo Freed of Pei Cobb Freed & Partners was commissioned to develop the memorial's inspirational design.
- The three spires have different heights that are between 201 and 270 feet.
- The existing lighting is not as durable as it should be, is difficult to maintain, is not energy efficient and needs to be replaced.
- The Air Force Memorial is identified in the NCPC draft *Monumental Core Streetscape Project: Lighting Policy and Framework* as a Tier 2 site under the lighting hierarchy, requiring it to be less prominent as a Tier 1 site such as the Washington Monument or U.S. Capitol.
- The proposal includes the installation of 174 new lighting fixtures at the memorial, including ones illuminating the three spires that will be capable of being dimmed. These will replace the original fixtures and will not change the overall lighting strategy for the memorial.

RECOMMENDATION

The Commission:

Approves the preliminary site development plans to replace 174 existing lighting fixtures at the United States Air Force Memorial located in Arlington County, Virginia to address deficiencies in their installation and operation.

Notes the memorial is located in Arlington County and is sited on a hillside at an elevation of 130 feet above sea level. With spires 201 to 270 feet in height, the memorial is visible during the daytime and nighttime from multiple, long-range vantage points, including from Washington, DC.

Notes that the Air Force Memorial has been included as a Tier 2 site, within the draft Lighting Policy and Framework that NCPC has developing in consultation with other agencies, defining it as a structure that should be visually less prominent than Tier 1 sites, which include the Washington Monument and the U.S. Capitol.

Recommends that the Department of the Air Force coordinate with NCPC, CFA, the Federal Aviation Administration and others to determine the appropriate lighting levels for the memorial after the replacement lighting is installed to ensure it fits within the overall lighting hierarchy established for the Monumental Core while meeting the safety requirement for aviation.

PROJECT REVIEW TIMELINE

Previous actions	Aug 2005 – Final approval of memorial.
Remaining actions (anticipated)	– Final approval of site development plans for replacement lighting

PROJECT ANALYSIS

Executive Summary

The Department of the Air Force's replacement lighting proposal at the United States Air Force Memorial in Arlington County, Virginia is fairly simple. It will replace the damaged and hard to find lighting fixtures with more reliable ones that are more readily available. The Air Force notes that there are existing lighting deficiencies and issues at the memorial that need to be addressed and this lighting proposal is intended to correct them. Overall, the project will rectify these issues and will not alter the character of the memorial. Therefore, staff recommends that the **Commission**

approve the preliminary site development plans to replace 174 existing lighting fixtures at the United States Air Force Memorial located in Arlington County, Virginia to address deficiencies in installation and operation.

While the project itself is straight forward, the prominent location of this memorial in approximately 130 feet above sea level in Arlington, adjacent to Arlington National Cemetery, allows long reciprocal views to and from the National Mall. The intensity of the memorial light level is important, so that the memorial does not compete with other prominent sites along the National Mall such as the Washington Monument and the U.S. Capitol.

Analysis

The Department of the Air Force's replacement lighting project will address several identified issues at the Air Force Memorial. As noted earlier, the primary issues that the Air Force cited that need to be addressed include the following:

- Water infiltration contributing to shorting of the fixtures.
- Availability of the fixtures for replacement.
- Lack of energy efficiency.
- Above ground tripping hazards.

The Air Force notes this proposal will address all of these issues by replacing the fixtures infiltrated by water, using U.S. based manufactures to ensure availability and reduce delivery time, having LED lighting that are more energy efficient and finally installing flush mounted fixtures that are even with the ground. Staff is supportive of these changes.

The Commission reviewed and approved the memorial project itself in August 2005, which included memorial lighting. At that time the Commission was concerned about the Air Force including red aviation warning lights on the tips of the spires and included a recommendation for the Air Force to work with the Federal Aviation Administration in developing an alternative. The FAA was involved due to the height of the proposed spires and the close proximity of Ronald Reagan National Airport. The Air Force did not install any warning lights after reaching an agreement with the FAA. The Air Force notes that it has been in consultations with FAA on this current proposal as well.

Monumental Core Streetscape Project: Lighting Policy and Framework

The potential impact of any lighting project, especially a memorial, is important in Washington, DC given the visual proximity of the National Mall to this site. The nighttime views are especially sensitive since the Washington Monument and the U.S. Capitol are nearby. The illumination intensity of this memorial needs to be determined within the broader context of this setting. In the past, the Commission has requested to understand and verify illumination impacts projects including the U.S. Institute of Peace and more recently regarding several bridge projects.

NCPC staff have been developing the *Monumental Core Streetscape Project: Lighting Policy and Framework* which is intended to provide guidance on lighting in the downtown core of Washington, DC of structures, landscapes and streets. This policy will build upon the Comprehensive Plan policies including this important Urban Design Element policy:

Utilize building, street, and exterior lighting that respects the hierarchy of memorials, monuments, and important civic buildings and spaces in the nation's capital, with the U.S. Capitol and Washington Monument the most prominent features in the nighttime skyline.

This draft policy and framework document describes a lighting hierarchy for structures in and around the Monumental Core and identifies the Air Force Memorial along with many other buildings and structures. While this memorial is not one of the preeminent buildings included in Tier 1, it is identified as a Tier 2 structure given its location and importance. This means that it should be seen but it should not be the most illuminated structure which might detract from other more important structures such as the Washington Monument.

The intention of the project is to not significantly alter the lighting character of the memorial. However, as with the installation of any new technology, testing and recalibration will be necessary to determine the most appropriate lighting levels. The applicant has already begun some initial testing, and additional work will be necessary after installation. Therefore, staff suggest the **Commission recommends that the Department of the Air Force coordinate with NCPC, CFA, the Federal Aviation Administration and others to determine the appropriate lighting levels for the memorial after the replacement lighting is installed to ensure it fits within the overall lighting hierarchy established for the Monumental Core while meeting the safety requirement for aviation.**

CONFORMANCE TO EXISTING PLANS, POLICIES AND RELATED GUIDANCE

Comprehensive Plan for the National Capital

The proposed replacement lighting project is consistent with the relevant policies in the Urban Design, Federal Environment and Parks and Open Space Elements of the Comprehensive Plan for the National Capital.

National Historic Preservation Act

The Air Force has a responsibility under Section 106 of the National Historic Preservation Act for this project. The Air Force has initiated Section 106 consultation, and anticipates concluding this process prior to final review by the Commission. As this project is in the environs, NCPC does not have a Section 106 responsibility.

National Environmental Policy Act

The Air Force has a responsibility under the National Environmental Act (NEPA) and will submit a categorical exclusion when this project is submitted for final review. As this project is in the environs, NCPC does not have a NEPA responsibility.

CONSULTATION

U.S. Commission of Fine Arts

The Commission of Fine Arts approved the concept design for the replacement lighting project on its consent agenda on June 20, 2019.

ONLINE REFERENCE

The following supporting documents for this project are available online at www.ncpc.gov:

- Submission Package

Prepared by Carlton Hart
07/01/2019

POWERPOINT (ATTACHED)

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Attachment D2 – Approvals – Commission of Fine Arts (CFA) Concept Approval



**DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE DISTRICT OF WASHINGTON**

6 June 2019

Maj Anthony Hylko, USAF
Deputy Division Chief, Civil Engineering
Air Force District of Washington
1500 W Perimeter Rd, Suite 5700
Joint Base Andrews, MD 20762

Mr. Thomas Luebke, FAIA
Secretary
Commission of Fine Arts
401 F Street, NW, Suite 312
Washington, DC 20001

Re: Air Force Memorial Lighting Replacement
Preliminary Review Submission Request

Dear Mr. Luebke

The United States Army Corps of Engineers (USACE) on behalf of the United States Air Force (USAF) requests consideration on the subject project to replace the existing failing lighting at the Air Force Memorial in Arlington, Virginia. If the attached meets your approval and warrants discussion during either the June 20, 2019 or July 18, 2019 Commission of Fine Arts Meeting, we would ask that it be included on the agenda. After meeting with your staff, if you agree that we that we have performed our due diligence in coordinating with your agency sufficiently and that the work associated with the proposed project does not warrant a formal action by the Commission, the USACE and the USAF would be equally pleased if the Chairman makes a determination that this project be handled through the CFA Consent Calendar.

Submission materials will be submitted under a separate cover. Should you require additional information, please feel free to contact Mr. Art Shenk at 410-294-3213 or arthur.e.shenk@usace.army.mil.

Sincerely

A handwritten signature in blue ink, appearing to read "A. Hylko", is positioned above the typed name.

ANTHONY E. HYLKO, Maj, USAF
Deputy Division Chief

PRIDE...TEAMWORK...SUCCESS

CFA 20/JUN/19-b

LOCATION:

1 Air Force Memorial Drive (1400 block of Columbia Pike)
Arlington, VA

OWNER:

Air Force Memorial Foundation
U.S. Department of Defense

PROPERTY:

United States Air Force Memorial

DESCRIPTION:

Rehabilitation of the lighting system

REVIEW TYPE:

Concept

Recommendation

No objection to the concept design for the replacement of the existing lighting fixtures at the United States Air Force Memorial, as shown in materials received and dated 7 June 2019.

Attachment D3 – Approvals – Site Categorization



DEPARTMENT OF THE ARMY
ARMY NATIONAL MILITARY CEMETERIES
ARLINGTON NATIONAL CEMETERY
ARLINGTON, VIRGINIA 22211-5003

SAAC-ENG

18 December 2019

MEMORANDUM FOR Chief, Project Development (CENAB-COF-DET), U.S. Army Corps of Engineers – Baltimore District

SUBJECT: Identification of Site and Environmental Considerations for the U.S. Air Force Memorial Lighting Replacement Project, Contract No.: W912DYD0016

1. References:

a. U.S. Army Corps of Engineers Lighting Replacement 65% Submittal Plans and Specifications, 12 July, 2019.

b. U.S. Army Arlington National Cemetery Environmental Assessment for the Southern Expansion and Associated Roadway Alignment, August 2019

2. The responses that follow correspond to the referenced submittal package.

a. Construction Site Categorization: The project site meets the definition of Category I, as provided in AR 420-1 Appendix E: *"There is no reason to suspect contamination will be encountered during construction."*

b. Wetland Verification: There are no jurisdictional wetlands on the project site.

c. Floodplain Verification: There project site is not on the 100 year floodplain.

d. Historical/Cultural Preservation Requirements: The Air Force Memorial is not listed on, but is eligible for the National Register of Historic Places. The proposed project is considered maintenance. A consultation with the State Historic Preservation Officer will be required and will be initiated by Arlington National Cemetery.

e. National Environmental Policy Act (NEPA): The Air Force District Washington shall complete an environmental review of project activities.

f. Site Plan: Site plans have previously been provided by the Baltimore District.

g. Unexploded Ordnance: The Air Force Memorial has no history of encountering unexploded ordnance. There is no reason to expect to encounter unexploded ordnance on this site.

SAAC-ENG

SUBJECT: Identification of Site and Environmental Considerations for the U.S. Air Force Memorial Lighting Replacement Project, Contract No.: W912DYD0016

h. Asbestos-Containing Materials: There is no reason to expect to encounter asbestos-containing materials on the proposed project site.

i. Lead Paint: There is no reason to expect to encounter lead paint materials on the proposed project site.

3. The point of contact for this memorandum is Robert Marshall, Arlington National Cemetery Facilities Engineering, 703-614-0601, robert.w.marshall55.civ@mail.mil.

AUSTIN.THOMAS.EDWARD.1097926898	Digitally signed by AUSTIN.THOMAS.EDWARD.1097926898 Date: 2019.12.23 16:42:41 -05'00'
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THOMAS E. AUSTIN
Colonel, EN
Director of Engineering

Attachment D4 – Approvals – National Environmental Policy Act (NEPA)

REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS

INSTRUCTIONS: Section I to be completed by Proponent; Sections II and III to be completed by Environmental Planning Function.
Continue on separate sheets as necessary and reference appropriate item number(s).

SECTION I - PROPONENT INFORMATION

1. TO (Environmental Planning Function) 11 CES/CEIE	2. FROM (Proponent organization and functional address symbol) 11 CES/CENM 3710 Fetchet Avenue, Joint Base Andrews, MD 20762	2a. TELEPHONE NO. 301 981 1203
3. TITLE OF PROPOSED ACTION Replace lighting at AF Memorial		
4. PURPOSE AND NEED FOR ACTION (Identify decision to be made and need date) Originally installed, foreign manufactured exterior light fixtures are failing. Parts are not readily available. Ground water has permanently damaged approximately 50% of the fixtures. Existing fixtures are not LED. This project will replace the existing fixtures with LED units and provide a more environmentally friendly and more visible light source for the monument and illuminated ground features -cont'd		
5. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES (DOPAA) (Provide sufficient details for evaluation of the total action) Due to the fixture type and requirements, there are no alternatives for replacement fixtures.		
6. PROPONENT APPROVAL (Name and Grade) Joseph M. Oliver	6a. SIGNATURE	6b. DATE 13 Jan 2020

SECTION II - PRELIMINARY ENVIRONMENTAL SURVEY (Check appropriate box and describe potential environmental effects including cumulative effects) (+=positive effect; 0=no effect; - = adverse effect; U=unknown effect)	+	0	-	U
7. AIR INSTALLATION COMPATIBLE USE ZONE/LAND USE (Noise, accident potential, encroachment, etc.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. AIR QUALITY (Emissions, attainment status, state implementation plan, etc.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. WATER RESOURCES (Quality, quantity, source, etc.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. SAFETY AND OCCUPATIONAL HEALTH (Asbestos/radiation/chemical exposure, explosives safety quantity distance, bird/wildlife aircraft hazard, etc.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. HAZARDOUS MATERIALS/WASTE (Use/storage/generation, solid waste, etc.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. BIOLOGICAL RESOURCES (Wetlands/floodplains, threatened or endangered species, etc.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. CULTURAL RESOURCES (Native American burial sites, archaeological, historical, etc.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. GEOLOGY AND SOILS (Topography, minerals, geothermal, Installation Restoration Program, seismicity, etc.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. SOCIOECONOMIC (Employment/population projections, school and local fiscal impacts, etc.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. OTHER (Potential impacts not addressed above.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION III - ENVIRONMENTAL ANALYSIS DETERMINATION

17. <input checked="" type="checkbox"/> PROPOSED ACTION QUALIFIES FOR CATEGORICAL EXCLUSION (CATEX) # <u>A2.3.9 / A2.3.10</u> ; OR <input type="checkbox"/> PROPOSED ACTION DOES NOT QUALIFY FOR A CATEX; FURTHER ENVIRONMENTAL ANALYSIS IS REQUIRED.		
18. REMARKS		
19. ENVIRONMENTAL PLANNING FUNCTION CERTIFICATION (Name and Grade) Ryan A. Soens / GS-12	19a. SIGNATURE	19b. DATE 13 Jan 2020

From page 1

- of the memorial. Install positive drainage system for the sub-surface light fixtures to prevent future water damage to the fixtures.

No Action Alternative -

The memorial will continue to become less lit and start being a safety hazard.

**Attachment D5 – Approvals – State Historic Preservation Office
(SHPO) Section 106**



COMMONWEALTH of VIRGINIA

Department of Historic Resources

2801 Kensington Avenue, Richmond, Virginia 23221

Matt Strickler
Secretary of Natural Resources

Julie V. Langan
Director

Tel: (804) 367-2323
Fax: (804) 367-2391
www.dhr.virginia.gov

MEMORANDUM

DATE: 16 February 2021 **DHR File #** 2021-3024

TO: Ms Rebecca Stevens
ARMY

FROM: Marc E. Holma, Architectural Historian (804) 482-6090
Review and Compliance Division

PROJECT: Air Force Memorial Lighting Rehabilitation
Arlington National Cemetery

☒ This project will have an effect on historic resources. Based on the information provided, the effect will not be adverse.

☐ This project will have an adverse effect on historic properties. Further consultation with DHR is needed under Section 106 of the NHPA.

☐ Additional information is needed before we will be able to determine the effect of the project on historic resources. **Please see below.**

☐ No further identification efforts are warranted. No historic properties will be affected by the project. Should unidentified historic properties be discovered during implementation of the project, please notify DHR.

☐ We have previously reviewed this project. Attached is a copy of our correspondence.

☐ Other (Please see comments below)

COMMENTS:

Administrative Services
10 Courthouse Ave.
Petersburg, VA 23803
Tel: (804) 862-6408
Fax: (804) 862-6196

Eastern Region Office
2801 Kensington Avenue
Richmond, VA 23221
Tel: (804) 367-2323
Fax: (804) 367-2391

Western Region Office
962 Kime Lane
Salem, VA 24153
Tel: (540) 387-5443
Fax: (540) 387-5446

Northern Region Office
5357 Main Street
PO Box 519
Stephens City, VA 22655
Tel: (540) 868-7029
Fax: (540) 868-7033

Attachment D6 – Approvals – Federal Aviation Administration (FAA)



Federal Aviation Administration
Eastern Regional Office
1 Aviation Plaza-AEA-520
Jamaica, NY 11434

Aeronautical Study No.
2002-AEA-3436-OE
Prior Study No.
2002-AEA-3437-OE

Issued Date: 1/8/2003

EDWARD F. GRILLO JR
AIR FORCE MEMORIAL FOUNDATION
1501 LEE HIGHWAY
ARLINGTON, VA 22209

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has completed an aeronautical study under the provisions of 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	MONUMENT
Location:	ARLINGTON, VA
Latitude:	38-52-6.66 NAD 83
Longitude:	77-3-58.46
Heights:	270 feet above ground level (AGL) 405 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure should be marked and/or lighted in accordance with FAA Advisory Circular 70/7460-1 K Change 1, Obstruction Marking and Lighting, red lights - Chapters 4,5(Red),&12.

It is required that the enclosed FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

☒ At least 10 days prior to start of construction
(7460-2, Part I)

☒ Within 5 days after the construction reaches its greatest height
(7460-2, Part II)

As a result of this structure being critical to flight safety, it is required that the FAA be kept apprised as to the status of the project. Failure to respond to periodic FAA inquiries could invalidate this determination.

See attachment for additional condition(s) or information.

The structure considered under this study lies in proximity to an airport and occupants may be subjected to noise from aircraft operating to and from the airport.

This determination expires on 1/8/2005 unless:

- (a) extended, revised or terminated by the issuing office.
- (b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed , as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before 2/7/2003. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted in triplicate to the Manager, Airspace, Federal Aviation Administration, 800 Independence Ave, Washington, D.C. 20591.

This determination becomes final on 2/17/2003 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Office of Airspace and Rules via telephone -- 202-267-8783 - or facsimile 202-267-9328.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

A copy of this determination will be forwarded to the Federal Communications Commission if the structure is subject to their licensing authority.

If we can be of further assistance, please contact our office at (718)553-4520.
On any future correspondence concerning this matter, please refer to
Aeronautical Study Number 2002-AEA-3436-OE.

Signature Control No: 321188-127548

(DNH)

Benedict L. Sliney
Manager, Airspace Branch

7460-2 Attached



Federal Aviation Administration
Eastern Regional Office
1 Aviation Plaza-AEA-520
Jamaica, NY 11434

Aeronautical Study No.
2002-AEA-3437-OE
Prior Study No.
2002-AEA-3436-OE

Issued Date: 8/25/2004

EDWARD F. GRILLO JR
AIR FORCE MEMORIAL FOUNDATION
1501 LEE HIGHWAY
ARLINGTON, VA 22209

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure: Crane
Location: ARLINGTON, VA
Latitude: 38-52-6.66 NAD 83
Longitude: 77-3-58.46
Heights: 305 feet above ground level (AGL)
440 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does exceed obstruction standards but would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure should be marked and/or lighted in accordance with FAA Advisory Circular 70/7460-1 K Change 1, Obstruction Marking and Lighting, paint/red lights - Chapters 3(Marked), 4, 5(Red), & 12.

See attachment for additional information.

It is required that the FAA be notified at least 3 business days prior to the temporary structure being erected and again when the structure is removed from the site. Notification should be made to this office during our core business hours (Monday through Friday, 9:00 a.m. to 3:00 p.m.) via telephone at (718)553-2560. Notification is necessary so that aeronautical procedures can be temporarily modified to accommodate the structure.

It is required that the manager of MWAA 703-417-8050 be notified at least 3 business days prior to the temporary structure being erected and again when the structure is removed from the site.

This determination expires on 8/25/2006 unless:

- (a) extended, revised or terminated by the issuing office.
- (b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE

EXPIRATION DATE.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

A copy of this determination will be forwarded to the Federal Communications Commission if the structure is subject to their licensing authority.

If we can be of further assistance, please contact our office at (718)553-2560. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2002-AEA-3437-OE.

Signature Control No: 321190-305058

(EBO)

William E Merritt
Specialist

Attachment(s)
Additional Information

Additional Information for ASN 2002-AEA-3437-OE

Proponent - The Determination of No Hazard to Air Navigation, issued for study 2002-AEA-3536-OE (the memorial) is due to expire on January 8, 2005. An extension of that determination may be requested through this office.



Federal Aviation Administration
Eastern Regional Office
1 Aviation Plaza-AEA-520
Jamaica, NY 11434

Aeronautical Study No.
2002-AEA-3436-OE
Prior Study No.
2002-AEA-3437-OE

Issued Date: 3/31/2005

EDWARD F. GRILLO JR
AIR FORCE MEMORIAL FOUNDATION
1501 LEE HIGHWAY
ARLINGTON, VA 22209

**** MARKING & LIGHTING RECOMMENDATION ****

The Federal Aviation Administration has completed an evaluation of your request concerning:

Structure:	MONUMENT
Location:	ARLINGTON, VA
Latitude:	38-52-6.66 NAD 83
Longitude:	77-3-58.46
Heights:	270 feet above ground level (AGL) 405 feet above mean sea level (AMSL)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking and/or lighting are accomplished on a voluntary basis, we recommend it be installed and maintained in accordance with FAA Advisory Circular 70/7460-1 K Change 1.

See attachment for additional information.

Action will be taken to ensure aeronautical charts and records are updated to reflect the marking and/or lighting changes which exist at this time.

This evaluation concerns the effect of the marking and/or lighting changes on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (718)553-2560. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2002-AEA-3436-OE.

Signature Control No: 321188-358039

(M&L)

William E Merritt
Specialist

Attachment(s)
Additional Information

cc: NACO w/map 47-2057

Additional Information for ASN 2002-AEA-3436-OE

This marking and lighting recommendation serves to modify the original determination of no hazard issued January 8, 2003 that required obstruction marking and lighting by use of a red light system. This existing structure is located outside the general flow of air traffic and is conspicuous by its shape, size and base mounted white lights. Additional obstruction lighting would serve no useful purpose. However, proponent has agreed to install a red obstruction light system that is to be in a standby or off position and would be used in the event of a failure of the base mounted white light system. This red light system should be configured to automatically activate in the event of a total failure of the base mounted white lights. The red obstruction light system and any automatic switchover, should be tested for reliability on a periodic basis. At no time should this monument be without nighttime lighting.



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2016-AEA-3734-OE
Prior Study No.
2002-AEA-3436-OE

Issued Date: 04/07/2016

Timothy Kim
11th Civil Engineer Sq
3465 North Carolina Ave
Joint Base Andrews, MD 20762

**** MARKING & LIGHTING RECOMMENDATION ****

The Federal Aviation Administration has completed an evaluation of your request concerning:

Structure:	Lighting Study Monument
Location:	Arlington, VA
Latitude:	38-52-06.66N NAD 83
Longitude:	77-03-58.46W
Heights:	135 feet site elevation (SE) 270 feet above ground level (AGL) 405 feet above mean sea level (AMSL)

As a condition to this Determination, the structure is marked/lighted with flood lights.

So that aeronautical charts and records can be updated, it is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed when the new system is installed and operational.

If this structure is subject to the authority of the Federal Communications Commission a copy of this letter will be forwarded to them and application should be made for permission to change the marking/lighting as requested.

This evaluation concerns the effect of the marking/lighting changes on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

If we can be of further assistance, please contact our office at (425) 227-2791. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2016-AEA-3734-OE.

Signature Control No:

Daniel Shoemaker
Specialist

(MAL)

Attachment(s)

Map(s)

cc: FCC

