KSC ENVIRONMENTAL CHECKLIST

1. PROJECT TITLE:	2. PROJECT NO.:
E-Green Airship Siting at KSC Roberts Road and Ave A	E1156483
3. PROJECT LOCATION: ☒ KSC ☐ CCAFS ☐ PAFB ☐ OTHER _____	4. FACILITY NAME/NO.: K6-2359, Security Training Center
5. REQUESTOR/PROJECT LEAD: Michelle E. Amos ORG/MAIL CODE: TA-A3	6. PHONE NO.: (321) 867-6681 cell (321) 438-3820
7. PREPARER OF CHECKLIST: Michelle E. Amos ORG/MAIL CODE: TA-A3	8. PHONE NO.: (321) 867-6681 cell (321) 438-3820

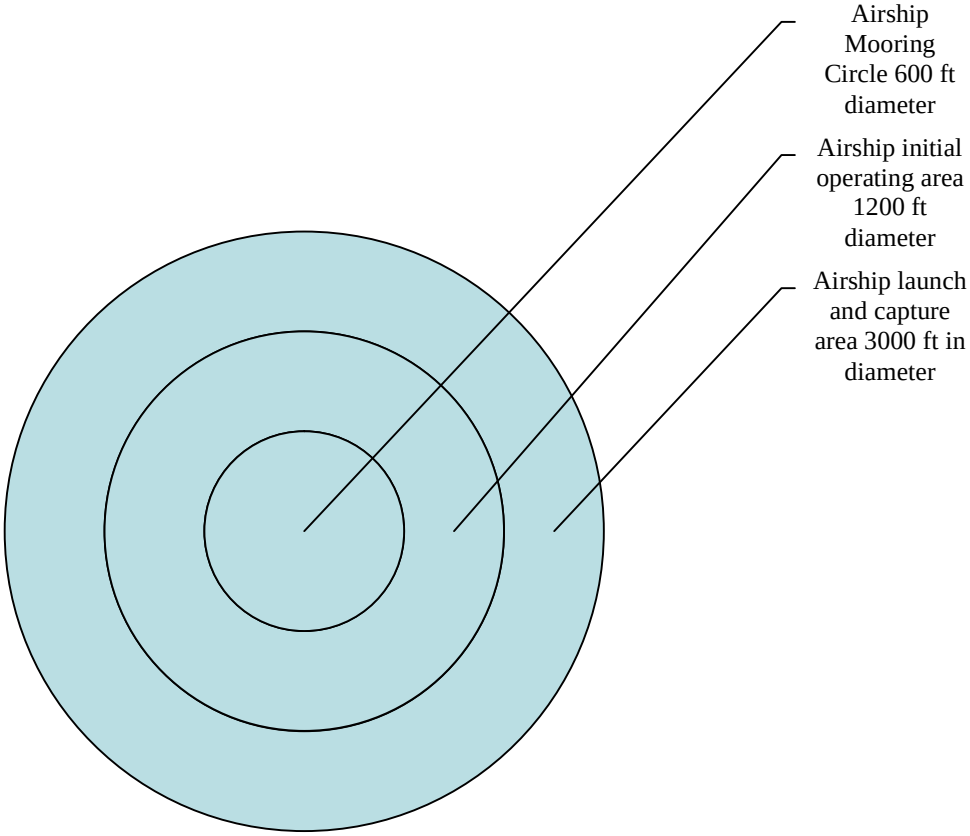
9. PROJECT DESCRIPTION: *(Provide site plans, maps, etc. as separate attachment(s))*

Complete site request review for E-Green Technologies Airship Mooring System and Vertical Launch and Vertical Landing within a 25 mile radius of KSC Shuttle Landing Facility. The airship dimensions are 226ft long x 65ft diameter x 85ft high. Mooring site requires 500ft diameter free of ditches, trees, bushes and on level ground to secure the airship when not in flight. Mooring pole 35 feet tall sits on a 3sqft baseplate part of the mooring mast provided by E-Green with 1/4 to 3/8 inch steel mooring mast cables staked to the ground. Screw stakes (1 inch diameter steel rods) are screwed 5ft into the ground. Main mooring pole baseplate pins 3ft in length are driven into the ground to position the baseplate . Vertical Launch and Vertical Landing should take place near the Mooring site. Vertical Launch and Vertical Landing requires 1000 ft - 3000ft diameter free of ditches, trees and bushes and level ground. DuraDeck, a temporary plastic structure, is being considered for used at the site to support trailers and heavy vehicles on the sandy surface.
The airship utilizes 5 diesel/algae fueled propulsion engines and is filled with 300,000 scf gaseous helium (GHe).

10. a-r. Check the appropriate box (Yes, No, Undetermined) to identify if any component of the proposed project (including, but not limited to: construction, installation, demolition, removal, activation or operation) will involve any of the items listed. Use the attached instructions. Provide more specific information for each item marked Yes or Undetermined in the third column.

☐ Yes ☒ No ☐ Undetermined	a. Construction/Modification/Demolition: Constructing, altering, expanding, modifying (other than routine maintenance), or demolishing any building, pavement or structure.	
☒ Yes ☐ No ☐ Undetermined	b. Land Impacts: Land disturbance, soil addition or removal, digging, grading, trenching, alteration or removal of vegetation, equipment/material staging area required, stockpiling and any activity in or near surface water (including ditches and low-lying areas).	20-22 acres of Orange Grove removal and leveling
☒ Yes ☐ No ☐ Undetermined	c. Hazardous Material and Hazardous, Controlled or Universal Waste: Use, storage, generation and/or disposal of any hazardous or toxic material, petroleum products or paint coatings.	diesel, algae diesel, unleaded fuel, helium
☐ Yes ☒ No ☐ Undetermined	d. Asbestos Containing Material (ACM): Disturbance of construction material that may contain asbestos (i.e., roofs, walls, ceilings, floor tile, piping insulation, caulk, etc.).	
☐ Yes ☒ No ☐ Undetermined	e. PCBs: Disturbance or replacement of electrical distribution systems, communication systems, lightning protection, transformers, non-liquid PCB materials or any other items believed to contain PCBs, including paint coatings.	Bring their own power via generator trailer and portable generators
☐ Yes ☒ No ☐ Undetermined	f. Painting: Initial application or repainting of a facility (interior or exterior), structure or utility.	
☐ Yes ☒ No ☐ Undetermined	g. Paint, Sealant, Caulking Removal: Includes surface preparation such as sandblasting, scraping, water blasting or chemical stripping of existing paint coatings. Specify method.	
☐ Yes ☒ No ☐ Undetermined	h. Dewatering: Use of conventional wellpoints, hydraulic pumps, or other means to transfer groundwater (including water in utility manholes) for project activities including utility trenching, foundation work, roadbed construction, stormwater treatment pond, and borrow excavation.	Bring a water bowser trailer
☐ Yes ☒ No ☐ Undetermined	i. Stormwater: Construction of new building, pavement, impervious, or semi-impervious surface and/or modification of an existing stormwater system. Give approximate square feet of impervious surface being added.	Sq Ft
☐ Yes ☒ No ☐ Undetermined	j. Drinking/FIREX Water: Installation or modification of potable water system. Include diameter of new water piping if known.	inches
☐ Yes ☒ No ☐ Undetermined	k. Domestic/Industrial Wastewater: Installation or modification of domestic sewer system, including septic tank systems, generation of process wastewater or modification to a system that handles or transports wastewater, including condensate lines, washdown effluent, outfalls, holding ponds and non-point source discharges associated with industrial applications/processes.	
☐ Yes ☒ No ☐ Undetermined	l. Air Emissions: Installation or alteration of a stack, scrubber, exhaust fan, vent, generator, fume hood, cooling tower, boiler, halon fire suppression system, HVAC system, refrigeration system; or discharge from painting or sandblasting. Describe emission source.	
☐ Yes ☐ No ☒ Undetermined	m. Open Burning: Burning of any land clearing debris.	
☒ Yes ☐ No ☐ Undetermined	n. Tanks: Construction, modification, or repair of aboveground or underground storage tanks (including piping and/or containment). Give commodity stored and capacity.	2k psiGHe gallons

☒ Yes ☐ No ☐ Undetermined	o. Transformers/Generators: Installation, replacement or repair of transformers, generators, or any other oil-filled equipment. Give capacity.	gallons
☒ Yes ☐ No ☐ Undetermined	p. Exterior Lighting: Installation, refurbishment or modification of exterior lighting.	Portable Lighting. 500W outdoor halogen lights.
☒ Yes ☐ No ☐ Undetermined	q. Radiation: Generation of ionizing or non-ionizing radiation or use of any radiation source.	VHF Aviation radio and cell phones
☒ Yes ☐ No ☐ Undetermined	r. Other: Please describe any other aspect of the proposed action that could potentially affect the environment. Use separate sheet if necessary.	200 x 60 area covered with perforated thin metal plates which allows rain


Airship Mooring Circle 600 ft diameter
Airship initial operating area 1200 ft diameter
Airship launch and capture area 3000 ft in diameter

TA-A3, Center Planning and Development Office

Avoid Verbal Orders

To: Leroy Smith and KSC Master Planning Office

From: Michelle Amos, TA-A3, Center Planning and Development Office

CC:

Date: 10/22/2010

Re: Updated: WO E1156483: Expedite Support Request for Airship Mooring and Vertical Launch/Landing Siting at KSC Roberts Road and Ave A Orange Grove site.

This is an update to WO E1156483 support request for E-Green Technologies Airship Mooring System and Vertical Launch and Vertical Landing within a 25 mile radius of KSC Shuttle Landing Facility. Please change preferred siting to KSC property at Roberts Road and Ave A which requires clearing and leveling of 20-22 acres of orange groves. Mooring site requires 500ft diameter free of ditches, trees, bushes and on level ground to secure the airship when not in flight. A detailed description of the Mooring System is included in KSC Form 19-15. Vertical Launch and Vertical Landing should take place at the Mooring site. Vertical Launch and Vertical Landing requires 1000 ft - 3000ft diameter free of ditches, trees and bushes and level ground.

Airship mooring, vertical launch and landing preferred siting is on KSC property at Roberts Road and Ave A. The site is located South of the KSC Security Training Center, K6-2359. The site requested area is shown on the enclosed drawing included in the package.

The work is required to determine the feasibility of an Airship Flight Demonstration at KSC in June-August 2010. KSC is considering developing a Space Act Agreement with E-Green Technologies to perform a historic 15,000ft altitude 48hr duration airship flight that uses algae and diesel fueled engines. Center Director has given approval to pursue agreement formulation.

Delays in siting will delay partnership development. This will result in additional cost and schedule delays for E-Green and demonstration of the onboard technology payloads. The historic launch contains a NASA science payload onboard and supports clean energy engine technology development. It has potential to be a highly publicized media event with interests from National Geographic and Discovery Channel.

Possible hazards involve contact with wildlife located in the area.

The Airship Site Support Request package includes the following:

(1) KSC Form19-15, Support Request

(2) KSC Form 21-608V2NS, KSC Environmental Checklist

(3) E-Green Technologies Mooring and Vertical Launch/Landing Site Diagram

(4) Map: Proposed Mooring and Vertical Launch/Landing site

If you have any questions or need additional information, please do not hesitate to contact me at (321) 867-6681, cell (321) 438-3820, or send email to: Michelle.E.Amos@nasa.gov.

Thank you for your service and cooperation,

Michelle Amos

Hall, Patrice (KSC-IHA-4100)[IHA]

From: Amos, Michelle E. (KSC-TAA30)
Sent: Thursday, April 08, 2010 12:46 PM
To: Hall, Patrice (KSC-IHA-4100)[IHA]; Shaffer, John P. (KSC-TAB1C)
Subject: RE: Hot: E-Green Airship Environmental Requirements
Attachments: EGreenSitingSLF.pdf; Airship Mooring Area Schematic.doc

The complete Siting package was emailed to Carolyn Brown.
Map & Diagram Attached.
Michelle

Michelle E. Amos
Office: (321) 867-6681
Cell: (321) 438-3820

From: Hall, Patrice (KSC-IHA-4100)[IHA]
Sent: Thursday, April 08, 2010 10:20 AM
To: Shaffer, John P. (KSC-TAB1C)
Cc: Amos, Michelle E. (KSC-TAA30)
Subject: RE: Hot: E-Green Airship Environmental Requirements

Do you have maps showing locations of proposed mooring site and launch/landing sites?
They weren't attached to checklist.

Patrice Hall
Environmental Engineer
Innovative Health Applications
Mail Code: IHA-200
Kennedy Space Center, FL 32899
Phone: 867-8430
Fax: 867-3409
laura.p.hall@nasa.gov

From: Shaffer, John P. (KSC-TAB1C)
Sent: Thursday, April 08, 2010 7:17 AM
To: Hall, Patrice (KSC-IHA-4100)[IHA]
Subject: FW: Hot: E-Green Airship Environmental Requirements

John Shaffer
Lead, Environmental Planning
NASA
Mailcode: TA-B1-C
Kennedy Space Center, FL
321-867-8448

From: Amos, Michelle E. (KSC-TAA30)
Sent: Wednesday, April 07, 2010 2:42 PM
To: Shaffer, John P. (KSC-TAB1C); Dirschka, Eric (KSC-TAB2B); Elam, Thomas M. (KSC-TAB2B); Brown, Carolyn J. (KSC-ISC-1310)[EG&G Tech (KSC/ISC)]
Subject: FW: Hot: E-Green Airship Environmental Requirements

F.Y.I
E-Green Technologies had provided more information on Environmental and
Propellant requirements.
Please review and let me know if you have any questions.
I've attached the Environmental Checklist submitted yesterday
with the siting request.
I plan to hold a meeting next week for an update on this proposed airship
demo.
Please know the airship will not be inflated at KSC. The VAB doors were too small.
They will inflate at a remote site.
Thanks for your review.
Michelle

Michelle E. Amos
Office: (321) 867-6681
Cell: (321) 438-3820

From: Allan Judd [mailto:apjudd@earthlink.net]
Sent: Tuesday, April 06, 2010 9:04 PM
To: Amos, Michelle E. (KSC-TAA30)
Cc: Ed Pickett; John Youngbeck; Scott Manderville; Tommy Lee; Michael Lawson
Subject: RE: Hot: Environmental Questions

Dear Michelle,

Operations Payloads onboard Airship for flight:
Fuel: One, two or three types may be used and or tested
1. Motor Diesel to be purchased through KSC into 15 foot trailer with a 300 gallon fuel bowser tank system and stored on-site at airship with direct fueling to onboard fuel tanks by electrically driven fuel pumps
2. Jet A to be purchased through KSC into 15 foot trailer with a 300 gallon fuel bowser tank system and stored on-site at airship with direct fueling to onboard fuel tanks by electrically driven fuel pumps
3. Algae Fuel Bio-Diesel to brought in by E-Green Technologies for testing in a 15 foot trailer with a 300 gallon fuel bowser tank system and stored on-site at airship with direct fueling to onboard fuel tanks by electrically driven fuel pumps
4. Helium Supply to be purchased through KSC as discussed previously, estimating a porosity of 5% per month with a 50% Airship 580 Helium Fill requiring 15,000 cu ft per month. Can be supplied by 50 x 291 cu ft Helium Cylinders per month.

Water Ballast: a 15 foot trailer with a 300 gallon water bowser tank system and stored on-site at airship with direct watering to onboard water tanks by electrically driven water pumps.

Lead Ballast (#8 Birdshot): Stored on site on a 15 foot trailer with a 5000 pound maximum gross weight rating limited to carrying 3000 lbs at any given time. This shot is packaged in individually in 25 pound bags for addition to shot lockers on board the airship.

Science Payload onboard Airship for flight:
NASA RAOB Platform, only emitting radar frequencies when on mast in Test Mode or over ocean beyond one mile when aloft

OSHA Requirements: Environmental Safety and Comfort may take the form of an RV set up on site. Should water, electricTV/Internet Services be available on site, then the RV would plug in to all, if not, then it will operate as a self contained unit refreshed periodically by driving it to a suitable location. Alternatively, Port-o-John Corporate on-site trailers can supply office environments with services that come by periodically to service the unit.

Generators: Should power Company Electricity not be available on site, then a trailer 'd Portable generator fueled by diesel will be set up on site and fueled by our bowser.

Radiation-generating/using ionized or non-ionized radiation: What's the source? ... We are not to my knowledge going to employ this technology for any purpose except as described in the NASA RAOB Project.

Let me know if I have missed anything and I will fill in the blanks.

Kindly, Allan

----- Original Message -----
From: Amos, Michelle E. (KSC-TAA30)
To: apjudd@earthlink.net;Ed Pickett
Sent: 4/6/2010 11:49:48 AM
Subject: RE: Hot: Environmental Questions

Allan/Ed,
I need your "Wild Guess" or confirmation on a few Environmental Questions.
Please consider Operations & Science Payloads onboard.

1- Any Tanks on site? Need Commodities & Qty
Do you want KSC to provide these?
Diesel/Qty?
Jet A/150gal
GHe/2,000psi (refill due to leaks)

2-Generators-Need Qty, fuel & fuel capacity
5 Generators/fuel?/gal

3 – Radiation-generating/using ionized or non-ionized radiation? What's the source.

Thank You,
Michele

Michelle E. Amos
Office: (321) 867-6681
Cell: (321) 438-3820

From: Allan Judd [mailto:apjudd@earthlink.net]
Sent: Monday, April 05, 2010 3:21 PM
To: Amos, Michelle E. (KSC-TAA30)
Cc: Ed Pickett; Mike Lawson
Subject: RE: Hot: Req'd Docs for SAA: Airship Mooring Drawing

Dear Michelle,
We will continue preparing and send along as soon as possible.
Kindly, Allan

----- Original Message -----
From: Amos, Michelle E. (KSC-TAA30)
To: apjudd@earthlink.net
Cc: Ed Pickett; Mike Lawson
Sent: 4/5/2010 1:56:55 PM
Subject: RE: Hot: Req'd Docs for SAA: Airship Mooring Drawing

Allan,
Thanks for the quick reply! The updates and diagram provided
the needed details to submit the siting request today.

As soon as they are available, please email a copy of
the FAA COA (or Test Plan/Safety & Mishap Procedures submitted to the FAA),
LaRC Safety Review and the Flight Profile with airspace use.
NASA Range Safety, Flight Operation and 45SW Eastern Range
will require this information or as much information as available
prior to making a recommendation regarding formulation
of NASA KSC/E-Green Space Act Agreement.

Current SAA Development Timeline:
April- E-Green provide to KSC: Test Plan, Safety & Mishap Plan, Flight Profile, LaRC Safety Review
April-early May – Center Director Approval to formulate the Agreement
May – Formulate & Approve SAA
June – Airship Demo Flight

We can do this! Let me know if you have any questions.
Michelle

Michelle E. Amos
Office: (321) 867-6681
Cell: (321) 438-3820

From: Allan Judd [mailto:apjudd@earthlink.net]
Sent: Monday, April 05, 2010 1:33 PM
To: Amos, Michelle E. (KSC-TAA30)
Cc: Ed Pickett
Subject: RE: Hot: Airship Mooring Drawing

Dear Michelle,
I have modified your text as shown in bold inserts below. Also attached is a schematic of the basic requested size of the mooring and operating area. The outer diameter may be slightly less if we are able to shift the mooring circle off center by about 300 feet. That still gives us access to the mooring with a nice area to operate in the remainder of the site.
Kindly, Allan

Siting Request:
Complete site request review for E-Green Technologies Airship Mooring System and Vertical Launch and Vertical Landing within a 25 mile radius of KSC Shuttle Landing Facility. The airship dimensions are 235ft long x 65ft diameter x 85ft high. Mooring site requires 600ft diameter free of ditches, trees, bushes and on level ground to secure the airship when not in flight. Mooring pole **35 feet tall** sits on a

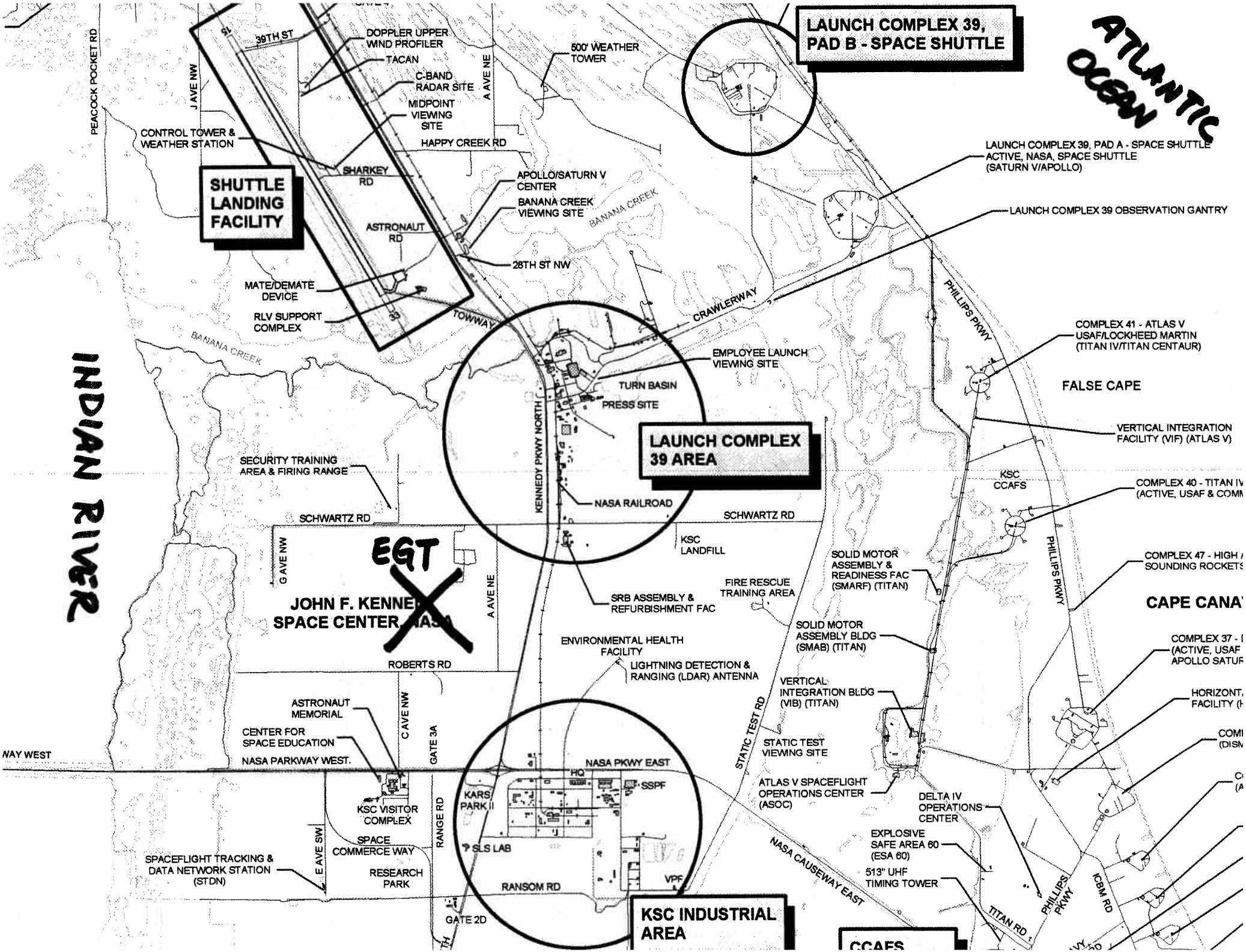
3sqft **baseplate part of the mooring mast provided by E-Green** with **1/4 to 3/8 inch steel mooring mast cables stak ed to the ground. Screw stakes (1 inch diameter steel rods) are screwed 5ft into the ground. Main mooring pole baseblate pins 3ft in length are driven into the ground to position the baseplate . Vertical Launch and Vertical Landing should take place near the Mooring site. Ver tical Launch and Vertical Landing requires 1500 ft - 3000ft diameter free of ditches, trees and bushes and level ground.**

----- Original Message -----
From: Amos, Michelle E. (KSC-TAA30)
To: APJUDD@EARTHLINK.NET
Sent: 4/5/2010 9:48:58 AM
Subject: Hot: Airship Mooring Drawing

Allen
I'm planning to submit a Siting Request for Airship Mooring & Vertical Launch/Landing within the next day or so!
A diagram of the airship mooring would be helpful if one is available. Otherwise, we go with the text only.
Please review the text below for an accurate description of location requirements for Mooring and Launch/Landing.
Call me if talking is better.
Thanks,
Michelle
321-867-6681

Siting Request:
Complete site request review for E-Green Technologies Airship Mooring System and Vertical Launch and Vertical Landing within a 25 mile radius of KSC Shuttle Landing Facility. The airship dimensions are 235ft long x 65ft diameter x 85ft high. Mooring site requires 600ft diameter free of ditches, trees, bushes and on level ground to secure the airship when not in flight. Mooring pole (how tall) sits on a 3sqft base (concrete? does KSC provide or E-Green?) with mask cables (how many cables, type of cables-steel, fiber?) staked to the ground. Stakes (1 inch diameter steel rods) are screwed 5ft into the ground. Main mooring pole pins position 3ft in length. Vertical Launch and Vertical Landing should take place near the Mooring site. Vertical Launch and Vertical Landing requires 1500 ft - 3000ft diameter free of ditches, trees and bushes and leve l g round.

Michelle E. Amos
Technical Resources Manager
John F. Kennedy Space Center, NASA
Center Operations Directorate
Mail Code: TA-A3 Bldg. M6-0399/1603C
Kennedy Space Center, FL 32899
Voice: (321) 867-6681
Fax: (321) 861-7946
Email: Michelle.E.Amos@nasa.gov


LAUNCH COMPLEX 39, PAD B - SPACE SHUTTLE
ATLANTIC OCEAN
LAUNCH COMPLEX 39, PAD A - SPACE SHUTTLE ACTIVE, NASA, SPACE SHUTTLE (SATURN V/APOLLO)
LAUNCH COMPLEX 39 OBSERVATION GANTRY
SHUTTLE LANDING FACILITY
LAUNCH COMPLEX 39 AREA
KSC INDUSTRIAL AREA
CCAFS
FALSE CAPE
CAPE CANA
INDIAN RIVER
PEACOCK POCKET RD
J AVE NW
39TH ST
DOPPLER UPPER WIND PROFILER
TACAN
C-BAND RADAR SITE
MIDPOINT VIEWING SITE
A AVE NE
500' WEATHER TOWER
CONTROL TOWER & WEATHER STATION
HAPPY CREEK RD
SHARKEY RD
APOLLO/SATURN V CENTER
BANANA CREEK VIEWING SITE
BANANA CREEK
ASTRONAUT RD
28TH ST NW
MATE/DEMATE DEVICE
RLV SUPPORT COMPLEX
TOWWAY
CRAWLERWAY
PHILLIPS PKWY
COMPLEX 41 - ATLAS V USAF/LOCKHEED MARTIN (TITAN IV/TITAN CENTAUR)
EMPLOYEE LAUNCH VIEWING SITE
TURN BASIN
PRESS SITE
KENNEDY PKWY NORTH
VERTICAL INTEGRATION FACILITY (VIF) (ATLAS V)
SECURITY TRAINING AREA & FIRING RANGE
NASA RAILROAD
SCHWARTZ RD
KSC CCAFS
COMPLEX 40 - TITAN IV (ACTIVE, USAF & COMM
G AVE NW
KSC LANDFILL
EGT
JOHN F. KENNEDY SPACE CENTER, NASA
SOLID MOTOR ASSEMBLY & READINESS FAC (SMARF) (TITAN)
COMPLEX 47 - HIGH A SOUNDING ROCKETS
FIRE RESCUE TRAINING AREA
SRB ASSEMBLY & REFURBISHMENT FAC
SOLID MOTOR ASSEMBLY BLDG (SMAB) (TITAN)
COMPLEX 37 - I (ACTIVE, USAF APOLLO SATUR
ENVIRONMENTAL HEALTH FACILITY
LIGHTNING DETECTION & RANGING (LDAR) ANTENNA
ROBERTS RD
VERTICAL INTEGRATION BLDG (VIB) (TITAN)
HORIZONT FACILITY (H
ASTRONAUT MEMORIAL
CENTER FOR SPACE EDUCATION
NASA PARKWAY WEST.
C AVE NW
GATE 3A
STATIC TEST VIEWING SITE
STATIC TEST RD
NASA PKWY EAST
HQ
SSPF
KARS PARK II
ATLAS V SPACEFLIGHT OPERATIONS CENTER (ASOC)
DELTA IV OPERATIONS CENTER
KSC VISITOR COMPLEX
RANGE RD
SLS LAB
EXPLOSIVE SAFE AREA 60 (ESA 60)
SPACE COMMERCE WAY
E AVE SW
SPACEFLIGHT TRACKING & DATA NETWORK STATION (STDN)
RESEARCH PARK
513" UHF TIMING TOWER
NASA CAUSEWAY EAST
KBM RD
RANSOM RD
VPF
TITAN RD
GATE 2D

1. W.O. No.	SUPPORT REQUEST	2. Control No.
E1156483		

REQUESTING OFFICE COMPLETES BLOCKS 3-23	3. Requester (Name, Symbol, Phone No.)	4. Technical Contact (Name, Symbol, Phone No.)	5. Req. Office Authorization (Signature & Date) (Symbol, Phone No.)
	Michelle E. Amos, TA-A3, 867-6681	Michelle E. Amos, TA-A3, 867-6681	

6. Program	7. Vehicle	8. Event	9. Cat.	10. Date Submitted	11. Due Date
N/A	Privately Owned Airship	Potential Airship Launch/Landing	Cat I	06-03-2010	06-11-2010

12. ECP No./FEC No.	13. CCBD No.	14. CR No.	15. O&M Resp.	16. NASA Sys. Eng.	17. Material Source (Contact & Phone No.) Availability Date:

18. Support Description (A. Job Description, B. Location of Completed Work, C. Justification, D. Effect of Delay, E. Possible Hazards Involved.)

Complete site request review for E-Green Technologies 90 Day Airship Demonstration. E-Green Technologies Airship Mooring System and Vertical Launch and Vertical Landing to occur within a 25 mile radius of KSC Shuttle Landing Facility. The airship dimensions are 226ft long x 65ft diameter x 85ft high. Siting requires clearing of 20-22 acres of Orange Groves at Roberts Road and Avenue A. Mooring site requires 500ft diameter free of ditches, trees, bushes and on level ground to secure the airship when not in flight. Mooring pole 35-42 feet tall sits on a 3sqft baseplate part of the mooring mast provided by E-Green with 1/4 to 3/8 inch steel mooring mast cables staked to the ground. Screw stakes (1 inch diameter steel rods) are screwed 6ft into the ground. Main mooring pole baseplate pins 3ft in length are driven into the ground to position the baseplate . Vertical Launch and Vertical Landing should take place near the Mooring site. Vertical Launch and Vertical Landing requires 1,000ft semicircle free of ditches, trees and bushes and level ground. DuraDeck, a temporary plastic structure, is being considered for used at the site to support trailers and heavy vehicles on the sandy surface. Please see the attached DuraDeck Description for more details for use of this produce to support airship operations at Roberts Road and Avenue A Orange Grove site.

Airship Mooring and vertical launch and landing preferred siting is at KSC Roberts Road and Ave A Orange Grove site located South of the KSC Security Training Center, K6-2359. The site requested is shown on the attached drawing.

The work is required to determine the feasibility of an Airship Flight Demonstration at KSC. KSC is considering developing a Space Act Agreement with E-Green Technologies to perform a historic 15,000ft altitude 48hr duration airship flight that uses algae and diesel fueled engines. KSC Center Director has approved formulation of the agreement with E-Green Technologies. Siting is required for partnership development.

The effects of delays will cause Center Operations delays in developing the business partnership by July 2010 for an August 2010 demonstration. Delays in partnership development will result in additional cost and schedule delays for E-Green and the onboard technology payloads. The historic launch contains a NASA science payload onboard and supports clean energy engine technology development. It has potential to be a highly publicized media event with interests from National Geographic and Discovery Channel.

Possible hazards involve contact with wildlife located in the areas.

19. Work Type

Siting

20. Recommended Support Agency

21. Ref. SR's

No. _____

No. _____

No. _____

No. _____

22. Enclosures

Sketch/Dwgs.

☒ Yes ☐ No

Mod Instr Pkg.

☐ Yes ☒ No

MIP No.

23. Quality Requirement

Contr. Qal. Inspection

☐ Yes ☒ No

Gov't Source Inspection

☐ Yes ☐ No

Qal Signature

24. Area Facility Authorization (Signature & Date)	25. Performing Activity	26. Estimated Hours	Actual Hours	Material Costs

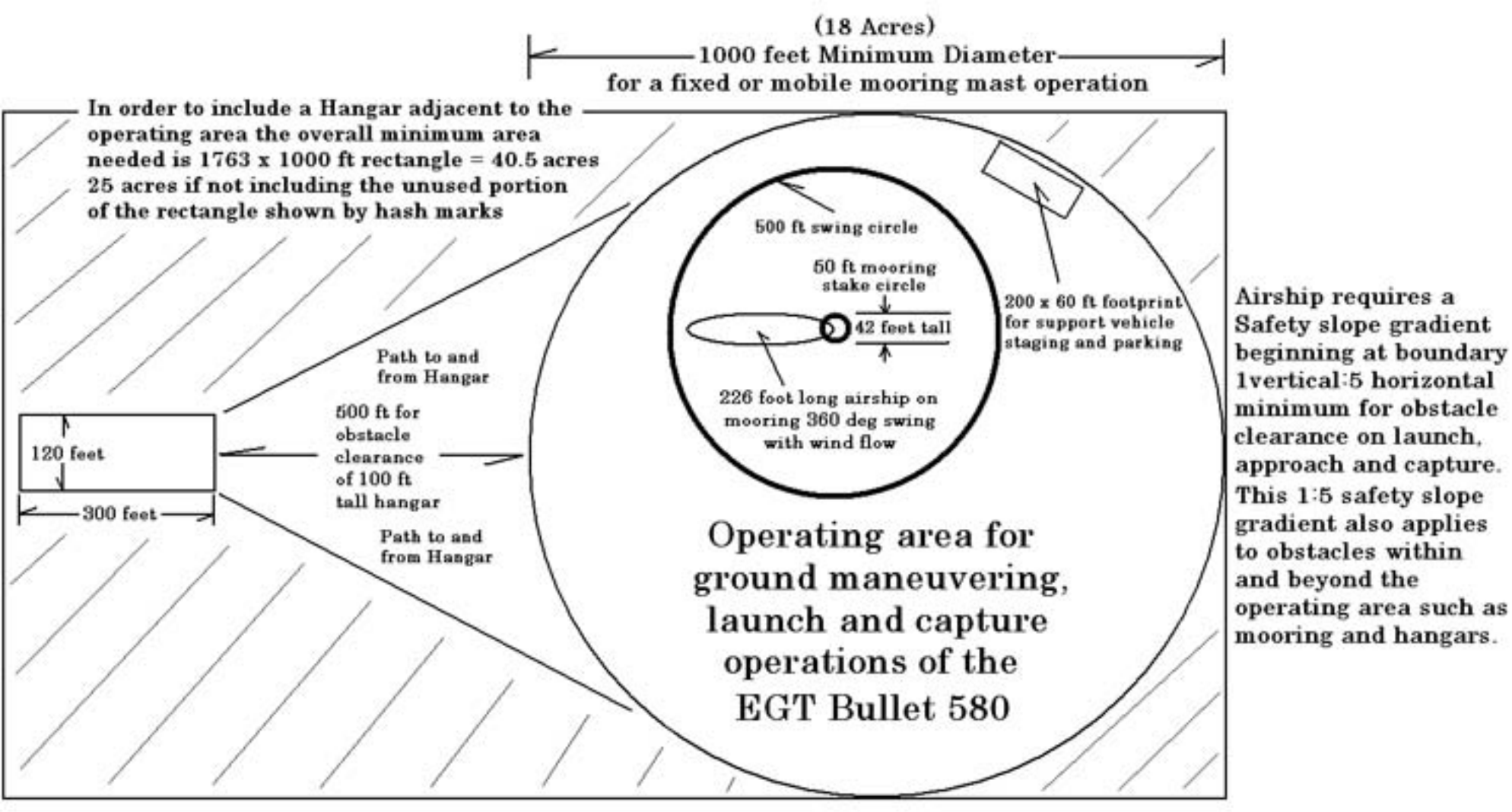
27. Performing Activity Completion (Signature & Date)	28. Inspected By (Signature & Date)	29. Accepted By (Signature & Date)

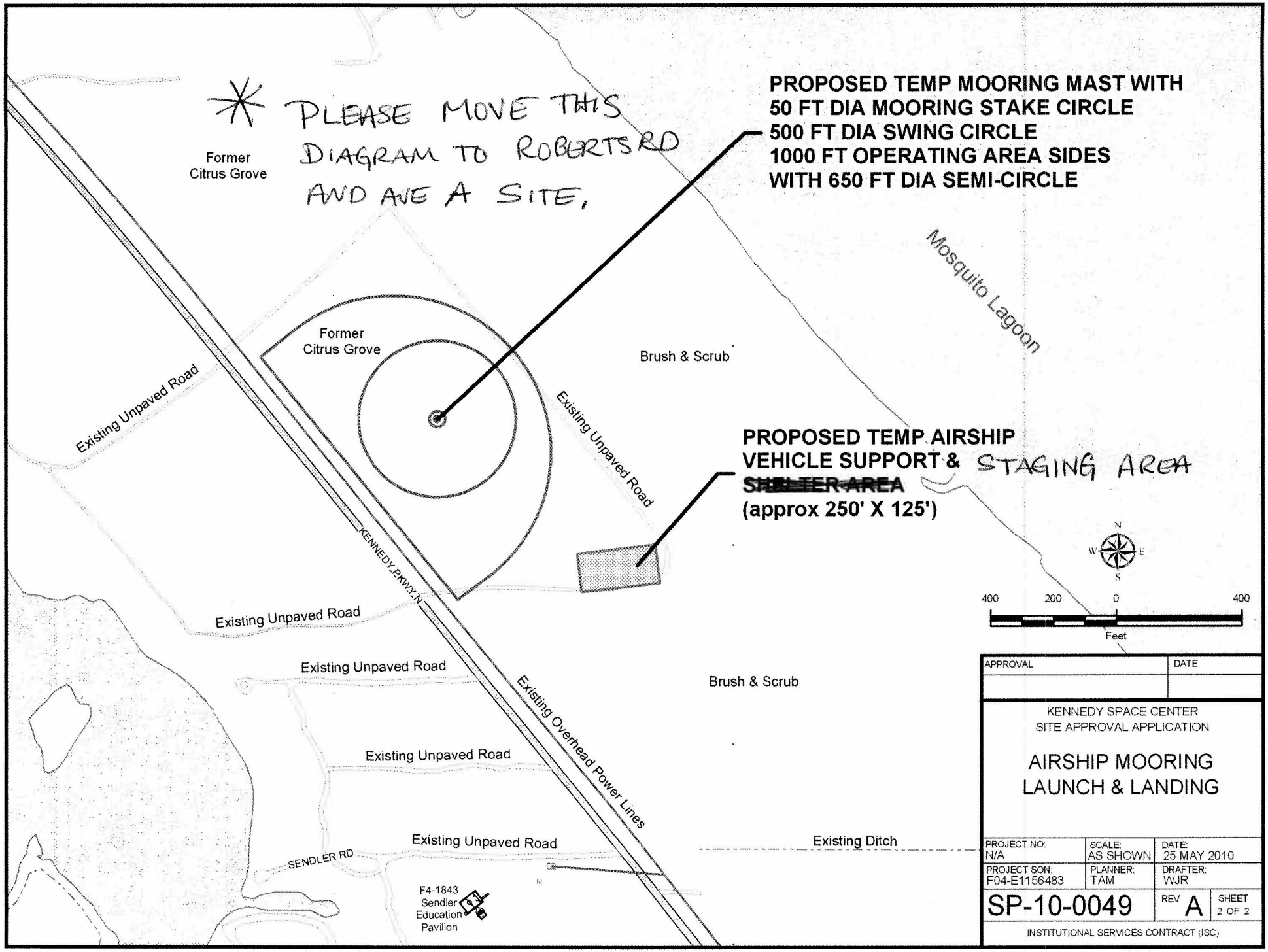
KSC FORM 19-15 (REV. 3/69)

1.	Performing Activity -	Performing Activity Control Number, if required.
2.	Complex Support Office -	Complex Support Office Control Number, with Mod or Revision No., if required.
3.	Requester -	Name, mail symbol and telephone number of individual originating request for support.
4.	Requester -	Name, mail symbol and telephone number of Technical contact, who is the only recognized individual, other than the Requester, with authority to modify the original SR and/or drawings.
5.	Requester -	Signature, date, symbol and telephone number of NASA individual to request support.
6.	Requester -	Saturn V, Saturn 1B, etc.
7.	Requester -	Vehicle, support is requested for; i.e. 503, 504, etc.
8.	Requester -	Event the completed work/request is required to support, i.e., Rollout, FRT, CDDT, etc.
9.	Requester -	Cat. I (Mandatory), II (highly Desirable) or III (Desirable).
10.	Requester -	Date Support Request submitted to CSO.
11.	Requester -	Required completion date.
12.	Requester -	Approved Eng. Change Proposal number or Field Engineering Change numbers requested support is applicable to (MODIFICATIONS ONLY).
13.	Requester -	Approved Configuration Control Board Directive number, requested support is applicable to (MODIFICATIONS ONLY).
14.	Requester -	Approved Change Request number, requested support is applicable to.
15.	Requester -	NASA organization symbol, responsible for system affected by requested support.
16.	Requester -	Name of NASA ENGINEER whose system is affected by the requested support.
17.	Requester -	Name of contractor, contact and phone number responsible for supplying material, i.e., BATC, GE, etc., availability date.
18.	Requester -	a. Requester provides a concise description of the work to be performed. b. Requester indicates where completed work will be used by building and area numbers (if known and applicable). c. Requester states why the work is required. d. Requester states the effects of delay (in terms of schedule slippages, dollar costs, etc.). e. Requester states possible hazards involved, if any, to perform work requested.
19.	Requester -	Requester states type of work, i.e.. Mod., Service, Refurb., etc.
20.	Requester -	Recommended contractor to perform work task, considering location, type work, cost, etc.
21.	Requester -	Support Request numbers related to this request that have previously been issued.
22.	Requester -	Documents and identification numbers, when applicable, accompanying the Support Requester.
23.	Requester -	Identify type quality inspection required.
24.	Site Manager -	Signature & date denoting approval for completeness of the SR package, performing activity & performance of work.
25.	Complex Support Office -	Performing activity assigned to perform the work.
26.	Performing Activity -	Estimated and actual cost/hours incurred to perform work.
*27.	Performing Activity -	Signature and date indicating completion of work. *Required on all SR's for close out.
*28.	Quality -	Signature and date indicating inspection of work. *Required as designed in block 23.
*29.	NASA System Engineer -	Signature and date indicating acceptance of work. *Not required for service type SR's.

*UPON COMPLETION OF WORK

NOTE: Blocks 27, 28, 29, to be signed as applicable and completion verification copies must be forwarded IMMEDIATELY to CSO and Requester.


(18 Acres)
1000 feet Minimum Diameter
for a fixed or mobile mooring mast operation
In order to include a Hangar adjacent to the operating area the overall minimum area needed is 1763 x 1000 ft rectangle = 40.5 acres
25 acres if not including the unused portion of the rectangle shown by hash marks
500 ft swing circle
50 ft mooring stake circle
42 feet tall
200 x 60 ft footprint for support vehicle staging and parking
226 foot long airship on mooring 360 deg swing with wind flow
Path to and from Hangar
500 ft for obstacle clearance of 100 ft tall hangar
120 feet
300 feet
Path to and from Hangar
Operating area for ground maneuvering, launch and capture operations of the EGT Bullet 580
Airship requires a Safety slope gradient beginning at boundary 1vertical:5 horizontal minimum for obstacle clearance on launch, approach and capture. This 1:5 safety slope gradient also applies to obstacles within and beyond the operating area such as mooring and hangars.



APPROVAL	DATE

KENNEDY SPACE CENTER
SITE APPROVAL APPLICATION

AIRSHIP MOORING LAUNCH & LANDING

PROJECT NO:	SCALE:	DATE:
N/A	AS SHOWN	25 MAY 2010
PROJECT SON:	PLANNER:	DRAFTER:
F04-E1156483	TAM	WJR

SP-10-0049 REV A SHEET 2 OF 2

INSTITUTIONAL SERVICES CONTRACT (ISC)

Avoid Verbal Orders

TO: TA-A3/Michelle Amos **DATE:** 7/7/2010

FROM: TA-B1C/NEPA Compliance

SUBJECT KSC Record of Environmental Consideration (REC) **CHECKLIST #:** 7957

1. PROJECT INFORMATION

Project Title: E-Green Airship Siting at KSC Roberts Road and Ave A

Project Lead: Michelle E. Amos, TA-A3, 867-6681 **Directorate Project No.:** E1156483

EPB Reviewer: LPH **Facility No.:** S OF K6-2359, SECURITY TRAINING CENTER

2. NEPA DETERMINATIONS

- ☑ **a. Categorical Exclusion per 14 CFR Part 1216.305(d)**
- ☐ **b. Environmental Assessment (EA) Required per KNPR 8500.1**
- ☐ **c. Environmental Impact Statement (EIS) Required per KNPR 8500.1**
- ☐ **d. Project on CCAFS:**

3. ENVIRONMENTAL REQUIREMENTS

a. Non-Permit Requirements	☑ **YES**	☐ **NO**
b. Permit Requirements	☑ **YES**	☐ **NO**

**********THIS REC IS ISSUED FOR TEMPORARY USE (90 DAYS) OF PROPOSED SITE AT ROBERTS RD. AND AVE. A (citrus grove area only) FOR AIRSHIP MOORING AND VERTICAL LAUNCH/LANDING**********

2.a.1. CATEGORICAL EXCLUSION (CATEX): The temporary (90-day) use of this site (citrus grove area only) for E-Green Airship Mooring and Vertical Launch/Landing is categorically excluded (CATEX) as defined in 14 CFR 1216.305(d) from further NEPA review. For additional information, please contact John Shaffer of the NASA Environmental Management Branch (TA-B1C, 867-8448).

3.a.1. HAZARDOUS/NON-HAZARDOUS WASTE: All hazardous and non-hazardous wastes generated on KSC must be managed, controlled and disposed of per the KSC Waste Management requirements outlined in KNPR 8500.1. A Process Waste Questionnaire (PWQ), KSC Form 26-551, along with any supporting documentation (MSDS, product formulation, lab analyses) must be submitted to the IHA Waste Management Office for each waste stream generated. That office will then generate a Technical Response Package (TRP) which will give direction on proper handling, storage, and disposal of the waste stream. Please contact IHA Waste Management Services at 867-8640 if assistance is required.

3.a.2. THREATENED AND ENDANGERED SPECIES: A Biological Survey and any necessary relocation activities must be performed prior to commencement of this project. This project has the potential to impact the eastern indigo snake, gopher tortoise and bald eagle. Measures must be taken to minimize impacts to the habitat. If indications of tortoise activity are identified and/or burrows that cannot be avoided are encountered, the NASA Environmental Management Branch (EMB) will schedule relocation activities to remove the animal in question from harm. Please contact Lynne Phillips (TA-B1C, 867-4817) to schedule a Biological Survey and for additional clarification or guidance on these issues.
Note: No clearing is allowed outside of grove boundaries, south of Roberts Rd or east of A Ave NE. Also, if project goes past October 31, potential impacts to nearby nesting eagles will be evaulated.

3.a.3. EXTERIOR LIGHTING: The installation/modification of any exterior lighting systems must be in compliance with the requirements in the KSC Exterior Lighting Guidelines. When possible, the use of low pressure sodium lights must be implemented. These requirements can be found on the Environmental Office web page at: http://environmental.ksc.nasa.gov/projects/documents/ExteriorLightingGuidelines.pdf. Safety and hazardous operations can receive a waiver that allows for non low pressure sodium lighting. Please contact Lynne Phillips, NASA Environmental Management Branch at 867-4817, to request additional information.

3.a.4. EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMPs): Precautions must be taken to eliminate any discharge of soil, sediments, and debris outside established project boundaries. This can be

accomplished by initiating proactive erosion control BMPs. Installation and maintenance of silt fences must be completed prior to any land disturbance, and the screens must be maintained so they remain functional until such time that the newly exposed soils are stabilized.

3.a.5. STORAGE TANKS: The installation and removal of all regulated storage tanks must be coordinated with the Brevard County Natural Resources Office through the NASA Environmental Assurance Branch Permitting and Compliance group (Doug Younger, 867-4556). TA-B1B must be notified 45 days prior to the start of any work to allow time for the 30 day notification to the regulatory agency and scheduling of any agency requested site surveys. Per F.A.C. 62-761, a completed tank registration form is required to be submitted to the Brevard County Natural Resources Office no later than 30 days after regulated substances are put into any storage tank system. The registration package should be submitted to TA-B1B prior to final inspection before tank is placed into service, for processing and notification to regulatory agencies.

3.a.6. SPILL PREVENTION, CONTROL, AND COUNTERMEASURES (SPCC) PLAN: The Kennedy Space Center SPCC Plan documents the procedures for the prevention, response, control, and reporting of spills of oil at KSC. This plan serves as a guide for personnel and organizations that are responsible for ensuring that all measures are taken to prevent and contain spills and leaks of oil in accordance with all applicable state and federal regulations. An SPCC Site Specific Plan may need to be developed if a new tank is installed. The plan must be reviewed and signed/sealed by a PE. For additional clarification of the SPCC rules, contact Tim Tyndall (IHA-200, 867-3659).

3.a.7. CONCRETE WASHOUT: Water used to rinse out concrete trucks and other equipment used for concrete work must not be allowed to discharge to surface waters. Concrete washout water shall be diverted to a settling pond where suspended material will settle out and the water can percolate into the ground. Concrete residue shall then be removed and disposed of at the KSC Landfill. Call Doug Durham (TA-B1B, 867-8429) with any questions on this requirement.

3.a.8. TRANSFORMERS (SPCC): The Kennedy Space Center Spill Prevention, Control, and Countermeasure Plan (SPCC Plan) documents the procedures for the prevention, response, control, and reporting of spills of oil at KSC. If a new transformer is installed that uses a volume of oil greater than 55 gallons, it is subject to SPCC rules. The Environmental Assurance Branch (TA-B1B) maintains a master list of transformers and associated containment information. Please provide this information to Tim Tyndall (IHA-200). For additional clarification of the SPCC rules and requirements, contact Tim at 867-3659.

3.a.9. GREEN PURCHASING/AFFIRMATIVE PROCUREMENT (AP): Federal agencies and their contractors are required to purchase products made from recycled or recovered materials and other environmentally preferable products whenever possible. The EPA Environmentally Preferable Purchasing (EPP) website at http://www.epa.gov/epp/ provides information and useful links and tools for finding and evaluating green products. Detailed information on EPA approved products is available at http://www.epa.gov/cpg/products. A Request for Waiver Form (KSC 28-825 NS) must be submitted for the purchase of items that are on the Comprehensive Procurement Guidelines (CPG) list but were replaced with non AP approved items. Also, a list of bio-based preferred products is available at http://www.biopreferred.gov/DesignationItemList.aspx. Contact Alice Smith (867-8454) with any questions on this requirement.

3.b.1. FWS SPECIAL USE PERMIT: Since this project is proposed within an area managed by the Fish and Wildlife Service (FWS) here at KSC, a Special Use permit must be obtained from the Merritt Island National Wildlife Refuge office. Contact Mike Legare, Supervisory Wildlife Biologist, 861-2369 office, if clarification is required.

3.b.2. EXCAVATION PERMIT: A KSC Excavation Permit will be required for any digging proposed by this project. Please contact the Utility Locate/Excavation Permit Request Customer Helpline at 867-2406 or go to website at https://installationsupport.ksc.nasa.gov/sgs/apps/epr/default.cfm? for an underground utility scan and dig permit.

3.b.3. ENVIRONMENTAL RESOURCE PERMIT (ERP) - STORMWATER: An ERP (stormwater) permit from SJRWMD may be required for the proposed staging area. Documentation and data required for permit determination, including detailed project description, existing site conditions, and a site plan or drawing should be provided to the NASA Environmental Management Branch (TA-B1C). If permits are deemed necessary, the application forms with supporting material including maps and engineering drawings, must be submitted to TA-B1C for distribution to the regulatory

agency. Contact Doug Durham (TA-B1B, 867-8429) for additional information.
Note: Temporary grating may be placed over ditch. No dredging or filling of ditches or wetland areas is allowed.

3.b.4. NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT: This project will require a National Pollution Discharge Elimination System (NPDES) Phase II construction permit from the Florida Department of Environmental Protection (FDEP) if more than 1 acre of land will be disturbed. A condition of this permit is to provide a Stormwater Pollution Prevention Plan (SWPPP) detailing erosion and turbidity controls for the site. Information on completing the permit application and development of the SWPPP can be obtained by contacting Doug Durham (TA-B1B) at 867-8429.

3.b.5. TRANSFORMERS/GENERATORS: The temporary operation of portable generators during construction are allowed and are not considered a stationary source of air emissions. New generators proposed for permanent use at the facility, and associated air emissions must be reviewed by the NASA Environmental Assurance Branch Permitting and Compliance Section for determination of construction permit requirements. A construction permit may be required for diesel and/or gasoline generators (and boilers) depending on the rating. All documentation relating to the proposed generator (and/or boiler(s)) and permit application submittal (if required) should be provided to Christine Vanaman (IHA-200, 867-3586). Copies of the EPA Emissions Certification/Exhaust Emission Compliance Statements provided by the manufacturer must also be forwarded to Christine.

3.b.6. AIR EMISSIONS: There are no permitting or reporting requirements associated with the helium being used in this project. However, under the Title V General Duty Clause there is a requirement to use best management practices to minimize releases as much as practicably possible.

No other environmental issues were identified based upon the information provided in the KSC Environmental Checklist. This Record of Environmental Consideration (REC) does not relinquish the project lead from obtaining and complying with any other internal NASA permits or directives necessary to ensure all organizations potentially impacted by this project are notified and concur with the proposed project.

Due to potential changes in regulations, permit requirements and environmental conditions, statements in this REC are valid for 6 months and subject to review after this period. It is the responsibility of the project lead to notify the Environmental Management Branch (TA-B1C) if the scope of the project has changed since the original checklist was submitted.

cc: M. Amos/TA-A3

4 Upon evaluation of the subject project, the above determinations have been made and identified. Contact the Environmental Program Office (TA-B1C) at 867-8448 for re-evaluation should there be any modifications to the scope of work.

7/13/2010 11:09:26 AM

Lynne Phillips **Date**