

LEGEND

PROPOSED SHADE TREES

- LIVE OAK
- SHUMARD OAK
- CEDAR ELM

PROPOSED EVERGREEN TREES

- LOBLOLLY PINE

PROPOSED ORNAMENTAL TREES

- MAGNOLIA 'LITTLE GEM'
- MEXICAN OLIVE
- YAUPON HOLLY

PROPOSED SHRUBS

- PINK ABELIA

PROPOSED TURF (SOD)

- TURF (SOD)
- NOTE: SOD TO EXTEND TO LIMITS OF GRADING UNLESS NOTED OTHERWISE

PROPOSED SOUTHEAST RECOVERY MIX (SEED)

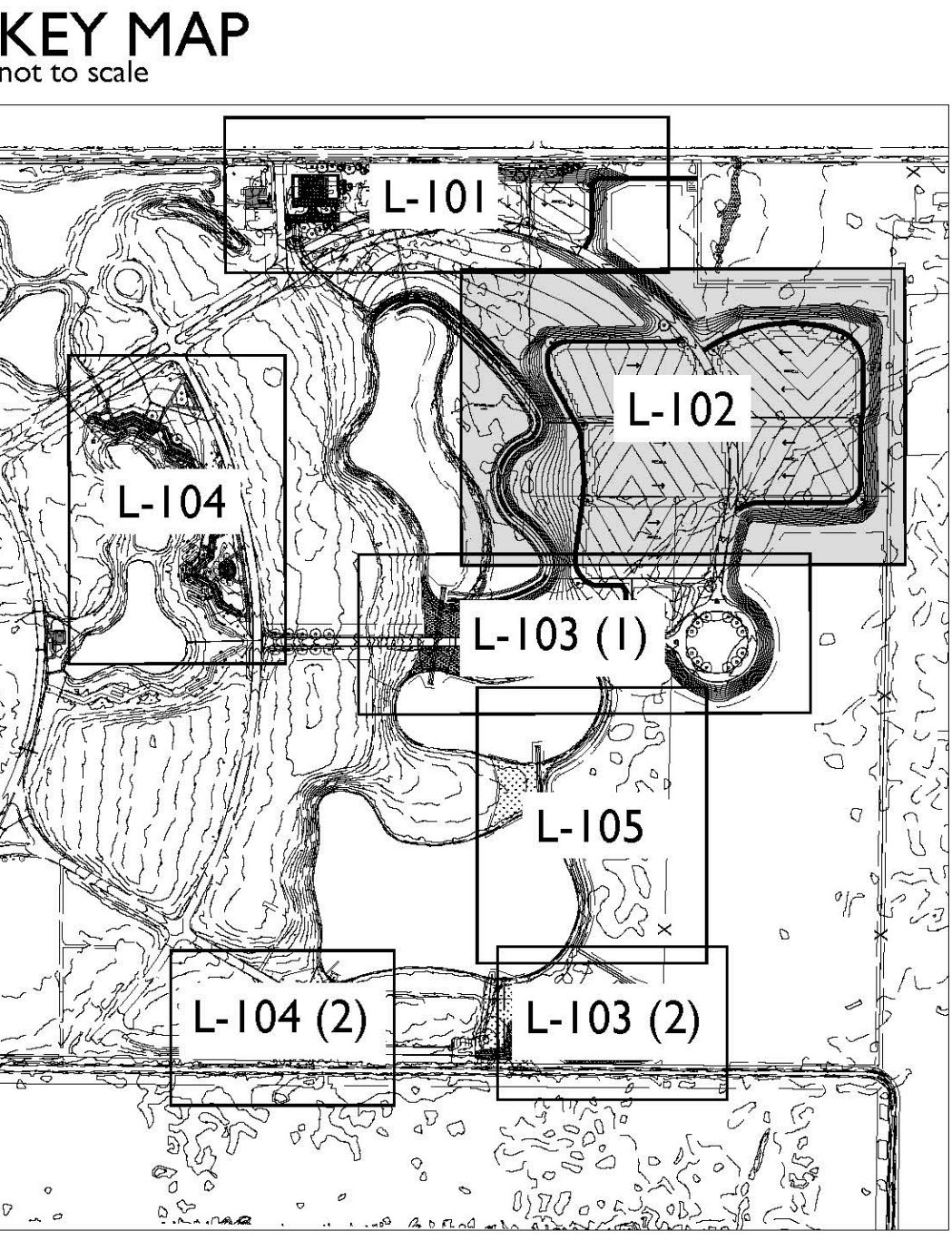
- (SEED)

PROPOSED NATIVE GRASS MIX

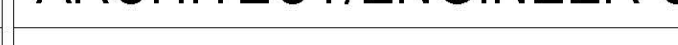

- SAND LOVEGRASS (SEED) 60%
- INDIAN GRASS (SPRIGS) 12.5%
- SIDE OATS GRAMA (SPRIGS) 12.5%
- LITTLE BLUESTEM (4" POTS) 15%

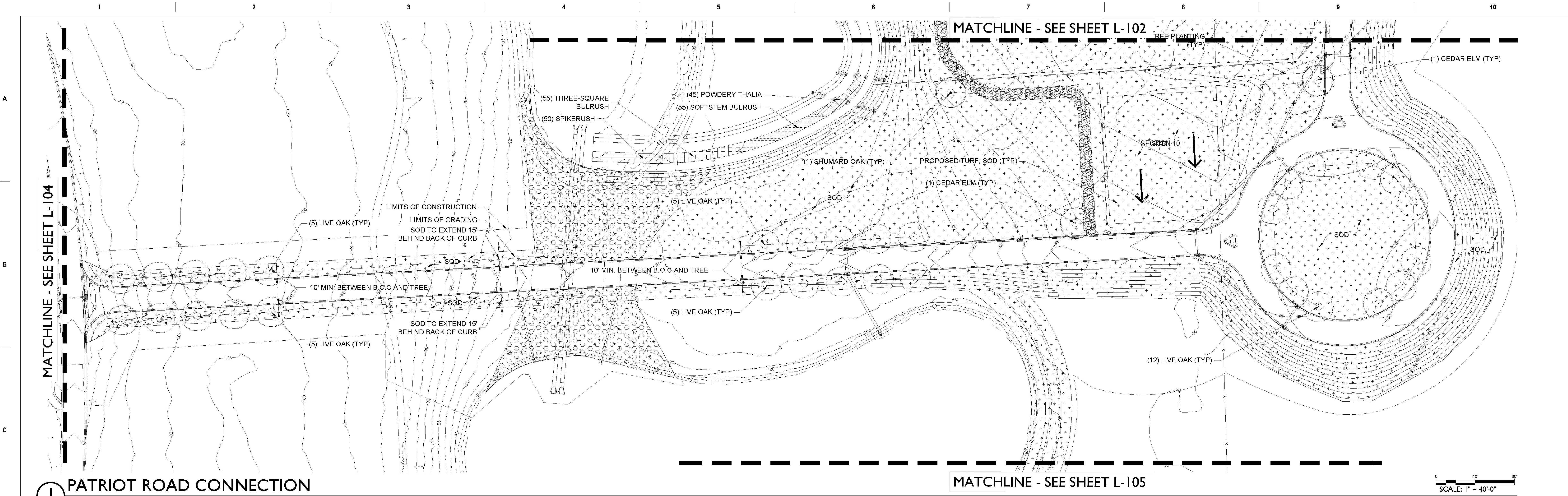
PROPOSED WETLAND PLANTS

- SPIKERUSH
- SOFTSTEM BULRUSH
- THREE-SQUARE BULRUSH
- POWDERY THALIA

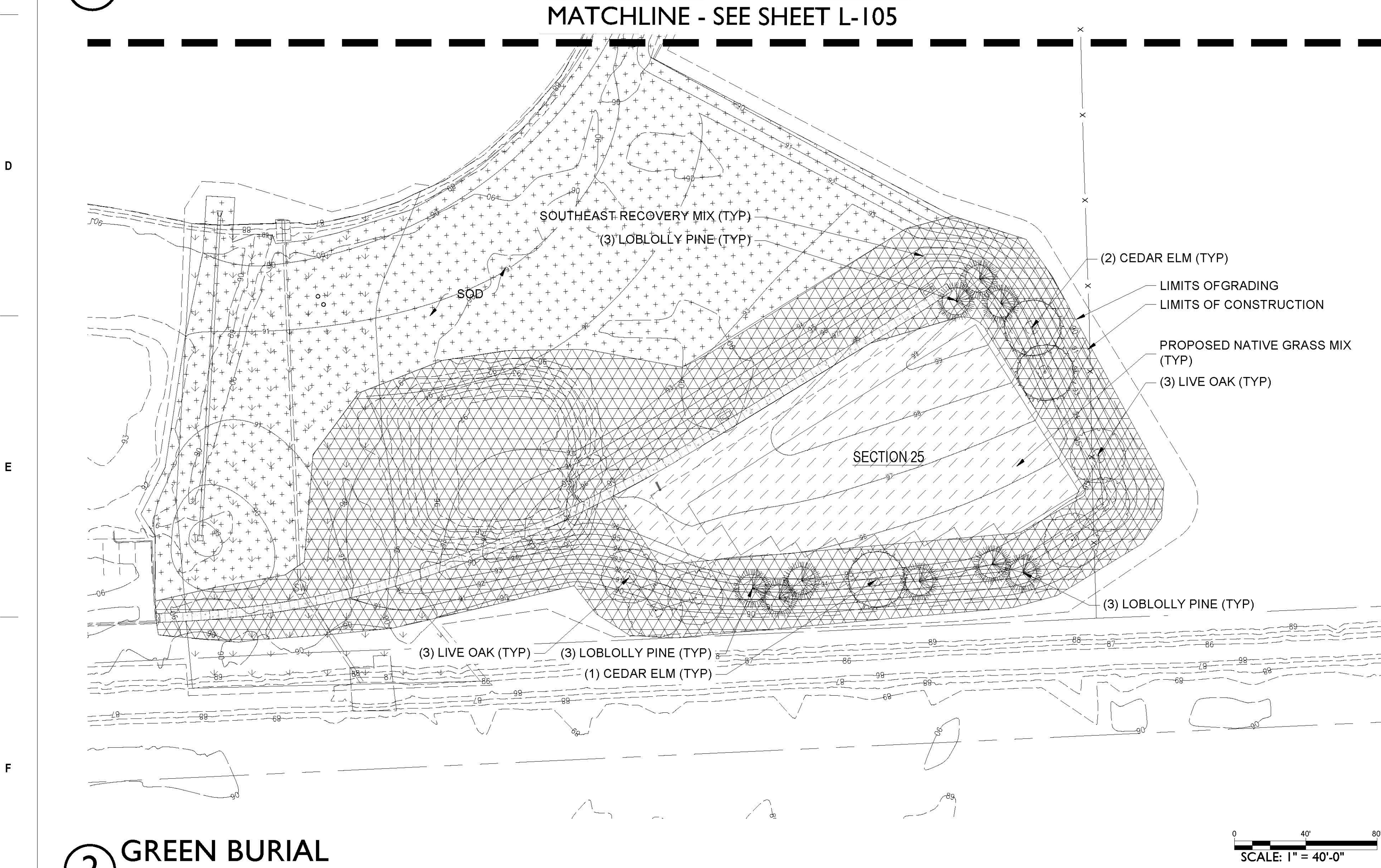


PRE-PLACED CRYPT FIELD

	CONSULTANT			ARCHITECT/ENGINEER OF RECORD		STAMP	Office of Construction and Facilities Management		Drawing Title LANDSCAPE PLAN		Phase CONSTRUCTION DOCUMENTS 1	Project Title HOUSTON NATIONAL CEMETERY PHASE 5 DEVELOPMENT		Project Number 851PC2048	
	The LA Group (518) 587-8100	Aqua Engineering, Inc. (970) 372-6104	OCMI (202) 607-7575	 Gordon 148 S. Queen Street, Suite 201 Martinsburg, WV 25401 Phone: 304-725-8456 www.gordon.us.com	PROGRAM/MING AND PLANNING CIVIL ENGINEERING LANDSCAPE ARCHITECTURE SURVEY AND MAPPING SECURITY CONSULTING		 U.S. Department of Veterans Affairs		Approved: Project Director			Location HARRIS COUNTY, TEXAS	Drawing Number		L-102 Dwg. 133 of 205
	RVi (512) 480-0032	AES Group (303) 841-3922	Gilpin Engineering (512) 220-8100										GIS, Inc. (205) 941-0442		
	Komatsu Inc. (817) 587-8100	ECS Midwest LLC. 847-279-0366										Issue Date August 30, 2019	Checked MS	Drawn AC, LI	
Revisions:															
	Date:														



1 PATRIOT ROAD CONNECTION



2 GREEN BURIAL

LEGEND

PROPOSED SHADE TREES

- LIVE OAK
- SHUMARD OAK
- CEDAR ELM

PROPOSED EVERGREEN TREES

- LOBLOLLY PINE

PROPOSED ORNAMENTAL TREES

- MAGNOLIA 'LITTLE GEM'
- MEXICAN OLIVE
- YAUPON HOLLY

PROPOSED SHRUBS

- PINK ABELIA

PROPOSED TURF (SOD)

- TURF (SOD)
- NOTE: SOD TO EXTEND TO LIMITS OF GRADING UNLESS NOTED OTHERWISE

PROPOSED SOUTHEAST RECOVERY MIX (SEED)

- (SEED)

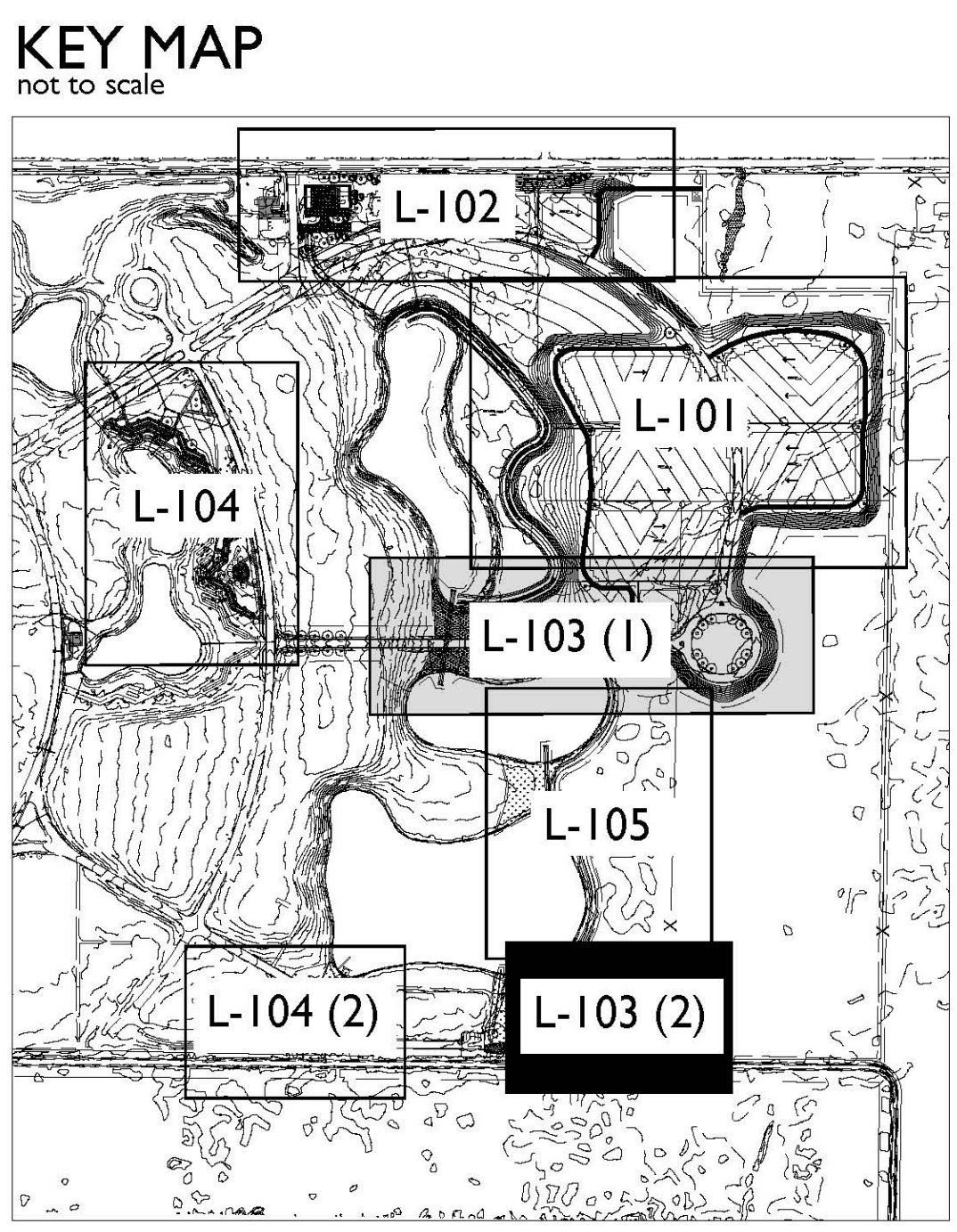
PROPOSED NATIVE GRASS MIX

- SAND LOVEGRASS (SEED) 60%
- INDIAN GRASS (SPRIGS) 12.5%
- SIDE OATS GRAMA (SPRIGS) 12.5%
- LITTLE BLUESTEM (4" POTS) 15%

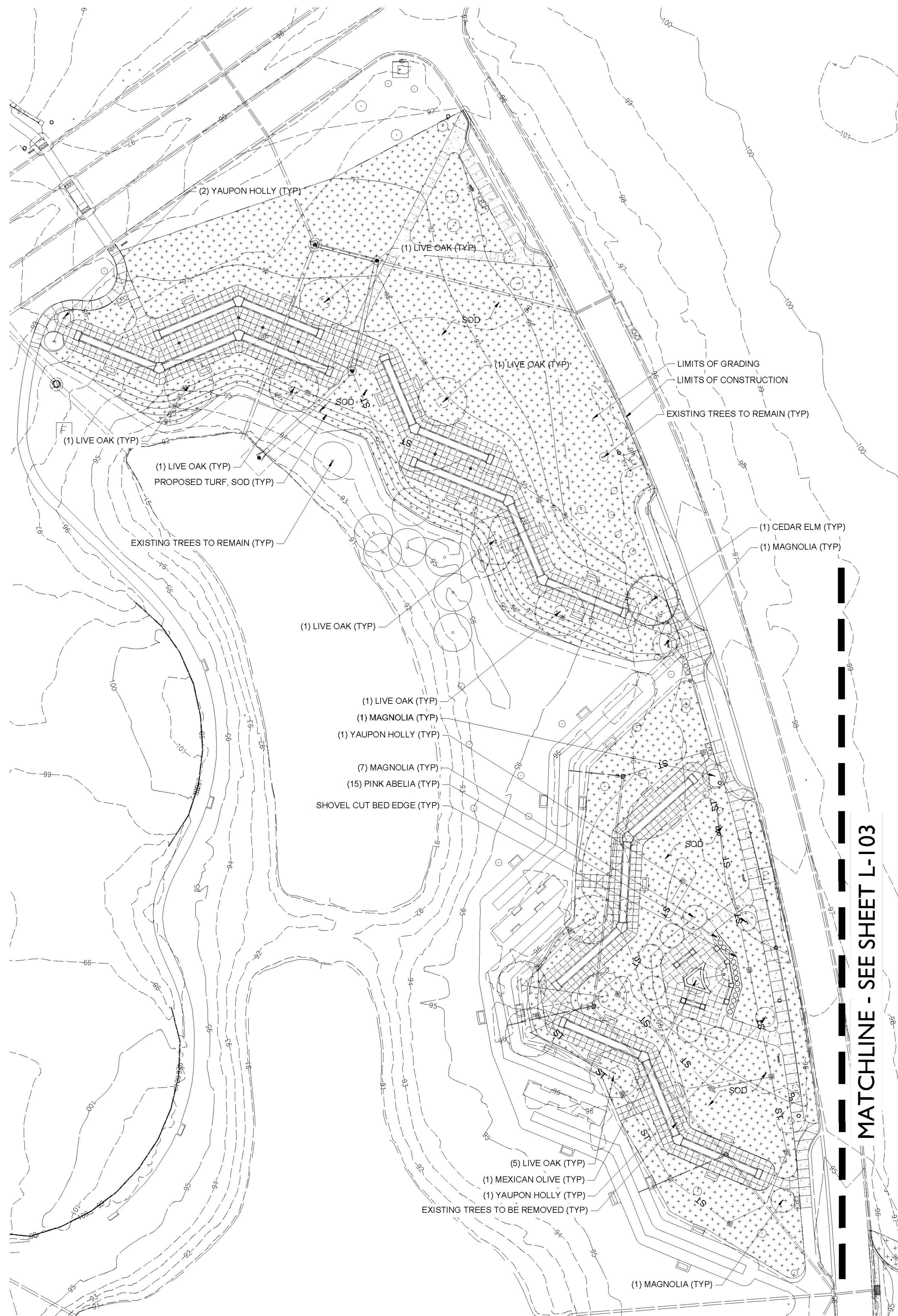
LEGEND

PROPOSED WETLAND PLANTS

- SPIKERUSH
- SOFTSTEM BULRUSH
- THREE-SQUARE BULRUSH
- POWDERY THALIA



		CONSULTANT		ARCHITECT/ENGINEER OF RECORD		STAMP	Office of Construction and Facilities Management		Drawing Title LANDSCAPE PLAN	Phase CONSTRUCTION DOCUMENTS 1	Project Title HOUSTON NATIONAL CEMETERY PHASE 5 DEVELOPMENT	Project Number 851PC2048
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		RVi (512) 480-0032	AES Group (303) 841-3922	148 S. Queen Street, Suite 201 Martinsburg, WV 25401 Phone: 304-725-8456 www.gordon.us.com							Location	Drawing Number
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											Checked MS	Dwg. 134 of 205
											Drawn AC, LI	



① COLUMBARIA

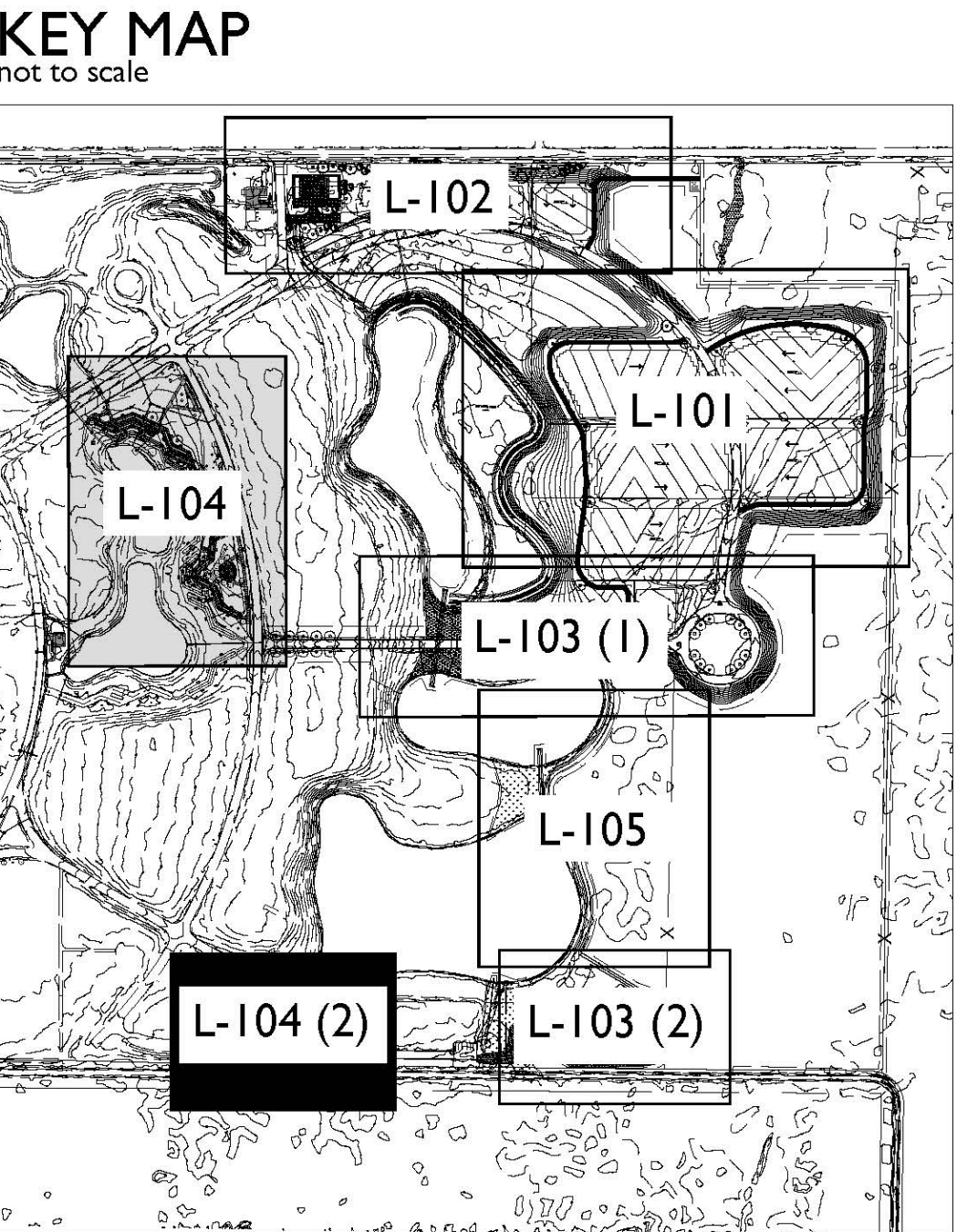
SCALE: 1" = 40'-0"



② DRIVE EXPANSION

SCALE: 1" = 40'-0"

LEGEND	
PROPOSED SHADE TREES	
	LIVE OAK
	SHUMARD OAK
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	YAUPON HOLLY
PROPOSED SHRUBS	
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	TURF (SOD) NOTE: SOD TO EXTEND TO LIMITS OF GRADING UNLESS NOTED OTHERWISE
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	(SEED)
PROPOSED NATIVE GRASS MIX	
	SAND LOVEGRASS (SEED) 60% INDIAN GRASS (SPRIGS) 12.5% SIDE OATS GRAMA (SPRIGS) 12.5% LITTLE BLUESTEM (4" POTS) 15%
PROPOSED WETLAND PLANTS	
	SPIKERUSH
	SOFTSTEM BULRUSH
	THREE-SQUARE BULRUSH
	POWDERY THALIA



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The LA Group (518) 587-8100 RVi (512) 480-0032 Komatsu Inc. (817) 587-8100		Aqua Engineering, Inc. (970) 372-6104 AES Group (303) 841-3922 ECS Midwest LLC. 847-279-0366		OCMI (202) 607-7575 Gilpin Engineering (512) 220-8100 GIS, Inc. (205) 941-0442		Gordon 148 S. Queen Street, Suite 201 Martinsburg, WV 25401 Phone: 304-725-8456 www.gordon.us.com		Office of Construction and Facilities Management		LANDSCAPE PLAN		CONSTRUCTION DOCUMENTS 1		HOUSTON NATIONAL CEMETERY PHASE 5 DEVELOPMENT	
Revisions:		Date:		Approved: Project Director		VA U.S. Department of Veterans Affairs		Location		HARRIS COUNTY, TEXAS		Issue Date		Checked	
												August 30, 2019		MS	
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														AC, LI	
														L-104	
														Dwg. 135 of 205	

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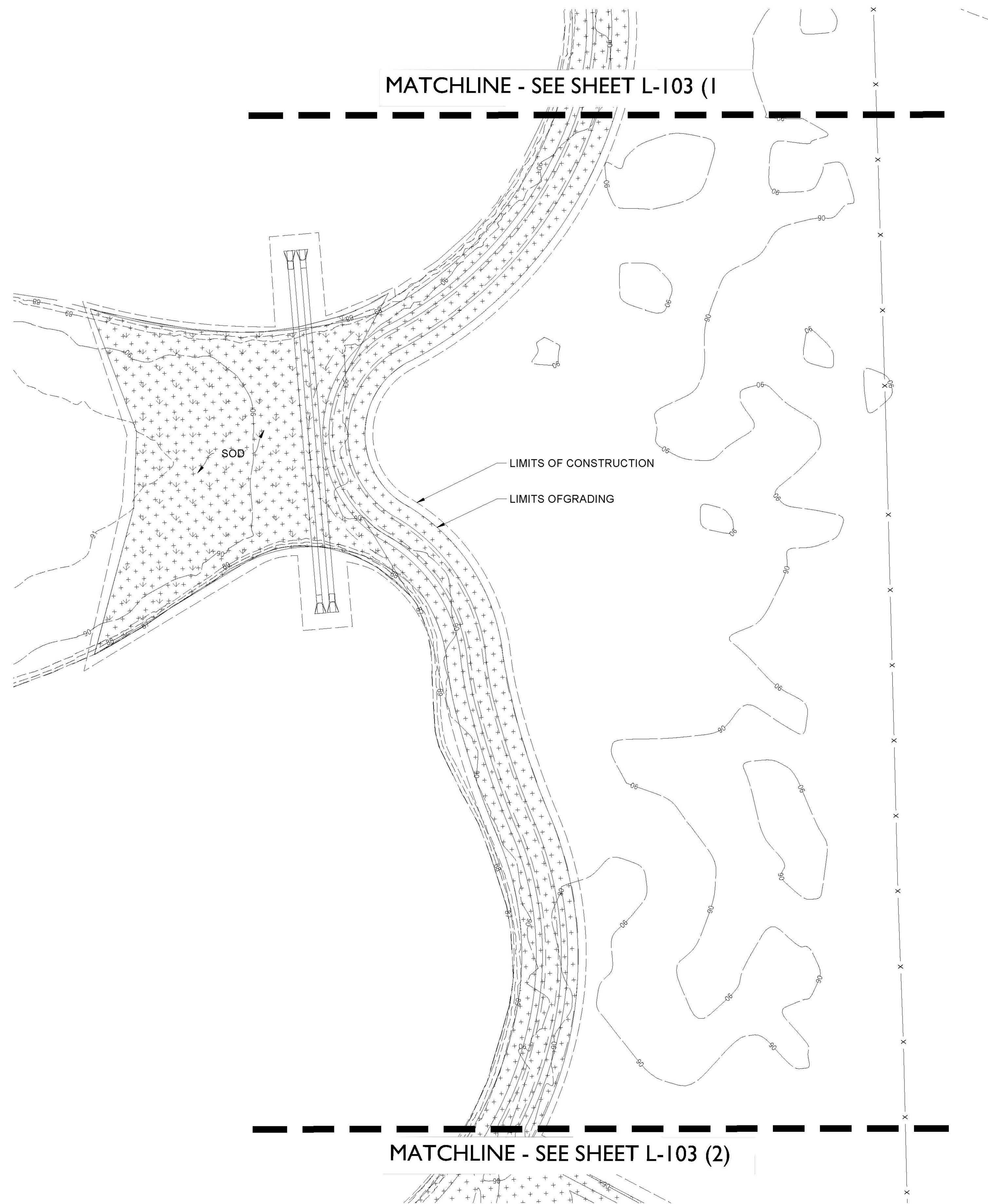
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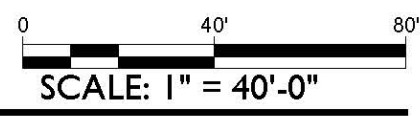
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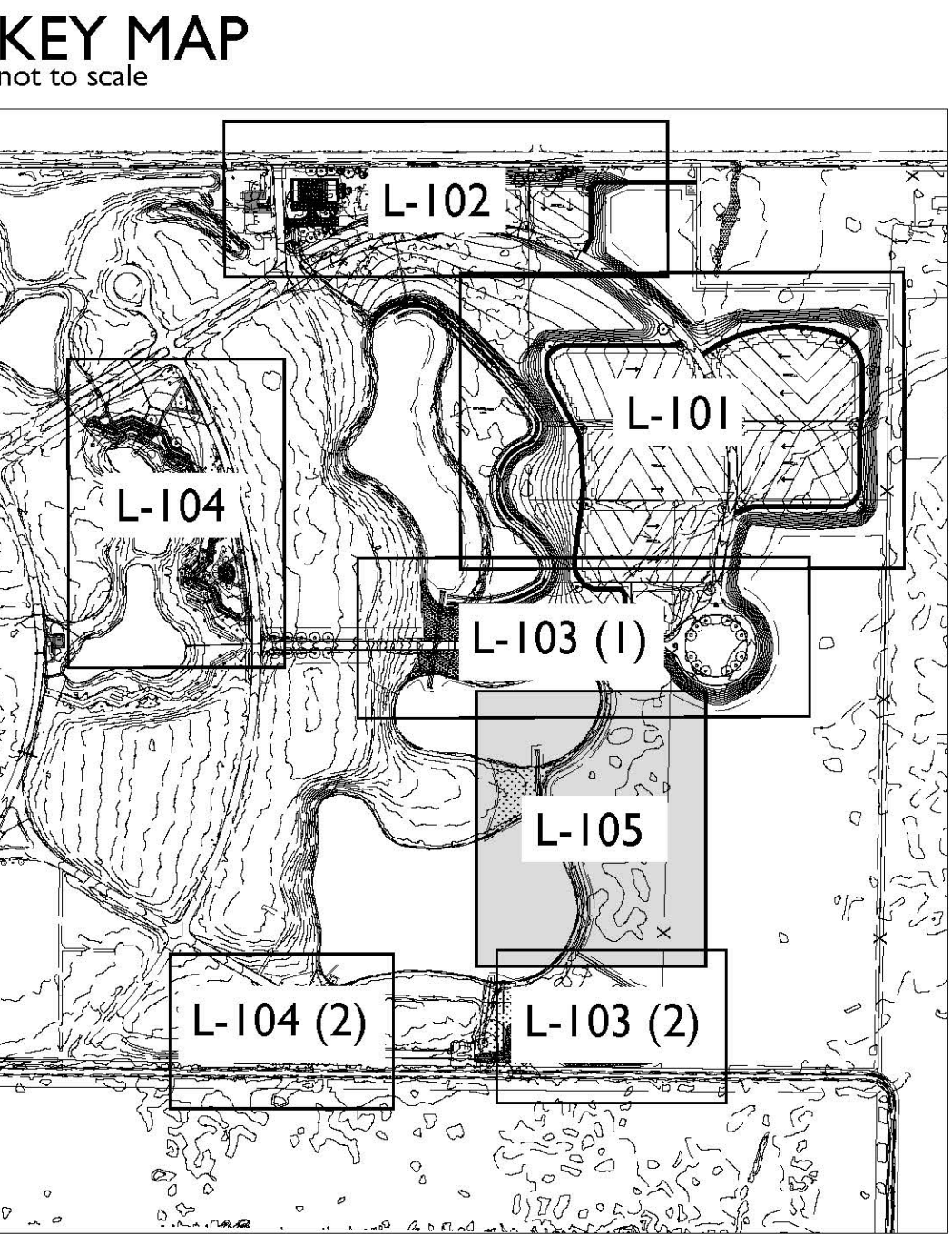
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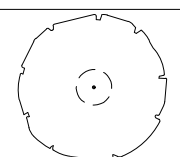
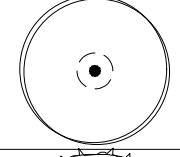
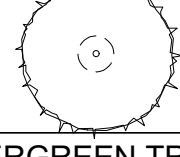
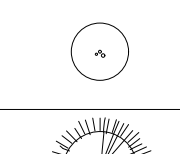

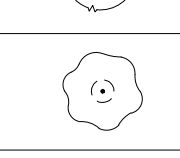
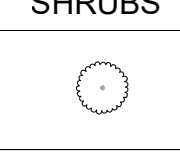
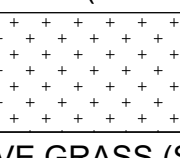
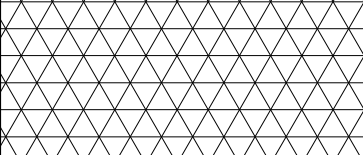
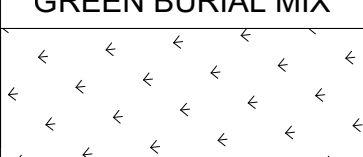
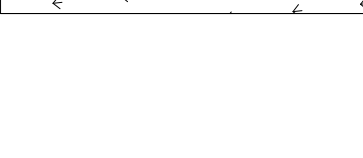
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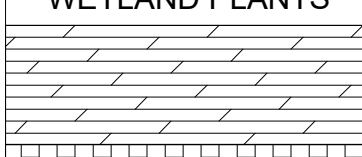
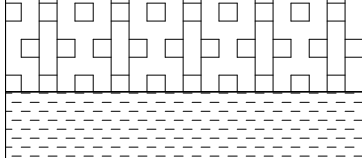
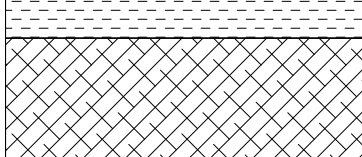



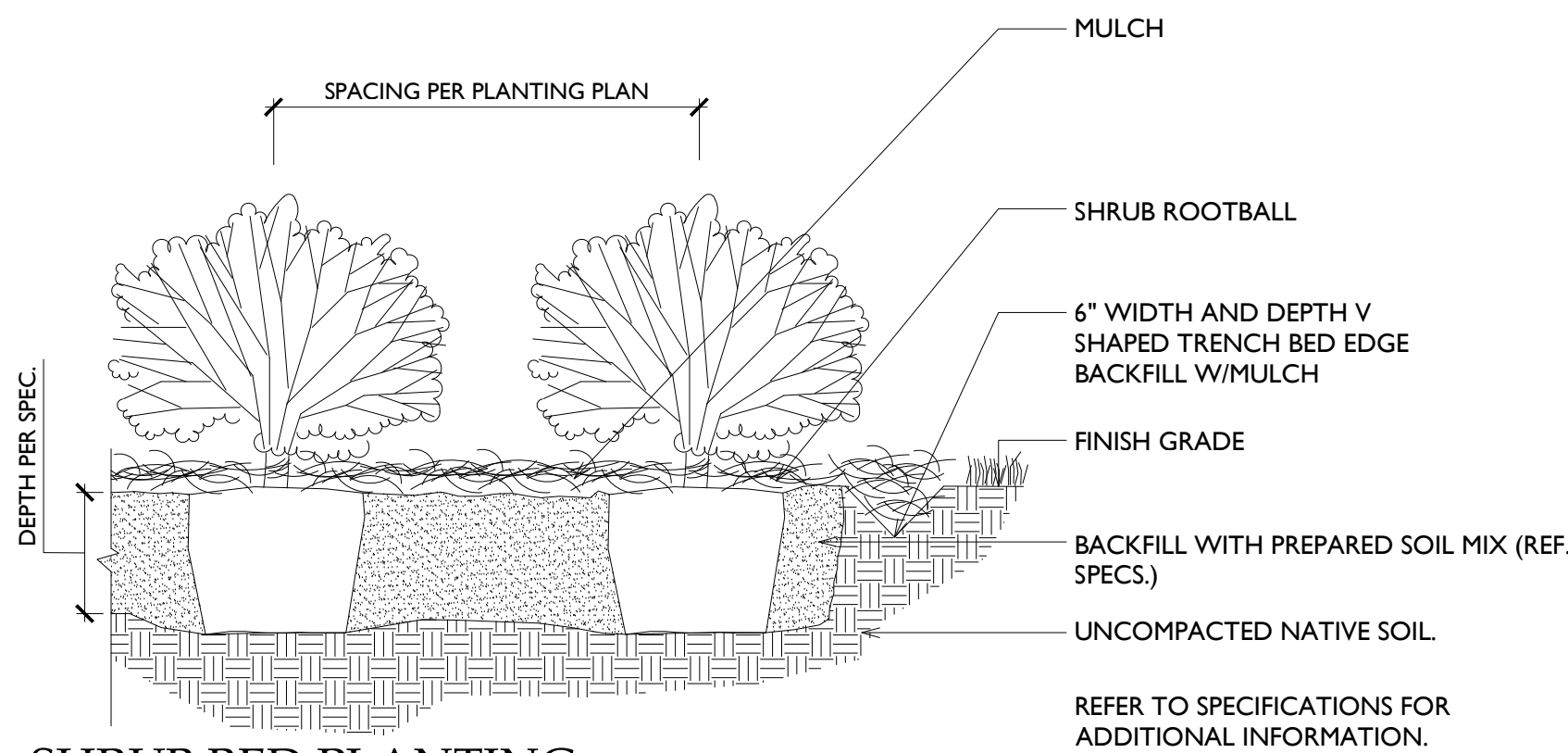
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NOTE: SOD TO EXTEND TO LIMITS OF GRADING UNLESS NOTED OTHERWISE	
PROPOSED SOUTHEAST RECOVERY MIX (SEED)	
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													Dwg. 136 of 205	
Revisions:		Date:												

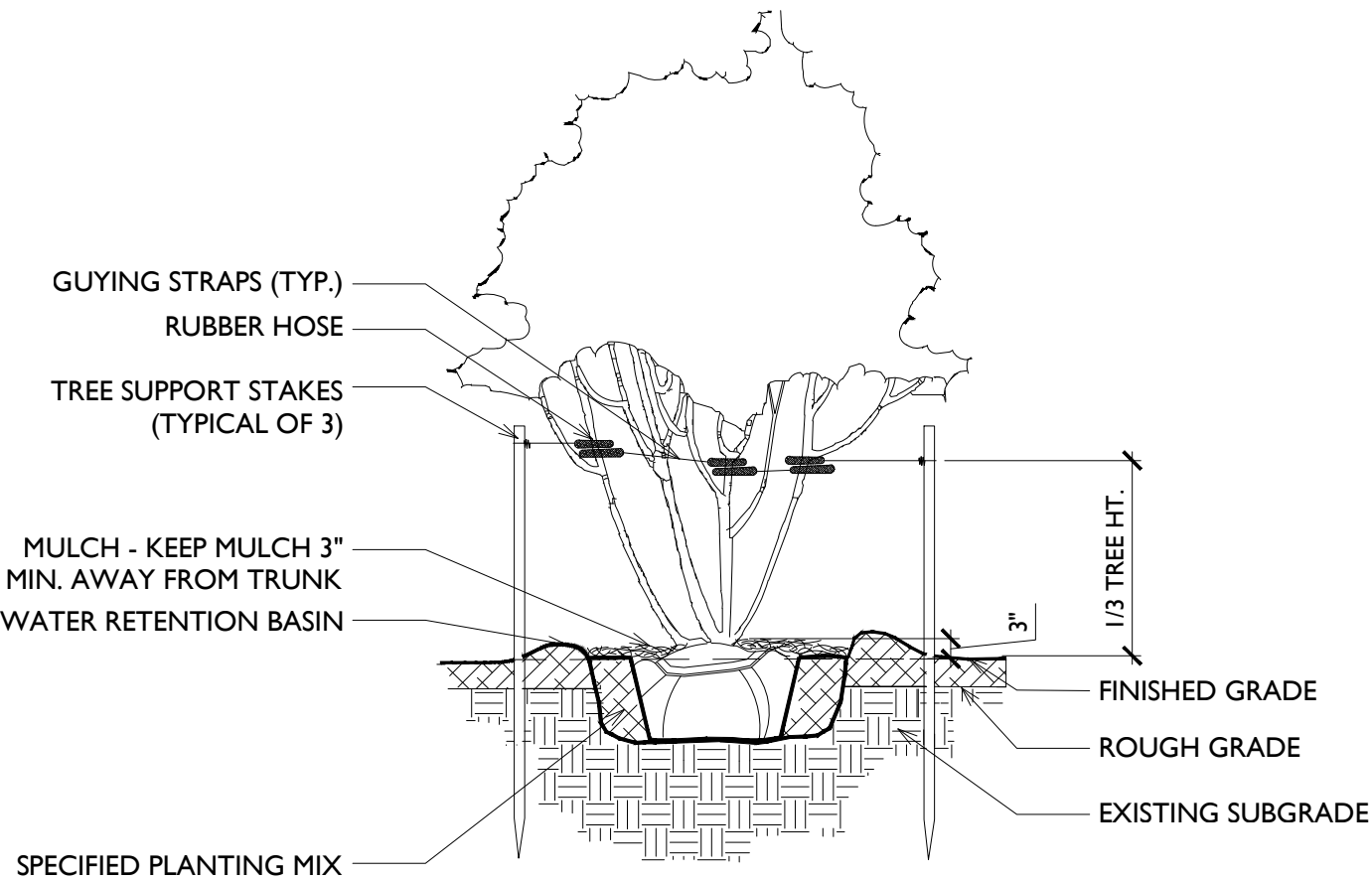
PLANT SCHEDULE						
TREES	BOTANICAL NAME	COMMON NAME	CONT	CAL	SIZE (ht)	QTY
	Quercus virginiana	Live Oak	B&B	3" - 3.5" Cal	14' - 16'	69
	Quercus shumardii	Shumard Oak	B&B	3" - 3.5" Cal	14' - 16'	14
	Ulmus crassifolia	Cedar Elm	B&B	3" - 3.5" Cal	14' - 16'	15
EVERGREEN TREES	BOTANICAL NAME	COMMON NAME	CONT	CAL	SIZE	QTY
	Ilex vomitoria	Yaupon Holly	B&B		10' - 12'	19
	Pinus taeda	Loblolly Pine	B&B		10' - 12'	33
ORNAMENTAL TREES	BOTANICAL NAME	COMMON NAME	CONT	CAL	SIZE	QTY
	Magnolia grandiflora 'Little Gem'	Magnolia 'Little Gem'	B&B		10' - 12'	14
	Prunus Mexicana	Mexican Plum	B&B		10' - 12'	1
SHRUBS	BOTANICAL NAME	COMMON NAME	CONT	SPACING	SIZE	QTY
	Abelia x 'Edward Groucher Pink'	Pink Abelia	3 gal	36" o.c.	24" ht.	29
TURF(SEED)	BOTANICAL NAME	COMMON NAME	CONT	SPACING	SIZE	QTY
	Tif Tuf Bermuda Sod	Tif Tuf Bermuda	SOD	NA	NA	1,380,713 sf (153,413 sy)
NATIVE GRASS (SEED)	BOTANICAL NAME	COMMON NAME	CONT	SPACING	SIZE	QTY
	Southeast Recovery Mix	Southeast Recovery Mix	NA	NA	NA	54,529 sf (6,059 sy)
GREEN BURIAL MIX	BOTANICAL NAME	COMMON NAME	CONT	SPACING	SIZE	QTY
	Proposed Native Grass Mix	Sand Lovegrass (Seed) 60% Indian Grass (Sprigs) 12.5% Side Oats Grama (Sprigs) 12.5% Little Bluestem (4" Pots) 15%	NA	NA	NA	21,706 sf (2,412 sy)

WETLAND PLANTS	BOTANICAL NAME	COMMON NAME	CONT	SPACING	WATER DEPTH	QTY
	Eleocharis montevidensis	Spikerush	1 gal	4' O.C.	-3" to 6"	155
	Schoenoplectus americana	Three-Square Bulrush	1 gal	3' O.C.	3" to 24"	165
	Schoenoplectus validus	Softstem Bulrush	1 gal	4' O.C.	3" to 24"	175
	Thalia dealbata	Powdery Thalia	1 gal	3.5' O.C.	3" to 24"	135



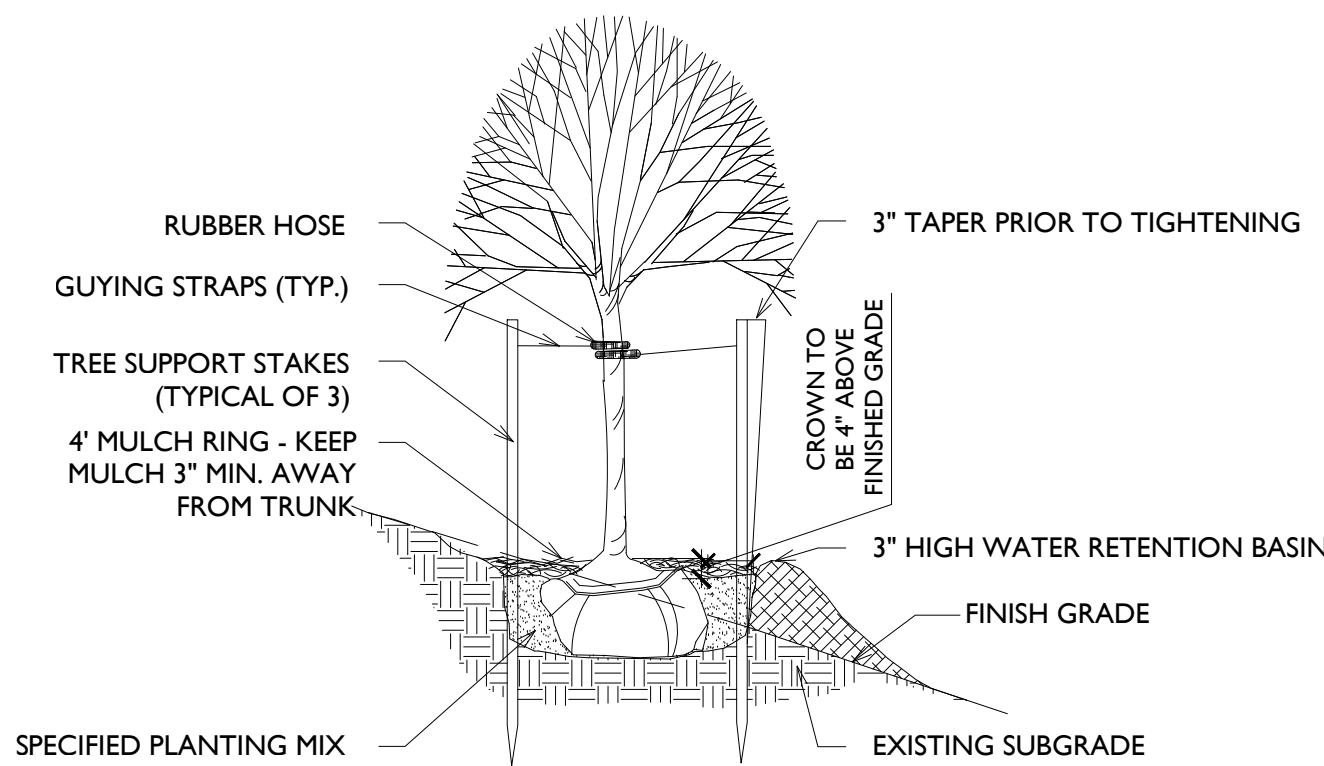
SHRUB BED PLANTING

N.T.S.



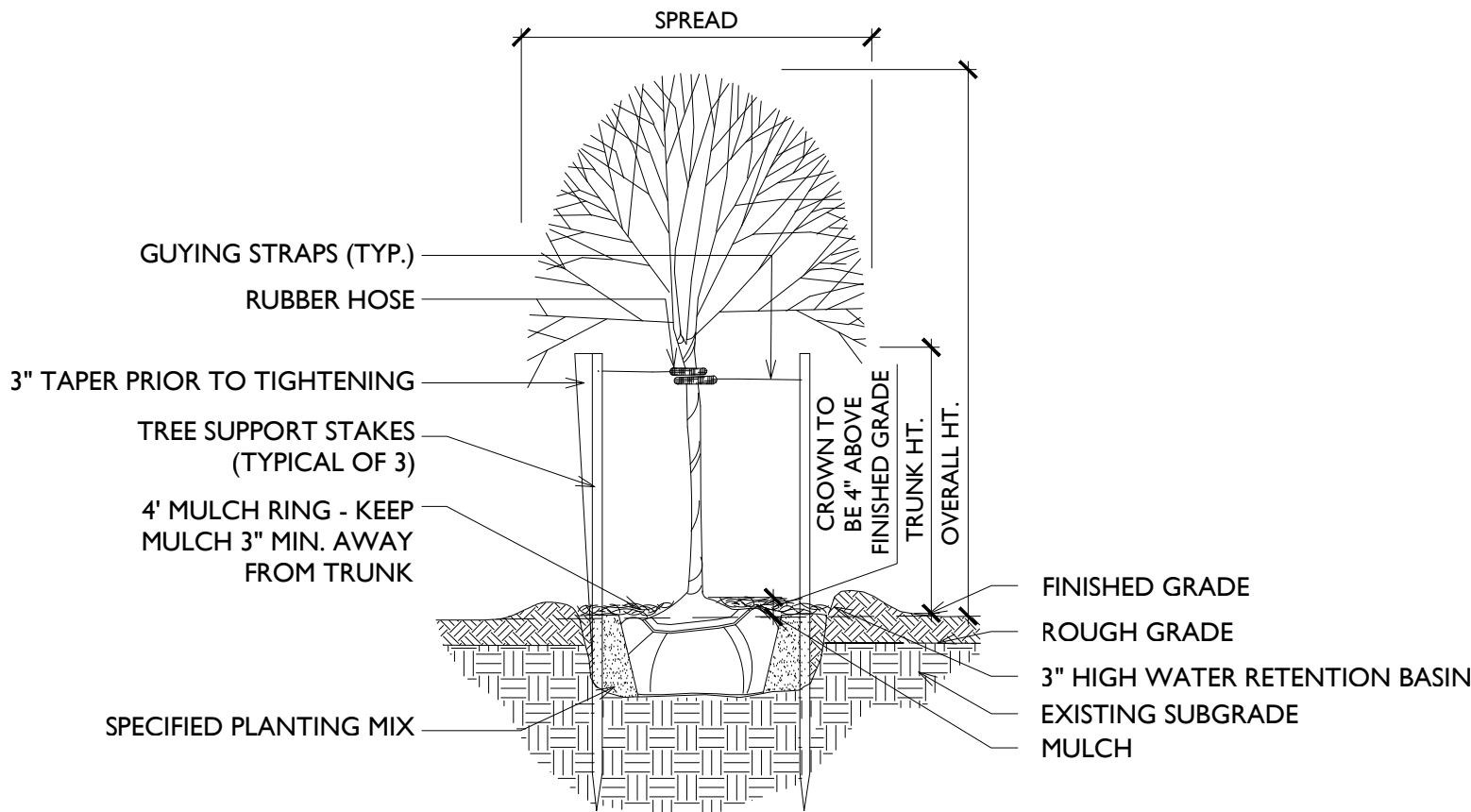
MULTI-TRUNK TREE PLANTING

N.T.S.



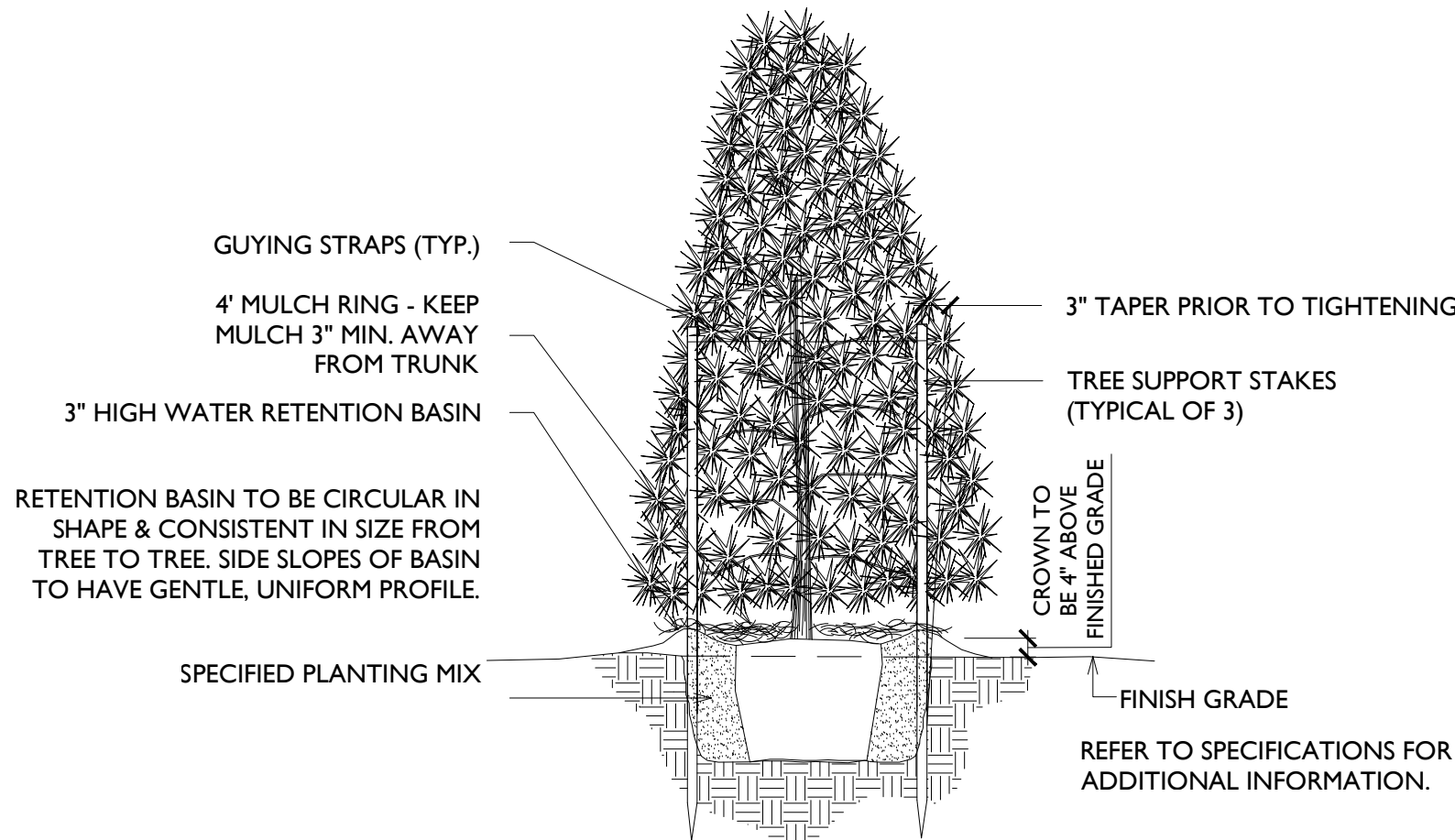
SLOPE TREE PLANTING

N.T.S.




TREE PLANTING

N.T.S.



EVERGREEN TREE PLANTING

N.T.S.

		CONSULTANT			ARCHITECT/ENGINEER OF RECORD		STAMP	Office of Construction and Facilities Management		Drawing Title	Phase	Project Title		Project Number	
		The LA Group (518) 587-8100	Aqua Engineering, Inc. (970) 372-6104	OCMI (202) 607-7575	 148 S. Queen Street, Suite 201 Martinsburg, WV 25401 Phone: 304-725-8456 www.gordon.us.com			VA U.S. Department of Veterans Affairs		PLANTING SCHEDULE AND DETAILS	CONSTRUCTION DOCUMENTS 1	HOUSTON NATIONAL CEMETERY PHASE 5 DEVELOPMENT		851PC2048	
		Rvi (512) 480-0032	AES Group (303) 841-3922	Gilpin Engineering (512) 220-8100										Building Number	
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Revisions:		Date:										Issue Date August 30, 2019	Checked MS	Drawn AC, LI	L-501 Dwg. 137 of 205

APPENDIX B
THREATENED AND ENDANGERED SPECIES
ASSESSMENT



ECS Southwest, LLP

"Setting the Standard for Service"

Geotechnical • Construction Materials • Environmental • Facilities

June 25, 2019

Mr. Bryan Bodner, P.E.
Department of Veterans Affairs
National Cemetery Association (43B)
425 Eye Street, N.W.
Washington, D.C. 20001

ECS Project No. 51-1474

Consultation Code: 02ETTX00-2019-SLI-1011
Event Code: 02ETTX00-2019-E-02074
Reference: Endangered Species Review
Proposed Houston National Cemetery Expansion
10410 Veterans Memorial Drive
Houston, Harris County, Texas

Dear Mr. Bodner:

ECS Southwest, LLP (ECS) is pleased to provide you with the results of our Endangered Species Review for the referenced site. Endangered Species habitat was not identified on the subject property.

If there are questions regarding this report, or a need for further information, please contact the undersigned.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Roger S. Willis II'.

Roger S. Willis II, M.S.
Environmental Project Manager

A handwritten signature in blue ink, appearing to read 'Craig W. Hiatt'.

Craig W. Hiatt, M.S.
Director of Environmental Services

Table of Contents

1.0	INTRODUCTION	1
2.0	ENDANGERED SPECIES ACT LISTED SPECIES	1
2.1	Least Tern (<i>Sterna antillarum</i>)	1
2.2	Piping Plover (<i>Charadrius melodus</i>)	3
2.3	Red Knot (<i>Calidris canutus rufa</i>)	4
2.4	Texas Prairie Dawn-flower (<i>Hymenoxys texana</i>)	4
2.5	West Indian Manatee (<i>Trichechus manatus</i>)	4
3.0	CONCLUSIONS	5
4.0	LIMITATIONS	5
5.0	REFERENCES	6

Figures: Site Location Map
Site Map

Attachments: Site Photographs
iPaC Report
USFWS Official Species List

1.0 INTRODUCTION

The subject property is located on approximately 42-acres of undeveloped pasture land located within the boundaries of the existing Houston National Cemetery located at 10410 Veterans Memorial Drive, Houston, Harris County, Texas (Figure 1). The subject property is undeveloped land located in the Halls Bayou watershed (HUC 120401040604). Much of the data in this document, including species accounts below, was obtained from previously published resources such as the *Environmental Assessment for the Houston National Cemetery Phase IV Expansion*, dated February 2010 (VA, 2010). The following sections describe the species listed in the *U.S. Fish and Wildlife Official Species List* dated March 13, 2019, and *Information for Planning and Consultation (IPaC) Report* dated March 14, 2019, as well as the Texas Parks and Wildlife Department (TPWD) Rare, Threatened, and Endangered Species of Texas by County (RTEST) application prepared for the subject property. The Official USFWS Species List describes five (5) threatened, endangered, or candidate species with the potential to occur on the project site. The RTEST application and TPWD staff listed 13 species with the potential to occur within the project area.

Common Name	Scientific Name	Federal Status	State Status
Mammals			
West Indian Manatee	<i>Trichechus manatus</i>	T	NL
Birds			
Least Tern	<i>Sterna antillarum</i>	E	NL
Piping Plover	<i>Charadrius melodus</i>	T	T/SGCN
Red Knot	<i>Calidris canutus rufa</i>	T	NL/SGCN
Amphibians			
Cajun Chorus Frog	<i>Pseudacris fouquettei</i>	NL	NL/SGCN
Southwestern Crawfish Frog	<i>Lithobates areolatus areolatus</i>	NL	NL/SGCN
Stecker's Chorus Frog	<i>Pseudacris streckeri</i>	NL	NL/SGCN
Woodhouse's Toad	<i>Anaxyrus woodhousii</i>	NL	NL/SGCN
Crustaceans			
Houston Burrowing Crayfish	<i>Fallicambarus houstonensis</i>	NL	NL/SGCN
Reptiles			
Slender Glass Lizard	<i>Ophisaurus attenuatus</i>	NL	NL/SGCN
Western Box Turtle	<i>Terrapene ornata</i>	NL	NL/SGCN
Plants			
Coastal Gay-feather	<i>Liatris bracteata</i>	NL	NL/SGCN
Houston Daisy	<i>Rayjacksonia aurea</i>	NL	NL/SGCN
Indianola Breakrush	<i>Rhynchospora indianolensis</i>	NL	NL/SGCN
Shinner's Sunflower	<i>Helianthus occidentalis ssp. plantagineus</i>	NL	SGCN
Texas Prairie Dawn-flower	<i>Hymenoxys texana</i>	E	NL
Texas Windmill Grass	<i>Chloris texensis</i>	NL	NL/SGCN

Notes: T = Threatened; E = Endangered; NL = Not Listed; SGCN = Species of Greatest Conservation Need

2.0 ENDANGERED SPECIES ACT LISTED SPECIES

2.1 Least Tern (*Sterna antillarum*)

Least Terns are the smallest North American terns. Adults average 8 to 10 inches in length, with a 20 inch wingspan. Their narrow, pointed wings make them streamlined flyers. Males and females are similar in appearance. Breeding adults are gray above and white below, with a black cap, black nape and eye stripe, white forehead, yellow bill with a black or brown tip, and yellow to orange legs. Hatchlings are

about the size of ping-pong balls and are yellow and buff with brown mottling. Fledglings (young birds that have left the nest) are grayish brown and buff colored, with white heads, dark bills and eye stripes, and stubby tails. Young terns acquire adult plumage after their first molt at about 1 year, but do not breed until they are 2 to 3 years old. The Least Tern's call has been described as a high pitched "kit," "zeep," or "zreep."

Nesting habitat of the Interior Least Tern includes bare or sparsely vegetated sand, shell, and gravel beaches, sandbars, islands, and salt flats associated with rivers and reservoirs. The birds prefer open habitat, and tend to avoid thick vegetation and narrow beaches. Sand and gravel bars within a wide unobstructed river channel, or open flats along shorelines of lakes and reservoirs, provide favorable nesting habitat. Nesting locations are often at the higher elevations away from the water's edge, since nesting usually starts when river levels are high and relatively small amounts of sand are exposed. The size of nesting areas depends on water levels and the extent of associated sandbars and beaches. Highly adapted to nesting in disturbed sites, terns may move colony sites annually, depending on landscape disturbance and vegetation growth at established colonies. For feeding, Interior Least Terns need shallow water with an abundance of small fish. Shallow water areas of lakes, ponds, and rivers located close to nesting areas are preferred. As natural nesting sites have become scarce, the birds have used sand and gravel pits, ash disposal areas of power plants, reservoir shorelines, and other manmade sites.

There are three subspecies of the Least Tern recognized in the United States. The subspecies are identical in appearance and are segregated on the basis of separate breeding ranges. The Eastern or Coastal Least Tern (*Sterna antillarum antillarum*), which is not federally listed as endangered or threatened, breeds along the Atlantic coast from Maine to Florida and west along the Gulf coast to south Texas. The California Least Tern (*Sterna antillarum browni*), federally listed as endangered since 1970, breeds along the Pacific coast from central California to southern Baja California. The endangered Interior Least Tern (*Sterna antillarum athalassos*) breeds inland along the Missouri, Mississippi, Colorado, Arkansas, Red, and Rio Grande River systems. Although these subspecies are generally recognized, recent evidence indicates that terns hatched on the Texas coast sometimes breed inland. Some biologists speculate that the interchange between coastal and river populations is greater than once thought.

The Interior Least Tern is migratory, breeding along inland river systems in the United States and wintering along the Central American coast and the northern coast of South America from Venezuela to northeastern Brazil. Historically, the birds bred on sandbars on the Canadian, Red, and Rio Grande River systems in Texas, and on the Arkansas, Missouri, Mississippi, Ohio and Platte River systems in other states. The breeding range extended from Texas to Montana and from eastern Colorado and New Mexico to southern Indiana. It included the braided rivers of Oklahoma and southern Kansas, salt flats of northwest Oklahoma, and alkali flats near the Pecos River in southeast New Mexico.

Today, the Interior Least Tern continues to breed in most of the major river systems, but its distribution is generally restricted to the less altered and more natural or little disturbed river segments. In Texas, Interior Least Terns are found at three reservoirs along the Rio Grande River, on the Canadian River in the northern Panhandle, on the Prairie Dog Town Fork of the Red River in the eastern Panhandle, and along the Red River (Texas/Oklahoma boundary) into Arkansas.

As this species only needs to be considered for wind-related projects within the species migratory route, the proposed project is expected to have no impact to the Interior Least tern or its habitat.

2.2 Piping Plover (*Charadrius melodus*)

The Piping Plover is a small shore bird, about 7 1/4 inches long with a 15 inch wingspan. Distinguishing characteristics include sandy-colored feathers with grayish-brown crowns and backs, white foreheads, and dark bands across their crowns. Dark, but incomplete rings encircle their necks. These little birds have yellow-orange legs, black bands across their foreheads from eye to eye, and black rings around the base of their necks. They are small, stocky, sandy-colored birds that resemble sandpipers, with short, stubby bills.

Piping Plovers reach sexual maturity at one year, and mate from late March through April. Males compete against each other for females' attention. They perform elaborate flights, and then scrape nests in the sand, tossing shells and small stones and twigs into them with their beaks. To create a nest, they scrape a shallow depression in the sand about 1 by 2.5 inches (2.5 by 6 cm). After their nests are built, they stand beside them with their wings partially spread and tails fanned. The males repeat this behavior until a female indicates interest. Once he has her attention, he begins a high-stepping "dance," continuing the courtship ritual. Females will lay about four gray to pale sand-colored eggs with a few dark spots. After an incubation period of 25 days, the young hatch within four to eight hours of each other, and fledge 30 to 35 days later. Although both sexes share responsibility for incubating the eggs, females commonly leave the young when the hatchlings are 14 to 20 days old. Males often remain with them until they can fly.

The chicks can move freely from their nests within hours of drying off. When predators or intruders come close, the young squat motionless on the sand while the parents attempt to attract the attention of the intruders to themselves, often by feigning a broken wing. Gulls, crows, raccoons, foxes and skunks are threats to the eggs and falcons may prey on the adult birds. The young plovers and adult plovers generally return to the same nesting area year after year. Plovers often run short distances, pausing to stare at the ground with a slightly tilted head, before picking a food item from the sand.

There are just over 5,000 known pairs of breeding Piping Plovers. Texas is the wintering home for 35 percent of the known population of Piping Plovers. They begin arriving in late July or early August, and will remain for up to nine months. The Piping Plover's diet includes marine worms, beetles, spiders, crustaceans, mollusks and other small marine animals. Their life span is less than five years, but on occasion, up to 14 years.

Piping Plovers migrate through the Great Lakes along the river systems through the Bahamas and West Indies. They are currently found along the Atlantic Coast from Canada to North Carolina and along the shorelines of Lakes Michigan and Superior. Gulf Coast beaches from Florida to Mexico, and Atlantic coast beaches from Florida to North Carolina provide winter homes for plovers.

Habitat alteration and destruction are the primary causes for the decline of the Piping Plover. Loss of sandy beaches and lakeshores due to recreational, residential, and commercial development has reduced available habitat on the Great Lakes, Atlantic Coast, and the Gulf of Mexico. Reservoir construction, channel excavation, and modification of river flows have eliminated sandbar nesting habitat along hundreds of miles of the Missouri and Platte Rivers. Winter habitats along the Gulf coast are threatened by industrial and urban expansion and maintenance activities for commercial waterways. Pollution from spills of petrochemical products and other hazardous materials is also a concern.

On the breeding grounds, reproductive success can be curtailed by human disturbance. Vehicular and foot traffic destroys eggs and chicks. The presence of people on beaches and sandbar islands inhibits incubation and other breeding behavior. Changes in land use such as agricultural development, urbanization, and use of beaches has brought an increase in the number of unleashed pets and other

predators.

Increased recreational use of Gulf beaches may also threaten the quality of wintering sites. Beach traffic, including vehicles and ATV's, as well as the activities of unleashed dogs, can disturb birds and degrade habitat. Beach raking, a practice associated with high recreational use, removes driftwood, seaweed, and other debris used by roosting plovers, and may disrupt nutrient cycles and remove prey organisms from foraging areas.

In 2001, the total population of Piping Plovers in North America was estimated to be 5,945 breeding adults. The Texas Gulf Coast had the highest wintering population, with about 1,042 individuals detected. This represents about 44% of birds detected on the wintering grounds during the 2001 International Piping Plover Census. Most of the plovers that winter on the Texas coast are found in the lower Laguna Madre, where tidal flats are extensive and productive.

As this species only needs to be considered for wind-related projects within the species migratory route, the proposed project is expected to have no impact to the Piping plover or its habitat.

2.3 Red Knot (*Calidris canutus rufa*)

The Red Knot is a medium-sized shorebird. During breeding season, it has a rust colored face, chest and undersides and dark brown wings. In winter, it has a gray head, chest and upperparts and a white belly. It has long greenish legs and a pointed black bill. Males and females look similar.

The Red Knot breeds on islands in the Arctic regions of Canada. It winters along both the Pacific and Atlantic coasts from California and Massachusetts south to South America. The Red Knot is also found in Europe and Asia. The Red Knot breeds on the tundra. During migration and in the winter it can be found on tidal flats, rocky shores and beaches.

In its breeding territory, the Red Knot eats the seeds of sedges, horsetails and grass shoots. It may also poke around in snow-free areas for invertebrates. It also eats beetles and cutworm larvae. In its winter range, it eats marine worms, grasshoppers, horseshoe crab eggs and other invertebrates.

As this species only needs to be considered for wind-related projects within the species migratory route, the proposed project is expected to have no impact to the Red knot or its habitat.

2.4 Texas Prairie Dawn-flower (*Hymenoxys texana*)

The Texas prairie dawn (*Hymenoxys texana*) is a delicate annual that ranges in size from 1-6 inches in height. It produces small yellow flower heads less than ½ inch in diameter. The Texas prairie dawn grows in sparsely vegetated areas, at the base of pimple mounds and other barren areas on slightly saline soils within coastal grassland communities. This plant has been documented in Harris County and on the outskirts of Houston. However, no critical habitat has been designated for this species. The subject property does not present suitable habitat for the Texas Prairie Dawn-flower. Therefore, the proposed project is expected to have no effect on the species or its habitat.

2.5 West Indian Manatee (*Trichechus manatus*)

This is a slow-moving mammal with a rounded body, gray to brown skin with fine sparse hair, small head, squarish snout with a deeply split upper lip, valvular nostrils, small eyes, flexible flippers, and a large rounded horizontally flattened tail. Adults usually are about 10-13 feet (300-400 cm) in total length. Newborn calves are about 3-4 feet (1 meter) long. Habitat includes shallow coastal waters, estuaries, bays, rivers, and lakes; throughout most of the range, manatees appear to prefer rivers and estuaries

over marine habitats (Lefebvre et al. 1989). Manatees are not averse to traveling through dredged canals or using quiet marinas. They apparently are not able to tolerate prolonged exposure to water colder than 20 C. In the north during October-April, manatees congregate in warmer water bodies (spring-fed rivers, outfalls from power plants). They prefer waters at least 1-2 meters in depth; along the coast manatees often are in water 3-5 meters deep, usually in areas lacking strong current (NatureServe, 2018; USFWS, 2019). The subject property does not present suitable habitat for the West Indian Manatee. Therefore, the proposed project is expected to have no effect on the species or its habitat.

3.0 CONCLUSIONS

ECS has reviewed the USFWS Official Species List dated May 31, 2019, as well as the TPWD RTEST for the proposed project and found that potential habitat / conditions do not exist on the subject property for the species identified. ECS does not anticipate impacts to federal or state-listed species or critical habitat due to the proposed project. Based on the lack of suitable habitat, the proposed project does not appear to adversely affect the listed species.

4.0 LIMITATIONS

The findings presented within this report are based upon a reasonable level of investigation within normal bounds and standards of professional practice for a site in this particular geographic and geologic setting. All observations, conclusions and recommendations pertaining to environmental conditions at the subject site are necessarily limited to conditions observed, and or materials reviewed at the time this study was undertaken. No other warranty, expressed or implied, is made with regard to the conclusions and recommendations presented within this report.

This report is provided for the exclusive use of the United States Veterans Administration (VA), and their prospective partners or agencies. This report is not intended to be used or relied upon in connection with other project or by other unidentified third parties. The use of this report by any undesignated third party or parties will be at such party's sole risk and ECS disclaims liability for any such third party use or reliance.

5.0 **REFERENCES**

Texas Parks and Wildlife Department (TPWD). 2019. Rare, Threatened and Endangered Species of Texas by County. June 10, 2019. Accessed at <https://tpwd.texas.gov/gis/rtest/>.

USFWS. 1995. Migratory nongame birds of management concern: The 1995 list. Office of Migratory Bird Management. Washington, DC.

USFWS. 2015. 5-year Review: Texas prairie dawn-flower (*Hymenoxys texana*). Texas Coast Ecological Field Service Office. Houston, Texas.

USFWS. 2004. Report to Congress: Sikes Act and integrated natural resource management plans activities and expenditures for FY 2003. Fisheries and Habitat Conservation Division of Federal Program Activities.

USFWS. 2007. Notice of review: Review of native species that are candidates for listing as endangered or threatened,; annual notice of findings on resubmitted petitions, annual description of progress on listing actions. 50 CFR Part 17. Federal Register, Volume 72, Number 234: 69033 - 69105.

USFWS. 2019. Information for Planning and Consultation (IPaC), Houston National Cemetery Expansion, Harris County, Texas; June 10, 2019.

USFWS. 2019(a). Official Species List, Houston National Cemetery Expansion, Harris County, Texas; Consultation Code 02ETTX00-2019-SLI-1011, May 31, 2019.

Veterans Administration. 2010. Draft Environmental Assessment, Houston Nation Cemetery Phase IV Expansion Project. February 2010.

Figures



Figure 1 - Project Location Map

Houston National Cemetery
10410 Veterans Memorial Drive
Houston, Texas 77038
ECS Project 51-1474



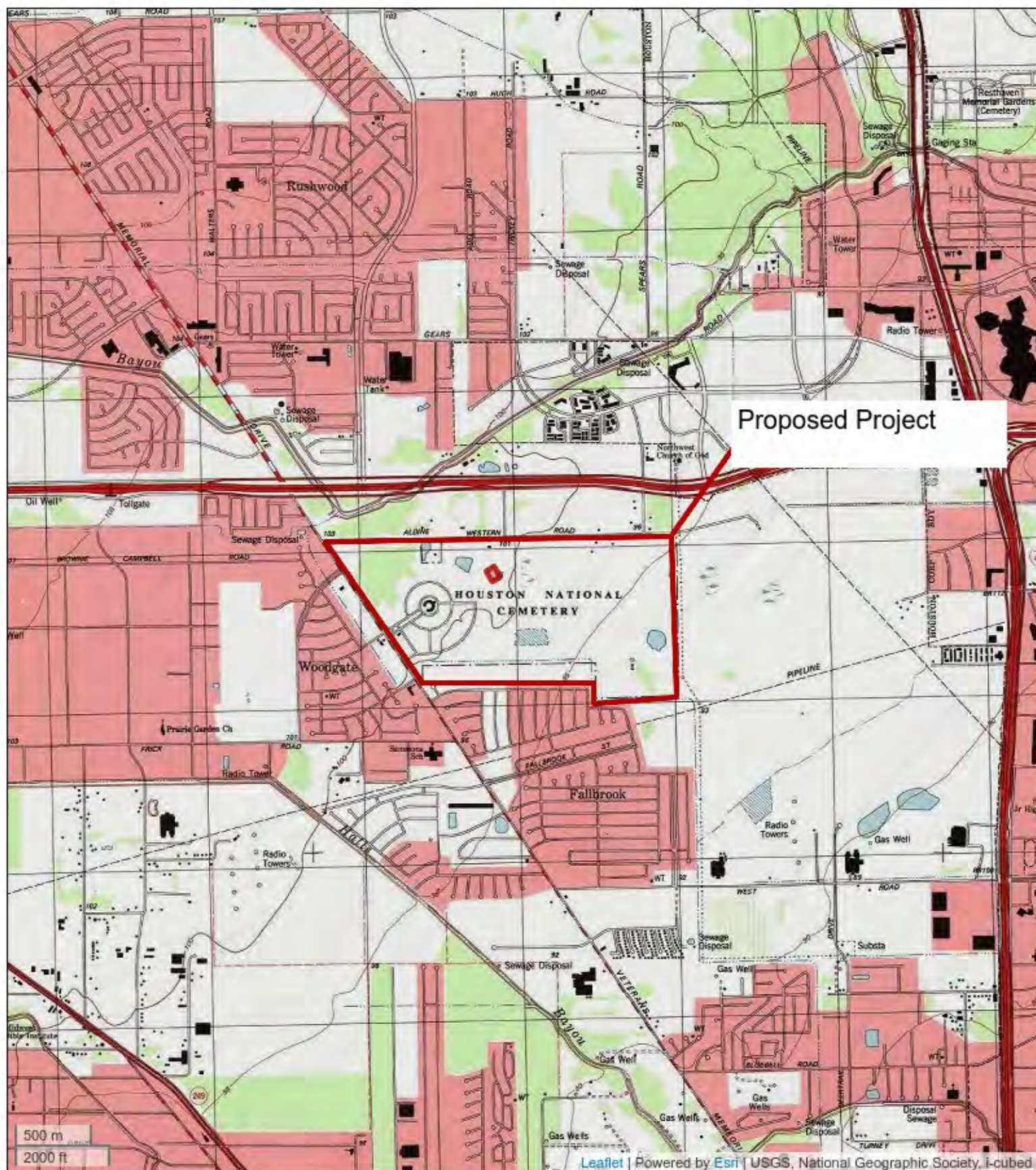


Figure 2 - USGS Topographic Map

Aldine, TX Quadrangle
Houston National Cemetery
10410 Veterans Memorial Drive
Houston, Texas 77038
ECS Project 51-1474



Site Photographs



1 - East-facing view of Proposed Project area.



2 - View of eastern stock pond



3 - View of southeastern wetland area



4 - View of southeastern wetland area



5 - Northwest view of forested area



6 - East-facing view of southern stock pond

IPaC Resource List

IPaC Information for Planning and Consultation **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Project information

NAME

Houston NCA Expansion

LOCATION

Harris County, Texas

**DESCRIPTION**

Expansion of existing National Cemetery

Local office

Texas Coastal Ecological Services Field Office

☎ (281) 286-8282

📅 (281) 488-5882

17629 El Camino Real #211

Houston, TX 77058

<http://www.fws.gov/southwest/es/TexasCoastal/>http://www.fws.gov/southwest/es/ES_Lists_Main2.html

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Log in to IPaC.
2. Go to your My Projects list.
3. Click PROJECT HOME for this project.
4. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
West Indian Manatee <i>Trichechus manatus</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/4469	Threatened Marine mammal

Birds

NAME	STATUS
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Least Tern *Sterna antillarum***Endangered**

This species only needs to be considered if the following condition applies:

- Wind related projects within migratory route.

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/8505>

Piping Plover *Charadrius melodus***Threatened**

This species only needs to be considered if the following condition applies:

- Wind related projects within migratory route.

There is **final** critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/6039>

Red Knot *Calidris canutus rufa***Threatened**

This species only needs to be considered if the following condition applies:

- Wind related projects within migratory route.

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/1864>

Flowering Plants

NAME

STATUS

Texas Prairie Dawn-flower *Hymenoxys texana***Endangered**

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/6471>

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project->

[assessment-tools-and-guidance/conservation-measures.php](#)

- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Jul 31
Lesser Yellowlegs <i>Tringa flavipes</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Long-billed Curlew <i>Numenius americanus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/5511	Breeds elsewhere

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (🟡)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

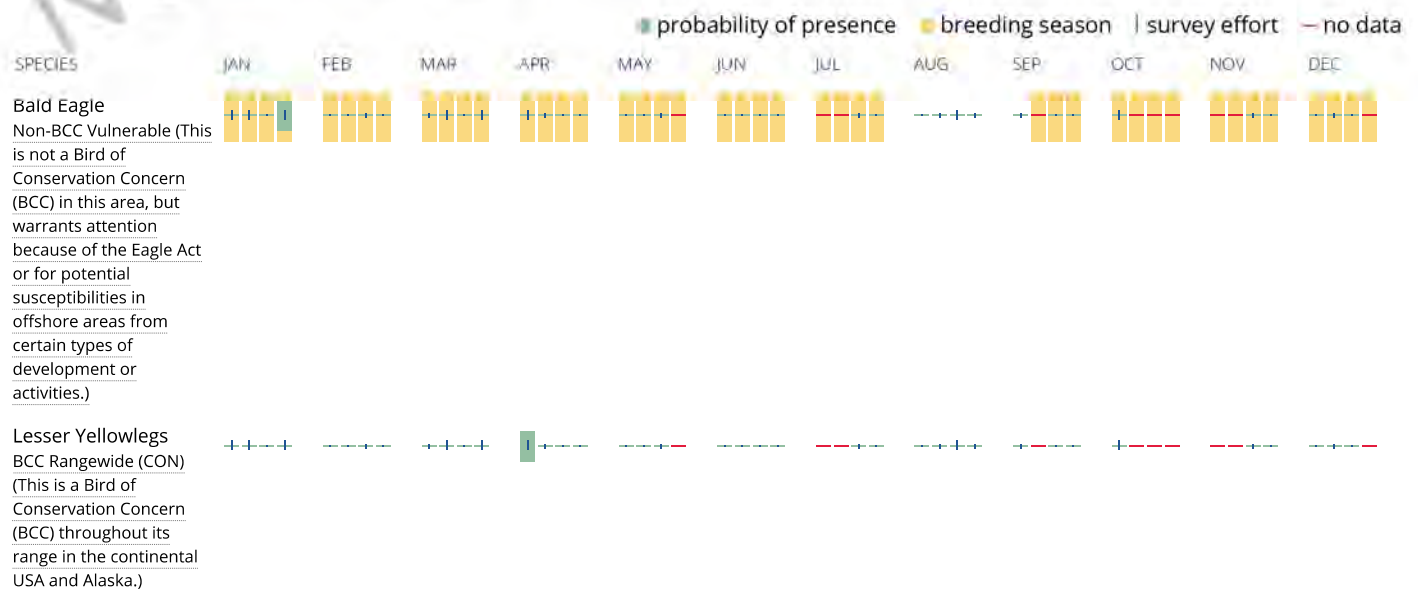
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



The sequence of diagrams shows the addition of 1 to 3 on a number line. The number line has a green box at 0 and a red box at 1. The diagrams are as follows:

- Diagram 1: A number line with a green box at 0 and a red box at 1. The number 3 is marked with a blue dot and the number 4 is marked with a blue dot.
- Diagram 2: A number line with a green box at 0 and a red box at 1. The number 3 is marked with a blue dot and the number 4 is marked with a blue dot.
- Diagram 3: A number line with a green box at 0 and a red box at 1. The number 3 is marked with a blue dot and the number 4 is marked with a blue dot.
- Diagram 4: A number line with a green box at 0 and a red box at 1. The number 3 is marked with a blue dot and the number 4 is marked with a blue dot.
- Diagram 5: A number line with a green box at 0 and a red box at 1. The number 3 is marked with a blue dot and the number 4 is marked with a blue dot.
- Diagram 6: A number line with a green box at 0 and a red box at 1. The number 3 is marked with a blue dot and the number 4 is marked with a blue dot.
- Diagram 7: A number line with a green box at 0 and a red box at 1. The number 3 is marked with a blue dot and the number 4 is marked with a blue dot.
- Diagram 8: A number line with a green box at 0 and a red box at 1. The number 3 is marked with a blue dot and the number 4 is marked with a blue dot.
- Diagram 9: A number line with a green box at 0 and a red box at 1. The number 3 is marked with a blue dot and the number 4 is marked with a blue dot.
- Diagram 10: A number line with a green box at 0 and a red box at 1. The number 3 is marked with a blue dot and the number 4 is marked with a blue dot.
- Diagram 11: A number line with a green box at 0 and a red box at 1. The number 3 is marked with a blue dot and the number 4 is marked with a blue dot.
- Diagram 12: A number line with a green box at 0 and a red box at 1. The number 3 is marked with a blue dot and the number 4 is marked with a blue dot.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for

these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Marine mammals

Marine mammals are protected under the [Marine Mammal Protection Act](#). Some are also protected under the Endangered Species Act¹ and the Convention on International Trade in Endangered Species of Wild Fauna and Flora².

The responsibilities for the protection, conservation, and management of marine mammals are shared by the U.S. Fish and Wildlife Service [responsible for otters, walrus, polar bears, manatees, and dugongs] and NOAA Fisheries³ [responsible for seals, sea lions, whales, dolphins, and porpoises]. Marine mammals under the responsibility of NOAA Fisheries are **not** shown on this list; for additional information on those species please visit the [Marine Mammals](#) page of the NOAA Fisheries website.

The Marine Mammal Protection Act prohibits the take (to harass, hunt, capture, kill, or attempt to harass, hunt, capture or kill) of marine mammals and further coordination may be necessary for project evaluation. Please contact the U.S. Fish and Wildlife Service Field Office shown.

1. The [Endangered Species Act](#) (ESA) of 1973.
2. The [Convention on International Trade in Endangered Species of Wild Fauna and Flora](#) (CITES) is a treaty to ensure that international trade in plants and animals does not threaten their survival in the wild.
3. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following marine mammals under the responsibility of the U.S. Fish and Wildlife Service are potentially affected by activities in this location:

NAME

West Indian Manatee *Trichechus manatus*
<https://ecos.fws.gov/ecp/species/4469>

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

[PEM1Cd](#)

[PEM1C](#)

[PEM1F](#)

[PEM1A](#)

FRESHWATER POND

[PUBHx](#)

[PUBFx](#)

RIVERINE

[R4SBCx](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

USFWS Official Species List



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Texas Coastal Ecological Services Field Office
17629 El Camino Real #211

Houston, TX 77058

Phone: (281) 286-8282 Fax: (281) 488-5882

<http://www.fws.gov/southwest/es/TexasCoastal/>

http://www.fws.gov/southwest/es/ES_Lists_Main2.html

In Reply Refer To:

May 31, 2019

Consultation Code: 02ETTX00-2019-SLI-1011

Event Code: 02ETTX00-2019-E-03351

Project Name: Houston NCA Expansion

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The U.S. Fish and Wildlife Service (Service) field offices in Clear Lake, Tx, and Corpus Christi, Tx, have combined administratively to form the Texas Coastal Ecological Services Field Office. A map of the Texas Coastal Ecological Services Field Office area of responsibility can be found at: <http://www.fws.gov/southwest/es/TexasCoastal/Map.html>. All project related correspondence should be sent to the field office responsible for the area in which your project occurs. For projects located in southeast Texas please write to: Field Supervisor; U.S. Fish and Wildlife Service; 17629 El Camino Real Ste. 211; Houston, Texas 77058. For projects located in southern Texas please write to: Field Supervisor; U.S. Fish and Wildlife Service; P.O. Box 81468; Corpus Christi, Texas 78468-1468. For projects located in six counties in southern Texas (Cameron, Hidalgo, Starr, Webb, Willacy, and Zapata) please write: Santa Ana NWR, ATTN: Ecological Services Sub Office, 3325 Green Jay Road, Alamo, Texas 78516.

The enclosed species list identifies federally threatened, endangered, and proposed to be listed species; designated critical habitat; and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project.

New information from updated surveys, changes in the abundance and distribution of species, changes in habitat conditions, or other factors could change the list. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the ECOS-IPaC website <http://ecos.fws.gov/ipac/> at regular intervals during project planning and implementation for updates to species list and information. An updated list may be

requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

Candidate species have no protection under the Act but are included for consideration because they could be listed prior to the completion of your project. The other species information should help you determine if suitable habitat for these listed species exists in any of the proposed project areas or if project activities may affect species on-site, off-site, and/or result in "take" of a federally listed species.

"Take" is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. In addition to the direct take of an individual animal, habitat destruction or modification can be considered take, regardless of whether it has been formally designated as critical habitat, if the activity results in the death or injury of wildlife by removing essential habitat components or significantly alters essential behavior patterns, including breeding, feeding, or sheltering.

Section 7

Section 7 of the Act requires that all Federal agencies consult with the Service to ensure that actions authorized, funded or carried out by such agencies do not jeopardize the continued existence of any listed threatened or endangered species or adversely modify or destroy critical habitat of such species. It is the responsibility of the Federal action agency to determine if the proposed project may affect threatened or endangered species. If a "may affect" determination is made, the Federal agency shall initiate the section 7 consultation process by writing to the office that has responsibility for the area in which your project occurs.

Is not likely to adversely affect - the project may affect listed species and/or critical habitat; however, the effects are expected to be discountable, insignificant, or completely beneficial. Certain avoidance and minimization measures may need to be implemented in order to reach this level of effects. The Federal agency or the designated non-Federal representative should seek written concurrence from the Service that adverse effects have been eliminated. Be sure to include all of the information and documentation used to reach your decision with your request for concurrence. The Service must have this documentation before issuing a concurrence.

Is likely to adversely affect - adverse effects to listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable, insignificant, or beneficial. If the overall effect of the proposed action is beneficial to the listed species but also is likely to cause some adverse effects to individuals of that species, then the proposed action "is likely to adversely affect" the listed species. An "is likely to adversely affect" determination requires the Federal action agency to initiate formal section 7 consultation with this office.

No effect - the proposed action will not affect federally listed species or critical habitat (i.e., suitable habitat for the species occurring in the project county is not present in or adjacent to the action area). No further coordination or contact with the Service is necessary. However, if the

project changes or additional information on the distribution of listed or proposed species becomes available, the project should be reanalyzed for effects not previously considered.

Regardless of your determination, the Service recommends that you maintain a complete record of the evaluation, including steps leading to the determination of affect, the qualified personnel conducting the evaluation, habitat conditions, site photographs, and any other related articles.

Please be advised that while a Federal agency may designate a non-Federal representative to conduct informal consultations with the Service, assess project effects, or prepare a biological assessment, the Federal agency must notify the Service in writing of such a designation. The Federal agency shall also independently review and evaluate the scope and contents of a biological assessment prepared by their designated non-Federal representative before that document is submitted to the Service.

The Service's Consultation Handbook is available online to assist you with further information on definitions, process, and fulfilling Act requirements for your projects at: http://www.fws.gov/endangered/esa-library/pdf/esa_section7_handbook.pdf

Section 10

If there is no federal involvement and the proposed project is being funded or carried out by private interests and/or non-federal government agencies, and the project as proposed may affect listed species, a section 10(a)(1)(B) permit is recommended. The Habitat Conservation Planning Handbook is available at: http://www.fws.gov/endangered/esa-library/pdf/HCP_Handbook.pdf

Service Response

Please note that the Service strives to respond to requests for project review within 30 days of receipt, however, this time period is not mandated by regulation. Responses may be delayed due to workload and lack of staff. Failure to meet the 30-day timeframe does not constitute a concurrence from the Service that the proposed project will not have impacts to threatened and endangered species.

Proposed Species and/or Proposed Critical Habitat

While consultations are required when the proposed action may affect listed species, section 7(a)(4) was added to the ESA to provide a mechanism for identifying and resolving potential conflicts between a proposed action and proposed species or proposed critical habitat at an early planning stage. The action agency should seek concurrence from the Service to assist the action agency in determining effects and to advise the agency on ways to avoid or minimize adverse effect to proposed species or proposed critical habitat.

Candidate Species

Candidate species are species that are being considered for possible addition to the threatened and endangered species list. They currently have no legal protection under the ESA. If you find you have potential project impacts to these species the Service would like to provide technical

assistance to help avoid or minimize adverse effects. Addressing potential impacts to these species at this stage could better provide for overall ecosystem health in the local area and avert potential future listing.

Several species of freshwater mussels occur in Texas and four are candidates for listing under the ESA. The Service is also reviewing the status of six other species for potential listing under the ESA. One of the main contributors to mussel die offs is sedimentation, which smothers and suffocates mussels. To reduce sedimentation within rivers, streams, and tributaries crossed by a project, the Service recommends that you implement the best management practices found at: <http://www.fws.gov/southwest/es/TexasCoastal/FreshwaterMussels.html>.

Candidate Conservation Agreements (CCAs) or Candidate Conservation Agreements with Assurances (CCAAs) are voluntary agreements between the Service and public or private entities to implement conservation measures to address threats to candidate species. Implementing conservation efforts before species are listed increases the likelihood that simpler, flexible, and more cost-effective conservation options are available. A CCAA can provide participants with assurances that if they engage in conservation actions, they will not be required to implement additional conservation measures beyond those in the agreement. For additional information on CCAs/CCAAs please visit the Service's website at <http://www.fws.gov/endangered/what-we-do/cca.html>.

Migratory Birds

The Migratory Bird Treaty Act (MBTA) implements various treaties and conventions for the protection of migratory birds. Under the MBTA, taking, killing, or possessing migratory birds is unlawful. Many may nest in trees, brush areas or other suitable habitat. The Service recommends activities requiring vegetation removal or disturbance avoid the peak nesting period of March through August to avoid destruction of individuals or eggs. If project activities must be conducted during this time, we recommend surveying for active nests prior to commencing work. A list of migratory birds may be viewed at <http://www.fws.gov/migratorybirds/regulationspolicies/mbta/mbtandx.html>.

The bald eagle (*Haliaeetus leucocephalus*) was delisted under the Act on August 9, 2007. Both the bald eagle and the golden eagle (*Aquila chrysaetos*) are still protected under the MBTA and BGEPA. The BGEPA affords both eagles protection in addition to that provided by the MBTA, in particular, by making it unlawful to "disturb" eagles. Under the BGEPA, the Service may issue limited permits to incidentally "take" eagles (e.g., injury, interfering with normal breeding, feeding, or sheltering behavior nest abandonment). For more information on bald and golden eagle management guidelines, we recommend you review information provided at <http://www.fws.gov/midwest/eagle/pdf/NationalBaldEagleManagementGuidelines.pdf>.

The construction of overhead power lines creates threats of avian collision and electrocution. The Service recommends the installation of underground rather than overhead power lines whenever possible. For new overhead lines or retrofitting of old lines, we recommend that project

developers implement, to the maximum extent practicable, the Avian Power Line Interaction Committee guidelines found at <http://www.aplic.org/>.

Meteorological and communication towers are estimated to kill millions of birds per year. We recommend following the guidance set forth in the Service Interim Guidelines for Recommendations on Communications Tower Siting, Constructions, Operation and Decommissioning, found online at: <http://www.fws.gov/habitatconservation/communicationtowers.html>, to minimize the threat of avian mortality at these towers. Monitoring at these towers would provide insight into the effectiveness of the minimization measures. We request the results of any wildlife mortality monitoring at towers associated with this project.

We request that you provide us with the final location and specifications of your proposed towers, as well as the recommendations implemented. A Tower Site Evaluation Form is also available via the above website; we recommend you complete this form and keep it in your files. If meteorological towers are to be constructed, please forward this completed form to our office.

More information concerning sections 7 and 10 of the Act, migratory birds, candidate species, and landowner tools can be found on our website at: <http://www.fws.gov/southwest/es/TexasCoastal/ProjectReviews.html>.

Wetlands and Wildlife Habitat

Wetlands and riparian zones provide valuable fish and wildlife habitat as well as contribute to flood control, water quality enhancement, and groundwater recharge. Wetland and riparian vegetation provides food and cover for wildlife, stabilizes banks and decreases soil erosion. These areas are inherently dynamic and very sensitive to changes caused by such activities as overgrazing, logging, major construction, or earth disturbance. Executive Order 11990 asserts that each agency shall provide leadership and take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial value of wetlands in carrying out the agency's responsibilities. Construction activities near riparian zones should be carefully designed to minimize impacts. If vegetation clearing is needed in these riparian areas, they should be re-vegetated with native wetland and riparian vegetation to prevent erosion or loss of habitat. We recommend minimizing the area of soil scarification and initiating incremental re-establishment of herbaceous vegetation at the proposed work sites. Denuded and/or disturbed areas should be re-vegetated with a mixture of native legumes and grasses. Species commonly used for soil stabilization are listed in the Texas Department of Agriculture's (TDA) Native Tree and Plant Directory, available from TDA at P.O. Box 12847, Austin, Texas 78711. The Service also urges taking precautions to ensure sediment loading does not occur to any receiving streams in the proposed project area. To prevent and/or minimize soil erosion and compaction associated with construction activities, avoid any unnecessary clearing of vegetation, and follow established rights-of-way whenever possible. All machinery and petroleum products should be stored outside the floodplain and/or wetland area during construction to prevent possible contamination of water and soils.

Wetlands and riparian areas are high priority fish and wildlife habitat, serving as important sources of food, cover, and shelter for numerous species of resident and migratory wildlife. Waterfowl and other migratory birds use wetlands and riparian corridors as stopover, feeding, and nesting areas. We strongly recommend that the selected project site not impact wetlands and riparian areas, and be located as far as practical from these areas. Migratory birds tend to concentrate in or near wetlands and riparian areas and use these areas as migratory flyways or corridors. After every effort has been made to avoid impacting wetlands, you anticipate unavoidable wetland impacts will occur; you should contact the appropriate U.S. Army Corps of Engineers office to determine if a permit is necessary prior to commencement of construction activities.

If your project will involve filling, dredging, or trenching of a wetland or riparian area it may require a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers (COE). For permitting requirements please contact the U.S. Corps of Engineers, District Engineer, P.O. Box 1229, Galveston, Texas 77553-1229, (409) 766-3002.

Beneficial Landscaping

In accordance with Executive Order 13112 on Invasive Species and the Executive Memorandum on Beneficial Landscaping (42 C.F.R. 26961), where possible, any landscaping associated with project plans should be limited to seeding and replanting with native species. A mixture of grasses and forbs appropriate to address potential erosion problems and long-term cover should be planted when seed is reasonably available. Although Bermuda grass is listed in seed mixtures, this species and other introduced species should be avoided as much as possible. The Service also recommends the use of native trees, shrubs, and herbaceous species that are adaptable, drought tolerant and conserve water.

State Listed Species

The State of Texas protects certain species. Please contact the Texas Parks and Wildlife Department (Endangered Resources Branch), 4200 Smith School Road, Austin, Texas 78744 (telephone 512/389-8021) for information concerning fish, wildlife, and plants of State concern or visit their website at: http://www.tpwd.state.tx.us/huntwild/wild/wildlife_diversity/texas_rare_species/listed_species/.

If we can be of further assistance, or if you have any questions about these comments, please contact 281/286-8282 if your project is in southeast Texas, or 361/994-9005, ext. 246, if your project is in southern Texas. Please refer to the Service consultation number listed above in any future correspondence regarding this project.

Attachment(s):

- Official Species List
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Texas Coastal Ecological Services Field Office

17629 El Camino Real #211

Houston, TX 77058

(281) 286-8282

Project Summary

Consultation Code: 02ETTX00-2019-SLI-1011

Event Code: 02ETTX00-2019-E-03351

Project Name: Houston NCA Expansion

Project Type: DEVELOPMENT

Project Description: Expansion of existing National Cemetery

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/29.93128187227757N95.44367077957094W>



Counties: Harris, TX

Endangered Species Act Species

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 3 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
West Indian Manatee <i>Trichechus manatus</i> There is final critical habitat for this species. Your location is outside the critical habitat. <i>This species is also protected by the Marine Mammal Protection Act, and may have additional consultation requirements.</i> Species profile: https://ecos.fws.gov/ecp/species/4469	Threatened

Birds

NAME	STATUS
Least Tern <i>Sterna antillarum</i> Population: interior pop. No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> ▪ Wind related projects within migratory route. Species profile: https://ecos.fws.gov/ecp/species/8505	Endangered
Piping Plover <i>Charadrius melodus</i> Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is final critical habitat for this species. Your location is outside the critical habitat. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> ▪ Wind related projects within migratory route. Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Red Knot <i>Calidris canutus rufa</i> No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> ▪ Wind related projects within migratory route. Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened

Flowering Plants

NAME	STATUS
Texas Prairie Dawn-flower <i>Hymenoxys texana</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6471	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

APPENDIX C
CULTURAL RESOURCES INFORMATION

TEXAS HISTORICAL COMMISSION

real places telling real stories

August 22, 2019

Fernando Fernandez
Department of Veterans Affairs/NCA
425 I Street NW, Washington, DC 20420

Re: *Project review under Section 106 of the National Historic Preservation Act of 1966, proposed rehabilitation, Houston National Cemetery, 10410 Veterans Memorial Drive, Houston, Texas 77038 (106/VA)*
THC Tracking #201911225

Dear Mr. Fernandez,

Thank you for your correspondence regarding the above referenced project. This letter serves as comment on the proposed undertaking from the State Historic Preservation Officer, (SHPO), the Executive Director of the Texas Historical Commission.

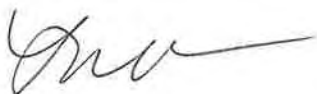
The Archeology Division, led by Bill Martin, has concurred with your findings and determined that no known or potentially historic areas will be affected.

The History Programs Division, led by Caitlin Brashear, has determined that the semicircle, speaker podium, bell tower, chapel, and administration building are all contributing resources to the Houston National Cemetery Historic District, which was listed in the National Register of Historic Places in 2017.

The review staff, led by Lydia Woods, has completed its review of the documentation provided, which was received on July 25, 2019. Additional information was provided via email on August 12th and 14th, 2019. It is our understanding that the scope of work includes the improvement of acreage for use by the cemetery and to make necessary updates and repairs to the existing contributing structures. The Texas Historical Commission has determined that the scope of work that was presented in the submission and the correspondence from Vincent Ramirez of Komatsu Architecture will have no adverse effect on the property as long as testing of power washing, sealant, caulking, and patching is done to ensure it is a compatible rigidity, color, and does not cause damage to the historic buildings. Testing results do not need to be submitted to the THC.

Thank you for your cooperation in this federal review process, and for your efforts to preserve the irreplaceable heritage of Texas. In addition, any future reviews should be submitted online through our eTRAC system. Please utilize the following link to create an account and submit projects electronically: thc.texas.gov/project-review/what-send-project-review. If you have any questions concerning our review or if we can be of further assistance, please contact Lydia Woods at 512/463-9122.

Sincerely,



Lydia Woods, East Texas Project Reviewer

For: Mark Wolfe, State Historic Preservation Officer
MW/lw

Cc: Janet Wagner, Chair, Harris County Historical Commission



From: Hooker III, William E.
Sent: Friday, April 19, 2019 10:33 AM
To: Finley, Christopher; Chilcote, Dirk W.; Pulak, Douglas D. (CFM); Abreu, Hector M. (CFM)
Subject: FW: [EXTERNAL] Project Review: 201906096

FYI -

Sent with BlackBerry Work
(www.blackberry.com)

From: noreply@thc.state.tx.us <noreply@thc.state.tx.us>
Date: Friday, Apr 19, 2019, 9:12 AM
To: Hooker III, William E. <William.Hooker@va.gov>, reviews@thc.state.tx.us <reviews@thc.state.tx.us>
Subject: [EXTERNAL] Project Review: 201906096



Re: Project Review under Section 106 of the National Historic Preservation Act and/or the Antiquities Code of Texas
201906096

Proposed Demolition of Buildings 2501 and 3006, Houston National Cemetery
1621 Aldine Western Road
Houston, TX 77038

Dear W. Edward Hooker, III:

Thank you for your submittal regarding the above-referenced project. This response represents the comments of the State Historic Preservation Officer, the Executive Director of the Texas Historical Commission (THC), pursuant to review under Section 106 of the National Historic Preservation Act.

The review staff led by Bill Martin, Caitlin Brashear and Lydia Woods has completed its review and has made the following determinations based on the information submitted for review:

Above-Ground Resources

- Property/properties are eligible for listing or already listed in the National Register of Historic Places

- No adverse effects on historic properties

Archeology Comments

- No historic properties present or affected. However, if buried cultural materials are encountered during construction or disturbance activities, work should cease in the immediate area; work can continue where no cultural materials are present. Please contact the THC's Archeology Division at 512-463-6096 to consult on further actions that may be necessary to protect the cultural remains.

We have the following comments: Buildings are non-contributing features of the Houston National Cemetery historic district (NR# 100000697). This review does not include any possible future construction on these lots.

We look forward to further consultation with your office and hope to maintain a partnership that will foster effective historic preservation. Thank you for your cooperation in this review process, and for your efforts to preserve the irreplaceable heritage of Texas. If you have any questions concerning our review or if we can be of further assistance, please email the following reviewers: bill.martin@thc.texas.gov, caitlin.brashear@thc.texas.gov, lydia.woods@thc.texas.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "William A. Martin". The signature is fluid and cursive, with a long horizontal stroke at the end.

For Mark Wolfe, State Historic Preservation Officer
Executive Director, Texas Historical Commission

Please do not respond to this email.



April 23, 2019

President Terri Parton
Wichita and Affiliated Tribes
PO Box 729
Anadarko, OK 73005

Re: Houston National Cemetery Expansion, Houston, Harris County, Texas

Dear President Parton:

The U.S. Department of Veterans Affairs (VA) – National Cemetery Administration (NCA) is preparing an Environmental Assessment (EA) under the National Environmental Policy Act (NEPA) for the proposed expansion of the Houston National Cemetery located at 10410 Veterans Memorial Drive, Houston, Harris County, Texas (Figures 1 and 2). Houston National Cemetery opened in 1965 and is located in Harris County, approximately 15 miles northwest of downtown Houston along Veterans Memorial Drive and Aldine Western Road. The cemetery is the 15th busiest in the nation and serves a FY 20 veteran population of approximately 318,000 within a 75-mile service area.

VA NCA proposes to expand its capacity of crypts to meet the growing demand at the Houston National Cemetery and ensure no break in service to the veteran community. All proposed activities would be contained within the Houston National Cemetery boundary. The purpose of this project is to enable an existing national cemetery to continue to provide burial services for eligible veterans. This project will develop approximately 40 acres of undeveloped land to provide approximately 24,350 gravesites, including both casket and cremation sites in new burial sections. This project will provide for an additional 10-year inventory of pre-placed crypts for casketed interments and both in ground sites and columbarium niches for cremated inurnments, as well as various cemetery improvements/enhancements.

The VA-NCA welcomes any comments from the Wichita and Affiliated Tribes concerning the location of archaeological resources, or areas of religious/cultural concerns that are located with the project area. The VA-NCA appreciates this opportunity to consult on this project and invites your comment on the proposed project. The VA-NCA requests that comments or concerns be submitted within 30 days of receiving this letter. Should you require additional information or have any comments or concerns, please do not hesitate to contact me: Mr. Fernando L. Fernández, U.S. Department of Veterans Affairs, Construction & Facilities Management Office, 425 I (eye) Street, NW, Room 6W417a, Washington, D.C., 20001 or at (202) 632-5529 or by email at Fernando.fernandez@va.gov

Sincerely,

FERNANDO L.
FERNANDEZ 336237

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L. FERNANDEZ 336237
Date: 2019.04.23 14:39:28
+04'00'

Fernando Fernandez
Environmental Engineer
U.S. Department of Veterans Affairs
Office of Construction and Facilities Management

Attachments:

- A. Figure 1 – Project Location
- B. Figure 2 – USGS Topographic Map



Figure 1 - Project Location

Houston National Cemetery
10410 Veterans Memorial Drive
Houston, Texas 77038
ECS Project 51-1465



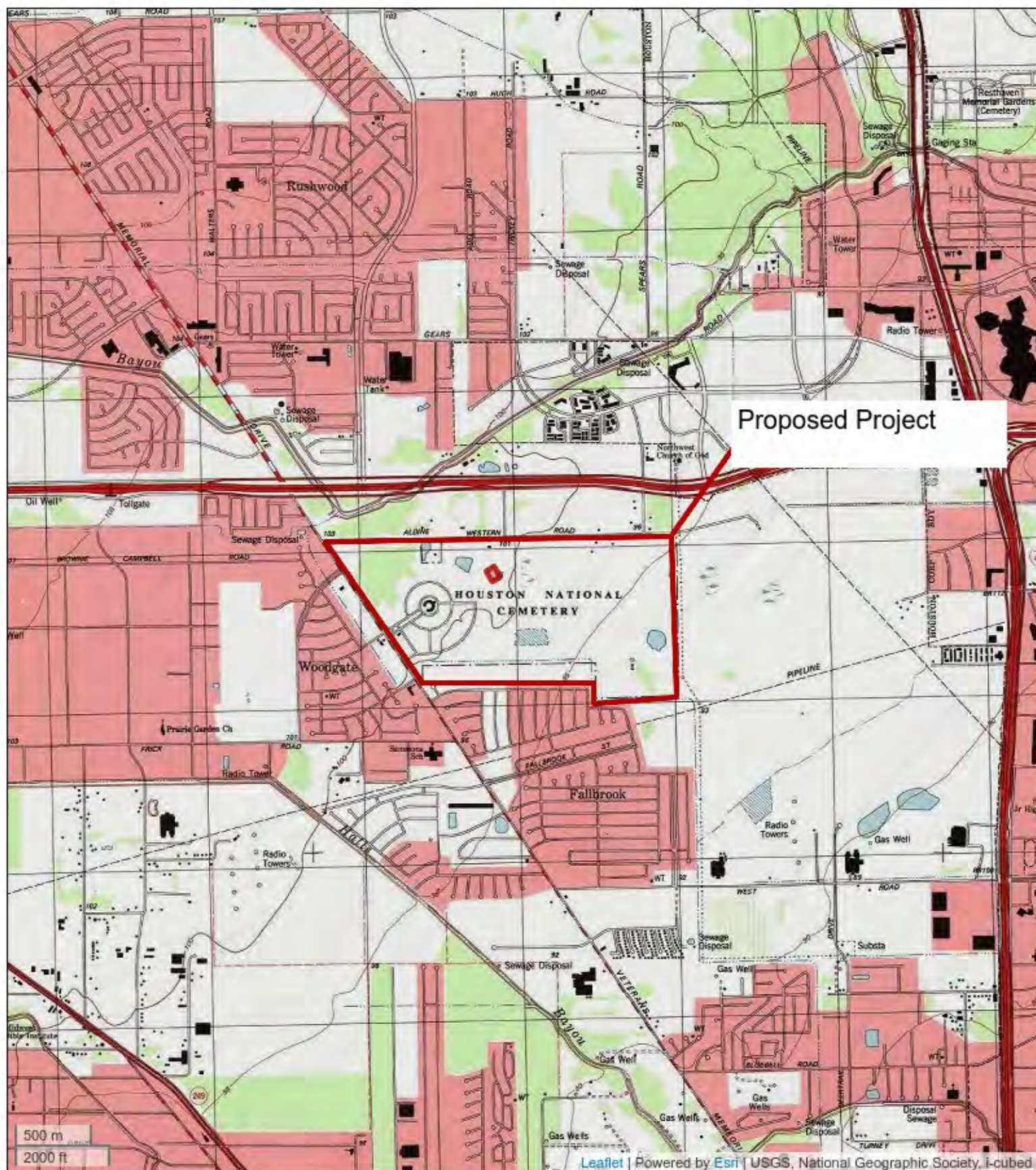


Figure 2 - USGS Topographic Map

Aldine, TX Quadrangle
Houston National Cemetery
10410 Veterans Memorial Drive
Houston, Texas 77038
ECS Project 51-1465





April 23, 2019

President Russell Martin
Tonkawa Tribe of Oklahoma
1 Rush Buffalo Road
Tonkawa, OK 74653

Re: Houston National Cemetery Expansion, Houston, Harris County, Texas

Dear President Martin:

The U.S. Department of Veterans Affairs (VA) – National Cemetery Administration (NCA) is preparing an Environmental Assessment (EA) under the National Environmental Policy Act (NEPA) for the proposed expansion of the Houston National Cemetery located at 10410 Veterans Memorial Drive, Houston, Harris County, Texas (Figures 1 and 2). Houston National Cemetery opened in 1965 and is located in Harris County, approximately 15 miles northwest of downtown Houston along Veterans Memorial Drive and Aldine Western Road. The cemetery is the 15th busiest in the nation and serves a FY 20 veteran population of approximately 318,000 within a 75-mile service area.

VA NCA proposes to expand its capacity of crypts to meet the growing demand at the Houston National Cemetery and ensure no break in service to the veteran community. All proposed activities would be contained within the Houston National Cemetery boundary. The purpose of this project is to enable an existing national cemetery to continue to provide burial services for eligible veterans. This project will develop approximately 40 acres of undeveloped land to provide approximately 24,350 gravesites, including both casket and cremation sites in new burial sections. This project will provide for an additional 10-year inventory of pre-placed crypts for casketed interments and both in ground sites and columbarium niches for cremated interments, as well as various cemetery improvements/enhancements.

The VA-NCA welcomes any comments from the Tonkawa Tribe of Oklahoma concerning the location of archaeological resources, or areas of religious/cultural concerns that are located with the project area. The VA-NCA appreciates this opportunity to consult on this project and invites your comment on the proposed project. The VA-NCA requests that comments or concerns be submitted within 30 days of receiving this letter. Should you require additional information or have any comments or concerns, please do not hesitate to contact me: Mr. Fernando L. Fernández, U.S. Department of Veterans Affairs, Construction & Facilities Management Office, 425 I (eye) Street, NW, Room 6W417a, Washington, D.C., 20001 or at (202) 632-5529 or by email at Fernando.fernandez@va.gov

Sincerely,

FERNANDO L.
FERNANDEZ 336237

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Fernando Fernandez
Environmental Engineer
U.S. Department of Veterans Affairs
Office of Construction and Facilities Management

Attachments:

- A. Figure 1 – Project Location
- B. Figure 2 – USGS Topographic Map



Figure 1 - Project Location
Houston National Cemetery
10410 Veterans Memorial Drive
Houston, Texas 77038
ECS Project 51-1465



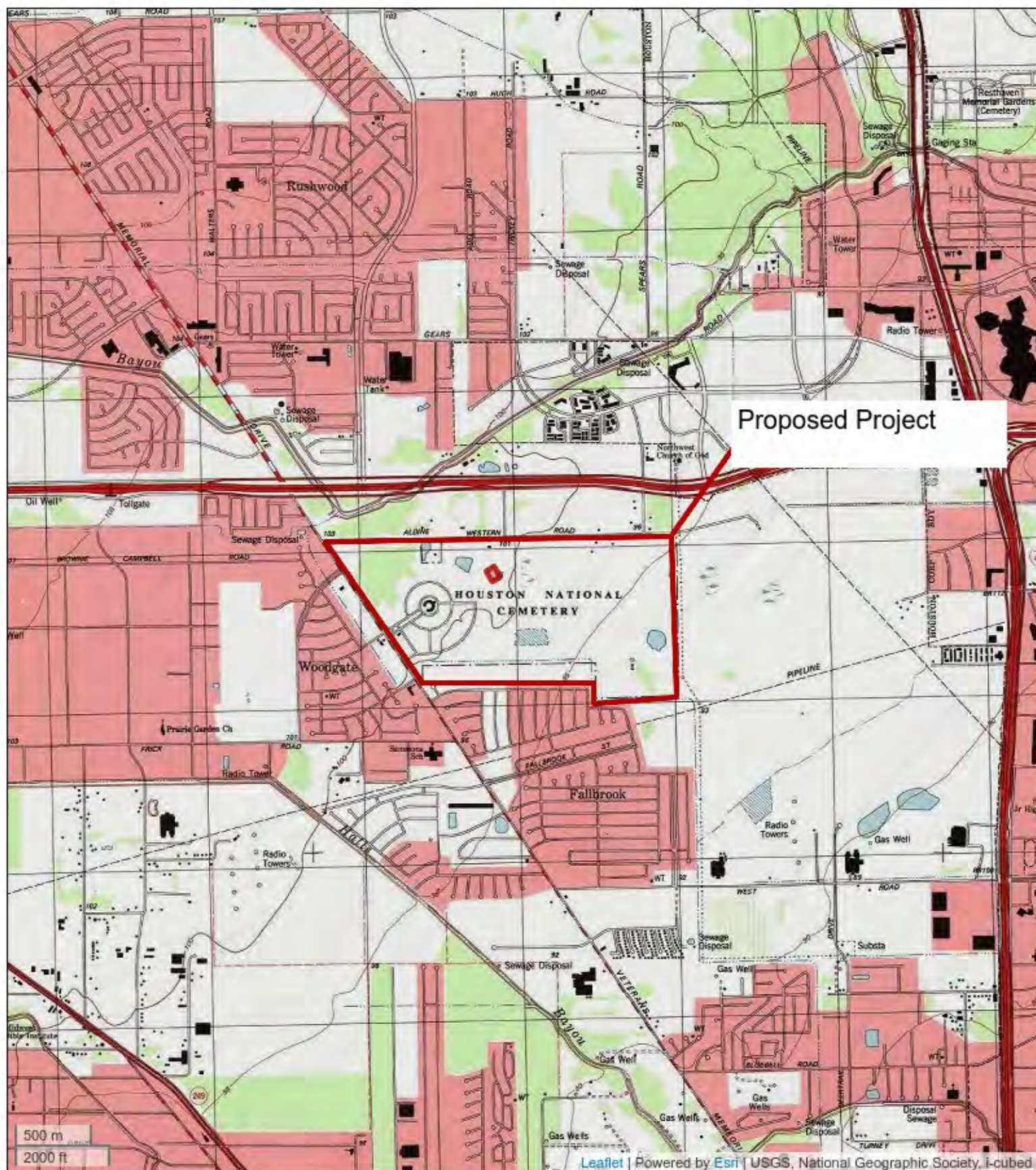


Figure 2 - USGS Topographic Map

Alldene, TX Quadrangle
 Houston National Cemetery
 10410 Veterans Memorial Drive
 Houston, Texas 77038
 ECS Project 51-1465





April 23, 2019

Linda Langley
Tribal Historic Preservation Officer
Coushatta Tribe of Louisiana
PO Box 10
Elton, LA 70532

Re: Houston National Cemetery Expansion, Houston, Harris County, Texas

Dear Ms. Langley:

The U.S. Department of Veterans Affairs (VA) – National Cemetery Administration (NCA) is preparing an Environmental Assessment (EA) under the National Environmental Policy Act (NEPA) for the proposed expansion of the Houston National Cemetery located at 10410 Veterans Memorial Drive, Houston, Harris County, Texas (Figures 1 and 2). Houston National Cemetery opened in 1965 and is located in Harris County, approximately 15 miles northwest of downtown Houston along Veterans Memorial Drive and Aldine Western Road. The cemetery is the 15th busiest in the nation and serves a FY 20 veteran population of approximately 318,000 within a 75-mile service area.

VA NCA proposes to expand its capacity of crypts to meet the growing demand at the Houston National Cemetery and ensure no break in service to the veteran community. All proposed activities would be contained within the Houston National Cemetery boundary. The purpose of this project is to enable an existing national cemetery to continue to provide burial services for eligible veterans. This project will develop approximately 40 acres of undeveloped land to provide approximately 24,350 gravesites, including both casket and cremation sites in new burial sections. This project will provide for an additional 10-year inventory of pre-placed crypts for casketed interments and both in ground sites and columbarium niches for cremated inurnments, as well as various cemetery improvements/enhancements

The VA-NCA welcomes any comments from the Coushatta Tribe of Louisiana concerning the location of archaeological resources, or areas of religious/cultural concerns that are located with the project area. The VA-NCA appreciates this opportunity to consult on this project and invites your comment on the proposed project. The VA-NCA requests that comments or concerns be submitted within 30 days of receiving this letter. Should you require additional information or have any comments or concerns, please do not hesitate to contact me: Mr. Fernando L. Fernández, U.S. Department of Veterans Affairs, Construction & Facilities Management Office, 425 I (eye) Street, NW, Room 6W417a, Washington, D.C., 20001 or at (202) 632-5529 or by email at Fernando.fernandez@va.gov

Sincerely,

FERNANDO L.
FERNANDEZ 336237

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Date: 2019.04.23 14:38:14
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Fernando Fernandez
Environmental Engineer
U.S. Department of Veterans Affairs
Office of Construction and Facilities Management

Attachments:

- A. Figure 1 – Project Location
- B. Figure 2 – USGS Topographic Map



Figure 1 - Project Location

Houston National Cemetery
10410 Veterans Memorial Drive
Houston, Texas 77038
ECS Project 51-1465



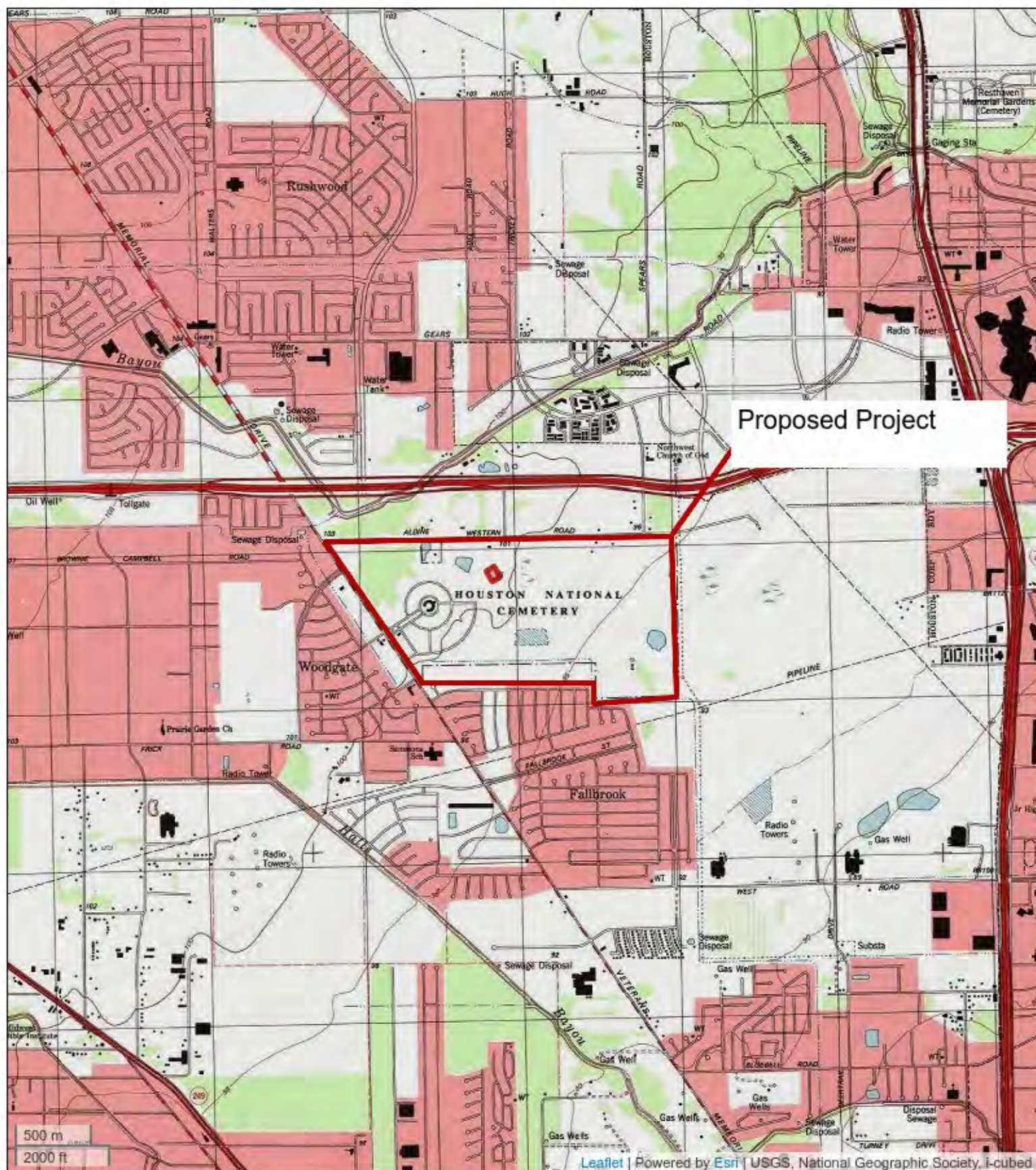


Figure 2 - USGS Topographic Map

Aldine, TX Quadrangle
 Houston National Cemetery
 10410 Veterans Memorial Drive
 Houston, Texas 77038
 ECS Project 51-1465





April 23, 2019

Martina Callahan
Tribal Historic Preservation Officer
Comanche Nation, Oklahoma
PO Box 908
Lawton, OK 73502

Re: Houston National Cemetery Expansion, Houston, Harris County, Texas

Dear Ms. Callahan:

The U.S. Department of Veterans Affairs (VA) – National Cemetery Administration (NCA) is preparing an Environmental Assessment (EA) under the National Environmental Policy Act (NEPA) for the proposed expansion of the Houston National Cemetery located at 10410 Veterans Memorial Drive, Houston, Harris County, Texas (Figures 1 and 2). Houston National Cemetery opened in 1965 and is located in Harris County, approximately 15 miles northwest of downtown Houston along Veterans Memorial Drive and Aldine Western Road. The cemetery is the 15th busiest in the nation and serves a FY 20 veteran population of approximately 318,000 within a 75-mile service area.

VA NCA proposes to expand its capacity of crypts to meet the growing demand at the Houston National Cemetery and ensure no break in service to the veteran community. All proposed activities would be contained within the Houston National Cemetery boundary. The purpose of this project is to enable an existing national cemetery to continue to provide burial services for eligible veterans. This project will develop approximately 40 acres of undeveloped land to provide approximately 24,350 gravesites, including both casket and cremation sites in new burial sections. This project will provide for an additional 10-year inventory of pre-placed crypts for casketed interments and both in ground sites and columbarium niches for cremated inurnments, as well as various cemetery improvements/enhancements.

The VA-NCA welcomes any comments from the Comanche Nation, Oklahoma concerning the location of archaeological resources, or areas of religious/cultural concerns that are located with the project area. The VA-NCA appreciates this opportunity to consult on this project and invites your comment on the proposed project. The VA-NCA requests that comments or concerns be submitted within 30 days of receiving this letter. Should you require additional information or have any comments or concerns, please do not hesitate to contact me: Mr. Fernando L. Fernández, U.S. Department of Veterans Affairs, Construction & Facilities Management Office, 425 I (eye) Street, NW, Room 6W417a, Washington, D.C., 20001 or at (202) 632-5529 or by email at Fernando.fernandez@va.gov

Sincerely,

FERNANDO L.
FERNANDEZ 336237

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L. FERNANDEZ 336237
Date: 2019.04.23 14:37:38
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Fernando Fernandez
Environmental Engineer
U.S. Department of Veterans Affairs
Office of Construction and Facilities Management

Attachments:

- A. Figure 1 – Project Location
- B. Figure 2 – USGS Topographic Map



Figure 1 - Project Location

Houston National Cemetery
10410 Veterans Memorial Drive
Houston, Texas 77038
ECS Project 51-1465



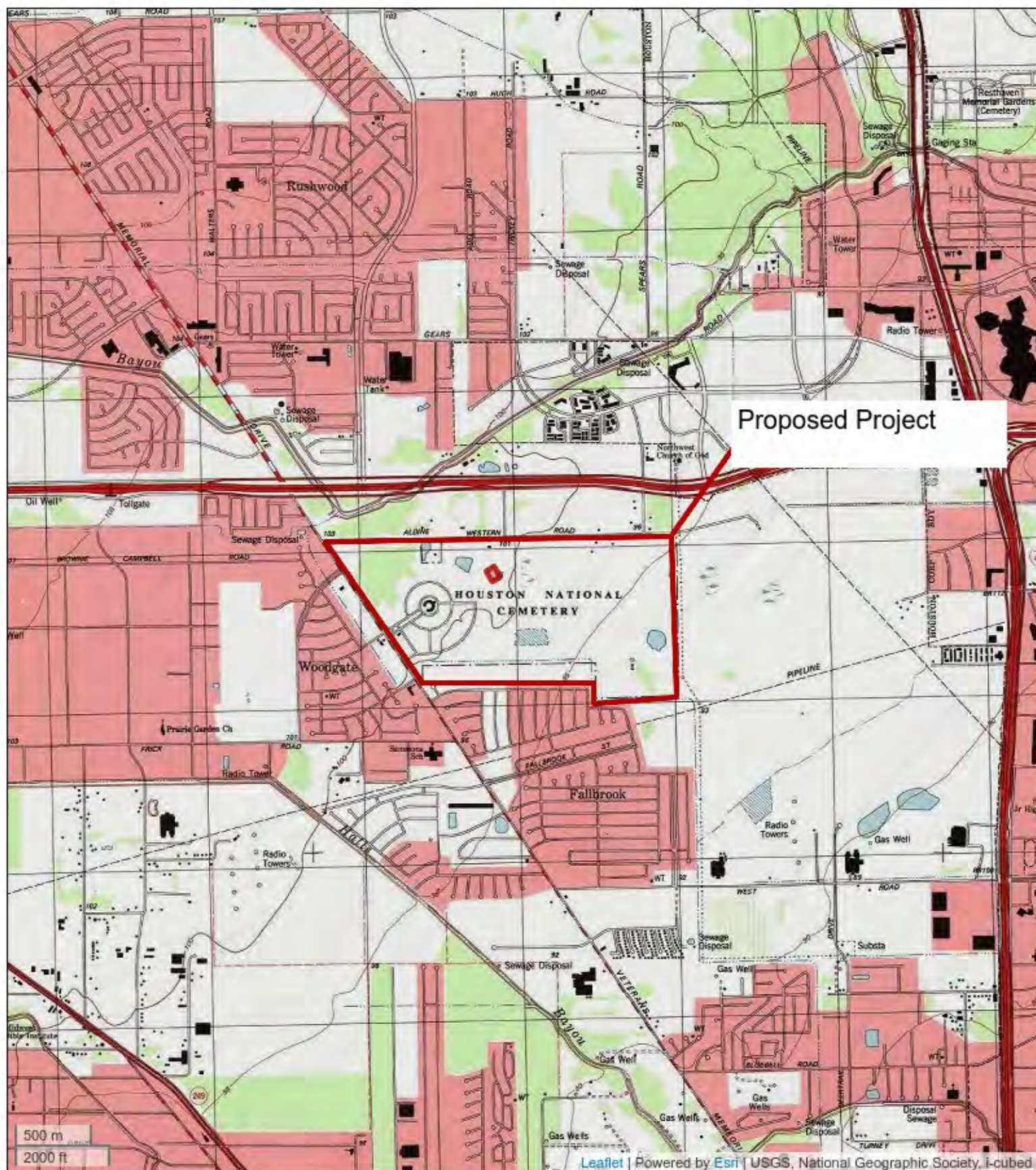


Figure 2 - USGS Topographic Map

Aldine, TX Quadrangle
Houston National Cemetery
10410 Veterans Memorial Drive
Houston, Texas 77038
ECS Project 51-1465





April 23, 2019

Chairman Bobby Komardley
Apache Tribe of Oklahoma
PO Box 1130
Anadarko, OK 73005

RE: Proposed Expansion of the Houston National Cemetery, Houston, Harris County, Texas

Dear Chairman Komardley:

The U.S. Department of Veterans Affairs (VA) – National Cemetery Administration (NCA) is preparing an Environmental Assessment (EA) under the National Environmental Policy Act (NEPA) for the proposed expansion of the Houston National Cemetery located at 10410 Veterans Memorial Drive, Houston, Harris County, Texas (Figures 1 and 2). Houston National Cemetery opened in 1965 and is located in Harris County, approximately 15 miles northwest of downtown Houston along Veterans Memorial Drive and Aldine Western Road. The cemetery is the 15th busiest in the nation and serves a FY 20 veteran population of approximately 318,000 within a 75-mile service area.

VA NCA proposes to expand its capacity of crypts to meet the growing demand at the Houston National Cemetery and ensure no break in service to the veteran community. All proposed activities would be contained within the Houston National Cemetery boundary. The purpose of this project is to enable an existing national cemetery to continue to provide burial services for eligible veterans. This project will develop approximately 40 acres of undeveloped land to provide approximately 24,350 gravesites, including both casket and cremation sites in new burial sections. This project will provide for an additional 10-year inventory of pre-placed crypts for casketed interments and both in ground sites and columbarium niches for cremated inurnments, as well as various cemetery improvements/enhancements.

The VA-NCA welcomes any comments from the Apache Tribe of Oklahoma concerning the location of archaeological resources, or areas of religious/cultural concerns that are located with the project area. The VA-NCA appreciates this opportunity to consult on this project and invites your comment on the proposed project. The VA-NCA requests that comments or concerns be submitted within 30 days of receiving this letter. Should you require additional information or have any comments or concerns, please do not hesitate to contact me: Mr. Fernando L. Fernández, U.S. Department of Veterans Affairs, Construction & Facilities Management Office, 425 I (eye) Street, NW, Room 6W417a, Washington, D.C., 20001 or at (202) 632-5529 or by email at Fernando.fernandez@va.gov

Sincerely,
FERNANDO L.
FERNANDEZ
336237

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L. FERNANDEZ 336237
Date: 2019.04.23 14:36:54
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Fernando Fernandez
Environmental Engineer
U.S. Department of Veterans Affairs
Office of Construction and Facilities Management

Attachments:

- A. Figure 1 – Project Location
- B. Figure 2 – USGS Topographic Map



Figure 1 - Project Location
Houston National Cemetery
10410 Veterans Memorial Drive
Houston, Texas 77038
ECS Project 51-1465



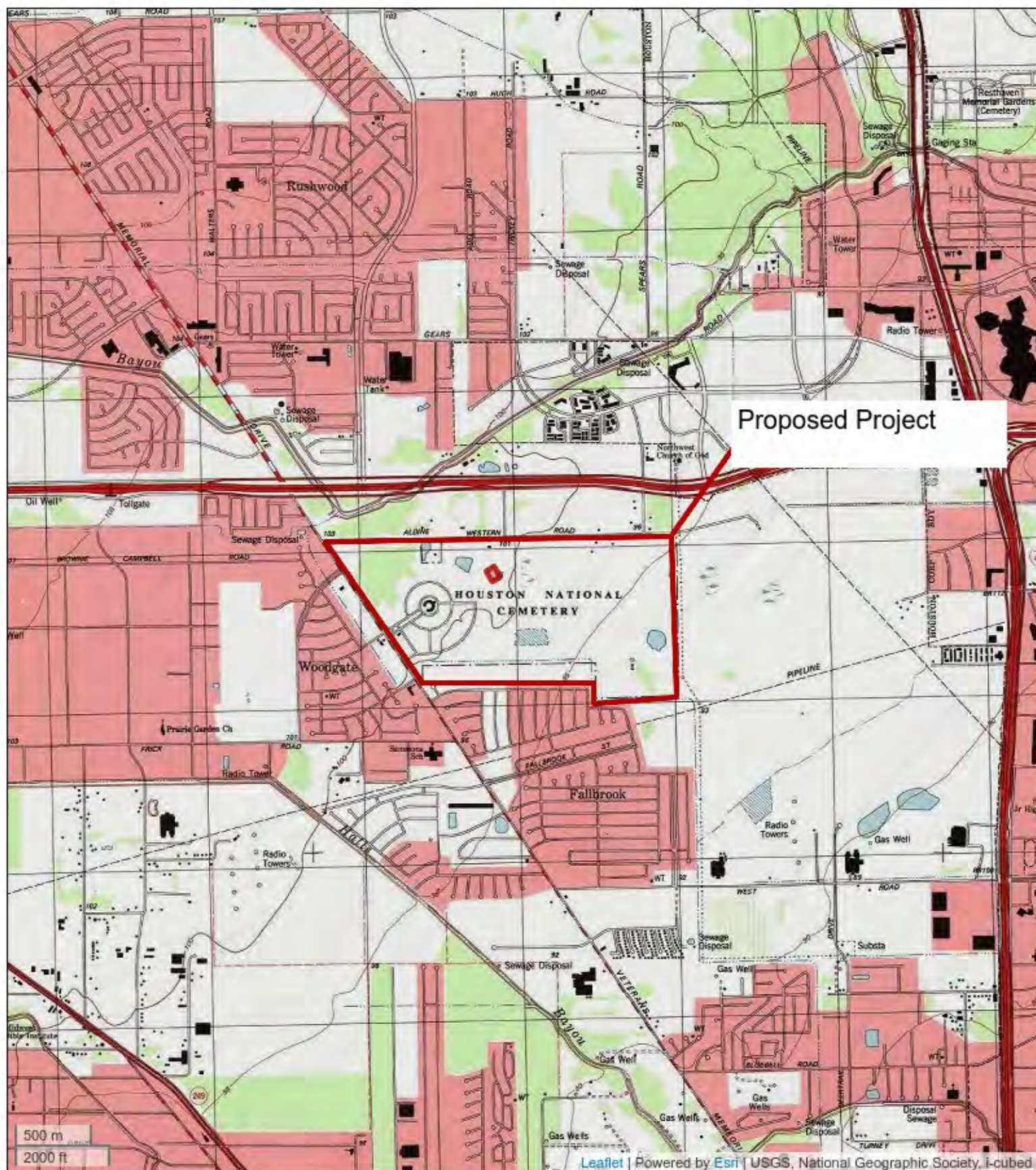


Figure 2 - USGS Topographic Map

Aldine, TX Quadrangle
 Houston National Cemetery
 10410 Veterans Memorial Drive
 Houston, Texas 77038
 ECS Project 51-1465



TEXAS HISTORICAL COMMISSION

real places telling real stories

August 22, 2019

Fernando Fernandez
Department of Veterans Affairs/NCA
425 I Street NW, Washington, DC 20420

Re: *Project review under Section 106 of the National Historic Preservation Act of 1966, proposed rehabilitation, Houston National Cemetery, 10410 Veterans Memorial Drive, Houston, Texas 77038 (106/VA)*
THC Tracking #201911225

Dear Mr. Fernandez,

Thank you for your correspondence regarding the above referenced project. This letter serves as comment on the proposed undertaking from the State Historic Preservation Officer, (SHPO), the Executive Director of the Texas Historical Commission.

The Archeology Division, led by Bill Martin, has concurred with your findings and determined that no known or potentially historic areas will be affected.

The History Programs Division, led by Caitlin Brashear, has determined that the semicircle, speaker podium, bell tower, chapel, and administration building are all contributing resources to the Houston National Cemetery Historic District, which was listed in the National Register of Historic Places in 2017.

The review staff, led by Lydia Woods, has completed its review of the documentation provided, which was received on July 25, 2019. Additional information was provided via email on August 12th and 14th, 2019. It is our understanding that the scope of work includes the improvement of acreage for use by the cemetery and to make necessary updates and repairs to the existing contributing structures. The Texas Historical Commission has determined that the scope of work that was presented in the submission and the correspondence from Vincent Ramirez of Komatsu Architecture will have no adverse effect on the property as long as testing of power washing, sealant, caulking, and patching is done to ensure it is a compatible rigidity, color, and does not cause damage to the historic buildings. Testing results do not need to be submitted to the THC.

Thank you for your cooperation in this federal review process, and for your efforts to preserve the irreplaceable heritage of Texas. In addition, any future reviews should be submitted online through our eTRAC system. Please utilize the following link to create an account and submit projects electronically: thc.texas.gov/project-review/what-send-project-review. If you have any questions concerning our review or if we can be of further assistance, please contact Lydia Woods at 512/463-9122.

Sincerely,



Lydia Woods, East Texas Project Reviewer

For: Mark Wolfe, State Historic Preservation Officer
MW/lw

Cc: Janet Wagner, Chair, Harris County Historical Commission





**DEPARTMENT OF VETERANS AFFAIRS
NATIONAL CEMETERY ADMINISTRATION
Design and Construction Service
Washington DC 20420**

June 14th 2019

Mark Wolfe
State Historic Preservation Officer
Texas Historical Commission
P.O. Box 12276
Austin, TX 78711-2276

RE: Initiation of Section 106 Consultation for the Houston National Cemetery Phase 5 Development

Dear Mr. Wolfe:

Pursuant to Section 106 of the National Historic Preservation Act (54 USC 306108), the U.S. Department of Veteran Affairs National Cemetery Administration (VA NCA) is initiating section 106 consultation with the Texas Historical Commission State Historic Preservation Office (SHPO) of the implementations of the referenced project at the Houston National Cemetery (HNC) Phase 5 Development. The Houston National Cemetery is a National Register District (Ref. No. 100000697). The purpose of the Phase 5 development is to improve acreage for use by the cemetery and to make necessary updates and repairs to existing contributing structures. VA's design team is confirming that all proposed scope following will not have an adverse effect on the National Register District. Completion of the project will meet the National Cemetery Administrations' goal of making necessary repairs from their Facility Condition Assessment and to expand the cemetery to serve veterans and their families of the surrounding area.

Undertaking

The VA NCA has defined the undertaking as minor repairs and rehabilitation to existing contributing structures within the HNC as well as an approximately thirty-two acre expansion of the cemetery grounds. Please see attachments for details of proposed work to contributing structures and archeological desk-based assessment of the two proposed areas for expansion.

Area of Potential Effect

VA has determined that the Area of Potential Effect (APE) is the geographical boundaries of the Houston National Cemetery (See attachment: Archeological Desk-Based Assessment).

Mr. Wolfe
Page 2

Identification of Historic Properties

The Houston National Cemetery is a National Register District, therefore, all proposed work on contributing structures will comply with the Secretary of the Interior Standards for Treatment of Historic Properties (36 CFR 68). The contributing structures which will be rehabilitated for this undertaking are the Chapel, Carillion Tower/Speaker Platform, Hemicycle, Administration Building and Maintenance Garage. (see attachment: Architecture: Findings and Recommendations) The expansion work will also be in compliance with the historical usage of the site as a cemetery and will not impact any historic resources. Required Native American Tribes have been contacted for consultation. These include the Tonkawa Tribe of Oklahoma, the Apache Tribe of Oklahoma, the Comanche Nation of Oklahoma, the Coushatta Tribe of Louisiana, and Wichita and Affiliated Tribes. The Tribal consultation letters were all sent on April 24th 2019. We received no responses within the 30 day reply period or since then. The City of Houston Interim Historic Preservation Officer, Mathew Kriegel has also been consulted and made aware of the proposed work.

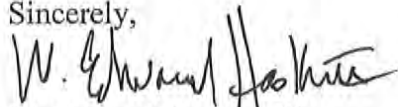
Determination of Findings

Therefore, pursuant to 36 CFR 800.4(d)(1), the Department of Veteran Affairs National Cemetery Administration has determined that no historic properties will be adversely affected by the undertakings and requests the SHPOs concurrence on the agency's finding per 36 CFR Part 800.

Should you require further information, please contact Fernando Fernandez at (202) 632-5529 or Fernando.fernandez@va.gov.

Thank you in advance for your consideration.

Sincerely,



W. Edward Hooker, III
Historic Architect/Cultural Resources Manager
U.S. Department of Veterans Affairs
National Cemetery Administration
Design and Construction Service

Attachments:

1. THC Request for SHPO Consultation Form
2. Archeological Assessment of Houston National Cemetery Lands, Aldine-Western Road, Houston, Harris County, Texas (MAC 19-06)
3. Architecture: Findings and Recommendations
4. Referencing Photo Index
5. Proposed Architectural Design Development Drawings

CC: Doug Pulak, VA Federal Preservation Officer

Attachment 1

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TEXAS HISTORICAL COMMISSION

REQUEST FOR SHPO CONSULTATION:

Section 106 of the National Historic Preservation Act and/or the Antiquities Code of Texas

Please see instructions for completing this form and additional information on Section 106 and Antiquities Code consultation on the Texas Historical Commission website at <http://www.thc.state.tx.us/crm/crmsend.shtml>.

☒ This is a new submission.

☐ This is additional information relating to THC tracking number(s): _____

Project Information

PROJECT NAME Houston National Cemetery Phase 5 Development		
PROJECT ADDRESS 10410 Veterans Memorial Drive	PROJECT CITY Houston	PROJECT ZIP CODE(S) 77038
PROJECT COUNTY OR COUNTIES Harris		
PROJECT TYPE (Check all that apply)		
<input checked="" type="checkbox"/> Road/Highway Construction or Improvement	<input checked="" type="checkbox"/> Repair, Rehabilitation, or Renovation of Structure(s)	
<input checked="" type="checkbox"/> Site Excavation	<input type="checkbox"/> Addition to Existing Structure(s)	
<input checked="" type="checkbox"/> Utilities and Infrastructure	<input type="checkbox"/> Demolition or Relocation of Existing Structure(s)	
<input type="checkbox"/> New Construction	<input type="checkbox"/> None of these	

BRIEF PROJECT DESCRIPTION: Please explain the project in one or two sentences. More details should be included as an attachment to this form.
the proposed project seeks to improve owned acreage for use by the cemetery and to make necessary updates and repairs to existing contributing structures.

Project Contact Information

PROJECT CONTACT NAME Fernando L. Fernandez	TITLE POC	ORGANIZATION U.S. Dep. of Veteran Affairs	
ADDRESS 425 I Street NW	CITY Washington	STATE DC	ZIP CODE 20420
PHONE 202.632.5529	EMAIL fernando.fernandez@va.gov		

Federal Involvement (Section 106 of the National Historic Preservation Act)

Does this project involve approval, funding, permit, or license from a federal agency?	
<input checked="" type="checkbox"/> Yes (Please complete this section)	<input type="checkbox"/> No (Skip to next section)
FEDERAL AGENCY U.S. Department of Veteran Affairs	FEDERAL PROGRAM, FUNDING, OR PERMIT TYPE VA101F-17D-2828
CONTACT PERSON W. Edward Hooker, III	PHONE 202.632.6631
ADDRESS 425 I Street NW, Washington DC 20420	EMAIL william.hooker@va.gov

State Involvement (Antiquities Code of Texas)

Does this project occur on land or property owned by the State of Texas or a political subdivision of the state?	
<input type="checkbox"/> Yes (Please complete this section)	<input checked="" type="checkbox"/> No (Skip to next section)
CURRENT OR FUTURE OWNER OF THE PUBLIC LAND	
CONTACT PERSON	PHONE
ADDRESS	EMAIL

Identification of Historic Properties: Archeology

Does this project involve ground-disturbing activity?

☒ Yes (Please complete this section)

☐ No (Skip to next section)

Describe the nature of the ground-disturbing activity, including but not limited to depth, width, and length.
The area of potential effects for the proposed undertaking is defined as two locations on the Houston National Cemetery lands. First location is approximately two acres in size and the second is approximately thirty acres in size.

Describe the previous and current land use, conditions, and disturbances.

The current area of potential effect is currently covered in either maintained grasses or native vegetation. The majority of the second location is currently pasture and has been used for agriculture.

Identification of Historic Properties: Structures

Does the project area or area of potential effects include buildings, structures, or designed landscape features (such as parks or cemeteries) that are 45 years of age or older?

☒ Yes (Please complete this section)

☐ No (Skip to next section)

Is the project area or area of potential effects within or adjacent to a property or district that is listed in or eligible for listing in the National Register of Historic Places?

☒ Yes, name of property or district: **Houston National Cemetery**

☐ No

☐ Unknown

In the space below or as an attachment, describe each building, structure, or landscape feature within the project area or area of potential effect that is 45 years of age or older.

ADDRESS Hemicycle & Chapel	DATE OF CONSTRUCTION 1970	SOURCE FOR CONSTRUCTION DATE National Register Nomination
ADDRESS Administration Building	DATE OF CONSTRUCTION 1965	SOURCE FOR CONSTRUCTION DATE National Register Nomination
ADDRESS Maintenance Building	DATE OF CONSTRUCTION 1965	SOURCE FOR CONSTRUCTION DATE National Register Nomination

Attachments

[Please see detailed instructions regarding attachments.](#)

Include the following with each submission:

☒ Project Work Description

☒ Maps

☒ Identification of Historic Properties

☒ Photographs

For Section 106 reviews only, also include:

☒ Consulting Parties/Public Notification

☒ Area of Potential Effects

☐ Determination of Eligibility

☐ Determination of Effect

Submit completed form and attachments to the address below. Faxes and email are not acceptable.

Mark Wolfe
 State Historic Preservation Officer
 Texas Historical Commission
 P.O. Box 12276, Austin, TX 78711-2276 (mail service)
 108 W. 16th Street, Austin, TX 78701 (courier service)

For SHPO Use Only

Attachment 2

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March 28, 2019

Craig W. Hiatt
Subsidiary Director of Environmental Service
ECS Southwest, LLP.
14050 Summit Drive, St. 101
Austin, TX 78728

Re: Archeological Desk-Based Assessment of Houston National Cemetery Lands, Aldine-Western Road, Houston, Harris County, Texas (MAC 19-06)

An archeological desk-based assessment of two locations associated with Houston National Cemetery was undertaken prior to the redevelopment of the property. Data derived from historic archival documents and maps, the Texas Archeological Sites Atlas, previous archaeological investigations, the underlying soils and geology, topography, and previous disturbances was reviewed. The data were then used to assess the potential for encountering historic or prehistoric cultural deposits within the Area of Potential Effects (APE).

Project Overview

The APE for the proposed undertaking is defined as two locations on Houston National Cemetery lands (**Figure 1**). The first location is approximately two acres in size, and is located north adjacent to columbaria and west adjacent to Patriot Drive. This location is directly adjacent to the developed areas of the cemetery. The second is an approximately thirty acre area south adjacent of Aldine-Western Road, bounded to the west by the cemetery and to the east by a farmstead. The APE is currently covered in either maintained grasses or native vegetation. The majority of the second location is currently pasture and has been used for agriculture. The APE is identified on the *Aldine* (2995-433) USGS 7.5-Minute Quadrangle Map (**Figure 2**).

The proposed project seeks to improve this acreage for use by the cemetery. As the land is owned by the Veteran's Administration (VA), a Federal entity, it will need to comply with Section 106 of the National Historic Preservation Act (NHPA) (54 United States Code 306108) and its implementing regulations (36 Code of Federal Regulations 800).



Figure 1. APE on the 2017 aerial photograph.

History of the APE

A review of historic documents reveals that the land was first granted to the Washington County Rail Road (WCRR) in 1879 (Texas General Land Office [TX GLO] 2019). The WCRR was chartered in 1856 to construct rail between Galveston and Brenham, Texas (Christian 2010). In 1874, the Texas legislature added an additional stipulation on land grants received by railroads in order to raise funds for public schools. This action created the Permanent School Fund, which used the proceeds from sold rail lands to invest back into the school system (Lang and Haigh 2010; TX GLO 2016). This grant, marked as “Washington Co. R.R. Co. Block 4” was subdivided and sold. According to historical plat maps and records available through the TX GLO, the project area is on land purchased by Samuel S. Reynolds (Patented Dec. 13, 1934) and may include lands purchased by Robert Windt in 1900 and Julius Schmidt in 1911 (TX GLO 2019). It is likely that the land was used for agriculture until the cemetery was established.

In 1965, the Houston Veterans Administration Cemetery was dedicated as a burial place for

veterans and their families. A 1964 article from the *The Baytown Sun* announced that at the time, the 419-acre cemetery would be the “largest VA cemetery in the nation,” along with a chapel with stained glass windows and a hemicycle (1964:2). The 1967 *Aldine* (2995-433) USGS 7.5-Minute Quadrangle map illustrates the initial development of the Houston National Cemetery (Figure 3).

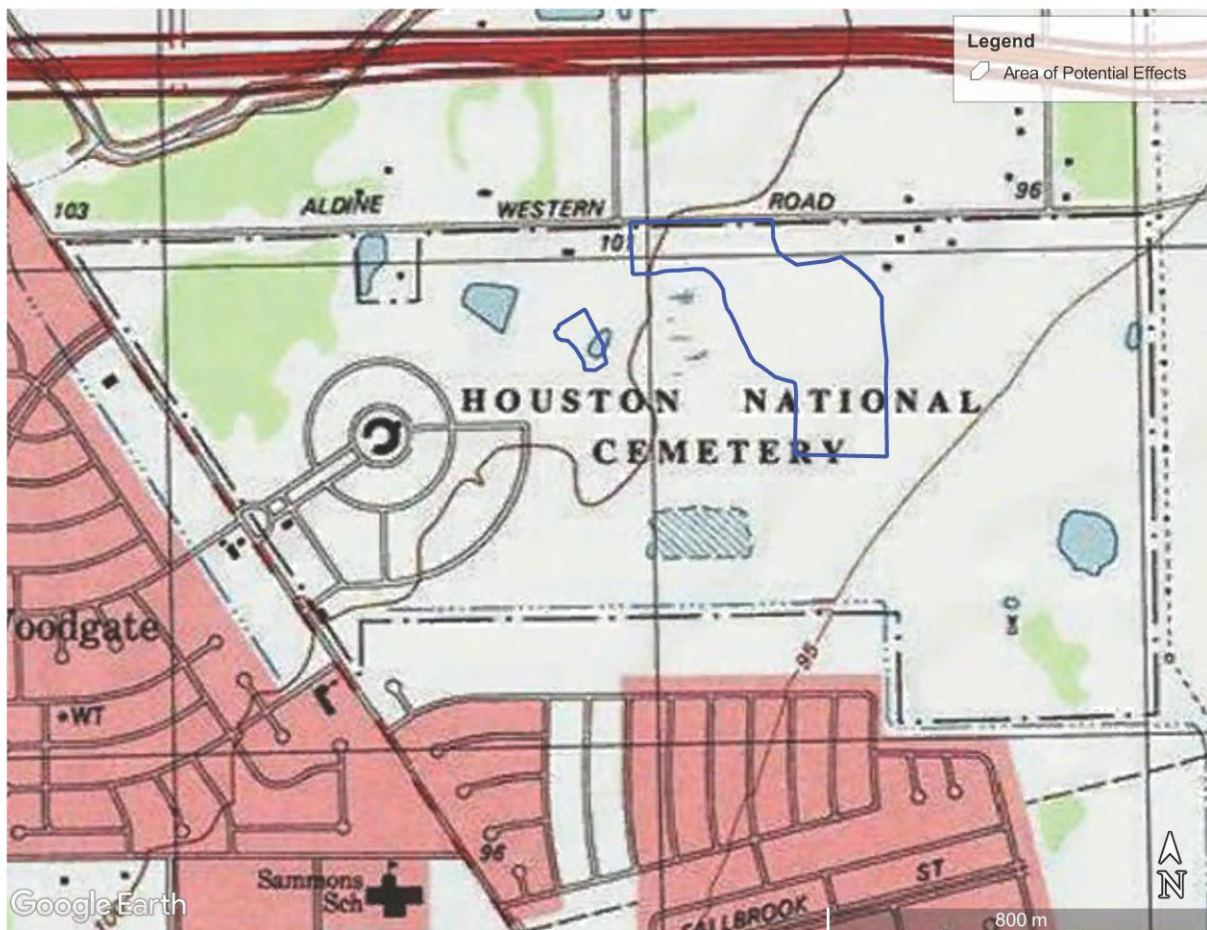


Figure 2. The APE on the *Aldine* (2995-433) USGS 7.5-Minute Quadrangle Map.

Previously Identified Cultural Resources

A review of the Texas Archeological Site Atlas (the Atlas) was conducted to identify previous archaeological investigations and documented cultural resources within one mile of the project area. The Atlas indicates that no prehistoric or historic sites were identified within the proposed project area, and no previous archeological field investigations have been undertaken within the APE. The Houston National Cemetery is a National Register District (Reference No. 100000697) and was listed on 2/28/2017. The APE is included in this designation. There were a total of 51 contributing structures, sites, buildings, and objects to

the listing. The buildings include the Chapel, Carillon Tower, and Hemicycle, cemetery structures (columbaria, fences, and committal structures), and the various monuments on the property (Moore et al. 2016).

Three archeological surveys have been conducted within one mile of the APE. Of these, two did not identify any cultural resources during field investigations. Located 0.46 miles north of the APE is a series of linear surveys conducted in 1991. No additional data is available on the Atlas in regards to these investigations. In 2012, HRA Gray & Pape conducted archeological field investigations on a property located 0.86 miles southeast of the APE, near a channelized portion of Halls Bayou. No intact deposits were found within the project area (THC 2019).

In 1998, archeologists with Prewitt & Associates (PAI) conducted field investigations 0.96 miles northwest of the APE for the U.S. Army Corps of Engineers (USACE). PAI identified two archeological sites during their survey. Archeological Site 41HR824 is a single component historic farmstead dating between the 1940's and 1970's. PAI recorded dwellings, barn foundations, a pump house, and other outbuildings. Historic-age artifacts were concentrated on the surface, and included soda and beer bottles, food containers, toys, personal items, and car parts. Due to the age of the site, and the deterioration of the buildings, PAI did not recommend the site for further investigations. Site 41HR825 is an early 20th Century single component farmstead. The structures that once composed the farmstead had been razed, but archeological deposits were found in a sandy mound on the property, along with a burn zone between 0 and 40 cm below the surface. Artifacts found during shovel testing included a cut nail fragment and unidentified metal. No further investigations were recommended, as the site lacked integrity (THC 2019).

There is a small cluster of prehistoric sites located four miles northwest of the project area along Greens Bayou. Archeological Sites 41HR708, 41HR710, and 41HR799 were identified during shovel testing investigations during the 1990's. These sites represent low density deposits of lithic or ceramic materials in pimple mounds. These sites were not recommended for further investigation, due to their low research potential (THC 2019).

Potential for Cultural Resources

A hierarchy of environmental factors serve as a regional indicator of if a certain locality was attractive for prehistoric settlement. These factors act as guidelines to identify favorable locations for prehistoric campsites (Moore 1996). The criteria to assess favorable locations are as follows:

- 1) Site locations in forested environments;

- 2) Site locations in the floodplain or on the floodplain/upland margin;
- 3) Site locations in proximity to sources of potable water;
- 4) Site locations on well-drained, loamy soils;
- 5) Site locations on topographic high points.

These five factors will be assessed individually in order to determine the probability of encountering a prehistoric site within the proposed project area.

1. Site locations in forested environments

A review of archival maps, *Aldine* (2995-433) USGS 7.5-Minute Quadrangle Maps (1916, 1945, 1954, 1967, 1982, 1995, and 2016) and available aerial imagery (1944, 1953, 1978, 1989, 1995, 2002, 2004, 2005, 2006, 2008, 2009 to 2017) was conducted in order to determine the extent and impacts of past human activity within the project area. This area of Harris County is not included in historic Sanborn Fire Insurance Maps, therefore this resource was not reviewed.

The historical landscape of the project area is typical of the coastal prairie, with native plants with the exception of hardwoods along the waterways. This is supported by the 1944 aerial photograph of Houston National Cemetery and vicinity. Hardwood trees are clustered around Greens Bayou and a large seasonal pond north of the project area. The earliest development within the vicinity of the project area is shown on the 1954 *Aldine* quadrangle map and the 1953 aerial imagery. These documents show the development of farmsteads to the south of Aldine-Western Road, west and east adjacent to the APE. Subsequent topographic maps and aerial photographs show the development of these farmsteads (see aerial photographs from 1978, 1995 and topographic maps from 1967 and 1982). The aerial photographs from these time periods do show that a portion of the APE was plowed and grasses were planted for cattle. The 1978 aerial photograph shows the development of Houston National Cemetery.

Starting in the terminal Pleistocene (18,000 to 10,000 years BP), the climate in Texas began to warm and started to dry. The oak-hickory-pine belt that spread across the state started to recede towards East Texas. By the Middle Holocene (8,000 to 4,000 years BP), open grasslands and oak savannahs bordered the oak-hickory-pine belt, creating similar ecoregions to present day (Ricklis 2004). It is likely that the project area was predominately covered in native grasses during the earliest human occupation in the region, and trees were clustered around established waterways.

2. Site locations in the floodplain or on the floodplain/upland margin

The Federal Emergency Management Agency (FEMA) National Flood Hazard Layer (NFHL) online viewer indicates that the APE is not within the floodplain (FEMA 2018). However, there are natural and man-made wetlands within the vicinity of the APE.

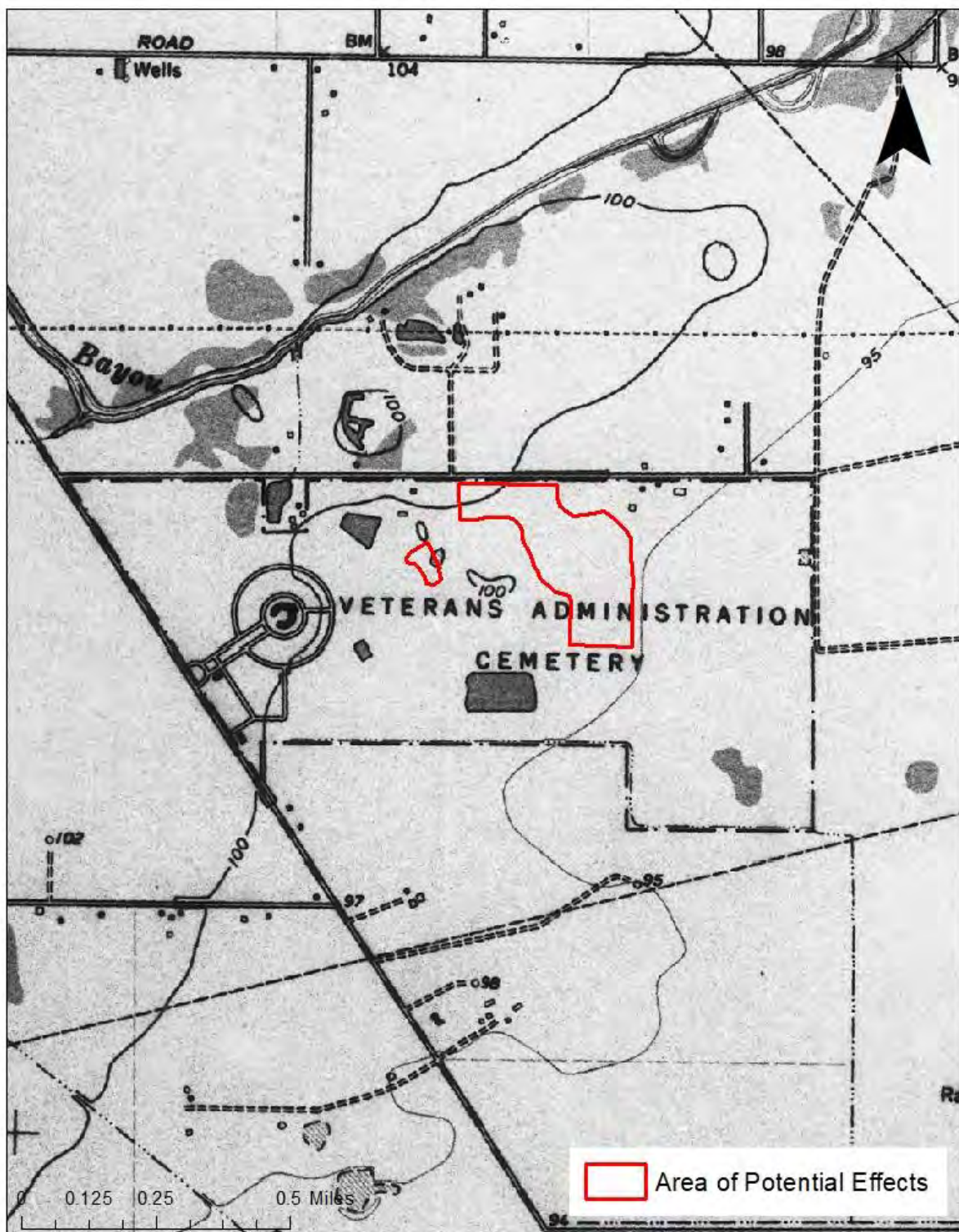


Figure 3. The APE on the 1967 *Aldine* (2995-433) USGS 7.5-Minute Quadrangle Map.

3. Site locations in proximity to sources of potable water

Potable water sources were important resources to prehistoric peoples in Harris County, and the proximity to these resources increases the probability of encountering prehistoric sites. Most sites in the region are found within 300 meters (m) (984 ft) of potable water. The APE is located 676 m (0.42 miles) southeast of Greens Bayou. A channelized portion of Halls Bayou is located 1,899 m (1.18 miles) southwest of the APE. In addition to channelization, both Halls Bayou and Greens Bayou have been deepened.

4. Site locations on well-drained, loamy soils

The *USGS Geological Atlas* identified the underlying geological formation within the APE as the Lissie Formation (Ql). The Lissie Formation dates to the Pleistocene, making it a relatively young formation when compared to other geologic units across the state. This nearly level formation is composed of sand, silt, and clay. Although the topography of the formation is relatively featureless, pimple (or prairie) mounds and gilgai (seasonally ponded depressions) do form in this landscape. The formation runs parallel to the Gulf of Mexico, and the deposits increase in thickness as it moves towards the water. The Lissie Formation is stable, with weathering represented by the presence of calcium carbonate, iron oxide, or iron-manganese oxides within the deposit (Abbott 2001).

The soils underlying the APE were derived from Pleistocene Age loamy sediments associated with the Lissie Formation. The majority of the APE is composed of Addicks loam (Ad), a deep deposit of poorly drained loam, ideal for rice cultivation or pasture. The deposit extends to a depth of 198 centimeters (cm) below the surface (78 in) and typically displays an Ap-Bt-Btk1-Btk2 profile. The Bt horizon is characterized by dark gray (10YR4/1) loam, with a hard texture and a few small iron-manganese concretions and calcium carbonate nodules. The deposit transitions to a light gray (10YR7/1) with depth. The base of the deposit is characterized by mottles of yellow (2.5Y7/6), and calcium carbonate concretions. This soil series is typically associated with topographically flat or slightly depressed areas within the coastal prairie. (United States Department of Agriculture – Natural Resources Conservation Service [USDA-NRCS] 2019).

Clodine fine sandy loam, 0 to 1 percent slopes (Cd) underlies the southern third of the APE. These soils form as deep (267 cm [105 in]), somewhat poorly drained deposits of loam to sandy clay loam. The deposit typically displays an Ap-Btg1-Btg2-Btg3-Btg4-Cg profile, transitioning from a dark gray (10YR4/1) to a light brownish gray (2.5Y6/2) color with depth. In the Btg1 horizon (61 cm below the surface [24 in]), iron-manganese masses and calcium carbonate concretions appear in the deposit (USDA-NRCS 2019).

These soils have been impacted by previous construction and agricultural activities. Aerial photographs dating to 2002, 2004, 2011, 2012 and 2016 show that the westernmost portions of the APE had been used as temporary work and soil storage areas. The 2012 aerial illustrates the impacts to shallowly buried deposits during the construction of the easternmost retention ponds, columbaria, and walking path. In addition, the pastures shown on the 2012 aerial show vegetation growing in a linear pattern, suggesting that these areas had been previously plowed and planted. The soils within the project area are not ideal for retaining intact, prehistoric cultural deposits. It is likely that prehistoric occupations were closer to Greens Bayou, and on natural sandy rises or pimple mounds. It is unlikely that these features remain within the project area.

5. Site locations on topographic high points

A review of historic topographic maps indicates that the project area is on a topographic high point, gently sloping away from Greens Bayou to the southeast. A review of hillshade data available through *The National Map* and Lidar data indicates that the eastern portion of the APE is cut by the Woodgate fault, a northeast to southwest running fault like associated with the Addicks fault system (USDA-NRCS 2019; Englekemeir and Khan 2008).

Conclusions and Recommendations

The overall environmental conditions found within the APE are not conducive for retaining shallowly or deeply buried and intact prehistoric cultural resources. The location was historically composed of native grasses and is more than 300 m (984 ft) from Greens Bayou. Although the project area is on a relatively topographically high point and is outside of the floodplain, the presence of Clodine (Cd) and Addicks (Ad) soils suggests that if prehistoric deposits were in the project area, they were most likely on the surface or found within pimple mounds. Previous human activities within the APE have disturbed shallowly buried soils. This includes the use of the western portion of the APE as temporary work areas and for soil storage during the construction of retention ponds and columbaria, and the agricultural plowing of fields. Other sections of the project area have been previously disturbed by pipelines (see the aerial photograph from 1944) and the construction of ponds, roadways, and other access points.

In addition, it is highly unlikely that intact historic-age deposits will be encountered within the APE. The aerial photographs and topographic maps show that any potentially historic-aged resources are located adjacent to the APE. These resources do not indicate that the APE was used for any other purpose besides agricultural lands until the construction of the Houston

National Cemetery.

Therefore, we do not recommend further archeological investigations within the APE. As the project will be undertaken by the VA, this project falls under the regulations of Section 106 of the National Historic Preservation Act (54 United States Code 306108) and its implementing regulations (36 Code of Federal Regulations 800). This report will be subject to review by the VA and may be transmitted to the Texas Historic State Preservation Officer (SHPO) for their recommendations. If any cultural resources are encountered during cemetery improvements, please stop work and call the Texas Historical Commission (THC).

Thank you for the opportunity to evaluate this project location. If you have any questions or comments regarding this assessment, please do not hesitate to contact us.

Sincerely,

A handwritten signature in blue ink that reads "Ashley Jones". The signature is fluid and cursive, with a long horizontal flourish extending to the right.

Ashley E. Jones, MA, RPA
Principal Investigator/Project Manager
Moore Archeological Consulting, Inc.

References Cited

Abbott, James T.

- 2001 Houston Area Geoarcheology: a Framework for Archeological Investigation, Interpretation, and Cultural Resource Management in the Houston Highway District. Report 27, Texas Department of Transportation, Archeological Studies Program, Austin, Texas.

Baytown Press, The [Baytown, Texas]

- 1964 "VA Cemetery Ceremonies October 28". 13 September 1964, pp. 2, *The Portal to Texas History*, <https://texashistory.unt.edu/>, accessed March 14, 2019.

Christian, Carole E.

- 2010 Washington County Rail Road. *Handbook of Texas Online*, <https://tshaonline.org/handbook/online/articles/eqw06>, accessed March 20, 2019.

Englekemeir, Richard M. and Shuhab D. Kahn

- 2008 Lidar Mapping of Faults in Houston, Texas, USA. *Geosphere* 4(1):170-182.

Federal Emergency Management Agency (FEMA)

- 2018 National Flood Hazard Layer (NFHL) Viewer. Federal Emergency Management Agency, <https://www.fema.gov/national-flood-hazard-layer-nfhl>, March 14, 2019.

Lang, Aldon S. and Berte R. Haigh

- 2010 LAND APPROPRIATIONS FOR EDUCATION. *Handbook of Texas Online*, <http://www.tshaonline.org/handbook/online/articles/mnl01>, accessed September 21, 2016.

Moore, David, Tara Dudley and Jennifer Perunko

- 2016 Houston National Cemetery. National Register of Historic Places Inventory/Nomination Form. Hardy, Heck, and Moore, Austin, Texas. National Register # 100000697.

Moore, Roger G.

- 1996 *An Empirical Analysis of Elements of Prehistoric Site Location and Formation in Harris County, Texas*. Report of Investigations No. 149. Moore Archeological Consulting, Inc., Houston, Texas.

Ricklis, Robert A.

- 2004 The Archeology of the Native American Occupation of Southeast Texas. In *The Prehistory of Texas*, edited by T.K. Pertulla, pp. 181-202. Texas A&M University Press, College Station, Texas.

Texas General Land Office (TX GLO)

2018 *Land Grant Search*, <http://www.glo.texas.gov/history/archives/land-grants/index.cfm>, accessed February 8, 2018.

Texas Historical Commission (THC)

2019 *Texas Archeological Site Atlas*, <http://nueces.thc.state.tx.us/>, March 14, 2019.

United States Department of Agriculture – Natural Resource Conservation Service (USDA-NRCS)

2018 Clodine Series and Addicks Series. United States Department of Agriculture Soil Conservation Service, *Official Soil Series Description Online*, <http://www.soilseries.sc.egov.usda.gov/odsname.asp>, March 14, 2019.

United States Geological Survey (USGS)

2018a Explore Texas Geology. *USGS Geological Atlas*, <http://www.txpub.usgs.gov/texasgeology>, March 14, 2019.

2018b *The National Map*. National Geospatial Program, <https://viewer.nationalmap.gov/advanced-viewer/>, March 14, 2019.

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Attachment 3

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OVERVIEW

The goals architecturally for Phase 5 of the Houston National Cemetery expansion are to evaluate and provide guidance in the rehabilitation of the Hemicycle (fig. 1) and Chapel. The goal will also be to repair architectural deficiencies listed on the Facility Condition Assessment spreadsheet provided during the kickoff meeting and last updated on February 5th 2019. The Houston National Cemetery was listed in the National Register of Historic Places in 2008.



Figure 1 Hemicycle Entry Looking East Towards Chapel

HEMICYCLE, SPEAKER PODIUM & BELL TOWER

The iconic landmark and focal point of the cemetery, was dedicated on December 7, 1965. It is a significant structure, composed of monolithic exposed aggregate precast concrete panels, walls and columns. It is circular in plan and approximately 200 feet in diameter; initially designed for ceremonial events and is still used so today. The colonnade provides a structure to house the elevated viewing deck. There are also men's and women's restrooms located at the on ground level of the Hemicycle, on opposite sides. See end of appendix for original construction photographs.

EXISTING CONDITION

The overall condition of the hemicycle is fair, with reoccurring areas of deterioration. This seems to be mainly focused on the underside of the concrete deck and at the joints of panel to panel or panel to column anchors. In general there is natural wear and water staining with biological growth evenly distributed on the concrete panels and flatwork concrete. The interior of the restrooms appear to have been updated recently and will not be requiring any intervention, see mechanical narratives for further comments.

List of visually noted deficiencies:

- A. Vertical cracks at upper panels in stair openings
- B. Biological settlement on upper deck along the perimeter of the panels
- C. Biological staining on the inside of the upper panels (inside parapet panels)
- D. Exposed steel fasteners at the top of upper panels
- E. Previous patchwork cracking
- F. Site concrete cracking adjacent to inside columns
- G. Site concrete cracking and spalling at the outside columns aligned to the downspout
- H. Staining at the bottom of the upper panels, typical throughout
- I. Failing sealant/caulk at site concrete, typical throughout
- J. Rust staining on site concrete at east plaza
- K. Rust staining from previous flagpole mounts
- L. Exposed abandoned conduit and junction boxes that is thought to previous supply a speaker system
- M. Cracking and spalling at embedded steel anchor locations, typical throughout but mainly visible at stair openings
- N. Large divots at base of precast walls and site concrete
- O. Previous site concrete patchwork separation
- P. Large divots and cracks at base of column and site concrete
- Q. Biological growth on previous patchwork at top of upper panels
- R. Horizontal cracking at inside of upper panels
- S. Adjacent tree overgrowth onto upper deck
- T. Water ponding on upper deck and blocked roof drain guards
- U. Biological growth and finish spalling at header of door under stairs
- V. Bubbling and spalling of finish at underside of deck near columns
- W. Visual observation of water dripping thought the deck near

column

- X. Divots at wall panels facing outward
- Y. Severe concrete spalling at underside of deck, exposing steel
- Z. Vertical cracking at stair railing
- AA. Severe cracking at underside of upper panels near column juncture
- BB. Horizontal cracking at stair riser
- CC. Sealant/caulk joints separation and deterioration
- DD. Biological growth and staining at speaker platform canopy and tower juncture
- EE. Staining at speaker platform canopy scupper and fascia
- FF. Crack at speaker platform canopy soffit
- GG. Failing sealant, water ponding and staining at base of tower and light wells
- HH. Water ponding, biological growth and failing sealant at backside of tower near door
- II. Biological growth at speaker canopy drainage to site concrete
- JJ. Large crack on the east side of the tower and north side
- KK. Hollow metal door at the base of the tower is rusted through at the lower portion

See corresponding photo index.

RECOMMENDATIONS

The plan of action will be to initially clean the entire structure, including the bell tower, speaker podium and restroom walls, using the gentlest means possible such as low-pressure water along with a non-ionic detergent with a biocide to kill the organic growth (i.e. D/2), remove all existing sealants and replace with compatible sealant confirming water tightness. The appearance of the sealant must be considered as to not be visually intrusive. The next step will be to perform all necessary repairs/rehabilitation of the identified but not limited to noted existing deficiencies. Replace the existing hollow metal door at the base of the bell tower and make necessary repairs to the existing guardrails, and recoat. The preparation of concrete repairs includes the removal of loose debris to determine the general extent of the repair area. In general this removal will go beyond the extent of the deterioration as to hide the repair edge of any patch work. The selection of repair materials will require the evaluation and testing of the existing materials, so that the new patchwork is as closely matched as possible. Not only should the new material be as visually similar as the existing but they should also match in other aspects such as strength and permeability. This work should all be completed by historic preservation specialists or

conservator that is SOI qualified (36 CFR Part 61). The structure has been treated with a protective sealer previously, so it is recommended that we treat the concrete with a similar protective coating as to not introduce a new element to the concrete. All repairs should follow the NPS technical preservation brief No. 15 “Preservation of Historic Concrete” as a supporting guide to the contract drawings and specs. This work will comply with the Secretary of the Interior Standards for Treatment of Historic Properties (36 CFR 68) and in no way adversely affect the existing historic structure pursuant to 36 CFR 800.5(b).

In response to DRCHEK #245515, Komatsu investigated the condition of the existing concrete deck traffic coating at the upper level of the hemicycle. These conditions were photographed and noted on a floor plan drawing and sent to the project manager for distribution. In our professional opinion, we feel there is enough evidence of deterioration that there needs to be a repair or re-coating of the hemicycle roof deck membrane that is compatible with the existing. Komatsu is waiting on direction.

CHAPEL

The double volume Chapel sits as the keystone to the hemicycle where the two halves meet but do not physically touch. It is trapezoidal in form and constructed out of pre-cast concrete panels with an exposed quartz aggregate finish, similar to the hemicycle. The main elevation is host to a 20 feet by 6 feet sculptural panel. It is mostly original in form besides a couple of interior renovations, one in the 1980s that altered the restroom layouts and introduced a janitor’s closet and in 1996 where the interior was refurbished and the original terrazzo floors were covered in carpet.



Figure 2 Chapel, North and East Elevations

EXISTING CONDITION

The interior finishes all seem to be wearing very well but will need to be rehabilitated and refreshed. The exterior shows similar conditions to the adjacent hemicycle, large amounts of staining seem to be focused mainly on the window sills.

List of visually noted deficiencies:

Exterior

- A. Existing fabric canopy is showing natural wear and staining
- B. Relief sculpture contains moisture staining
- C. Moisture staining at window sills, typical
- D. Existing storm panels show signs of movement and perimeter gasket deterioration, not in scope.
- E. Horizontal cracking at upper corner of concrete panel
- F. Moisture staining at window header on exterior

Interior

- G. Two sets of double doors on each side of the Nave are deteriorated at the base and the wood veneer is peeling off, the associated metal threshold is also rusting. The doors also allow light and air through the center of the two
- H. The tiles entry is not compatible with the architecture of the chapel
- I. In at least 5 locations there are missing stained mosaic pieces at the window panels, windows are not in scope.
- J. Staining at the carpeted steps
- K. The restroom tile and grout are showing natural wear and staining
- L. Several light fixtures seem to be not working
- M. Wood doors at vestibule are unfinished and do not match the adjacent wood panels
- N. There is a black rubber base over the original black marble base throughout the chapel
- O. The acoustic ceiling tiles in the restroom, janitor closet and Ante Room all contain moisture staining.
- P. Wood paneling finish is fading inside the nave
- Q. Incompatible ceiling fans in nave
- R. 2 areas of minor terrazzo floor damage

See corresponding photo index.

RECOMMENDATIONS

Exterior

The plan of action will be to initially clean the entire structure using the gentlest means possible such as low-pressure water along with a non-ionic detergent with a biocide to kill the organic growth (i.e. D/2), remove all existing sealants and replace with compatible sealant confirming water tightness. The next step will be to perform all necessary repairs/rehabilitation of the identified but not limited to noted deficiencies. All concrete repairs should be completed in the same fashion as noted in the Hemicycle section of this narrative.

Interior

The interior should be completely rehabilitated pursuant to 36 CFR 67. Clean all marble wall paneling and inspect for any cracking, repair if needed and re-grout joints if needed. Clean all wood paneling and vertical battens refinish to match original finish and color. Stain and seal existing double wood door at vestibule to match adjacent paneling. Remove all carpeting throughout to expose existing terrazzo floors. Strip, clean and make all necessary repairs to terrazzo floors before refinishing. If it is discovered that restoring the terrazzo floors is not feasible in the project due to cost restraints, then an alternate carpet will be installed to replace the existing. However, the carpet will not be attached with an irreversible adhesive to allow for potential removal in the future if funding is available for terrazzo restoration.

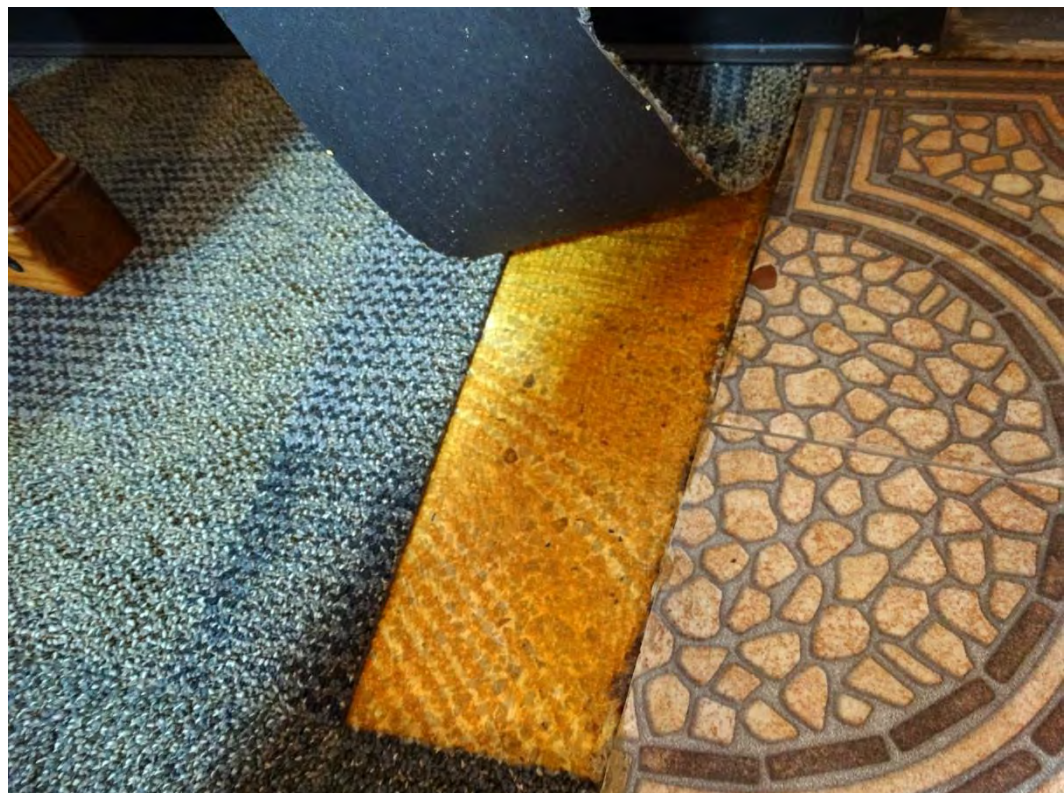


Figure 3 Existing Terrazzo beneath Carpet Tiles

All existing plaster surfaces should be repainted to match existing, inspect all plaster for any deterioration or damage including ceilings and make all necessary repairs. Upon our inspection there was no damage noted in the existing plaster work. The single user restroom should be completely renovated to comply with accessibility standards. All new fixtures, replace existing lay-in ceiling with a hard gypsum ceiling and all new finishes.



Figure 4 Existing Restroom to be refinished

Replace one for one all light fixtures while upgrading the light source to an LED. The stained glass mosaic windows are not in the scope of this project. All door frames should be re-painted black to match the existing original color.

This work should all be completed by historic preservation specialists or conservator that is SOI qualified (36 CFR Part 61). All repairs to the concrete panels should follow the NPS technical preservation brief No. 15 “Preservation of Historic Concrete” as a supporting guide to the contract drawings and specs. This work will comply with the Secretary of the Interior Standards for Treatment of Historic Properties (36 CFR 68) and in no way adversely affect the existing historic structure pursuant to 36 CFR 800.5(b).



Figure 5 Interior of Chapel, Construction Process Photo, October. 1965



Figure 6 Interior of Chapel, Existing Condition

ADMINISTRATION BUILDING

The Administration Building was designed and built as part of the original cemetery structures and is considered a contributing element in the National Register Nomination. The building is composed of exposed aggregate precast concrete panels similar in nature to the Hemicycle concrete elements.



Figure 7 Administration Building, Construction Process Photo, August 1965

EXISTING CONDITION

The scope of includes only the concrete panel and site flatwork joint repairs around the building. The overall conditions of the concrete panels are in good condition. Similar to the Hemicycle there is consistent staining on the underside of floating panels and only one area was visually noted that needed a patch. While not in the scope it was noted that the metal parapet coping also has some joints that appear to be compromised.

List of visually noted deficiencies:

- A. Chipped corner at a floating panel
- B. Consistent staining at the underside of the floating concrete panel
- C. Consistent staining and biological growth on concrete panel joints
- D. Deteriorated sealant at flatwork around the building

See corresponding photo index.

RECOMMENDATIONS

The plan of action will be to initially clean all concrete panels, using low-pressure water or steam cleaning. Remove all existing sealants at joints and replace confirming water tightness between panels. The next step will be to perform all necessary repairs/rehabilitation of the listed but not limited to noted existing conditions. All concrete repairs should be completed in the same fashion as noted in the Hemicycle section of this narrative.

This work should all be completed by historic preservation specialists or conservator that is SOI qualified (36 CFR Part 61). All repairs to the concrete panels should follow the NPS technical preservation brief No. 15 “Preservation of Historic Concrete” as a supporting guide to the contract drawings and specs. This work will comply with the Secretary of the Interior Standards for Treatment of Historic Properties (36 CFR 68) and in no way adversely affect the existing historic structure pursuant to 36 CFR 800.5(b).

MAINTENANCE BUILDING – 3001

The Maintenance Building was designed and built as part of the original cemetery structures and is considered a contributing element in the National Register Nomination. The building is composed of exposed aggregate precast concrete panels similar in nature to the Hemicycle concrete elements with infill sections of concrete masonry blocks in a stacked formation and precast concrete columns.

EXISTING CONDITION

The scope of includes only the concrete panel repairs as well as FCA item to address the condition of the garage area ceiling. The overall conditions of the concrete panels are in good condition. Similar to the Hemicycle there is consistent staining on the underside of floating panels and there are areas of damage located at the underside of the floating panels above the overhead roll up doors. There were several locations of penetrations that do not appear to be properly sealed to prevent air and water infiltration. Sealant joints are in poor condition and appear to have been sealed over several times. Several cracks were noted on the concrete columns as well as on the panels on the south end of the building. While not in the scope, it was noted that the metal parapet coping has joints that appear to be unsound especially around the columns where the seams appear to be open on all four corners. The concrete block walls appear to be in good condition with only a few areas of minor cracks. The concrete block walls are not in the scope. The interior coating of the 3 bay garage ceiling is around 40% spalled and peeling. The coating is also peeling off of the overhead door covers and frames. The frame is beginning to rust at the base of the doors.

List of visually noted deficiencies:

- A. Coating in the 3 bay garage at the ceiling is peeling off
- B. Coating in the 3 bay garage at the concrete block wall is spalling off
- C. Coating in the 3 bay garage at the overhead door cover is peeling off
- D. Metal door frame is beginning to rust at the base
- E. Underside of floating concrete panel above the garage door opening are damaged, stained and missing sealant
- F. Several penetrations do not appear to be sealed properly
- G. Sealant at concrete panel juncture is unsound
- H. Horizontal cracking at concrete column
- I. Moisture staining, typical
- J. Cracking at penetration on south side

See corresponding photo index.

RECOMMENDATIONS

The plan of action will be to initially clean all concrete panels, using low-pressure water or steam cleaning. Remove all existing sealants at joints and replace confirming water and air tightness between panels. Perform all necessary repairs/rehabilitation of the listed but not limited to noted existing conditions. All

concrete repairs should be completed in the same fashion as noted in the Hemicycle section of this narrative. It is recommended that all metal coping be evaluated and repaired as needed; this is currently not in scope. It is also recommended that the concrete block walls be cleaned and recoated as part of the concrete panel cleaning and repairs. The interior of the 3 bay garage should be cleaned, prepped and recoated with an epoxy coating at the ceiling. We are recommended that the overhead door covers and frames all be cleaned, prepped and coated as well, this is not in the FCA or scope, Komatsu will wait guidance on this from the client.

This work should all be completed by historic preservation specialists or conservator that is SOI qualified (36 CFR Part 61). All repairs to the concrete panels should follow the NPS technical preservation brief No. 15 “Preservation of Historic Concrete” as a supporting guide to the contract drawings and specs. This work will comply with the Secretary of the Interior Standards for Treatment of Historic Properties (36 CFR 68) and in no way adversely affect the existing historic structure pursuant to 36 CFR 800.5(b).

THIS SECTION IS FOR INFORMATION ONLY

MID-CENTURY PRECAST EXPOSED AGGREGATE CONCRETE PANELS

OVERVIEW

Dedicated on December 7, 1965, the Houston National Cemetery is the second largest in the National Cemetery system. It was designed entirely by VA staff. The combined complex of the noted Hemicycle, Chapel, and the 75 foot tall Bell Tower and 305 bell Carillon (dedicated on May 30, 1970) is one of only three such landmark memorials in the system, with the others at Arlington National Cemetery and Manila American Cemetery and Memorial in the Philippines. Houston National Cemetery was listed in the National Register of Historic Places in 2008.

Concrete, and its predecessor forms - mortar, plaster, and cement, date back to antiquity. The eighteenth and nineteenth centuries brought a more physical and chemical science approach to understanding and applying cementitious mixtures. The 1756 Eddystone Lighthouse (third replacement) by John Smeaton, was one of the early, successful applications of hydraulic cement, with the knowledge, contrary to the assumption of the past centuries, from discovering that the siliceous impurities in the limestone and not the hardness of crushed rock to make cement powder, was the key for above and particularly under water construction. By 1818 the localized but mass production of cement, enabled the Erie Canal's construction. Portland Cement, an artificial version of the limestone natural sources from centuries before, was created by

Joseph Aspdin in 1824. With the innovation of Munich Professor Fuchs whose studies illustrated the ability to manufacture Portland Cement from many geologic location sources, this allowed the widespread investment and development of plants from earlier source location restrictions. The United States through the Civil War reconstruction period, was considered the most active construction industry using Portland Cement in the nineteenth century, along with its predecessor, England, where Portland stone was first used as a natural source.

Precast concrete is reported as first manufactured in 1875. William Henry Lascelles' patent of 1875 consisted of precast concrete stones and small panels attached to an existing structural frame. This distinction of an applied material skin and its eventual decorative potential set the stage for the industry. However, there was not broad acceptance until the twentieth century. Early panels imitated stone veneer, and was considered an inferior material and product relegated to less costly structures for lower class building areas and worker housing.

Exposed aggregate as an architectural design feature began to appear in the early twentieth century. In 1904 French architect Francois Hennebique's Bourge-la-Reine house with its chiseled face from monolithic non-reinforced cast-in-place concrete, is regarded as the earliest known example of purposely exposed aggregate.

Frederick Ransome received an 1844 English patent for his process of producing "artificial Stone", later commonly referenced as "cast stone". These were early techniques using iron and wire mesh. His son, Earnest L. Ransome, structural engineer and reinforced concrete specialist, first formed the Ransome Concrete Stone manufacturing company in 1861, and coinciding with George A. Fraer's patent for an Artificial Stone, Mastic, Cement, etc. Pressing Machine, became superintendent of the Pacific Stone Company based in San Francisco in the 1870's. His pioneering efforts with reinforced concrete with a patent for reinforced concrete in 1884 (twisted iron rods) resulted in two significant contributions in the construction and modern building world. His 1897 Pacific Coast Borax Refinery endured a 1902 fire that melted brass fittings, giving rise to the fire-resistive and heat dissipating qualities of its concrete-encased steel frame that was intact. The second was his engineering and reinforced concrete construction that survived intact from the devastating April 18, 1906 San Francisco earthquake for Stanford University's first women's dormitory, 1891 Roble Hall, and the University Art museum of 1894. He and architects Percy & Hamilton experimented with the application procedure of "bush-hammering" the concrete surface to expose the aggregate as a textured design feature. However, it was Frank Lloyd Wright's 1906 Unity Temple that received the architectural profession's attention on an aggregate concrete surface created by wire-brushing the surface as the concrete cured, as an aesthetic treatment. W.M. Walter Smith's 1912 article, The Ornamental Treatment of Concrete surfaces included references to acid-etching and sand-blasting, in addition to water-washing and wet-brushing the setting concrete, citing the economies of using the intrinsic qualities of concrete over plastering, painting, and other decorative treatments.

Meridian Hill Park, Washington DC, is the first major work of John J Earley, American craft artisan, materials entrepreneur, and developer of standards for the concrete and precast concrete industry. This work of 1912-1918 became the Earley Studio's beginning of

expertise for the next 35 years in the development of concrete and particularly precast concrete, notably the MoSai process or techniques still used today.

EXPOSED AGGREGATE CONCRETE PANELS AT HOUSTON NATIONAL CEMETERY

The use of exposed aggregate precast concrete panels in the late 60's was not uncommon, but resulted in a uniquely elegant image for the Houston National Cemetery (HNC). Its application for the hemicycle arms to create a rhythmic covered arcade was an appropriate use of its pattern repeated with the same panel sizes and appearance, provides the simple and formal character of monumental scale. The challenge then as now, are the concealed connections, uniformity of finish, and long term maintenance. However, the application of the outdoor, unenclosed structure with weather and moisture exposure to both sides of the panels, as well as having acquired "historic" status has potentially posed long-term maintenance issues and challenges.

As reflected in the history of exposed aggregate surface development as well as the physical and chemical properties of concrete, present unique prevention and stabilization conditions. Until fairly recently, the typical notion has been that anything made of concrete has been thought of as inert, impervious, and "forever". The references to Roman concrete lasting 2,000 years miss one significant factor – they were not using embedded ferrous structural reinforcing. The HNV panels are relatively thin and exposed on both sides, providing added surface and exposure for moisture migration or infiltration. A second inherent weakness in the HNV application is that typical precast panels for building structures only have one exposed side and the protected side is where typically the fasteners and panel connections occur closer or exposed to the interior but not the exterior. The HNV connections are for the most part concealed, by embedment into the panel or hidden by the adjacent panel, but either condition presenting more exposure as both sides are exposed to the weather elements. This is evident by the patches or raised portions of the exposed aggregate surface being pushed out as the embedded connections are oxidizing or the concrete matrix is generating carbonation. Over a longer period of time, other embedment locations may experience the same internal pressures, causing patches to spall or bulge.

For non-historic structures with such finishes, a common practice is to apply a higher elastomeric property coating that both provides a moisture barrier if it is the breathable form, and can both hide and inhibit the concrete's moisture absorbance. This coating, however, is not compatible with maintaining and preserving the HNV panels, by changing its texture or its appearance in terms of coloration or texture (diminishes the exposed aggregate texture and appearance).

NON DESTRUCTIVE INVESTIGATION AND TESTING TECHNIQUES

Several methods are available for concrete concealed internal diagnostic determination of suspected types of chemical and reinforcing corrosion conditions. A simple hand-held hammer sounding can determine delamination and internal hollowing from dissolving matrix to expansion around corrosion of encased reinforcing or other ferrous metal fastenings. More accurate examination with longer term remedies can be achieved with measures such as: Impact Echo Testing; Ground Penetrating Radar; and Ultrasonic Pulse Velocity Testing.

Chemical analysis can include a Copper – Copper Sulfate Half Cell Test or Linear Polarization Technique. A chemical process known as alkali-silica reaction (ASR), commonly called "concrete cancer", or "carbonization" is a swelling reaction that occurs over time in concrete between the highly alkaline cement paste and the reactive non-crystalline (amorphous) silica found in many common aggregates, given sufficient moisture.

SUPPLEMENTAL TECHNICAL APPROACH RECOMMENDATION

We have held preliminary discussions with noted concrete expert and diagnostic/forensic specialists, Dr. Ramon Carrasquillo, PE, and Carlos Garza, PE, of Carrasquillo & Associates in Austin, TX. <https://www.carrasquilloassociates.com/>. We are recommending an initial two-step investigation, with a possible third step contingent on the findings of the first two technical analysis. We recommend the following steps:

Step 1 Conduct a more intensive on-site visual observation examination of the two story Hemicycle structure. If Chapel and particularly the Bell Tower are to be included; other arrangements may be required to access close-up examination. Carrasquillo will report as to whether non-destructive testing and as an exception, coring of the Hemicycle Observation deck, is warranted from the visual surface conditions. They will provide a one-two page summary of their observations and recommendations, and if non-destructive testing and roof deck core samples are recommended as a Step 2 for consideration, provide descriptions of the types of tests proposed (roof coring and patching; various options such as half-cell, linear polarization, pulse velocity; as well as petrographic analysis of the concrete mix and aggregate conditions). These tests address, corrosion and chemical reaction degradation, and also current stage and long term rate of degradation or corrosion to predict the remaining life of the concrete components. Step 3 would be the implementation of the recommended intervention and repair or replacement techniques, and the required construction documentation to effect the actual repair construction activity (probably through Competitive Sealed Proposals or Construction Manager at Risk depending on the magnitude of the scope).

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Attachment 4

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Photo: A—Vertical cracks in stair openings



Photo: C—Biological staining on the inside of the upper panels



Photo: B—Biological settlement on upper deck along the perimeter



Photo: D—Exposed steel fasteners at the top of upper panels



Photo: E—Previous patchwork cracking



Photo: G—Flatwork cracking and spalling at the outside columns

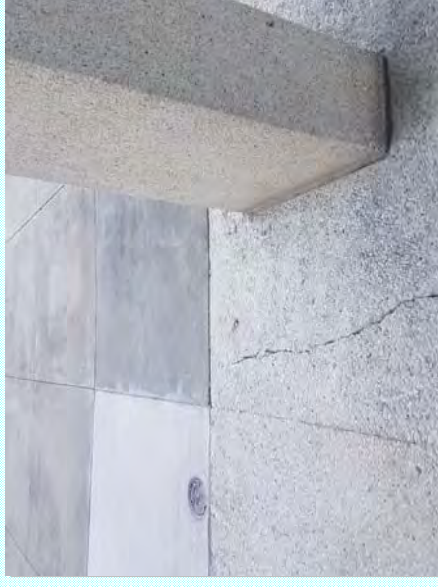


Photo: F—Flatwork cracking adjacent to inside columns



Photo: H—Staining at the bottom of the upper panels