

# **ITEM FOR ENVIRONMENTAL COMMISSION AGENDA**

Commission Meeting Date Requested:	January 17, 2018
NAME & NUMBER OF PROJECT:	1704 and 1706 Channel Road SP-2017-0176D
NAME OF APPLICANT OR ORGANIZATION:	Janis Smith (512)914-3729
LOCATION:	1704 Channel Road, Austin, Texas
COUNCIL DISTRICT:	District # 10
PROJECT FILING DATE:	May 17, 2017
DSD/Environmental Staff:	Atha Phillips, Environmental Program Coordinator 512-974-6303, Atha.Phillips@austintexas.gov
WPD/ERM STAFF	Liz Johnston, Environmental Program Coordinator 512-974-2619, Liz.Johnston@austintexas.gov
WATERSHED:	Lake Austin
Ordinance:	Watershed Protection Ordinance
Request:	Variance request is as follows: 1. To allow cut above 4' feet within Lake Austin. [25-8-341(A)]
Staff Determination:	Staff does not recommend approval.
REASONS FOR DETERMINATION:	Findings of fact have not been met.



# Development Services Department Staff Recommendations Concerning Required Findings

Project:	1704 and 1706 Channel Road
Ordinance Standard:	Watershed Protection Ordinance
Variance Request:	To allow cut above 4' feet within Lake Austin. [25-8-341(A)]

Include an explanation with each applicable finding of fact.

A. Land Use Commission variance determinations from Chapter 25-8-41 of the City Code:

1. The requirement will deprive the applicant of a privilege available to owners of similarly situated property with approximately contemporaneous development subject to similar code requirements.

No, there is an existing cut in slip and other places along the shoreline that the boat dock could be located.

- 2. The variance:
  - a) Is not necessitated by the scale, layout, construction method, or other design decision made by the applicant, unless the design decision provides greater overall environmental protection than is achievable without the variance;

No, the development proposed is not based on a hardship but rather a preference for the boat dock location.

b) Is the minimum deviation from the code requirement necessary to allow a reasonable use of the property;

No, there is an existing cut in slip and other places along the shoreline that the boat dock could be located. It is unnecessary to deviate from code since other options exist.

c) Does not create a significant probability of harmful environmental consequences.

Yes, the project is enhancing the floodplain but any disturbance could be deemed harmful.

3. Development with the variance will result in water quality that is at least equal to the water quality achievable without the variance.

Yes, there will be disturbance but it would be contained within a silt boom and the sediment would settle out eventually.

- B. Additional Land Use Commission variance determinations for a requirement of Section 25-8-422 (Water Quality Transition Zone), Section 25-8-452 (Water Quality Transition Zone), Article 7, Division 1 (Critical Water Quality Zone Restrictions), or Section 25-8-652 (Development Impacting Lake Austin, Lady Bird Lake, and Lake Walter E. Long):
  - 1. The criteria for granting a variance in Subsection (A) are met;

N/A

2. The requirement for which a variance is requested prevents a reasonable, economic use of the entire property;

N/A

3. The variance is the minimum deviation from the code requirement necessary to allow a reasonable, economic use of the entire property.

N/A

Staff Recommendation: Not recommended for approval.

Environmental Reviewer: Atha Pullips		
Environmental Reviewer: UMUM PUMPS	Date:	1/11/2018
Environmental Officer:	Date:	1/12/2018
$\mathcal{O}$		



# **ENVIRONMENTAL COMMISSION VARIANCE APPLICATION FORM**

# **PROJECT DESCRIPTION Applicant Contact Information**

Name of Applicant	John and Amy Porter	
Street Address	1704 Channel Road	
City State ZIP Code	Austin, TX 78746	
Work Phone	512-233-2388	
E-Mail Address	john@affinipay.com	
Variance Case Informat	ion	
Case Name	1704 and 1706 Channel Road	
Case Number	SP-2017-0176D	
Address or Location	1704 and 1706 Channel Road	
Environmental Reviewer Name	Atha Phillips	
Environmental Resource Management Reviewer Name	Atha Phillips	
Applicable Ordinance	LDC 25-8-341 Cut over 4 ft.	
Watershed Name	Lake Austin	
Watershed Classification	UrbanSuburbanWater Supply SuburbanXWater Supply RuralBarton Springs Zone	

Edwards Aquifer Recharge Zone	<ul> <li>Barton Springs Segment</li> <li>Northern Edwards Segment</li> <li>X Not in Edwards Aquifer Zones</li> </ul>	
Edwards Aquifer Contributing Zone	□ Yes X No	
Distance to Nearest Classified Waterway	The project site is on the shore of Lake Austin	
Water and Waste Water service to be provided by	Austin Water and On-Site Septic	
Request	The variance request is as follows (Cite code references:	
	LDC 25-2-341 C Cut over 4 ft.	

Impervious cover	Existing	Proposed
square footage:		
acreage:		
percentage:		
Provrovide general description of the property (slope range, elevation range, summary of vegetation / trees, summary of the geology, CWQZ, WQTZ, CEFs, floodplain, heritage trees, any other notable or outstanding characteristics of the property)	The project site consists of two separate legal I and 1706 Channel Road. Together the tracts are Lake Austin and a man-made channel. The lots of 1% toward the channel and about 2% toward the consists mainly of St. Augustine grass, and the t on 1706 there is an existing concrete bulkhead of complicated. In addition to the concrete bulkhead the following structures exist: one boat dock in of that are irregularly spaced but span the length of piers and the remains of a third failed fishing pier a substantial amount of debris accumulated bet southwest corner of the lot. See <b>Attachment 1</b> , s site, are seeking to renovate the property as a for damage done by past owners. They wrote the convariance, and it's included as <b>Attachment 2</b> . The bulkhead and slope paving in the channel with of planting plan; expanding the channel cut-in slip pier on the main body of the lake. They will remain the failed fishing pier on the main body of the lato See <b>Attachment 3</b> , <b>Proposed Conditions</b> . <b>Attack Rendering</b> , shows proposed conditions on the clavation.	e 0.97 acres and are on the shorelines of are essentially flat with a slope of about e mainbody of the lake. The vegetation rees are predominantly Pecan. Currently and one boat dock. 1704 is more ad with extensive concrete slope paving, a cut-in slip on the channel; wood piles of the channel shoreline; and two fishing er on the main body of the lake. There is sween the existing dock and the <b>Site Photos</b> . The Porters, who own the amily home and hope to remediate the ommission a letter requesting this eir plans include replacing the concrete a limestone bulkhead and large-scale boat dock; and rebuilding one fishing ove one fishing pier and the remains of the as well as the piles along the channel. <b>hment 4, Proposed Conditions Channel</b>

Clearly indicate in what	Enlarging the cut-in slip will require cut more than 4 ft. Attachment 3,
way the proposed project does not comply with current Code (include maps and exhibits)	Proposed Conditions, shows the cross-sections detailing the cut across the proposed cut-in slip. In order for a boat dock to house a ski boat and boat lift, it's necessary to have 3.5 ft of depth to accommodate the draft of the ski boat and cradle of the boat lift. The slip will extend into what is now land which is about 4 ft higher than the water surface elevation; so the depth of the cut is the sum of the height difference between the land elevation and the water surface elevation plus 3.5 ft. for the boat draft.

# FINDINGS OF FACT

As required in LDC Section 25-8-41, in order to grant a variance the Land Use Commission must make the following findings of fact:

Include an explanation with each applicable finding of fact.

Project: 1704 and 1706 Channel Road

Ordinance:

- A. Land Use Commission variance determinations from Chapter 25-8-41 of the City Code:
  - 1. The requirement will deprive the applicant of a privilege or the safety of property given to owners of other similarly situated property with approximately contemporaneous development.
    - Yes/No [summary of justification for determination]

### See Attachment 5

- 2. The variance:
  - a) Is not based on a condition caused by the method chosen by the applicant to develop the property, unless the development method provides greater overall environmental protection than is achievable without the variance;

Yes/No [summary of basis for determination]

#### See Attachment 5

b) Is the minimum change necessary to avoid the deprivation of a privilege given to other property owners and to allow a reasonable use of the property;

Yes/No [summary of basis for determination]

#### See Attachment 5

c) Does not create a significant probability of harmful environmental consequences; and

Yes/No [summary of basis for determination]

#### See Attachment 5

3. Development with the variance will result in water quality that is at least equal to the water quality achievable without the variance.

Yes/No

[summary of basis for determination]

#### See Attachment 5

- B. Additional Land Use Commission variance determinations for a requirement of Section 25-8-422 (Water Quality Transition Zone), Section 25-8-452 (Water Quality Transition Zone), Section 25-8-482 (Water Quality Transition Zone), or Article 7, Division 1 (Critical Water Quality Zone Restrictions):
  - 1. The criteria for granting a variance in Section A are met;

Yes/No

[summary of basis for determination]

#### See Attachment 5

2. The requirement for which a variance is requested prevents a reasonable, economic use of the entire property; and

Yes/No

[summary of basis for determination]

### See Attachment 5

3. The variance is the minimum change necessary to allow a reasonable, economic use of the entire property.

Yes/No

[summary of basis for determination]

#### See Attachment 5

\*\*Variance approval requires all above affirmative findings.

# **Exhibits for Commission Backup and/or Presentation**

- Aerial photos of the site (backup and presentation)
- Site photos (backup and presentation)
- Aerial photos of the vicinity (backup and presentation)
- Context Map—A map illustrating the subject property in relation to developments in the vicinity to include nearby major streets and waterways (backup and presentation)
- Topographic Map A topographic map is recommended if a significant grade change on the subject site exists or if there is a significant difference in grade in relation to adjacent properties. (backup and presentation)
- For cut/fill variances, a plan sheet showing areas and depth of cut/fill with topographic elevations. (backup and presentation)
- Site plan showing existing conditions if development exists currently on the property (presentation only)
- Proposed Site Plan- full size electronic or at least legible 11x17 showing proposed development, include tree survey if required as part of site or subdivision plan (backup and presentation)
- Environmental Map A map that shows pertinent features including Floodplain, CWQZ,
   WQTZ, CEFs, Setbacks, Recharge Zone, etc. (backup and presentation)
- An Environmental Assessment pursuant to ECM 1.3.0 (if required by 25-8-121) (backup only)
- Applicant's variance request letter (backup only)

SITE PHOTOS











# LETTER FROM THE OWNERS

John & Amy Porter 1704 Channel Rd Austin, TX 78746 (512) 294-5484

November 7, 2017

Mr. Joe Pantalion Director, Watershed Protection Department City of Austin

Re: Environmental Variance Application for 1704 and 1706 Channel Road

Dear Mr. Pantalion,

My wife Amy and I own 1704 and 1706 Channel Road on the shores of Lake Austin. We are in the process of improving the property so that we can enjoy the lake with our kids and family friends. Currently, the shoreline is a solid mass of concrete with several dilapidated docks, fishing piers, and the remains of structures that have long since disappeared. We're lucky enough to have both channel and main body shoreline, and we intend to return the property to a healthy and thriving environment.

After much back and forth with our design and permitting professionals who consulted with City of Austin staff, we believe that we've come up with a plan that reverses much of the damage done decades ago by past owners. Our goal is to maximize preservation of our trees and declutter the Lake Austin shoreline. So keeping the boat dock on the canal is a priority. The existing boat dock is too small to accommodate modern boats, and I'm told that expanding the dock and cut-in slip requires a variance for Cut over 4 ft.

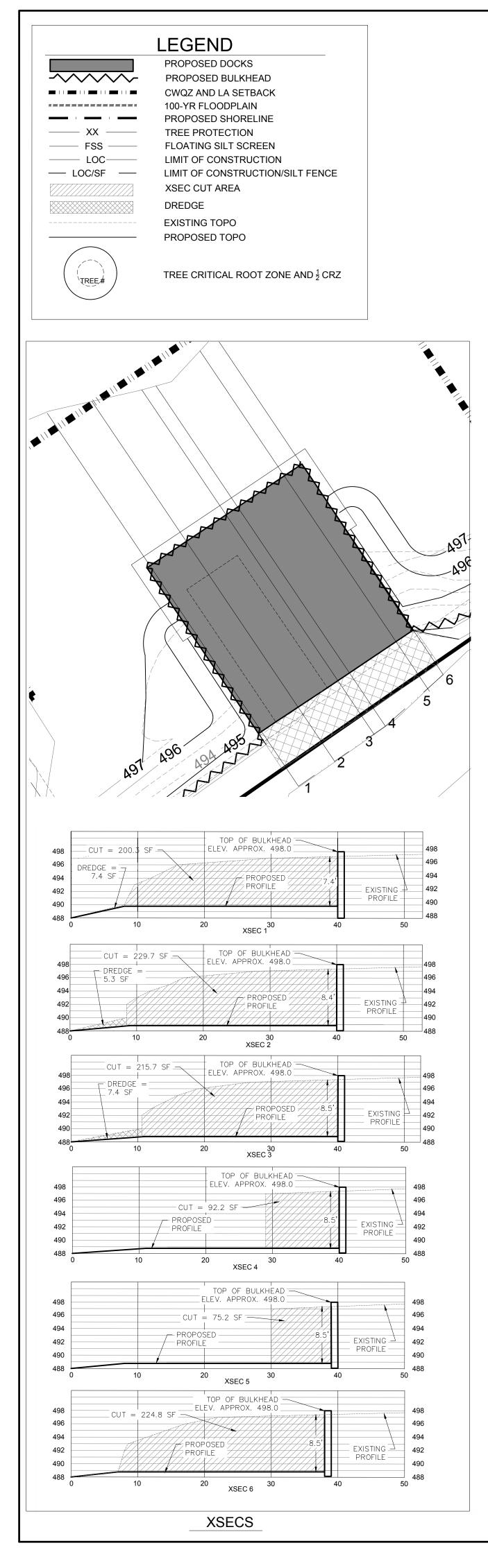
Amy and I request your approval of our application for a variance to LDC 25-8-341, Cut over 4 feet, so that we can construct a new boat dock in the same location as the existing dock. We will be good stewards of our Lake Austin property and its natural beauty.

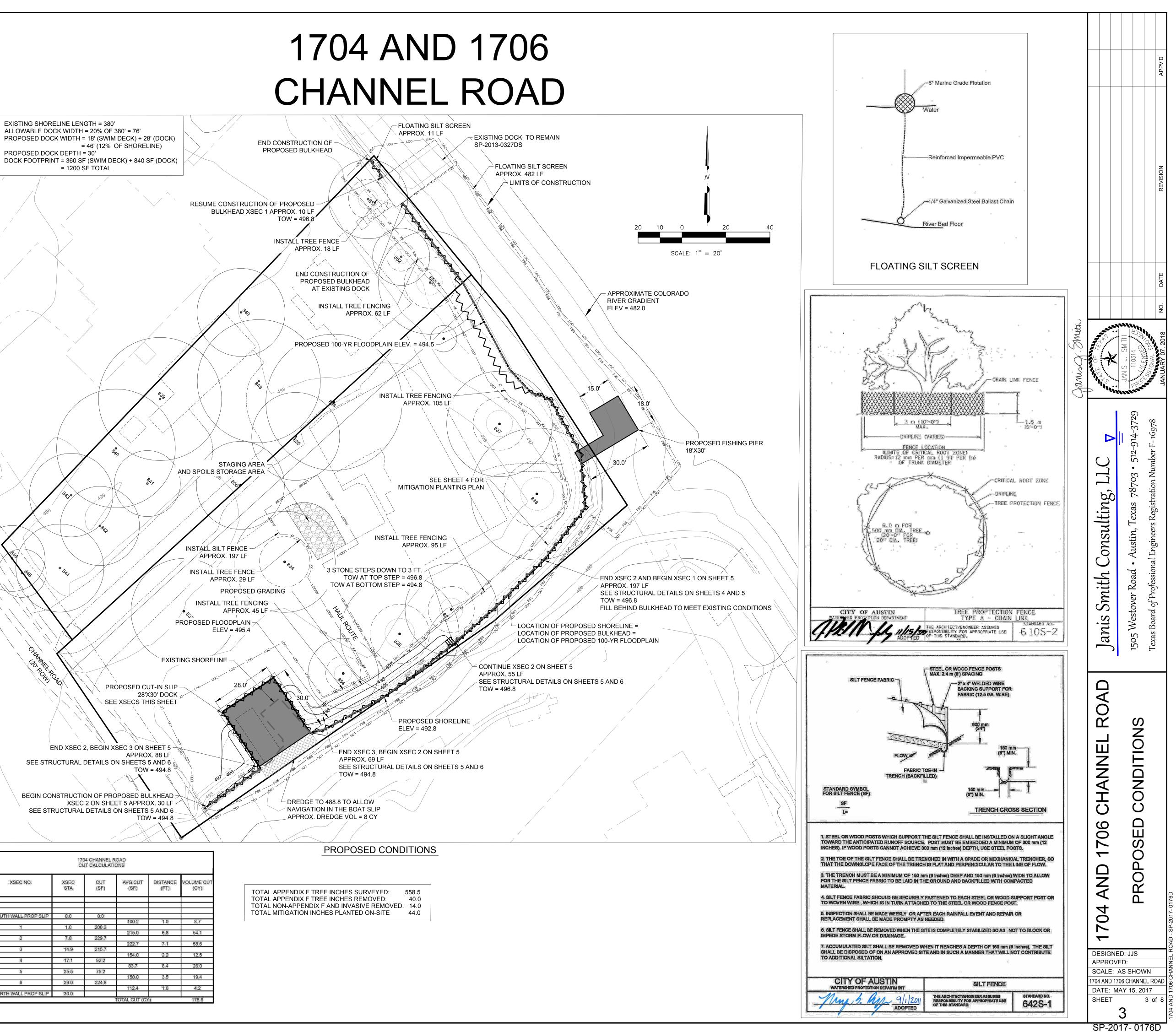
Thank you for your consideration.

bectfull

Porter

# ATTACHMENT 3 PROPOSED CONDITIONS





CUT CALCULATIONS				
XSEC NO.	XSEC STA	CUT (SF)	AVG CUT (SF)	DISTANCE (FT)
SOUTH WALL PROP SLIP	0.0	0.0		
	fran same	concentration to block	100.2	1.0
, <u>1</u> ,	1.0	200.3	045.0	
2	7.8	229.7	215.0	6.8
· · · · · · · · · · · · · · · · · · ·	1.0	220.1	222.7	7.1
3	14.9	215.7		-46-7 (80,780.)
		610700000000	154.0	2.2
4	17.1	92.2		
-	1780-1827 ****27	1212-0224	83.7	8.4
5	25,5	75.2	450.0	
6	29.0	224.8	150.0	3.5
<u>×</u>	29.0	224.0	112.4	1.0
NORTH WALL PROP SLIP	30.0		1147	1-12
- encode encode encode encode enco	and a second s		TOTAL CUT (C)	

# PROPOSED CONDITIONS CHANNEL RENDERING



FINDINGS OF FACT

A. 1. The requirement will deprive the applicant of a privilege available to owners of similarly situated property with approximately contemporaneous development subject to similar code requirements.

# YES. Defining contemporaneous construction as construction occurring since 2014, four applications for a variance to this section of code were presented to the Environmental Commission, and all four applications were approved.

2. The variance:

a. Is not necessitated by the scale, layout, construction method, or other design decision made by the applicant, unless the design decision provides greater overall environmental protection than is achievable without the variance;

YES. This design "provides greater overall environmental protection than is achievable without the variance". It provides a rare opportunity for the COA to enlarge both the volume and surface area of Lake Austin by increasing the size of the cut-in slip. Doing so leads to an improved lake ecosystem while maximizing the storage capacity of the lake. The variance is required to enlarge the size of the cut-in slip and realize the benefits described above.

b. Is the minimum deviation from the code requirement necessary to allow reasonable use of the property;

YES. After receiving the first set of comments in the update process and meeting with COA staff, the project design was changed to comply with a staff recommendation to incorporate the existing cut-in slip in the location of the proposed boat dock on the channel. According to staff, doing so will "avoid an environmental variance that might not meet the Findings of Fact." The recommendation and subsequent design change requires one variance.

c. Does not create a significant probability of harmful environmental consequences.

YES. This project will benefit the functionality and environmental quality of Lake Austin by increasing the volume and surface area of the lake. Additionally, the extensive mitigation planting plan will raise the rating of the floodplain from "poor" to "excellent" which exceeds COA requirements. Raising the rating of the floodplain will enhance the infiltration of runoff, decrease erosion and the sediment load present in the runoff, and boost the filtration of stormwater before it enters the lake. The bulkhead design, featuring a lower bulkhead planted with wetland plants along the channel, will improve connectivity between the lake and the new wetland. The bulkhead will replace an existing vast expanse of concrete. 3. Development with the variance will result in water quality that is at least equal to the water quality achievable without the variance.

# YES. This project will improve the water quality of the lake by increasing the surface area thus allowing for a more beneficial lake ecosystem, and the mitigation planting plan will further improve both the stormwater quality and quantity entering the lake.

B. 1. The criteria for granting a variance in Subsection (A) are met:

# YES. Please see answers to A (1), (2), and (3).

2. The requirement for which a variance is requested prevents a reasonable, economic use of the entirety of the property;

# YES. The existing dock in the cut-in slip on the channel is too small to accommodate modern boats. In order to realize a "reasonable, economic use of the entirety of the property", a functioning boat dock is a necessity.

3. The variance is the minimum deviation from the code requirement necessary to allow a reasonable, economic use of the entire property;

YES. This new boat dock incorporates the existing cut-in slip. Alternatively, a new dock could be constructed at another location and the cut-in slip could be filled so that the owners are allowed "a reasonable, economic use of the <u>entirety</u> of the property" (emphasis added). Filling in the cut-in slip to facilitate "use of the entirety of the property" would involve at least three variances (Fill in the Lake, Fill more than 4 ft., and Land Capture). City staff recommended against this route. The boat dock location is the location recommended by City staff, and it requires one variance for Cut over 4ft. This design is the minimum deviation from the Code.

(City use only)

# **Environmental Resource Inventory**

For the City of Austin Related to LDC 25-8-121, City Code 30-5-121, ECM 1.3.0 & 1.10.0

The ERI is required for projects that meet one or more of the criteria listed in LDC 25-8-121(A), City Code 30-5-121(A).

- 1. SITE/PROJECT NAME: 2. COUNTY APPRAISAL DISTRICT PROPERTY ID (#'s): 3. ADDRESS/LOCATION OF PROJECT: 4. WATERSHED: 5. THIS SITE IS WITHIN THE (Check all that apply) Edwards Aquifer Contributing Zone\*...... Edwards Aguifer 1500 ft Verification Zone\* ...... Note: If the property is over the Edwards Aquifer Recharge zone, the Hydrogeologic Report and karst surveys must be completed and signed by a Professional Geoscientist Licensed in the State of Texas. If yes, then check all that apply:  $\Box$  (1) The floodplain modifications proposed are necessary to protect the public health and safety; (2) The floodplain modifications proposed would provide a significant, demonstrable environmental benefit, as determined by a functional assessment of floodplain health as prescribed by the Environmental Criteria Manual (ECM), or (3) The floodplain modifications proposed are necessary for development allowed in the critical water quality zone under LDC 25-8-261 or 25-8-262, City Code 30-5-261 or 30-5-262. (4) The floodplain modifications proposed are outside of the Critical Water Quality Zone in an area determined to be in poor or fair condition by a functional assessment of floodplain health. \*\* If yes, then a functional assessment must be completed and attached to the ERI (see ECM 1.7 and Appendix X for forms and guidance) unless conditions 1 or 3 above apply. 7. IF THE SITE IS WITHIN AN URBAN OR SUBURBAN WATERSHED, DOES THIS PROJECT PROPOSE A UTILITY LINE PARALLEL TO AND WITHIN THE CRITICAL WATER QUALITY \*\*\*If yes, then riparian restoration is required by LDC 25-8-261(E) or City Code 30-5-261(E) and a functional assessment must be completed and attached to the ERI (see ECM1.5 and Appendix X for forms and guidance). 8. There is a total of \_\_\_\_\_(#'s) Critical Environmental Feature(s)(CEFs) on or within150 feet of the project site. If CEF(s) are present, attach a detailed **DESCRIPTION** of the CEF(s), color
  - **PHOTOGRAPHS**, the **CEF WORKSHEET** and provide **DESCRIPTIONS** of the proposed CEF buffer(s) and/or wetland mitigation. Provide the number of each type of CEFs on or within 150 feet of the site (*Please provide the number of CEFs*):

(#'s) Spring(s)/Seep(s) (#'s) Point Recharge Feature(s) (#'s) Bluff	f(s)
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(#'s) Canyon Rimrock(s) (#'s) Wetland(s)

Note: Standard buffers for CEFs are 150 feet, with a maximum of 300 feet for point recharge features. Except for wetlands, if the standard buffer is <u>not provided</u>, you must provide a written request for an administrative variance from LDC 25-8-281(C)(1) and provide written findings of fact to support your request. <u>Request forms for administrative variances from requirements stated in LDC 25-8-281 are available from Watershed Protection Department.</u>

9. The following site maps are attached at the end of this report (Check all that apply and provide):

All ERI reports must include:

- □ Site Specific Geologic Map with 2-ft Topography ATTACHMENT 1
- □ Historic Aerial Photo of the Site ATTACHMENT 2
- □ Site Soil Map ATTACHMENT 3
- □ Critical Environmental Features and Well Location Map on current Aerial Photo with 2-ft Topography

Only if present on site (Maps can be combined):

- □ Edwards Aquifer Recharge Zone with the 1500-ft Verification Zone (Only if site is over or within 1500 feet the recharge zone)
- **Edwards Aquifer Contributing Zone**
- □ Water Quality Transition Zone (WQTZ)
- Critical Water Quality Zone (CWQZ) ATTACHMENT 1
- □ City of Austin Fully Developed Floodplains for all water courses with up to 64-acres of drainage ATTACHMENT 1
- 10. **HYDROGEOLOGIC REPORT –** Provide a description of site soils, topography, and site specific geology below (*Attach additional sheets if needed*):

**Surface Soils** on the project site is summarized in the table below and uses the SCS Hydrologic Soil Groups\*. If there is more than one soil unit on the project site, show each soil unit on the site soils map.

Soil Series Unit Names, Infiltration Characteristics & Thickness			
Soil Series Unit Name & Subgroup**	Group*	Thickness (feet)	

#### \*Soil Hydrologic Groups Definitions *(Abbreviated)*

- A. Soils having a <u>high infiltration</u> rate when thoroughly wetted.
- B. Soils having a <u>moderate</u> <u>infiltration</u> rate when thoroughly wetted.
- C. Soils having a <u>slow infiltration</u> rate when thoroughly wetted.
- D. Soils having a <u>very slow</u> <u>infiltration</u> rate when thoroughly wetted.

\*\*Subgroup Classification – See <u>Classification of Soil Series</u> Table in County Soil Survey.

### List surface geologic units below:

Geologic Units Exposed at Surface Group Formation Member			
Group	Formation	Member	

Brief description of site geology (Attach additional sheets if needed):

**Wells** – Identify all recorded and unrecorded wells on site (test holes, monitoring, water, oil, unplugged, capped and/or abandoned wells, etc.):

There are \_\_\_\_(#) wells present on the project site and the locations are shown and labeled

\_\_\_\_(#'s)The wells are not in use and have been properly abandoned.

\_\_\_\_(#'s)The wells are not in use and will be properly abandoned.

\_\_\_\_(#'s)The wells are in use and comply with 16 TAC Chapter 76.

There are \_\_\_\_(#'s) wells that are off-site and within 150 feet of this site.

11. **THE VEGETATION REPORT** – Provide the information requested below:

Brief description of site plant communities (Attach additional sheets if needed):

Woodland species						
Common Name	Scientific Name					

Grassland/prairie/savanna species							
Common Name Scientific Name							

Hydrophytic plant species							
Common Name	Scientific Name	Wetland Indicator Status					

A tree survey of all trees with a diameter of at least eight inches measured four and onehalf feet above natural grade level has been completed on the site.

 $\Box$ YES  $\Box$  NO (Check one).

#### 12. WASTEWATER REPORT – Provide the information requested below.

Wastewater for the site will be treated by (Check of that Apply):

- $\Box$  On-site system(s)
- City of Austin Centralized sewage collection system
- Other Centralized collection system

Note: All sites that receive water or wastewater service from the Austin Water Utility must comply with City Code Chapter 15-12 and wells must be registered with the City of Austin

The site sewage collection system is designed and will be constructed to in accordance to all State, County and City standard specifications.  $\Box$ YES  $\Box$  NO (*Check one*).

Calculations of the size of the drainfield or wastewater irrigation area(s) are attached at the end of this report or shown on the site plan.  $\Box$ YES  $\Box$  NO  $\Box$  Not Applicable (*Check one*).

Wastewater lines are proposed within the Critical Water Quality Zone?  $\Box$  YES  $\Box$  NO *(Check one)*. If yes, then provide justification below:

WPD ERM ERI-2014-01

Is the project site is over the Edwards Aquifer? YES NO (Check one).

If yes, then describe the wastewater disposal systems proposed for the site, its treatment level and effects on receiving watercourses or the Edwards Aquifer.

## 13. One (1) hard copy and one (1) electronic copy of the completed assessment have been provided.

Date(s) ERI Field Assessment was performed:

My signature certifies that to the best of my knowledge, the responses on this form accurately reflect all information requested.

Print Name

Signature

Name of Company

For project sites within the Edwards Aquifer Recharge Zone, my signature and seal also certifies that I am a licensed Professional Geoscientist in the State of Texas as defined by ECM 1.12.3(A).

> P.G. Seal

Telephone

Date(s)

**Email Address** 

Date

# City of Austin Environmental Resource Inventory - Critical Environmental Feature Worksheet

1	Project Name:		5	Primary Contact Name
2	Project Address:		6	Phone Number
3	Site Visit Date:	Γ	7	Prepared By
4	Environmental Resource Inventory Date:	] [	8	Email Address

9	FEATURE TYPE {Wetland,Rimrock, Bluffs,Recharge	FEATURE ID (eg S-1)	FEATURE LONGITUI (WGS 1984 in Mete	rs)	FEATURE LATITUD (WGS 1984 in Meter	rs)	DIMENS		DIMEN	CK/BLUFF SIONS (ft)		DIN	/ENS	EATURE	Springs Est. Discharge
	Feature,Spring}	(-87	coordinate	notation	coordinate	notation	Х	Y	Length	Avg Height	Х	Y	Z	Trend	cfs

City of Austin Use Only CASE NUMBER:			Please stat precision a <u>Method</u>	
			GPS	
For rimrock, locate the midpoint of the	For wetlands, locate the	For a spring or seep, locate	Surveyed	
segment that describes the feature.	For wetlands, locate the approximate centroid of the feature and the estimated area.	For a spring or seep, locate the source of groundwater that feeds a pool or stream.	Other	
				Profes
, MARINA CONTRACTOR OF CONTRAC	×	Ċ		

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# ethod of coordinate data collection and the approximate racy of the points and the unit of measurement.

Accuracy

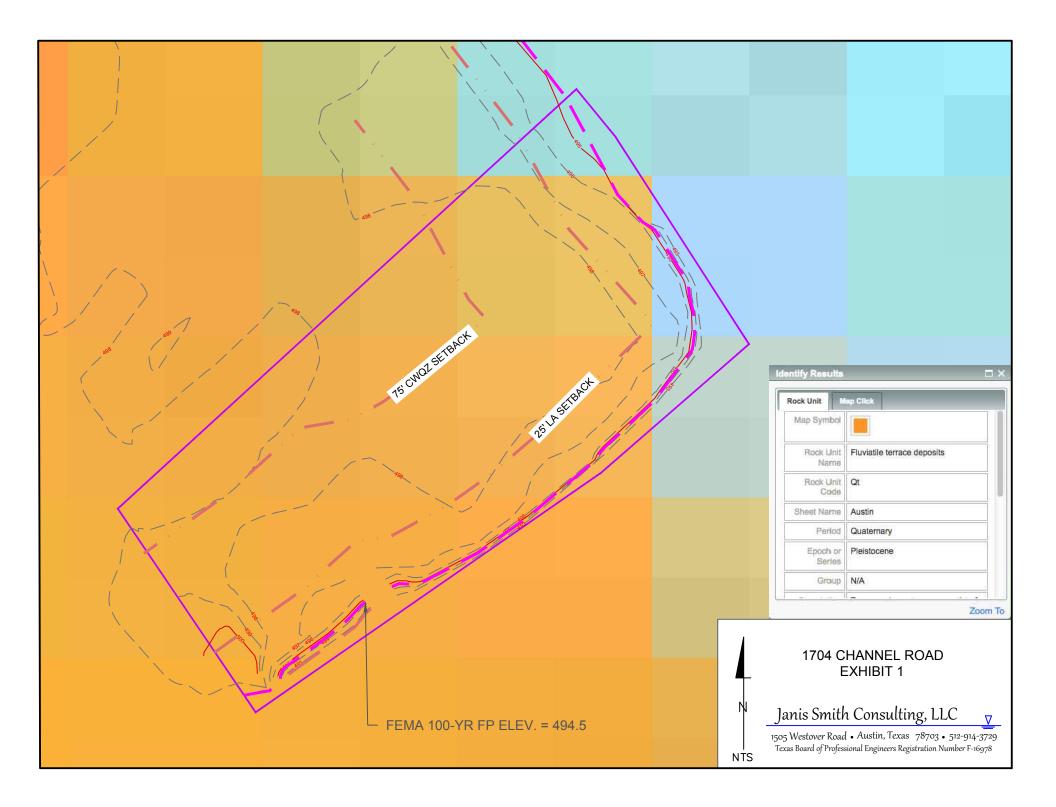
sub-meter 🛛

meter 🛛

> 1 meter

ssional Geologists apply seal below

ATTACHMENT 1 GEOLOGY WITH 2-FT CONTOURS



HISTORIC AERIAL PHOTOS

Aerial Photo from 2002



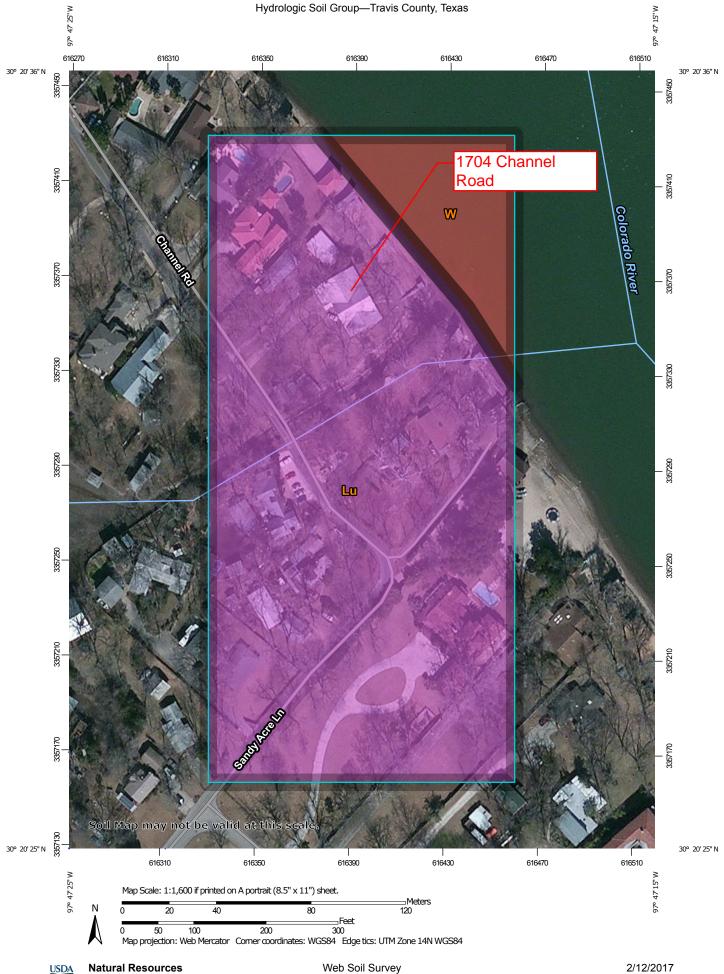
Aerial Photo from 2009



Aerial Photo from 2011



SITE SOIL MAP



National Cooperative Soil Survey

**Conservation Service** 

Page 1 of 4

# Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Travis County, Texas (TX453)									
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI					
Lu	Gaddy soils and Urban land, 0 to 1 percent slopes, occasionally flooded	A	7.8	88.5%					
W	Water	D	1.0	11.5%					
Totals for Area of Inter	est	8.8	100.0%						

# Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.