

# Zilker Park Austin City Limits Staging Area

Water Pollution Abatement Plan  
City of Austin Parks and Recreation Department

January 31, 2018



# Notice

This document and its contents have been prepared and are intended solely for City of Austin Parks and Recreation Department's information and use in relation to the water pollution abatement plan for the Zilker Park Austin City Limits Staging Area project.

Atkins North America assumes no responsibility to any other party in respect of or arising out of or in connection with this document and/or its contents.

This document has 101 pages including the cover.

## Document history

Job number: 100053691			Document ref:			
Revision	Purpose description	Originated	Checked	Reviewed	Authorized	Date
Rev 1.0	Zilker Park ACL Staging Area WPAP	DKS	CER	KNS	SAS	01/26/18
Rev 1.1	Revised Zilker Park ACL Staging Area WPAP	DKS	CER	KNS	SAS	01/31/18

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# **1. TCEQ-20705 Edwards Aquifer Application Cover**

# Texas Commission on Environmental Quality

## Edwards Aquifer Application Cover Page

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### Our Review of Your Application

The Edwards Aquifer Program staff conducts an administrative and technical review of all applications. The turnaround time for administrative review can be up to 30 days as outlined in 30 TAC 213.4(e). Generally administrative completeness is determined during the intake meeting or within a few days of receipt. The turnaround time for technical review of an administratively complete Edwards Aquifer application is 90 days as outlined in 30 TAC 213.4(e). Please know that the review and approval time is directly impacted by the quality and completeness of the initial application that is received. In order to conduct a timely review, it is imperative that the information provided in an Edwards Aquifer application include final plans, be accurate, complete, and in compliance with [30 TAC 213](#).

### Administrative Review

1. [Edwards Aquifer applications](#) must be deemed administratively complete before a technical review can begin. To be considered administratively complete, the application must contain completed forms and attachments, provide the requested information, and meet all the site plan requirements. The submitted application and plan sheets should be final plans. Please submit one full-size set of plan sheets with the original application, and half-size sets with the additional copies.

To ensure that all applicable documents are included in the application, the program has developed tools to guide you and web pages to provide all forms, checklists, and guidance. Please visit the below website for assistance: <http://www.tceq.texas.gov/field/eapp>.

2. This Edwards Aquifer Application Cover Page form (certified by the applicant or agent) must be included in the application and brought to the administrative review meeting.
3. Administrative reviews are scheduled with program staff who will conduct the review. Applicants or their authorized agent should call the appropriate regional office, according to the county in which the project is located, to schedule a review. The average meeting time is one hour.
4. In the meeting, the application is examined for administrative completeness. Deficiencies will be noted by staff and emailed or faxed to the applicant and authorized agent at the end of the meeting, or shortly after. Administrative deficiencies will cause the application to be deemed incomplete and returned.

An appointment should be made to resubmit the application. The application is re-examined to ensure all deficiencies are resolved. The application will only be deemed administratively complete when all administrative deficiencies are addressed.

5. If an application is received by mail, courier service, or otherwise submitted without a review meeting, the administrative review will be conducted within 30 days. The applicant and agent will be contacted with the results of the administrative review. If the application is found to be administratively incomplete, it can be retrieved from the regional office or returned by regular mail. If returned by mail, the regional office may require arrangements for return shipping.
6. If the geologic assessment was completed before October 1, 2004 and the site contains “possibly sensitive” features, the assessment must be updated in accordance with the *Instructions to Geologists* (TCEQ-0585 Instructions).

### Technical Review

1. When an application is deemed administratively complete, the technical review period begins. The regional office will distribute copies of the application to the identified affected city, county, and groundwater conservation district whose jurisdiction includes the subject site. These entities and the public have 30 days to provide comments on the application to the regional office. All comments received are reviewed by TCEQ.

2. A site assessment is usually conducted as part of the technical review, to evaluate the geologic assessment and observe existing site conditions. The site must be accessible to our staff. The site boundaries should be clearly marked, features identified in the geologic assessment should be flagged, roadways marked and the alignment of the Sewage Collection System and manholes should be staked at the time the application is submitted. If the site is not marked the application may be returned.
3. We evaluate the application for technical completeness and contact the applicant and agent via Notice of Deficiency (NOD) to request additional information and identify technical deficiencies. There are two deficiency response periods available to the applicant. There are 14 days to resolve deficiencies noted in the first NOD. If a second NOD is issued, there is an additional 14 days to resolve deficiencies. If the response to the second notice is not received, is incomplete or inadequate, or provides new information that is incomplete or inadequate, the application must be withdrawn or if not withdrawn the application will be denied and the application fee will be forfeited.
4. The program has 90 calendar days to complete the technical review of the application. If the application is technically adequate, such that it complies with the Edwards Aquifer rules, and is protective of the Edwards Aquifer during and after construction, an approval letter will be issued. Construction or other regulated activity may not begin until an approval is issued.

### Mid-Review Modifications

It is important to have final site plans prior to beginning the permitting process with TCEQ to avoid delays.

Occasionally, circumstances arise where you may have significant design and/or site plan changes after your Edwards Aquifer application has been deemed administratively complete by TCEQ. This is considered a "Mid-Review Modification". Mid-Review Modifications may require redistribution of an application that includes the proposed modifications for public comment.

If you are proposing a Mid-Review Modification, two options are available to you:

- You can withdraw your application, and your fees will be refunded or credited for a resubmittal.
- TCEQ can continue the technical review of the application as it was submitted, and a modification application can be submitted at a later time.

If the application is withdrawn, the resubmitted application will be subject to the administrative and technical review processes and will be treated as a new application. The application will be redistributed to the effected jurisdictions.

Please contact the regional office if you have questions. If your project is located in Williamson, Travis, or Hays County, contact TCEQ's Austin Regional Office at 512-339-2929. If your project is in Comal, Bexar, Medina, Uvalde, or Kinney County, contact TCEQ's San Antonio Regional Office at 210-490-3096

Please fill out all required fields below and submit with your application.

<b>1. Regulated Entity Name:</b> CITY OF AUSTIN ZILKER PARK					<b>2. Regulated Entity No.:</b> RN102761764				
<b>3. Customer Name:</b> CITY OF AUSTIN					<b>4. Customer No.:</b> CN600135198				
<b>5. Project Type:</b> (Please circle/check one)	<input checked="" type="radio"/> New	Modification			Extension		Exception		
<b>6. Plan Type:</b> (Please circle/check one)	<input checked="" type="radio"/> WPAP	<input type="radio"/> CZP	<input type="radio"/> SCS	<input type="radio"/> UST	<input type="radio"/> AST	<input type="radio"/> EXP	<input type="radio"/> EXT	Technical Clarification	Optional Enhanced Measures
<b>7. Land Use:</b> (Please circle/check one)	<input type="radio"/> Residential	<input checked="" type="radio"/> Non-residential				<b>8. Site (acres):</b>		12.9	
<b>9. Application Fee:</b>	\$6,500		<b>10. Permanent BMP(s):</b>			Extended Detention/Bioretenction			
<b>11. SCS (Linear Ft.):</b>	0		<b>12. AST/UST (No. Tanks):</b>			0			
<b>13. County:</b>	Travis		<b>14. Watershed:</b>			Lady Bird Lake			

# Application Distribution

Instructions: Use the table below to determine the number of applications required. One original and one copy of the application, plus additional copies (as needed) for each affected incorporated city, county, and groundwater conservation district are required. Linear projects or large projects, which cross into multiple jurisdictions, can require additional copies. Refer to the “Texas Groundwater Conservation Districts within the EAPP Boundaries” map found at:

[http://www.tceq.texas.gov/assets/public/compliance/field\\_ops/eapp/EAPP%20GWCD%20map.pdf](http://www.tceq.texas.gov/assets/public/compliance/field_ops/eapp/EAPP%20GWCD%20map.pdf)

For more detailed boundaries, please contact the conservation district directly.

Austin Region			
County:	Hays	Travis	Williamson
Original (1 req.)	—	_1_	—
Region (1 req.)	—	_1_	—
County(ies)	—	_1_	—
Groundwater Conservation District(s)	___ Edwards Aquifer Authority ___ Barton Springs/ Edwards Aquifer ___ Hays Trinity ___ Plum Creek	_1_ Barton Springs/ Edwards Aquifer	NA
City(ies) Jurisdiction	___ Austin ___ Buda ___ Dripping Springs ___ Kyle ___ Mountain City ___ San Marcos ___ Wimberley ___ Woodcreek	_1_ Austin ___ Bee Cave ___ Pflugerville ___ Rollingwood ___ Round Rock ___ Sunset Valley ___ West Lake Hills	___ Austin ___ Cedar Park ___ Florence ___ Georgetown ___ Jerrell ___ Leander ___ Liberty Hill ___ Pflugerville ___ Round Rock

San Antonio Region					
County:	Bexar	Comal	Kinney	Medina	Uvalde
Original (1 req.)	—	—	—	—	—
Region (1 req.)	—	—	—	—	—
County(ies)	—	—	—	—	—
Groundwater Conservation District(s)	___ Edwards Aquifer Authority ___ Trinity-Glen Rose	___ Edwards Aquifer Authority	___ Kinney	___ EAA ___ Medina	___ EAA ___ Uvalde
City(ies) Jurisdiction	___ Castle Hills ___ Fair Oaks Ranch ___ Helotes ___ Hill Country Village ___ Hollywood Park ___ San Antonio (SAWS) ___ Shavano Park	___ Bulverde ___ Fair Oaks Ranch ___ Garden Ridge ___ New Braunfels ___ Schertz	NA	___ San Antonio ETJ (SAWS)	NA

I certify that to the best of my knowledge, that the application is complete and accurate. This application is hereby submitted to TCEQ for administrative review and technical review.

Chad Richards, PE

Print Name of Customer/Authorized Agent



01/26/18

Signature of Customer/Authorized Agent

Date

**\*\*FOR TCEQ INTERNAL USE ONLY\*\***

Date(s) Reviewed:		Date Administratively Complete:	
Received From:		Correct Number of Copies:	
Received By:		Distribution Date:	
EAPP File Number:		Complex:	
Admin. Review(s) (No.):		No. AR Rounds:	
Delinquent Fees (Y/N):		Review Time Spent:	
Lat./Long. Verified:		SOS Customer Verification:	
Agent Authorization Complete/Notarized (Y/N):		Fee Check:	Payable to TCEQ (Y/N):
Core Data Form Complete (Y/N):			Signed (Y/N):
Core Data Form Incomplete Nos.:			Less than 90 days old (Y/N):

## 2. TCEQ-0587 General Information Form

# General Information Form

## Texas Commission on Environmental Quality

For Regulated Activities on the Edwards Aquifer Recharge and Transition Zones and Relating to 30 TAC §213.4(b) & §213.5(b)(2)(A), (B) Effective June 1, 1999

***To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.***

***Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.***

## Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **General Information Form** is hereby submitted for TCEQ review. The application was prepared by:

Print Name of Customer/Agent: Chad Richards, PE

Date: January 31, 2018

Signature of Customer/Agent:



## Project Information

1. Regulated Entity Name: City of Austin Zilker Park
2. County: Travis
3. Stream Basin: Lady Bird Lake
4. Groundwater Conservation District (If applicable): Barton Springs/Edwards Aquifer
5. Edwards Aquifer Zone:  
☒ Recharge Zone  
☐ Transition Zone
6. Plan Type:  

<input checked="" type="checkbox"/> WPAP	<input type="checkbox"/> AST
<input type="checkbox"/> SCS	<input type="checkbox"/> UST
<input type="checkbox"/> Modification	<input type="checkbox"/> Exception Request

7. Customer (Applicant):

Contact Person: Charles Vaclavik

Entity: City of Austin Parks and Recreation Department

Mailing Address: 200 S Lamar Blvd

City, State: Austin, TX

Zip: 78704

Telephone: 512-974-9471

FAX: 512-974-6756

Email Address: charles.vaclavik@austintexas.gov

8. Agent/Representative (If any):

Contact Person: Chad Richards

Entity: Atkins North America, Inc.

Mailing Address: 17220 Katy Freeway, Building 1, Suite 200

City, State: Houston, Texas

Zip: 77094

Telephone: 281-529-4200

FAX: 713-576-8501

Email Address: chad.richards@atkinsglobal.com

9. Project Location:

- ☒ The project site is located inside the city limits of Austin.
- ☐ The project site is located outside the city limits but inside the ETJ (extra-territorial jurisdiction) of \_\_\_\_\_.
- ☐ The project site is not located within any city's limits or ETJ.

10. ☒ The location of the project site is described below. The description provides sufficient detail and clarity so that the TCEQ's Regional staff can easily locate the project and site boundaries for a field investigation.

Zilker Park east of MoPac Bridge to Lou Neff, Stratford Drive to Lady Bird Lake,  
2236 1/2 Stratford Dr., Austin, TX 78746

11. ☒ **Attachment A – Road Map.** A road map showing directions to and the location of the project site is attached. The project location and site boundaries are clearly shown on the map.

12. ☒ **Attachment B - USGS / Edwards Recharge Zone Map.** A copy of the official 7 ½ minute USGS Quadrangle Map (Scale: 1" = 2000') of the Edwards Recharge Zone is attached. The map(s) clearly show:

- ☒ Project site boundaries.
- ☒ USGS Quadrangle Name(s).
- ☒ Boundaries of the Recharge Zone (and Transition Zone, if applicable).
- ☒ Drainage path from the project site to the boundary of the Recharge Zone.

13. ☒ **The TCEQ must be able to inspect the project site or the application will be returned.** Sufficient survey staking is provided on the project to allow TCEQ regional staff to locate the boundaries and alignment of the regulated activities and the geologic or manmade features noted in the Geologic Assessment.

☐ Survey staking will be completed by this date: \_\_\_\_\_

14. ☒ **Attachment C – Project Description.** Attached at the end of this form is a detailed narrative description of the proposed project. The project description is consistent throughout the application and contains, at a minimum, the following details:

- ☒ Area of the site
- ☒ Offsite areas
- ☒ Impervious cover
- ☒ Permanent BMP(s)
- ☒ Proposed site use
- ☒ Site history
- ☒ Previous development
- ☒ Area(s) to be demolished

15. Existing project site conditions are noted below:

- ☐ Existing commercial site
- ☐ Existing industrial site
- ☐ Existing residential site
- ☐ Existing paved and/or unpaved roads
- ☒ Undeveloped (Cleared)
- ☒ Undeveloped (Undisturbed/Uncleared)
- ☒ Other: Public Park

### ***Prohibited Activities***

16. ☒ I am aware that the following activities are prohibited on the Recharge Zone and are not proposed for this project:

- (1) Waste disposal wells regulated under 30 TAC Chapter 331 of this title (relating to Underground Injection Control);
- (2) New feedlot/concentrated animal feeding operations, as defined in 30 TAC §213.3;
- (3) Land disposal of Class I wastes, as defined in 30 TAC §335.1;
- (4) The use of sewage holding tanks as parts of organized collection systems; and
- (5) New municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41(b), (c), and (d) of this title (relating to Types of Municipal Solid Waste Facilities).
- (6) New municipal and industrial wastewater discharges into or adjacent to water in the state that would create additional pollutant loading.

17. ☐ I am aware that the following activities are prohibited on the Transition Zone and are not proposed for this project:

- (1) Waste disposal wells regulated under 30 TAC Chapter 331 (relating to Underground Injection Control);

- (2) Land disposal of Class I wastes, as defined in 30 TAC §335.1; and
- (3) New municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41 (b), (c), and (d) of this title.

### ***Administrative Information***

18. The fee for the plan(s) is based on:

- ☒ For a Water Pollution Abatement Plan or Modification, the total acreage of the site where regulated activities will occur.
- ☐ For an Organized Sewage Collection System Plan or Modification, the total linear footage of all collection system lines.
- ☐ For a UST Facility Plan or Modification or an AST Facility Plan or Modification, the total number of tanks or piping systems.
- ☐ A request for an exception to any substantive portion of the regulations related to the protection of water quality.
- ☐ A request for an extension to a previously approved plan.

19. ☒ Application fees are due and payable at the time the application is filed. If the correct fee is not submitted, the TCEQ is not required to consider the application until the correct fee is submitted. Both the fee and the Edwards Aquifer Fee Form have been sent to the Commission's:

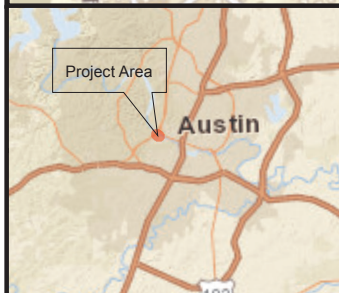
- ☐ TCEQ cashier
- ☒ Austin Regional Office (for projects in Hays, Travis, and Williamson Counties)
- ☐ San Antonio Regional Office (for projects in Bexar, Comal, Kinney, Medina, and Uvalde Counties)

20. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.

21. ☒ No person shall commence any regulated activity until the Edwards Aquifer Protection Plan(s) for the activity has been filed with and approved by the Executive Director.

**ATTACHMENT A**

**Road Map**



Coordinate System: NAD 1983 StatePlane Texas Central FIPS 4203 Feet  
 Projection: Lambert Conformal Conic  
 Datum: North American 1983  
 False Easting: 2,096,583.3333  
 False Northing: 9,842,500.0000  
 Central Meridian: -100.3333  
 Standard Parallel 1: 30.1167  
 Standard Parallel 2: 31.8833  
 Latitude Of Origin: 29.6667  
 Units: Foot US



0 500 1,000  
 Feet

## Legend

 Project Site

**ATKINS**  
 Member of the SNC-Lavalin Group

### Attachment A

### Road Map Zilker Park Austin City Limits Staging Area City of Austin

Travis County, Texas

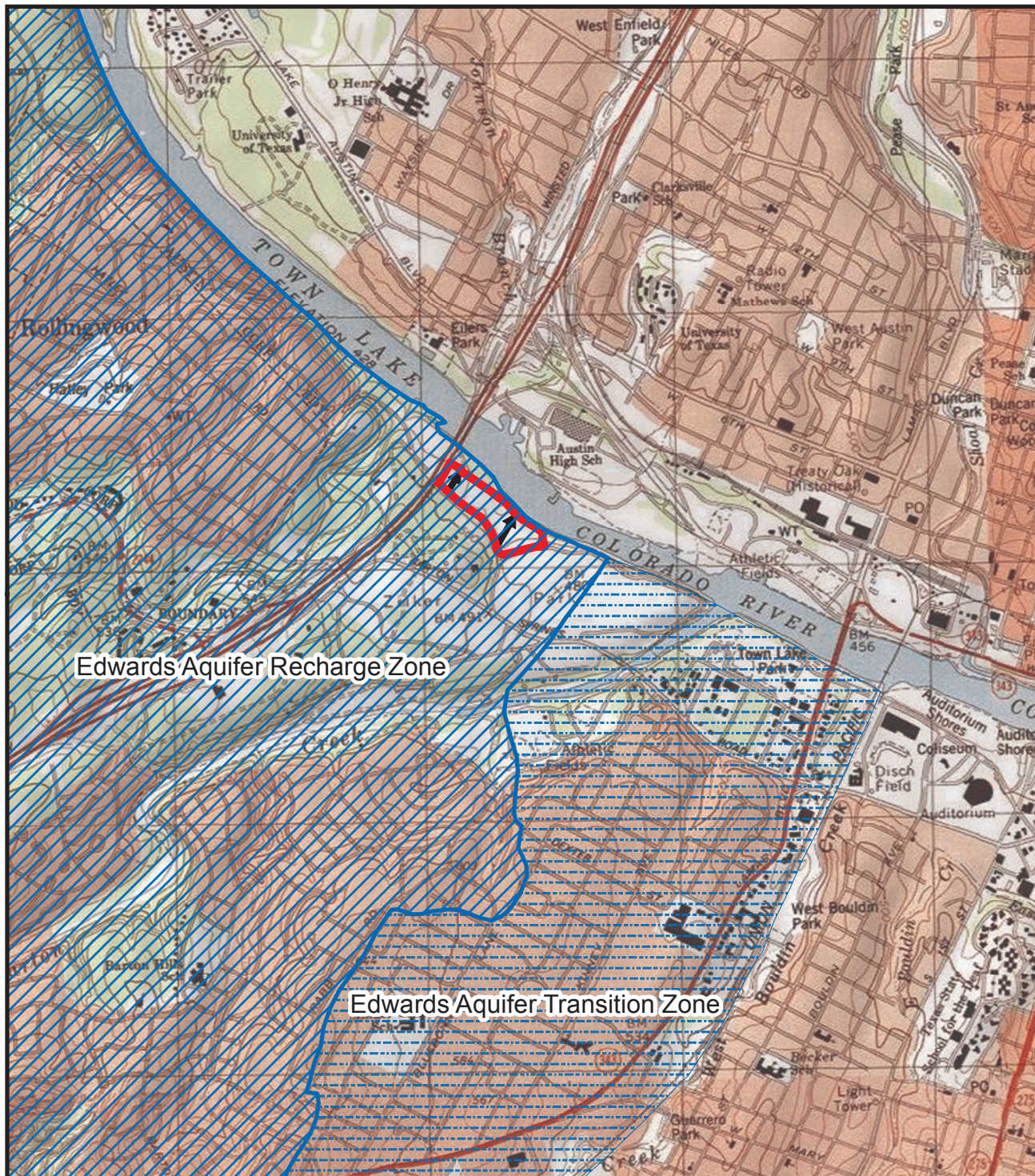
Prepared By: Atkins/SIEG7671 1 inch = 1,250 feet

Job No.: 100053691 Date: Jan 26, 2018

File: O:\Water Resources\Stormwater Compliance\PROJECTS\100053691 Zilker WP\APR\GIS\mxd\Attachment A.mxd

**ATTACHMENT B**

**USGS / Edwards Recharge Zone Map**



Coordinate System: NAD 1983 StatePlane Texas Central FIPS 4203 Feet  
 Projection: Lambert Conformal Conic  
 Datum: North American 1983  
 False Easting: 2,096,583.3333  
 False Northing: 9,842,500.0000  
 Central Meridian: -100.3333  
 Standard Parallel 1: 30.1167  
 Standard Parallel 2: 31.8833  
 Latitude Of Origin: 29.6667  
 Units: Foot US

- Legend**
- Edwards Aquifer Recharge Zone
  - Edwards Aquifer Transition Zone
  - Project Site
  - Drainage Paths

7.5 Minute USGS Quadrangle Map  
 USGS Quad Number: 30097C7  
 USGS Quad Name: AUSTIN WEST



0 500 1,000  
 Feet

**ATKINS**  
 Member of the SNC-Lavalin Group

## Attachment B

**Zilker Park Austin City Limits Staging Area  
 City of Austin**

**Travis County, Texas**

Prepared By: Atkins/SIEG7671

1 inch = 2,000 feet

Job No.: 100053691

Date: Jan 26, 2018

File: O:\Water Resources\Stormwater Compliance\PROJECTS\100053691 Zilker WPAP\WR\GIS\mxd\Attachment B.mxd

# Attachment C: Project Description

The proposed project is located in Austin, Travis County, Texas. The proposed site is located within Zilker Park between Stratford Lane and Lady Bird Lake, east of Mopac Boulevard. The project proposes to create a stabilized staging area for the Austin City Limits (ACL) festival support facilities with a construction area of 12.9 acres.

The project site is located on top of the existing Butler Landfill cap and fully within the Edwards Aquifer Recharge Zone. The limits of construction are fully within the existing Butler Landfill cap and no undisturbed areas will be disturbed by the project. The project is within the 500-year floodplain base flood elevation, but none of the proposed activities are within the 100-year base flood elevation. Some demolition and clearing of the project site will be necessary; this includes the removal of wood bollards, trees, fence line, and entrances.

Existing drainage areas drain into either a swale or wetland and are discharged into Lady Bird Lake via a 36-inch storm drain outlet. There is no existing impervious cover within the proposed limits of construction. The proposed impervious area is 7.87 acres which is made up of crushed stone, pervious pavers, concrete walkways, concrete driveways, and rip-rap.

In the proposed condition, approximately 10.67 acres drain from the construction areas containing impervious cover of the project to a proposed onsite pond. Approximately 16.85 acres of off-site drainage will flow towards the project area, but it will be intercepted by a proposed swale that discharges directly into Lady Bird Lake via a 36-inch storm drain.

The water quality goal is to remove 80% of the increased total suspended solids (TSS) from the proposed development. As presented in the design calculations (Permanent Stormwater Section), this will be accomplished using an onsite water quality pond that will consist of a combined extended detention basin and bioretention facility. The design calculations demonstrate that approximately 7.87 acres of impervious cover will drain onsite and will require 6,850-lbs of TSS removal. The onsite water quality pond is sufficient for the removal of TSS on this project, and will be located on the eastern end of the project site (see drainage area map, Attachment G of Temporary Stormwater Section).

## Geologic Assessment Exception

Although the proposed project site is located within the Edwards Aquifer Recharge Zone, a geological assessment exception is requested (see Attachment D of WPAP Application Section). Existing geological features have been covered by the landfill and cap and no natural geologic formations remain. The site was excavated as a quarry and subsequently filled with mostly domestic waste and then covered with an imported clay cap approximately 4 feet thick. The limits of construction are fully within the existing Butler Landfill cap and no undisturbed areas will be disturbed by the project.

## Temporary Controls

Temporary stormwater control measures will be used to mitigate soil loss in a manner that is consistent with best management practices (BMPs). This will include the use of rock berms, silt fences, a stabilized construction entrance, sediment traps and filter bags, and diversions. See Temporary Stormwater Section for additional information.

### **3. TCEQ-0584 Water Pollution Abatement Plan Application**

# Water Pollution Abatement Plan Application

## Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(b), Effective June 1, 1999

*To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.*

*Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.*

## Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **Water Pollution Abatement Plan Application Form** is hereby submitted for TCEQ review and Executive Director approval. The form was prepared by:

Print Name of Customer/Agent: Chad Richards, PE

Date: January 26, 2018

Signature of Customer/Agent:



Regulated Entity Name: City of Austin Zilker Park

## Regulated Entity Information

1. The type of project is:

- ☐ Residential: Number of Lots: \_\_\_\_\_
- ☐ Residential: Number of Living Unit Equivalents: \_\_\_\_\_
- ☐ Commercial
- ☐ Industrial
- ☒ Other: Public/Park Redevelopment

2. Total site acreage (size of property): 12.9

3. Estimated projected population: 0

4. The amount and type of impervious cover expected after construction are shown below:

**Table 1 - Impervious Cover Table**

Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft./Acre	Acres
Structures/Rooftops	1,495	$\div 43,560 =$	0.03
Parking	281,775	$\div 43,560 =$	6.47
Other paved surfaces	59,605	$\div 43,560 =$	1.37
Total Impervious Cover	342,875	$\div 43,560 =$	7.87

**Total Impervious Cover 7.87  $\div$  Total Acreage 12.9 X 100 = 61.01% Impervious Cover**

5. ☒ **Attachment A - Factors Affecting Surface Water Quality.** A detailed description of all factors that could affect surface water and groundwater quality that addresses ultimate land use is attached.
6. ☒ Only inert materials as defined by 30 TAC §330.2 will be used as fill material.

### ***For Road Projects Only***

**Complete questions 7 - 12 if this application is exclusively for a road project.**

7. Type of project:

- ☐ TXDOT road project.
- ☐ County road or roads built to county specifications.
- ☐ City thoroughfare or roads to be dedicated to a municipality.
- ☐ Street or road providing access to private driveways.

8. Type of pavement or road surface to be used:

- ☐ Concrete
- ☐ Asphaltic concrete pavement
- ☐ Other: \_\_\_\_\_

9. Length of Right of Way (R.O.W.): \_\_\_\_\_ feet.

Width of R.O.W.: \_\_\_\_\_ feet.

$L \times W =$  \_\_\_\_\_  $\text{Ft}^2 \div 43,560 \text{ Ft}^2/\text{Acre} =$  \_\_\_\_\_ acres.

10. Length of pavement area: \_\_\_\_\_ feet.

Width of pavement area: \_\_\_\_\_ feet.

$L \times W =$  \_\_\_\_\_  $\text{Ft}^2 \div 43,560 \text{ Ft}^2/\text{Acre} =$  \_\_\_\_\_ acres.

Pavement area \_\_\_\_\_ acres  $\div$  R.O.W. area \_\_\_\_\_ acres  $\times 100 =$  \_\_\_\_\_ % impervious cover.

11. ☐ A rest stop will be included in this project.

☐ A rest stop will not be included in this project.

12. ☐ Maintenance and repair of existing roadways that do not require approval from the TCEQ Executive Director. Modifications to existing roadways such as widening roads/adding shoulders totaling more than one-half (1/2) the width of one (1) existing lane require prior approval from the TCEQ.

### ***Stormwater to be generated by the Proposed Project***

13. ☒ **Attachment B - Volume and Character of Stormwater.** A detailed description of the volume (quantity) and character (quality) of the stormwater runoff which is expected to occur from the proposed project is attached. The estimates of stormwater runoff quality and quantity are based on the area and type of impervious cover. Include the runoff coefficient of the site for both pre-construction and post-construction conditions.

### ***Wastewater to be generated by the Proposed Project***

14. The character and volume of wastewater is shown below:

<u>0</u> % Domestic	<u>0</u> Gallons/day
<u>0</u> % Industrial	<u>0</u> Gallons/day
<u>0</u> % Commingled	<u>0</u> Gallons/day
TOTAL gallons/day <u>0</u>	

15. Wastewater will be disposed of by:

☐ On-Site Sewage Facility (OSSF/Septic Tank):

☐ **Attachment C - Suitability Letter from Authorized Agent.** An on-site sewage facility will be used to treat and dispose of the wastewater from this site. The appropriate licensing authority's (authorized agent) written approval is attached. It states that the land is suitable for the use of private sewage facilities and will meet or exceed the requirements for on-site sewage facilities as specified under 30 TAC Chapter 285 relating to On-site Sewage Facilities.

☐ Each lot in this project/development is at least one (1) acre (43,560 square feet) in size. The system will be designed by a licensed professional engineer or registered sanitarian and installed by a licensed installer in compliance with 30 TAC Chapter 285.

☐ Sewage Collection System (Sewer Lines):

☐ Private service laterals from the wastewater generating facilities will be connected to an existing SCS.

☐ Private service laterals from the wastewater generating facilities will be connected to a proposed SCS.

☐ The SCS was previously submitted on \_\_\_\_.

☐ The SCS was submitted with this application.

☐ The SCS will be submitted at a later date. The owner is aware that the SCS may not be installed prior to Executive Director approval.

☐ The sewage collection system will convey the wastewater to the \_\_\_\_\_ (name) Treatment Plant. The treatment facility is:

☐ Existing.

☐ Proposed.

16. ☐ All private service laterals will be inspected as required in 30 TAC §213.5.

## **Site Plan Requirements**

**Items 17 – 28 must be included on the Site Plan.**

17. ☒ The Site Plan must have a minimum scale of 1" = 400'.

Site Plan Scale: 1" = 60'.

18. 100-year floodplain boundaries:

☐ Some part(s) of the project site is located within the 100-year floodplain. The floodplain is shown and labeled.

☒ No part of the project site is located within the 100-year floodplain.

The 100-year floodplain boundaries are based on the following specific (including date of material) sources(s): FEMA, Flood Insurance Rate Map for Travis County, Texas and Incorporated Areas, Panel Number 0445J, Map Number 48453C0445J, Revised January 6, 2016

19. ☒ The layout of the development is shown with existing and finished contours at appropriate, but not greater than ten-foot contour intervals. Lots, recreation centers, buildings, roads, open space, etc. are shown on the plan.

☐ The layout of the development is shown with existing contours at appropriate, but not greater than ten-foot intervals. Finished topographic contours will not differ from the existing topographic configuration and are not shown. Lots, recreation centers, buildings, roads, open space, etc. are shown on the site plan.

20. All known wells (oil, water, unplugged, capped and/or abandoned, test holes, etc.):

☐ There are \_\_\_\_\_ (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply)

☐ The wells are not in use and have been properly abandoned.

☐ The wells are not in use and will be properly abandoned.

☐ The wells are in use and comply with 16 TAC §76.

☒ There are no wells or test holes of any kind known to exist on the project site.

21. Geologic or manmade features which are on the site:

☐ All sensitive geologic or manmade features identified in the Geologic Assessment are shown and labeled.

☐ No sensitive geologic or manmade features were identified in the Geologic Assessment.

- ☒ **Attachment D - Exception to the Required Geologic Assessment.** A request and justification for an exception to a portion of the Geologic Assessment is attached.
22. ☒ The drainage patterns and approximate slopes anticipated after major grading activities.
23. ☒ Areas of soil disturbance and areas which will not be disturbed.
24. ☒ Locations of major structural and nonstructural controls. These are the temporary and permanent best management practices.
25. ☒ Locations where soil stabilization practices are expected to occur.
26. ☒ Surface waters (including wetlands).
- ☐ N/A
27. ☒ Locations where stormwater discharges to surface water or sensitive features are to occur.
- ☐ There will be no discharges to surface water or sensitive features.
28. ☒ Legal boundaries of the site are shown.

### ***Administrative Information***

29. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.
30. ☒ Any modification of this WPAP will require Executive Director approval, prior to construction, and may require submission of a revised application, with appropriate fees.

# Attachment A: Factors Affecting Surface Water Quality

Water quality is affected by activities during and after construction. During construction, temporary controls will be in place to minimize the effects of construction. After construction, permanent controls will function to reduce the impact of the proposed development.

Construction activities that could potentially affect water quality include construction vehicle traffic, handling of construction equipment and materials, fuels, etc. Loose soil carries the risk of sediment pollution to natural water and the Aquifer. Temporary sediment barriers (rock berms and silt fences), sediment traps, dewatering filter bags, diversions, and a stabilized construction entrance and exit will be used during construction to prevent sediment pollution. Other activities include the handling and disposal of waste materials, hazardous waste, and sanitary waste which pose a risk of contamination. Guidelines for these activities are specified in accordance to the TCEQ Construction General Permit (TXR150000) Stormwater Pollution Prevention Plan.

Permanent factors that impact water quality include future construction, landscape practices, runoff from on-site impervious cover, etc. An onsite water quality pond that will consist of a combined extended detention basin and bioretention facility will capture and remove 80% of the total suspended solids loading anticipated by increases in impervious cover, per the Edwards Aquifer Rules as presented in the design calculations (Permanent Stormwater Section).

# Attachment B: Volume and Character of Stormwater

The project site is fully located within the Edwards Aquifer Recharge Zone. Localized drainage considerations were made for on-site and off-site areas. Approximately 16.85 acres of off-site drainage is to be intercepted by a proposed swale and discharged into Lady Bird Lake via a proposed 36-inch storm drain outlet. Approximately 10.67 acres will drain from the limits of construction from onsite drainage areas into a proposed water quality pond.

In addition to the 36-inch proposed storm drain outfall, there is one existing storm drain outfall (36-inches) that is to remain. The existing storm drain will be directly connected to the proposed water quality pond. It will be responsible for discharging the stormwater collected from onsite drainage areas. Both of the outfalls were designed for 25-year frequency storm event flow rates.

The character (quality) of the onsite runoff is considered typical for a staging area with the majority of the site being impervious. Conventional treatment techniques are expected to provide adequate water quality controls. Permanent factors that impact water quality include landscape practices and runoff from onsite impervious cover.

The water quality goal is to remove 80% of the increased total suspended solids (TSS) from the proposed project. This will be accomplished using an onsite water quality pond that will consist of a combined extended detention basin and bioretention facility. There is no existing impervious cover within the proposed limits of construction. The pre-construction runoff coefficient for a 25-year storm frequency is approximately 0.42, and the post-construction runoff coefficient for a 25-year storm frequency is approximately 0.72. The proposed project adds 7.87 acres of impervious cover requiring 6,850-lbs of TSS removal. The proposed onsite water quality pond is sufficient for the removal of TSS on this project, and will be located on the eastern end of the project site. The City of Austin has agreed to maintain and upkeep this pond, and follow the maintenance requirements listed out in Attachment G of the Permanent Stormwater Section.

The drainage area map in Attachment G of the Temporary Stormwater Section shows the outfall locations, flow paths, and the location of the water quality pond.

# **Attachment D: Exception to the Required Geologic Assessment**

Although the proposed project site is located within the Edwards Aquifer Recharge Zone, a geological assessment exception is requested. Existing geological features have been covered by the landfill and cap and no natural geologic formations remain. The site was excavated as a quarry and subsequently filled with mostly domestic waste and then covered with an imported clay cap approximately 4 feet thick. The limits of construction are fully within the existing Butler Landfill cap and no undisturbed areas will be disturbed by the project. Please refer to the following project boring logs, geologic and soils maps, and landfill information.

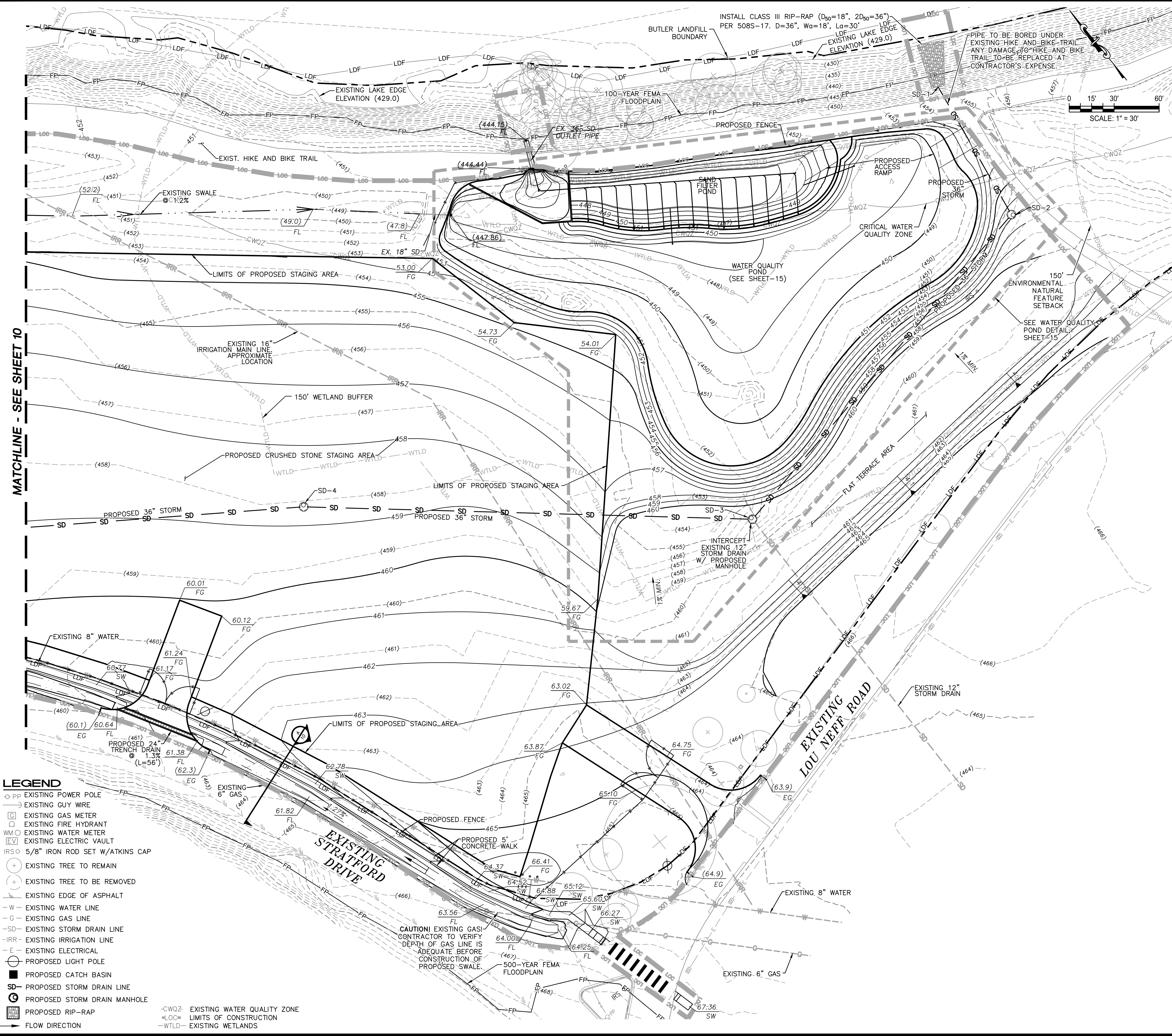
**ATTACHMENT**

**Site Plan**





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- LEGEND**
- PP EXISTING POWER POLE
  - EXISTING GUY WIRE
  - ⊕ EXISTING GAS METER
  - ⊕ EXISTING FIRE HYDRANT
  - WM EXISTING WATER METER
  - ⊕ EXISTING ELECTRIC VAULT
  - IRS 5/8" IRON ROD SET W/ATKINS CAP
  - ⊕ EXISTING TREE TO REMAIN
  - ⊕ EXISTING TREE TO BE REMOVED
  - EXISTING EDGE OF ASPHALT
  - W EXISTING WATER LINE
  - G EXISTING GAS LINE
  - SD EXISTING STORM DRAIN LINE
  - IRR EXISTING IRRIGATION LINE
  - E EXISTING ELECTRICAL
  - ⊕ PROPOSED LIGHT POLE
  - PROPOSED CATCH BASIN
  - SD PROPOSED STORM DRAIN LINE
  - ⊕ PROPOSED STORM DRAIN MANHOLE
  - PROPOSED RIP-RAP
  - CWOZ EXISTING WATER QUALITY ZONE
  - LCC LIMITS OF CONSTRUCTION
  - WTLD EXISTING WETLANDS
  - FLOW DIRECTION

- GRADING PLAN NOTES**
- CONTRACTOR TO ADJUST PAVEMENTS AND CURBS SO THAT THERE ARE SMOOTH TRANSITIONS BETWEEN EXISTING AND PROPOSED.
  - FINAL EXPOSED SUBGRADE SURFACES SHALL BE PROOF ROLLED WITH A SOIL COMPACTOR HAVING A STATIC WEIGHT OF AT LEAST 20 TONS, SUCH AS A CATERPILLAR 815F, TO DETERMINE AREAS OF SOFT OR PUMPING SUBGRADE. SUCH SUBGRADE, ORGANIC MATERIAL, OR OTHER DELETERIOUS MATERIAL SHALL BE UNDERCUT AND REPLACED WITH CRUSHED LESTONE BASE MATERIAL AND COMPACTED TO DENSITY OF ADJACENT MATERIAL.
  - SCARIFY AT LEAST 6 INCHES OF THE CUT, PROOF ROLLED SUBGRADE AND RECOMPACT TO A MINIMUM OF 95% OF MAXIMUM DENSITY AS DETERMINED BY TEX-114-E. MOISTURE CONTENT SHALL BE BETWEEN -1% AND +3% OF OPTIMUM.
  - ALL GRADES OUTSIDE OF PAVEMENT SHALL BE 1% MIN. OR 3:1 (33%) MAX. CONTRACTOR TO INSURE POSITIVE DRAINAGE IN GRASSY AREAS AND PAVED AREAS.
  - ACCESSIBLE ROUTES MUST HAVE A CROSS-SLOPE NO GREATER THAN 1:50 (2%) AND RUNNING SLOPES MAY NOT EXCEED 1:20 (5%) UNLESS DESIGNED AS A RAMP.
  - SEE SHEET 17 FOR STORM DRAIN PROFILE.
  - SEE SHEET 6 FOR TRENCH DRAIN & SWALE INFORMATION
  - ADD 400 TO PLAN GRADES, EXCLUDING EXISTING AND PROPOSED CONTOURS.
  - THE INFORMATION SHOWN ON THESE DRAWINGS INDICATING THE SIZE, TYPE, AND LOCATION OF ANY UNDERGROUND, SURFACE, AND AERIAL UTILITIES OR OTHER EXISTING FEATURES IS NOT GUARANTEED TO BE EXACT OR COMPLETE. THE CONTRACTOR SHALL CONTACT THE AUSTIN AREA "ONE CALL" SYSTEM (1-800-344-8377) FOR EXISTING UTILITY LOCATIONS AT LEAST 48 HOURS PRIOR TO BEGINNING ANY EXCAVATION. THE CONTRACTOR SHALL ALSO BE FULLY RESPONSIBLE FOR FIELD VERIFYING LOCATIONS AND ELEVATIONS OF ALL EXISTING UTILITIES AFFECTED BY THIS PROJECT'S CONSTRUCTION, IN ORDER TO AVOID DAMAGING THOSE UTILITIES, AND SHALL IMMEDIATELY ARRANGE FOR REPAIR AND RESTORATION OF CONTRACTOR-DAMAGED UTILITIES, TO THE SATISFACTION OF THE UTILITY COMPANY, AT THE EXPENSE OF THE CONTRACTOR.

- CONCRETE NOTES**
- (UNLESS SPECIFIED OTHERWISE IN THE PLANS OR SPECIFICATIONS):
- ALL CONCRETE WORK, DETAILS, AND CONSTRUCTION METHODS SHALL CONFORM WITH THE PROVISIONS OF THE AMERICAN CONCRETE INSTITUTE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" AND LOCAL BUILDING CODES. IF CODES CONFLICT, LOCAL CODE SHALL TAKE PRECEDENCE.
  - CONCRETE COMPRESSIVE STRENGTH SHALL BE A MINIMUM OF 3000 PSI AT 28 DAYS. IN NO CASE SHALL THE PORTLAND CEMENT FACTOR BE LESS THAN 5.8 BAGS PER CUBIC YARD OF CONCRETE. THE MAXIMUM WATER-CEMENT RATIO SHALL BE 5.6 GALLONS PER BAG. THE AMOUNT OF WATER REQUIRED SHALL BE SUFFICIENT TO PRODUCE CONCRETE WITH A SLUMP OF 4 TO 6 INCHES.
  - ALL REINFORCING STEEL SHALL CONFORM TO THE CURRENT REQUIREMENTS OF ASTM A-615-60, EXCEPT WELDED STEEL WIRE MESH - WHICH SHALL MEET ASTM A-185.
  - ALL CONCRETE SURFACES TO HAVE MEDIUM BROOM FINISH. CHAMFER ALL EXPOSED EDGES OF CONCRETE ONE INCH (1"), UNLESS OTHERWISE NOTED.
  - CONCRETE COVER ON ALL REINFORCEMENT SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED:
    - \* CONCRETE PLACED AGAINST SOIL - 3"
    - \* EXPOSED FORMED SURFACES - 2"
    - \* FLOOR SLABS - 2" FROM TOP SURFACES
  - PAVEMENT SUBBASE SHALL MEET TXDOT GRANULAR SUBBASE, GRADATION #12, COMPACTED TO 95% STANDARD PROCTOR.
  - EXTERIOR CONCRETE SHALL BE AIR ENTRAINED.
  - ANY DESIGN CHANGES SHALL BE APPROVED BY THE ENGINEER.

THESE PLANS ARE COMPLETE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND IN COMPLIANCE WITH THE CITY OF AUSTIN DEVELOPMENT CODE.

**SITE PLAN APPROVAL** Sheet 11 of 21

FILE NUMBER: SP-XXXX-XXXXX APPLICATION DATE: XX/XX/XX  
APPROVED BY COMMISSION ON N/A UNDER SECTION - XXX OF CHAPTER - XX-2 OF THE CITY OF AUSTIN CODE.  
EXPIRATION DATE (25-5-81, LDC) CASE MANAGER XXXXXXXXXX  
PROJECT EXPIRATION DATE (ORD.#970905-A) DWPZ DDZ

Director, Development Review Department

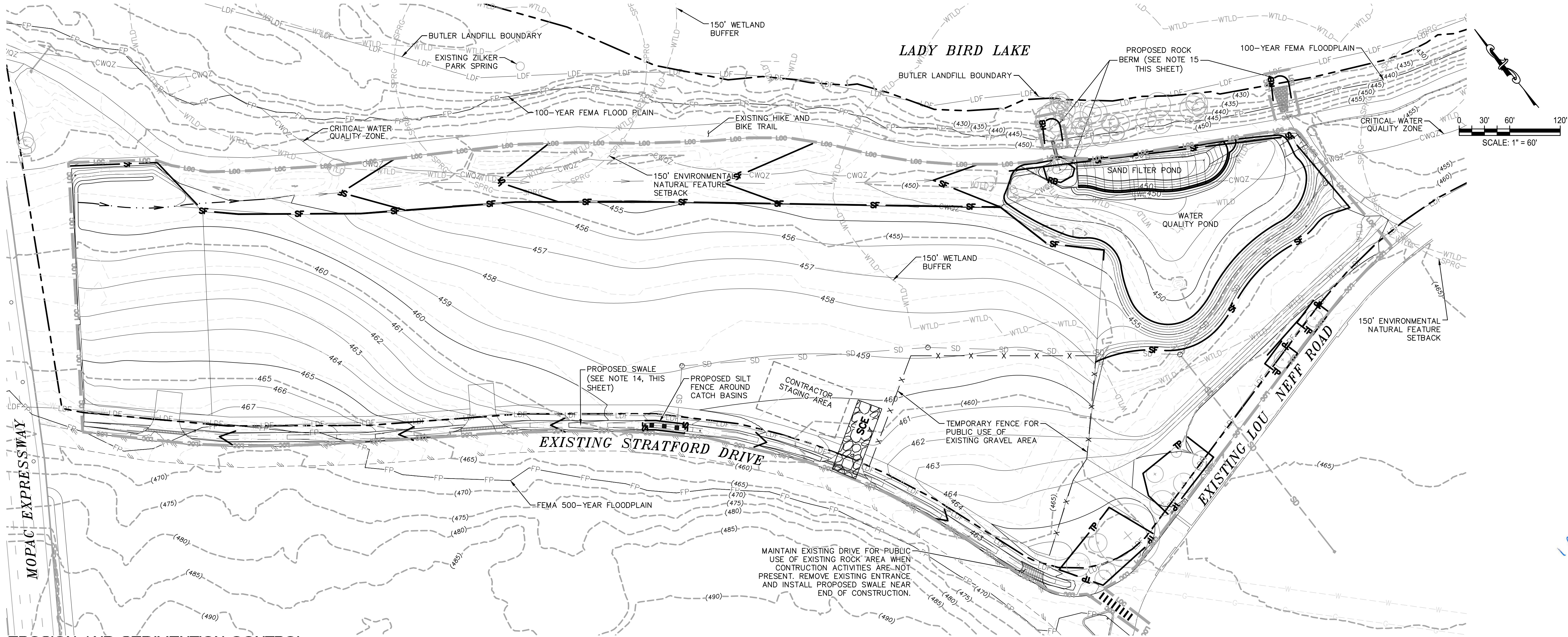
RELEASE FOR GENERAL COMPLIANCE: \_\_\_\_\_ Zoning: \_\_\_\_\_

Rev. 1 \_\_\_\_\_ Correction 1 \_\_\_\_\_  
Rev. 2 \_\_\_\_\_ Correction 2 \_\_\_\_\_  
Rev. 3 \_\_\_\_\_ Correction 3 \_\_\_\_\_

Final plot must be recorded by the Project Expiration Date, if applicable. Subsequent Site Plans which do not comply with the Code current at the time of filing, and all required Building Permits and/or a notice of construction (if a building permit is not required), must also be approved prior to the Project Expiration Date.

DESIGNED BY: NAB/CEA	DRAWN BY: JLC	CHECKED BY: PAB/TPB	APPROVED BY: SAS	DATE: JANUARY, 2018	REVISION: NO.	BY/DATE
<b>ATKINS</b> 1881 DOMAN BOULEVARD, SUITE 500 AUSTIN, TEXAS 78748-1474 TBP REG. NO. 1474						01/03/18
						01/03/18
ZILKER PARK AUSTIN CITY LIMITS STAGING AREA SITE DEVELOPMENT PERMIT PLANS						SHEET NO. 11
GRADING PLAN						OF 21 SHEETS
PROJECT NO. 100053691						FILE NO. 53691-08-GRAD
SP-XXXX-XXXXX						

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### EROSION AND SEDIMENTATION CONTROL AND TREE PROTECTION NOTES

- THE INFORMATION SHOWN ON THESE DRAWINGS INDICATING THE SIZE, TYPE, AND LOCATION OF ANY UNDERGROUND, SURFACE, AND AERIAL UTILITIES OR OTHER EXISTING FEATURES IS NOT GUARANTEED TO BE EXACT OR COMPLETE. THE CONTRACTOR SHALL CONTACT THE AUSTIN AREA "ONE CALL" SYSTEM (1-800-344-8377) FOR EXISTING UTILITY LOCATIONS AT LEAST 48 HOURS PRIOR TO BEGINNING ANY EXCAVATION. THE CONTRACTOR SHALL ALSO BE FULLY RESPONSIBLE FOR FIELD VERIFYING LOCATIONS AND ELEVATIONS OF ALL EXISTING UTILITIES AFFECTED BY THIS PROJECT'S CONSTRUCTION, IN ORDER TO AVOID DAMAGING THOSE UTILITIES, AND SHALL IMMEDIATELY ARRANGE FOR REPAIR AND RESTORATION OF CONTRACTOR-DAMAGED UTILITIES, TO THE SATISFACTION OF THE UTILITY COMPANY, AT THE EXPENSE OF THE CONTRACTOR.
- THE CONTRACTOR SHALL CONTACT ATKINS WITH ANY ITEMS ON THESE PLANS THAT NEED CLARIFICATION OR ANY FIELD CONDITIONS THAT ARE NOT CONSISTENT WITH THESE PLANS.
- THE CONTRACTOR SHALL USE CARE AND NOT DAMAGE ANY EXISTING SIDEWALKS, DRIVES, STREETS, OR OTHER FEATURES, THAT ARE NOT PART OF THIS PROJECT. ANY CONTRACTOR DAMAGE SHALL BE REPAIRED TO THE OWNER'S SATISFACTION, AT THE CONTRACTOR'S EXPENSE.
- DIGITAL FILES TO BE PROVIDED TO CONTRACTOR FOR HORIZONTAL LAYOUT.
- REFER TO SHEET-2 FOR EROSION /SEDIMENTATION AND TREE PROTECTION NOTES.
- REFER TO SHEET 4 FOR TREE PROTECTION DETAILS
- REFER TO SHEET 18 FOR EROSION /SEDIMENTATION CONTROL DETAILS.
- ADEQUATE BARRIERS BETWEEN ALL VEHICULAR USE AREAS AND ADJACENT LANDSCAPE AREAS, SUCH AS CONCRETE CURBS OR WHEEL STOPS, ARE REQUIRED AND MUST COMPLY WITH COA ENVIRONMENTAL CRITERIA MANUAL (ECM), SECTION 2.4.7, "PROTECTION OF LANDSCAPE AREAS."
- THE ENVIRONMENTAL INSPECTOR HAS THE AUTHORITY TO ADD AND/OR MODIFY EROSION/SEDIMENTATION CONTROLS ON SITE TO KEEP THE PROJECT IN COMPLIANCE WITH THE CITY OF AUSTIN RULES AND REGULATIONS.
- IF DISTURBED AREA IS NOT TO BE WORKED ON FOR MORE THAN 14 DAYS, DISTURBED AREA NEEDS TO BE STABILIZED BY REVEGETATION, MULCH, TARP OR REVEGETATION MATTING. (ECM 1.4.4.B.3, SECTION 5, I.)
- THE CONTRACTOR SHALL UTILIZE DUST CONTROL MEASURES DURING SITE CONSTRUCTION SUCH AS IRRIGATION TRUCKS AND MULCHING AS PER ECM 1.4.5(A), OR AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR.
- THE CONTRACTOR WILL CLEAN UP SPOILS THAT MIGRATE ONTO THE ROADS A MINIMUM OF ONCE DAILY. (ECM 1.4.4.D.4)
- INITIATE FINAL SLOPE STABILIZATION WITH 7 DAYS OF ACHIEVING FINAL GRADE.
- THE CONTRACTOR SHALL PLACE THE SEDIMENT FENCE IN THE PROPOSED SWALE UPON COMPLETION OF GRADING.
- ROCK BERM TO BE INSTALLED PRIOR TO WORK. REMOVE AND REPLACE AS NEEDED FOR WORK IN AREA. WHEN REMOVED, INSTALL SILT FENCE OVER PIPE OPENING. PUMP OUT WATER WHEN NEEDED THRU SEDIMENT TRAP PER 624S-1 (SHEET 18) AND DEWATERING FILTER BAG PER DETAIL ON SHEET 18.
- IN THE EVENT THAT DEWATERING IS NECESSARY, THE CONTRACTOR IS REQUIRED TO PREPARE A DEWATERING PLAN THAT WILL DESCRIBE HOW THE DEWATERING OPERATION WILL BE COMPLETED AND HOW THE PUMP EFFLUENT WILL BE MANAGED. REFERENCE THE SOILS REPORT FOR DISCUSSIONS OF GROUNDWATER CONSIDERATION. THE COST FOR DEWATERING OPERATIONS SHALL BE INCLUDED IN THE PRICE BID FOR THE STORM SEWER IMPROVEMENT. THE CONTRACTOR SHALL FURNISH AND OPERATE SUITABLE PUMPING EQUIPMENT OF SUCH CAPACITY ADEQUATE TO DEWATER THE TRENCH SHOULD WATER BE ENCOUNTERED. THE TRENCH SHALL BE SUFFICIENTLY DEWATERED SO THAT THE PLACEMENT OF BEDDING AND THE LAYING AND JOINING OF PIPE IS MADE ON FIRM, DRY GROUND. IF DEWATERING CANNOT PRODUCE ACCEPTABLE SUBGRADE, AND ONLY AS DIRECTED BY THE ENGINEER, UNSUITABLE MATERIALS SHALL BE REMOVED AND REPLACED PER CITY OF AUSTIN SPECIFICATIONS SECTION 510.3(9) AND SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS SEWER ITEMS. THE CONTRACTOR SHALL BE RESPONSIBLE TO PACE AND MAINTAIN THE NECESSARY SEDIMENT CONTROL MEASURES TO FILTER THE DEWATERING DISCHARGE. THE COST OF ANY DEWATERING OPERATIONS REQUIRED FOR THE CONSTRUCTION OF THE STORM SEWER SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS SEWER ITEMS NO SEPARATE PAYMENT SHALL BE MADE.

### LEGEND

- PROPOSED CONTOUR
- EXISTING CONTOUR
- SILT FENCE PER 642S-1 (SHEET 18)
- TREE PROTECTION FENCE PER 610S-4 (SHEET 4)
- ROCK BERM PER 639S-1 (SHEET 18)
- LIMITS OF CONSTRUCTION/DISTURBANCE
- STABILIZED CONSTRUCTION ENTRANCE PER 641S-1 (SHEET 18)
- TEMPORARY CONSTRUCTION FENCE PER 610S-4 (SHEET 4)
- EXISTING WATER QUALITY ZONE
- LIMITS OF CONSTRUCTION
- EXISTING WETLANDS

CONTRACTOR HAS THE OPTION OF SUBSTITUTING SILT FENCE FOR MULCH SOCK PER COA DETAIL

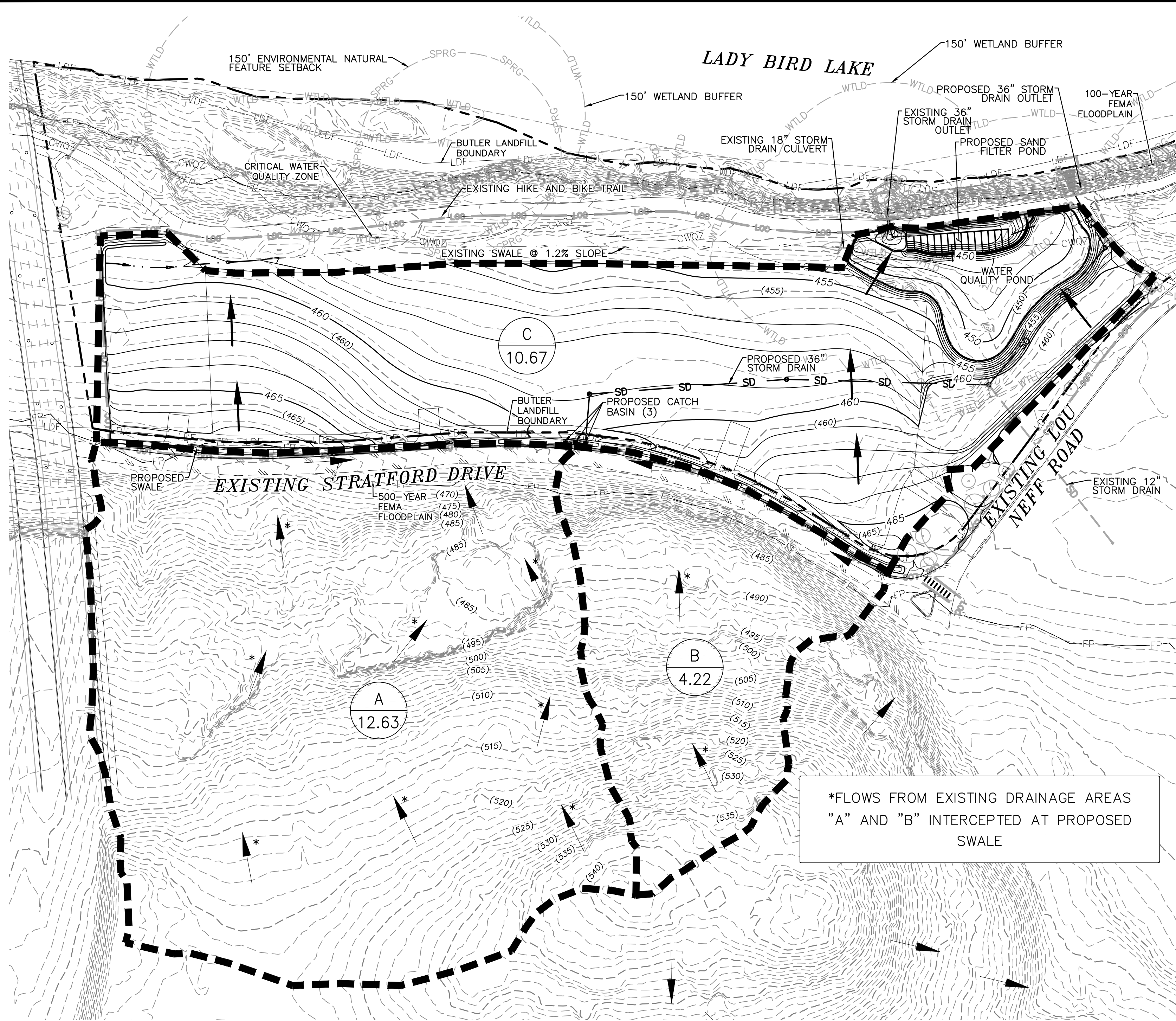
LIMITS OF CONSTRUCTION AREA= 12.9 ACRES

THESE PLANS ARE COMPLETE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND IN COMPLIANCE WITH THE CITY OF AUSTIN DEVELOPMENT CODE.

**SITE PLAN APPROVAL** Sheet 12 of 21  
FILE NUMBER: SP-XXXX-XXXXX APPLICATION DATE: XX/XX/XX  
APPROVED BY COMMISSION ON N/A UNDER SECTION XXX OF CHAPTER XX-X OF THE CITY OF AUSTIN CODE.  
EXPIRATION DATE (25-5-81, LDC): CASE MANAGER XXXXXXXXXXXX  
PROJECT EXPIRATION DATE (ORD.#970905-A) DWPZ DDZ  
Director, Development Review Department  
RELEASE FOR GENERAL COMPLIANCE: Zoning:  
Rev. 1 Correction 1  
Rev. 2 Correction 2  
Rev. 3 Correction 3  
Final plot must be recorded by the Project Expiration Date, if applicable. Subsequent Site Plans which do not comply with the Code current at the time of filing, and all required Building Permits and/or a notice of construction (if a building permit is not required), must also be approved prior to the Project Expiration Date.

DESIGNED BY: NAB/CEA	DRAWN BY: JLC	CHECKED BY: PAB/TPB	APPROVED BY: SAS	DATE: JANUARY, 2018	NO.	REVISION	BY/DATE
<b>ATKINS</b> 11801 DOMAN BOULEVARD, SUITE 500 AUSTIN, TEXAS 78758-1912 327-4640 TBP REG. NO. 1-474							
<b>ZILKER PARK AUSTIN CITY LIMITS STAGING AREA SITE DEVELOPMENT PERMIT PLANS</b>							
<b>EROSION AND SEDIMENT CONTROL PLAN</b>							
SHEET NO. 12							
OF 21 SHEETS							
FILE NO. 53691-09-EROS PROJECT NO. 100053691 SP-XXXX-XXXXX							

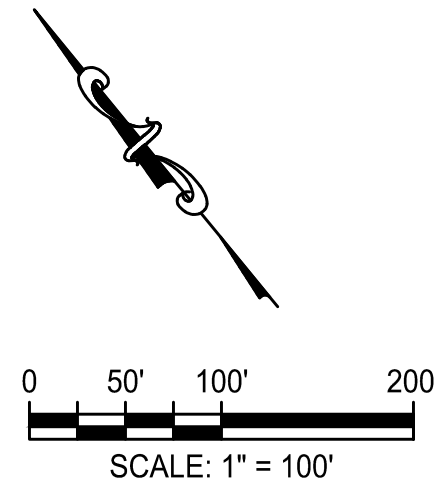
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PROPOSED DRAINAGE AREA MAP

LEGEND

- X  
0.0 DRAINAGE AREA NO.  
DRAINAGE AREA ACRES
- DRAINAGE BOUNDARY
- ← FLOW DIRECTION
- CWOZ- EXISTING WATER QUALITY ZONE
- ==L.O.C.== LIMITS OF CONSTRUCTION
- WTL- EXISTING WETLANDS



1. DESIGN DISCHARGE (Q, cfs) CALCULATIONS:

Drainage Area (acres)		
(A)	(B)	(C)
12.63	4.22	10.67

1a. Time of Concentration:

- Notes:
- Manning's "n" values are taken from Table 2-2, COA Drainage Criteria Manual
  - Sheet flow and shallow concentrated flow are assumed; no channelized flow occurs
  - P=3.44 inches (Table 2-3)

$$T_c = T_t(\text{sheet}) + T_t(\text{shallow concentrated}) \quad (\text{Eq. 2-2})$$
$$\text{Sheet Flow, First 100 feet} \quad T_t = 0.42(nL)^{0.8} / (P^{0.5} s^{0.4}) \quad (\text{Eq. 2-3})$$
$$\text{Shallow Concentrated Flow} \quad T_t = L / (60(16.1345)(s)^{0.5}) \quad (\text{Eq. 2-4})$$

Basin A:	Manning's "n"	L (ft)	s (ft/ft)	T <sub>c</sub> (min)
Sheet Flow, First 100 feet	0.6	100	0.05	20
Shallow Concentrated Flow	0.6	690	0.11	2
<b>TOTAL</b>				<b>22</b>

Basin B:	Manning's "n"	L (ft)	s (ft/ft)	T <sub>c</sub> (min)
Sheet Flow, First 100 feet	0.6	100	0.05	20
Shallow Concentrated Flow	0.6	611	0.13	2
<b>TOTAL</b>				<b>21</b>

Basin C:	Manning's "n"	L (ft)	s (ft/ft)	T <sub>c</sub> (min)
Sheet Flow, First 100 feet	0.15	100	0.02	9
Shallow Concentrated Flow	0.15	366	0.03	2
<b>TOTAL</b>				<b>12</b>

1b. Rainfall Intensities:

$$\text{Rainfall Intensity: } i = a / (T_c + b)^c \quad (\text{Eq. 2-8})$$

Intensity Duration Frequency Curve Coefficients (Table 2-5)

Freq (yrs)	a	b	c
2	54.767	11.051	0.8116
5	62.981	10.477	0.7820
10	70.820	10.396	0.7725
25	82.936	10.746	0.7634
50	100.600	12.172	0.7712
100	118.300	13.185	0.7736
500	188.000	17.233	0.7822

Intesities for Frequencies based on each Drainage Basin

Freq (yrs)	A	B	C
2	3.21	3.25	4.36
5	4.16	4.20	5.61
10	4.84	4.89	6.51
25	5.80	5.86	7.75
50	6.63	6.69	8.75
100	7.55	7.62	9.88
500	10.69	10.77	13.57

1c. Composite Runoff Coefficients for Drainage Basins: (Table 2-1)

Basin A	A (acres)	C						
		Frequency (yrs)						
		2	5	10	25	50	100	500
Forest Woodland (steep)	11.31	0.35	0.39	0.41	0.45	0.48	0.52	0.58
Asphaltic	0.48	0.73	0.77	0.81	0.86	0.90	0.95	1.00
Grass Areas (fair & avg)	0.84	0.33	0.36	0.38	0.42	0.45	0.49	0.58
<b>TOTAL</b>	<b>12.63</b>	<b>0.36</b>	<b>0.40</b>	<b>0.42</b>	<b>0.46</b>	<b>0.49</b>	<b>0.53</b>	<b>0.60</b>

Basin B	A (acres)	C						
		Frequency (yrs)						
		2	5	10	25	50	100	500
Forest Woodland (steep)	3.45	0.35	0.39	0.41	0.45	0.48	0.52	0.58
Asphaltic	0.24	0.73	0.77	0.81	0.86	0.90	0.95	1.00
Grass Areas (fair & avg)	0.53	0.33	0.36	0.38	0.42	0.45	0.49	0.58
<b>TOTAL</b>	<b>4.22</b>	<b>0.37</b>	<b>0.41</b>	<b>0.43</b>	<b>0.47</b>	<b>0.50</b>	<b>0.54</b>	<b>0.60</b>

Basin C	A (acres)	C						
		Frequency (yrs)						
		2	5	10	25	50	100	500
Asphaltic	7.24	0.73	0.77	0.81	0.86	0.90	0.95	1.00
Grass Areas (fair & avg)	3.43	0.33	0.36	0.38	0.42	0.45	0.49	0.58
<b>TOTAL</b>	<b>10.67</b>	<b>0.60</b>	<b>0.64</b>	<b>0.67</b>	<b>0.72</b>	<b>0.76</b>	<b>0.80</b>	<b>0.86</b>

1d. Flow Rates

$$\text{Flow Rate (Q, cfs):} \quad Q = C^* I^* A \quad (\text{Eq. 2-1})$$

Basin	Basin Flow Rates for Various Frequencies (cfs)						
	2	5	10	25	50	100	500
A	14.74	21.13	25.87	33.97	41.35	50.98	80.45
B	5.06	7.22	8.85	11.60	14.11	17.39	27.45
C	27.96	38.18	46.67	59.41	70.49	84.58	125.25
A+B (swale)	19.80	28.35	34.72	45.58	55.46	68.37	107.91

2. PIPE DIMENSIONS

Pipe	25-Yr Flow Rate (cfs)	Manning's "n"	Slope (ft/ft)	Size (in)	Normal Depth (ft)	Length (ft)	Velocity (ft/s)
West Trench Drain	5.25	0.013	0.0040	24 x 12	0.59	48	6.78
Mid Trench Drain	22.04	0.013	0.0217	30 x 12	1.35	62	9.79
East Trench Drain	9.46	0.013	0.0120	24 x 12	0.86	56	7.35
Storm Drain	45.58	0.013	0.0042	36	2.64	1061	6.92

PROPOSED CONDITIONS DRAINAGE CALCULATIONS

DETENTION NOTE

PROJECT IS ON SHORE OF LADY BIRD LAKE SO DETENTION IS NOT PROPOSED. THERE IS NO DOWNSTREAM PROPERTY TO PROTECT.

THESE PLANS ARE COMPLETE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND IN COMPLIANCE WITH THE CITY OF AUSTIN DEVELOPMENT CODE.

SITE PLAN APPROVAL

Sheet 14 of 21

FILE NUMBER: SP-XXXX-XXXXX APPLICATION DATE: XX/XX/XX  
APPROVED BY COMMISSION ON N/A UNDER SECTION XXX OF CHAPTER XX-X OF THE CITY OF AUSTIN CODE.  
EXPIRATION DATE (25-5-81, LDC) CASE MANAGER XXXXXXXXXXXX  
PROJECT EXPIRATION DATE (ORD.#970905-A) DWPZ DDZ

Director, Development Review Department  
RELEASE FOR GENERAL COMPLIANCE: Zoning:  
Rev. 1 Correction 1  
Rev. 2 Correction 2  
Rev. 3 Correction 3

Final plot must be recorded by the Project Expiration Date, if applicable. Subsequent Site Plans which do not comply with the Code current at the time of filing, and all required Building Permits and/or a notice of construction (if a building permit is not required), must also be approved prior to the Project Expiration Date.

ZILKER PARK  
AUSTIN CITY LIMITS STAGING AREA  
SITE DEVELOPMENT PERMIT PLANS

PROPOSED DRAINAGE AREA MAP AND CALCULATIONS

SHEET NO. 14

OF 21 SHEETS

FILE NO. 53691-10-DRAN  
PROJECT NO. 100053691

SP-XXXX-XXXXX

ATKINS

1884 DOMAN BOULEVARD, SUITE 500  
AUSTIN, TEXAS 78758-1912 327-4640  
TBP REG. NO. 1-474



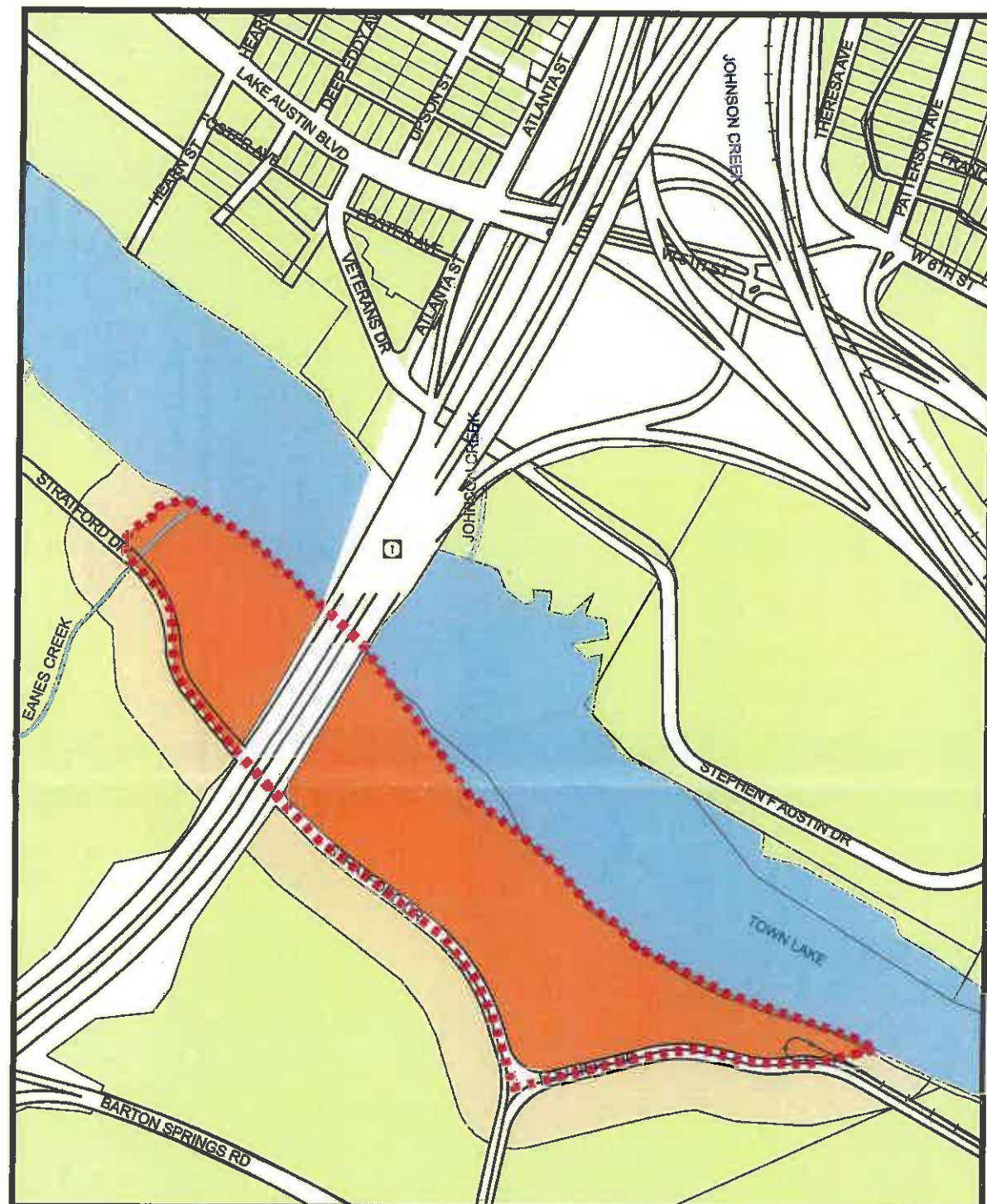
DESIGNED BY: NAB/CEA  
DRAWN BY: JLC  
CHECKED BY: PAB/TPB  
APPROVED BY: SAS  
DATE: JANUARY, 2018

REVISION

NO.

**EXTENSION OF ATTACHMENT D**

**(The following sheets provide justification for an exception  
to a portion of the Geologic Assessment)**



## #7. Butler

### Landfill Features

..... Estimated  
Landfill  
Boundary

Landfill

Landfill  
Buffer

### City of Austin Jurisdiction

FULL

LTD

2 MILE

5 MILE

Lot Lines

Roads

Water features



## Watershed Protection Development Review

Watershed Protection & Development Review Department,  
The City of Austin produced this map for the sole purpose of  
use as a work resource and as an estimated boundary of  
landfills in & around Austin. The City of Austin does not  
warrant the map &/or information regarding its accuracy or  
completeness.  
Reproduction is not permitted without permission from the  
City of Austin-Watershed Protection & Development Review  
Department.

Date: 09.20.2009

0 250 500 1,000  
Feet



### 3.7 #7, BUTLER

**Location:** The Butler landfill is owned by the City of Austin and is located in south Austin along the shore of Town Lake and the MoPac bridge.

**Prior Use:** Stockpiles of fill material and four 55-gallon drums of what appeared to be monitoring well purge water were stored in the area west of the bridge. No evidence of illegal dumping was evident.

**Groundwater:** Since 1984, the COA has conducted field investigations and a risk assessment for groundwater. Three monitoring wells have been installed; 2 east of the MoPac bridge, 1 west of the MoPac bridge.

**Remediation:** Design of erosion control improvements and remediation of the exposed landfill waste at Eanes Creek occurred in 2004, with construction scheduled to begin in 2005.

**Current Conditions:** Current conditions associated with this site may pose a current or future concern to human health or the environment, based on the following factors:

- proximity of recreational uses to landfill,
- exposed landfill materials due to erosion at the stream and river banks,
- unrestricted public access.

Based on the actions already being undertaken by the COA at this site, no additional actions have been recommended.

**Reference:** Information in this fact sheet comes from the following:

1. Geomatrix Consultants. November 2004. *2004 Supplemental Assessment to Landfills in the Vicinity of Austin, TX*. Prepared for City of Austin Public Works Department.
2. Underground Resource Management, Inc. November 1984. *Landfills in the Vicinity of Austin, TX*. Prepared for the City of Austin.

# LANDFILLS IN THE VICINITY OF AUSTIN, TEXAS

Prepared for  
**THE CITY OF AUSTIN**  
Austin, Texas



Prepared by  
**Underground Resource Management, Inc.**  
Austin, Texas



**LANDFILLS IN THE VICINITY OF AUSTIN, TEXAS**

**Prepared for  
CITY OF AUSTIN**

**Prepared by  
UNDERGROUND RESOURCE MANAGEMENT, INC.  
Austin, Texas**

**November, 1984**



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Appendix B - Additional Sites

Appendix C - Monitor Well Boring Logs and Well Installation Diagrams

Appendix D - Laboratory Analyses Results

Appendix E - Resistivity Soundings 1 through 3 at Zilker Park  
(Butler Landfill)

### EXECUTIVE SUMMARY

The following conclusions are based on the findings of this report:

- The information reviewed for this project indicates that landfills owned and/or operated by the City of Austin do not contain significant amounts of chemical or industrial wastes. The landfills will probably not cause any major environmental health hazard.
- Several military, institutional, and industrial landfills contain documented hazardous wastes. These sites are regulated by existing state or federal solid waste management programs.
- Four private sites have a high potential to contain hazardous chemical wastes. The City of Austin is not responsible for investigation or remedial work at private waste sites. Because of the potential impact on the Austin environment, however, we recommend a meeting of representatives from the City of Austin and the Texas Department of Health (TDH) to discuss additional investigations of these private sites.
- To assure proper maintenance of closed waste sites, we recommend an annual inspection and supplemental report on the 20 of the 29 landfills presented in individual sections of this report. We also recommend water quality laboratory analyses where a surface expression of landfill leachate or a monitor well can be sampled.

During this study of closed landfill and dump sites by Underground Resource Management, Inc. (URM) for the City of Austin, 66 sites were identified. These sites range in significance from large landfills or those with known hazardous contents to small recreational area trash dumps. This report is complete in the sense that every landfill site

identified during the project by URM is described or listed, even if the site has no apparent environmental impact. It is almost certain, however, that there are small waste disposal sites in and around Austin which remain undocumented. Even though stricter legislation and tighter controls by the City, the Texas Department of Health (TDH), and the Texas Department of Water Resources (TDWR) will prevent most of the past practices which are described in this report, illegal dumping may continue, and new illegal dump sites will probably be used.

In researching locations in and around Austin which are potentially contaminated with hazardous waste materials, a few sites which were not closed landfills were discovered. These sites were used for land disposal of liquid wastes and wastewater, or were where pipes and underground storage tanks had leaked. As a result, areas around Austin have been contaminated with acids, caustics, solvents, and heavy metals. Soils and ground water in Austin may contain concentrations of these or other constituents which are not attributable to landfills. Those waste sites which are not landfills are not included in this report.

All of the landfills and dump sites in this report can be categorized as one of the following: those owned and/or operated by the City of Austin, privately owned and/or operated sites, Travis County sites, and illegal disposal sites. The responsibility and jurisdiction of the City and, therefore, the recommendations in this report, depend upon whether the landfill was operated by the City or by another operator.

Of the City of Austin landfills, only Steiner Landfill was documented to contain any industrial waste. The quantities of industrial or chemical wastes in Steiner are small. The geology below this site is the Taylor Formation, in which groundwater movement is limited. The waste in Steiner is not likely to migrate from the site. A groundwater

monitoring program has been proposed by the City for Steiner Landfill to verify that the wastes will not contaminate a water supply. Water samples from three other landfills operated by the City of Austin were collected during the project. Monitor wells were installed at Mabel Davis and at Butler (Zilker Park) Landfills. Surface water samples were collected at Mabel Davis and Brinkley-Anderson.

The four ground and water surface-water samples were analyzed by URM's laboratory for 139 constituents which have been identified by the U. S. Environmental Protection Agency (USEPA) as priority groundwater pollutants. This list includes several pesticides and toxic organic chemicals. None of the four water samples from Austin landfills contained any of these priority pollutants in detectable quantities. USEPA has also defined concentrations for eight heavy metals as a criteria for toxic waste. The concentrations of these eight heavy metals in the water samples are well below these levels defined by USEPA for hazardous waste. Although some water samples do not meet the standards for drinking water (see Appendix D), they apparently will not significantly degrade the water.

Of the privately owned sites in and around Austin, several sites are being monitored by existing groundwater programs under the jurisdiction of the Texas Department of Health (TDH) or the Texas Department of Water Resources (TDWR). These sites are Austin (Longhorn) Community Disposal, Sunset Farms, the Texaco Chemical Company landfills, and the University of Texas Balcones Research Center. Bergstrom Air Force Base also has a waste disposal site evaluation program conducted by the U. S. Air Force. No recommendations are made in this report for those private sites with monitoring programs in operation. Of the remaining private sites, four have a higher potential for environmental impact than the remainder of the sites because of undocumented reports of chemical

wastes or drums in the waste. These sites are the M. E. Ruby landfill in northwestern Travis County, Hog Hill (Handy's Dump), the Whisenhunt site, and the Wingfield disposal site on US 183. Jurisdiction for these privately operated sites belongs to the TDH and/or the TDWR. It is recommended that the City of Austin coordinate actions with TDH and TDWR to implement a program which would determine whether these sites are impacting the Austin environment.

The remaining solid waste disposal sites in and around Austin are less likely to contribute to groundwater or surface-water contamination. As a minimum landfill control program, however, URM recommends that additional waste disposal sites be added to the list in this report as they are discovered. Each of the sites should be visited annually with these objectives:

- Inspection of the cover for subsidence and erosion;
- Inspection of the perimeter for leachate seepage;
- Collection of water samples for laboratory analysis; and
- Observation of illegal dumping, if it occurs.

The results of the annual field inspections should be reported in writing as a continuing supplement to this report. This report and supplemental reports should be used by City of Austin staff and the Austin Planning Department to protect the landfill cover, to prevent methane migration and collection in or below existing or proposed construction, and to minimize foundation failures from inadequately compacted waste, as well as to protect the ground and surface-water quality in the Austin environment.

### INTRODUCTION

The primary purposes of the investigation of closed sanitary landfills by Underground Resource Management, Inc. (URM) for the City of Austin have been:

- To identify and locate closed landfill and dump sites in and around the city;
- To estimate the probable landfill contents and potential for hazardous contents in each site;
- To evaluate the potential for groundwater contamination and/or health hazards associated with each site; and
- To recommend groundwater monitoring or remedial cleanup, where necessary.

The area of study is shown on Figure 1. This is the second report presented to the City of Austin by URM for the Austin Closed Landfill Study. The first report was "Site-Specific Recommendations for the City of Austin Closed Sanitary Landfill Study", presented in January, 1984. In the first report, preliminary background information was presented, and recommendations were made for monitor well installations and sampling at Mabel Davis Park, Winn-Cook Park, the Butler Landfill in Zilker Park, and the Sprinkle Site. A recommendation was also made to sample leachate discharges to Little Walnut Creek from the Brinkley-Anderson landfill site.

This second report by URM discusses the history of waste disposal in Austin, typical landfill waste contents, regulatory aspects of waste disposal in Austin, and geologic factors affecting the potential for waste migration. Monitor well completion diagrams and results of laboratory analysis of the groundwater samples are also presented.

URM

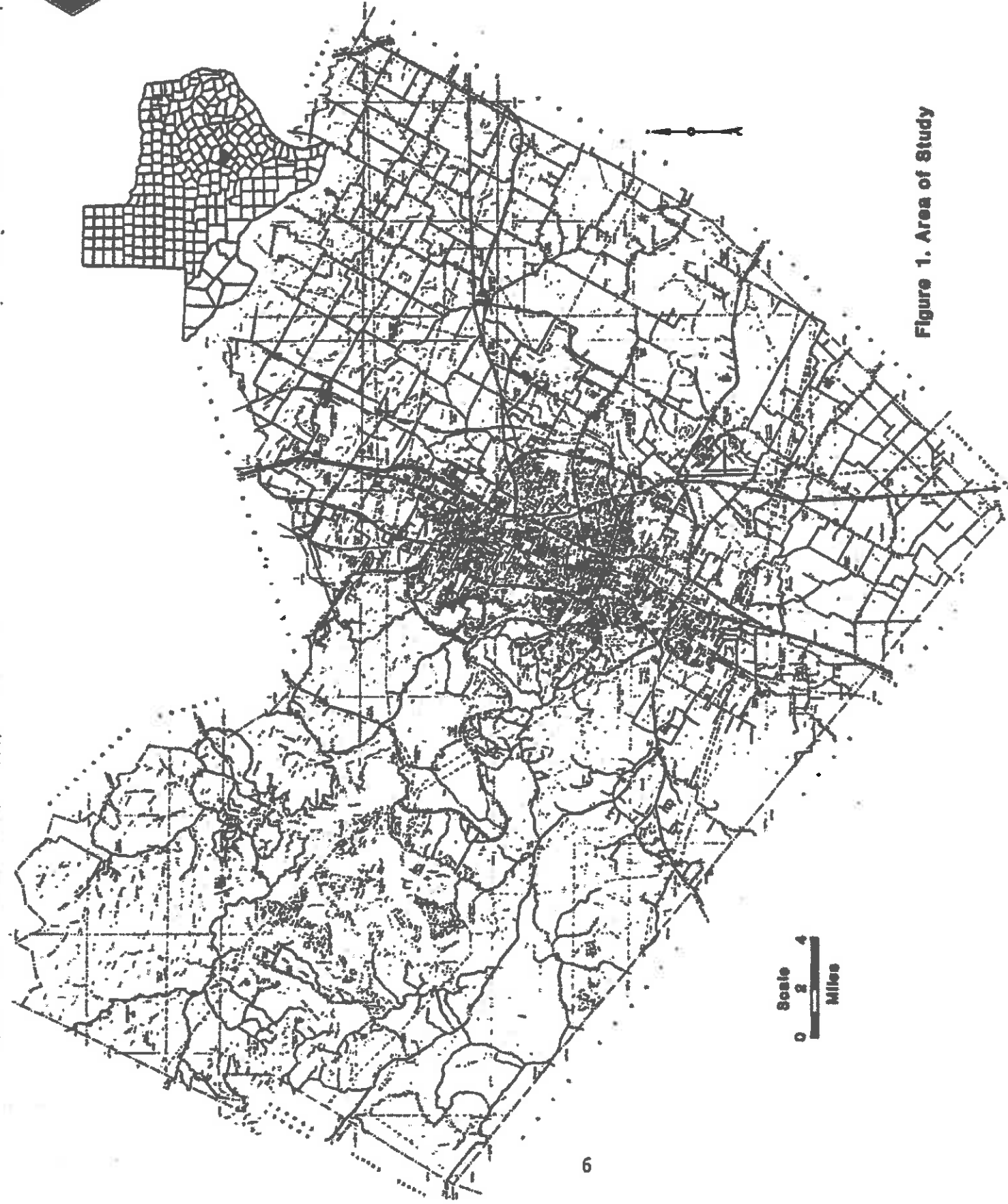


Figure 1. Area of Study

During this project, a total of 66 waste sites in or around Austin were identified by URM. Several of the historical sites were identified by long-time sanitarians or residents of Austin, and the sites may now be unrecognizable as a dump or covered by buildings. Other sites were referenced in newspaper articles with inadequate information to pinpoint their locations. Of the 66 sites, 29 were inspected in the field by a URM geologist. These 29 sites are discussed in individual sections of Appendix A. A summary evaluation of these sites is presented in Table 1. The most significant landfills in and around Austin are included in these 29 sites. Sites which are not necessarily significant and probably present no serious environmental problems are also included in the individual discussions if a URM geologist visited the site. The remaining sites are listed in Appendix B with the information obtained for each site during this project.

All of the disposal sites discovered during this project are discussed either in Appendix A or B, including those which were only used for short times, or those which are small and probably represent nominal environmental impact beyond the aesthetic impact of the waste. This report probably does not include, however, all such small sites which may exist in and around Austin.

#### History of Waste Disposal in Austin

A chronology of the waste sites in and around Austin for which operating dates are known is shown in Figure 2. The oldest dump site identified in this project operated in the 1200 block of South Congress Avenue from 1927 to 1929. At that time, only small amounts of trash were generated by city residents because garbage was often fed to hogs, and household trash was generally burned. When the City did begin organized trash collection, the volume collected was small and the service was not billed directly to the user. Funds came from general



TABLE 1  
Site Evaluation of Major Austin Area Landfills

Site Name	Geologic Suitability of the Site	Potential for Significant Hazardous Waste Contents	Sensitivity of Local Land Use	Recommendations
1. Airport Dump	Medium - upper Colorado River terrace deposits underlain by Taylor Clay	Low - used by the City for a short period	Low - unused land near the airport	Annual site visit
2. Balcones Research Center	Poor - past contamination of water wells by magnesium, located on Austin Group	Confirmed - known radioactive contents	Low - University Research Facility	Existing ground-water program regulated by TDI
3. Bergstrom Air Force Base	Medium - terrace deposits of the Colorado River and Onion Creek	Confirmed - low level radioactive waste, possibly pesticides, waste paints, thinners, strippers	Low - U. S. Air Force Base	U. S. Air Force program exists
4. Bluff Springs/Knuickels Crossing	Medium - Colorado River terrace deposits underlain by Taylor Clay	Low - used by City for brush, tree trimming	Medium - open land	Annual site visit
5. Brinkley-Anderson	Poor - located adjacent to perennial stream channel, underlain by Dessau limestone of Austin Group	Medium - site closed (1968) before toxic chemicals were commonly disposed	Medium - unused area adjacent to industrial park	Regrading, water sample collection
6. Butler	Poor - on the gravel terraces adjacent to Town Lake underlain by Edwards Formation	Medium - site closed (1968) before toxic chemicals were commonly disposed	High - located in Zilker Park	Ground-water monitoring
7. Grove	Poor - located in quarry pit in Lower Colorado River terraces	Low - small site used for municipal waste only	Medium - open land	Annual site visit
8. Highway 71, Precinct 3	Poor - leachate outflow observed, on the Glen Rose Formation	Medium - used for private and municipal refuse until October, 1976	Medium - remote area used to graze cattle	Annual site visit
9. Hog Hill/Handy's Dump	Medium - site located in a drainage on Taylor Clay and a small part on Upper Colorado River terrace deposits	High - drums and glue were observed on the site	Medium - located beside a dead end street near the City Vehicle Services facility	Coordinate action with TDI



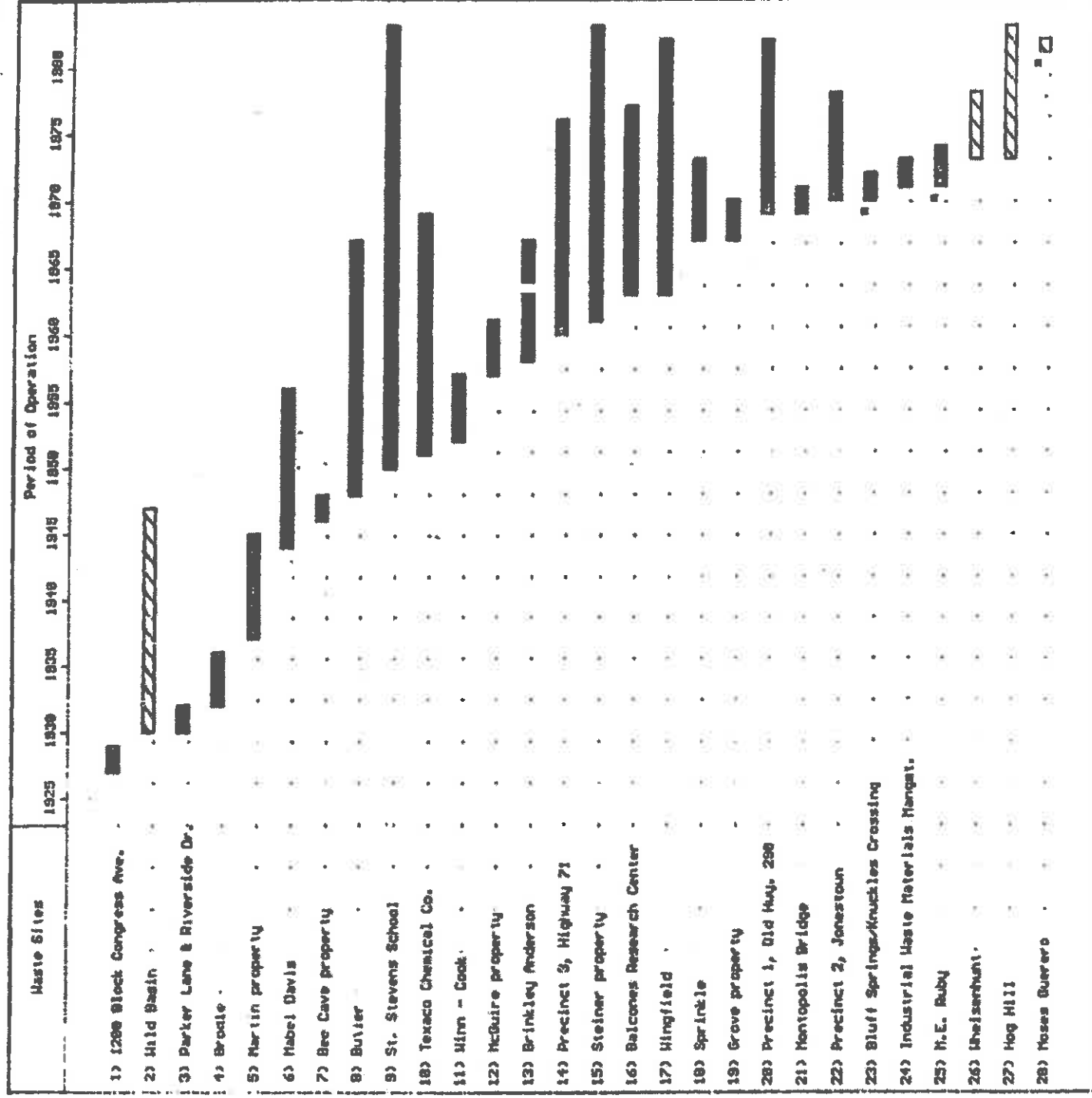
TABLE 1 (Cont'd)  
Site Evaluation of Major Austin Area Landfills

Site Name	Geologic Suitability of the Site	Potential for Significant Hazardous Waste Contents	Sensitivity of Local Land Use	Recommendations
10. Industrial Waste Materials Management	Excellent - deep Taylor Clay with low permeability	Confirmed - known drums of waste in the site	Low - land owned and operated by a commercial disposer	Existing ground-water monitoring program regulated by TDM
11. Jonestown, Precinct 4	Poor - placed in a limestone quarry pit in the Fredericksburg group of the Edwards	Medium - used by country and private haulers from 1969 to 1980, site gate was attended	Medium - unused land but in an area of rapid expansion	Annual site visit
12. (Longhorn) Austin Community Disposal	Excellent - deep Taylor Clay with low permeability	Confirmed - this site accepts only non-hazardous waste but it includes the area used by Industrial Waste Materials Management	Low - an operating landfill	Ground-water monitoring program exists
13. Nabel Davis	Poor - formerly a sand and gravel pit	Low - municipal waste until 1963, pesticide wastes were removed.	High - park	Ground water monitoring
14. McGuire	Poor - formerly a sand and gravel pit	Low - municipal waste until 1961	Low - open land	Annual site visit
15. M. E. Ruby	Poor - formerly a limestone quarry in the Edwards Formation	High - drums of toxic waste were found adjacent to the fill area	Medium - unused area adjacent to an industrial park and housing development	Coordinate action with TDM
16. Montopolis Bridge	Poor - lower Colorado River terraces, adjacent to river	Medium - illegal dumping by private individuals	High - mobile home park	No action
17. Mosas Guerrero	Poor - formerly a gravel pit through which water percolates quickly, near Cottonmouth Creek	Low - mostly brush, dirt, building debris, small amounts of domestic waste	Medium - open land with some low density housing	Annual site visit
18. Old 290, Precinct 1	Excellent - deep Taylor Clay with low permeability	High - Municipal, private, industrial until 1981, some known hazardous contents	Medium - a Flea Market operates on the site	Annual site visit



TABLE 1 (Cont'd)  
Site Evaluation of Major Austin Area Landfills

Site Name	Geologic Suitability of the Site	Potential for Significant Hazardous Waste Contents	Sensitivity of Local Land Use	Recommendations
19. Sprinkle	Medium - located on the Austin chalk Formation	Medium - municipal waste until 1973	Medium - agricultural area with growth potential	Annual site visit
20. Steiner	Good - located principally on the Taylor Group	High - used by Jefferson Chemical to dispose of drums of chemical wastes	Low - operating landfills	Existing program by City of Austin
21. St. Stephen's	Medium - on Glen Rose limestone west of Austin	Low - only used for school waste	High - on private school property	No action
22. Sunset Farms Sanitary	Excellent - deep Taylor clays with low permeability	Low - no hazardous industrial or radioactive materials accepted	Low - an operating landfill	Ground-water monitoring program exists
23. Texaco Chemical	Poor - landfill in Austin chalk with shallow ground water	Confirmed - used as a laboratory waste disposal site	Medium - landfill is on an industrial site surrounded by residential development	Existing program regulated by TDM
24. Turner	Medium - located in a sand and gravel quarry on a ridge top	Low - site operated by the land owner for municipal and private trash from 1955 - 1957	Medium - adjacent residential use	Annual site visit
25. Webberville-Govalle	Medium - located on Lower Colorado River Terrace deposits	Medium - illegal dumpsite used through the present	Medium - adjacent residential use	Surface water sampling, remove waste piles and prevent further dumping (Coordinate with TDM)
26. Whisenhunt	Medium - formerly a pit in the Colorado River floodplain	High - 50 5-gal. cans of solvent from an engraving company, domestic waste	Medium - open, grass-covered field	Coordinate action with TDM
27. Wingfield	Poor - gravel pit crosses stream draining to Carson Creek. Fluvial/Terrace Deposits overlie Taylor Clay	High - photos show 55-gal. drums with unidentified contents	Low - commercial area and junk yard	Coordinate action with TDM



City of Austin  
 Travis County  
 Industrial or Institutional  
 Private individual  
 Dates are estimated  
 Beginning date unknown

Figure 2: Chronology of waste sites in and around Austin.

city taxes.

A change in waste collection came in the 1960's, however, which was initiated by the growing number of businesses and large apartment complexes. Private haulers with large metal trash bins began to service these complexes and businesses. At the same time, the City of Austin began to assess a trash collection fee to the user on utility bills, and more businesses and individuals began using alternative private waste services. These private waste services paid a fee to use county or municipal landfills, or used private land for dumping. As a result of more waste and waste collectors, there was a greater task of controlling disposal. During the same time, the types and volumes of chemical and industrial waste were increasing.

#### Landfill Contents

The contents of Austin area landfills have been estimated for this report from information in government agency files, conversations with local sanitarians and trash haulers, data on typical municipal refuse contents, and a review of the history of industry and commerce in Austin. A list of sources used for this report is presented in Table 2. General information on the contents of landfills is presented below. Available information on the specific contents of a landfill is also presented in the individual landfill section.

Typically the composition of municipal refuse is:

Paper - 48%	Cloth - 1%
Garbage - 16%	Glass - 6%
Leaves and grass - 9%	Metals - 8%
Wood - 2%	Ashes, stone, dirt - 8%
Synthetic materials - 2%	



TABLE 2

Information Sources

- Clipping files at the Austin American-Statesman with articles pertaining to Austin area landfills.
- Records at the Austin Historical Center with landfill information.
- Mr. John Young, Texas Department of Water Resources Enforcement and Fields Operations District 14, Austin, personal conversation.
- The Agricultural Stabilization and Conservation County Committee. Aerial photographs of Travis County at 1 inch = 600 feet for 1964 and 1973. Older photos at the same scale from the Austin Historical Center.
- File records at the Texas Department of Health including correspondence files and solid waste permit files.
- Landfill files at the Austin Travis County Health Department.
- Files at the Texas Department of Water Resources.
- Chamber of Commerce: Directory of Austin Area Manufacturers, 1932, 1950, 1961-62, 1970, and 1983.
- Former and current employees of the Austin Travis County Health Department, including Mr. Frank Redding, Mr. Lawrence Jones, Mr. Don Kolberg, and Mr. Ervin Coonrod.
- Interviews with representatives of Texaco Chemical Company, the U. T. Balcones Research Center, and Bergstrom Air Force Base.
- URM field visits to 29 sites.
- Seepage survey of the south shore of Town Lake adjacent to the closed Butler Landfill on November 11, 1983, during a period when the lake level was 3 feet below normal pool.
- Telephone interviews with local waste haulers.
- Telephone interviews with Mr. Chester Faulk, City of Austin Electrical Department.
- Rod Kimbro, Texas Department of Water Resources, telephone interview.
- Field trip by Mark Shipper of URM with Mr. Andrew Covar of the City of Austin to the disposal site near Wild Basin.

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This analysis is based on United States Public Health Service data for wet garbage. An analysis of municipal refuse collected by the City of San Antonio showed a similar composition, and these numbers are believed to represent a fair approximation of the composition of Austin waste.

The potential environmental impacts of typical municipal wastes as described above are surface subsidence methane gas generation, and increased concentrations of biochemical oxygen demand, dissolved iron, lead, zinc, magnesium, and nitrogen in leachate generated from a landfill. These constituents can have a negative effect on the ground and surface-water quality.

Another serious environmental concern, however, is hazardous chemical or industrial wastes which are disposed of in a landfill. Even where they are found in relatively small quantities, compared to the total volume of the landfill, they may represent a potential health hazard if they are leached from the landfill to surface or groundwater. Table 2 is a list of the possible contents of Austin landfills including toxic and hazardous materials, and their possible sources.

There are several documented cases of chemical and industrial materials which have been disposed of in closed or existing landfills in and around Austin. These cases are discussed in the individual reports on the Balcones Research Center, Bergstrom Air Force Base, Industrial Waste Materials Management, Mabel Davis, Old 290, Steiner, and Texaco Chemical Company landfills. In addition to these documented reports of hazardous wastes, there are undocumented observations of drums or barrels adjacent to, or in Hog Hill, M. E. Ruby, Whisenhunt, and Wingfield disposal sites. These four sites also have a potential for containing some quantities of hazardous materials.



TABLE 3

Possible Contents of Austin Area Landfills

<u>Material</u>	<u>Potential Sources</u>
Paper and fiber products	Residential, commercial
Plastic, styrofoam	Residential, commercial
Metal cans, scrap	Residential, commercial
Old appliances	Residential
Tires	Residential, commercial
Leaves, grass, yard trimmings	Residential, commercial, City of Austin, University of Texas
Clearing brush	Construction contractors
Putrescible garbage	Residential, agricultural, groceries, restaurants
Construction debris, lumber, masonry, plumbing, fixtures	Construction contractors
Rock, dirt, sand, gravel	Construction contractors
Asbestos	Construction contractors, industry, commercial
Pesticides	Residential, commercial, pesticide companies, Bergstrom Air Force Base
Metal-contaminated sludge	Petroleum industry, metal-finishing industry
Acids or bases	Computer industry
Photographic developer, photo resist stripper	Newspaper, printers, individuals
Paint-thinners	Computer industry, paint manufacturers
Dyes	Computer industry, paint manufacturers
Halogenated and nonhalogenated solvents	Computer industry, paint manufacturers, equipment manufacturers
Laboratory wastes	University of Texas, plastic projects, scientific laboratories, Texas Department of Health Laboratories, Hospitals
Organic chemicals	Computer industry, chemical industry, laboratories
Xylene, xylol	Scientific and computer equipment manufacturers
Pharmaceuticals	Hospitals, residences, medical laboratories
PCB-contaminated material	City electric companies, Bergstrom Air Force Base, University of Texas
Cyanide electroplating bath sludges	Metals finishing, plating industry, scientific equipment manufacturers
Urethane and solvents	Computer industry
Low-level radioactive materials	University of Texas, Bergstrom Air Force Base

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It is most likely, however, that nearly all of the recent municipal waste disposal sites in Austin have at least small quantities of hazardous chemicals. These chemicals have been generated by industries, businesses, and individuals who have had either no alternative disposal options or no regulatory incentives to bury the waste any place other than the local public or private landfills. Austin is, and has historically been, the home of many businesses which are listed as small quantity hazardous waste generators. These include printers, machine shops, hospitals, furniture strippers, metal platers, computer companies, paint companies, laboratories, and scientific instrument manufacturers. Much of the waste which has been produced by these small generators is buried in Austin landfills.

Chemical wastes generated by Austin commerce and industry may arrive at the landfill in several forms. Specific wastes may be transported by the business directly to the landfill. Since the businesses are generally required to pay a fee at the landfill entrance, there is some informal screening of the waste contents. Files of the Texas Department of Health contain records of inquiries by gate-keepers as to the suitability of waste brought for disposal. Small amounts of chemical waste may also be containerized and disposed of with the regular office and home trash. These items are likely to go unnoticed. A third method of transport of chemicals to sanitary landfills is in septic cleaning tank trucks. These trucks are permitted to pump grit trap wastes, if their waste contains a minimum percentage of solids, into pits at the landfills. If there is a lack of careful monitoring, these trucks may also pump sludges from tanks other than residential septic tanks, and dispose of the material at the landfill.

In addition to the wastes generated locally, hazardous wastes have been imported to landfills in Austin from industries on the Texas Gulf

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Coast. Mr. Jack Arsenault and Herb Skinner operated the Industrial Waste Materials Management site for imported waste. Arsenault, or another person, also disposed of drums which were later discovered near the M. E. Ruby Quarry on Highway 183 North, and on a tract of land known as Martin Hill, on F.M. 1325. This was strictly illegal disposal on the part of the person who had contracts to collect waste, but had no place to dispose of it. The drums found near the M. E. Ruby quarry and on Martin Hill were subsequently inventoried by personnel from the Texas Department of Water Resources, and the state initiated disposal in a licensed hazardous waste disposal facility near Robstown, Texas. As far as was determined in that investigation, there were no similar drum sites in Travis County, although there is a possibility that some exist that were never found. During the same time period, 1971-1974, the state and federal governments were developing more restrictive regulations for the disposal of industrial or hazardous waste. Many industries, recognizing the more restrictive regulations which would follow, attempted to rid themselves of stored and accumulated waste on their own properties. Discussions with officials from other municipalities who owned or operated sanitary landfills indicated that they were aware of the potential for loads of industrial wastes out of the Houston, Galveston, Corpus Christi, Texas City, and Port Arthur areas, which are probably disposed of within their sanitary landfills. It is possible that some of these barrels of waste were disposed of in landfills around Austin.

A limited survey was made by telephone of facilities in Austin which generate etiologic, or disease-carrying, waste. Of these facilities, two hospitals, Seton and Holy Cross, use incinerators which are part of their physical plant to dispose of all potentially pathogenic waste. Brackenridge Hospital waste in the same category is transported to an incinerator in Pflugerville. Austin Pathological Services Labora-

tory was also contacted and they either autoclave or incinerate all of their pathogenic waste. Doctor's offices typically autoclave wastes which might be pathogenic or send them to a laboratory.

Another potential source of hazardous waste in Austin is PCB-contaminated oil. PCB was routinely used as a fire retardant in transformer and capacitor oil before 1977. The City of Austin sold used transformers and capacitors with residual PCB oil as scrap metal. Since 1977, the City of Austin's PCB waste has been burned, according to EPA regulations, in an incinerator in Eldorado, Arkansas. All of the capacitors, and most of the transformers, have now been modified to use non-PCB oil. Texas Electrical Co-op has also used PCB oil in transformers and capacitors for 30 years. The Co-op now sends all PCB-contaminated oil to Kansas City, but prior to 1977 it was sold for fuel oil or road oiling. Some PCB-contaminated oil or metal may be disposed in Austin landfills.

#### Regulatory Aspects of Waste Disposal in Austin

Municipal waste disposal in the City of Austin and in Travis County is regulated by the Texas Department of Health (TDH) under the authority of these Texas laws:

- The Solid Waste Disposal Act (1969),
- Texas Health and Sanitation Laws (1945),
- The County Solid Waste Control Act (1971), and
- The Litter Abatement Act (1981).

Additional authority was given to TDH to regulate municipal hazardous waste under the Federal Resource Conservation and Recovery Act (RCRA), enacted in 1976. Within the authority of these laws, TDH has developed Departmental Municipal Solid Waste Management Guidelines.



When the Texas Department of Health began its regulatory program in 1969, all existing landfill operations were permitted under a grandfather clause. Guidelines were issued to cover basic problems of disease vectors, adequate cover, site drainage, burning, and washout. The Municipal Solid Waste Rules, Standards, and Regulations were updated in 1970 to regulate open burning and fire protection, to confine unloading to the smallest possible area, to prevent windblown waste, and to provide a separate area for heavy or bulky items.

It was not until the mid-1970's that the environmental impacts of landfills on air quality and surface and ground water were considered. By 1976, all public and private municipal waste disposal sites were required to operate by permit. Trash burning was no longer allowed. As part of their permit application process, landfill operators were required to submit information on the depth to ground water below the site, and distance to surface water. The Texas Department of Health began to exercise stricter control on the compaction and daily cover requirements.

Since the mid-1970's the state landfill records have generally included information on the owner and operator, the general class of wastes received, the type of operation, and inspection reports. For this report to the City of Austin, these records have been useful to establish the times of operation, the general character of the waste, and whether the landfill was operated within TDH guidelines. The information is not adequate, however, to establish definitively either the contents of the waste site or the potential for leachate migration.

#### Geologic Factors Affecting Landfills

Geologic factors which affect the suitability of a location for a landfill site are the permeability of the underlying formation, the

depth and quality of groundwater, the effectiveness of intervening layers as barriers to leachate migration, and the surface topography. Landfills in Travis County are located on or in these formations: recent alluvial deposits of the Colorado River and its tributaries, upper Colorado River terrace deposits, the Austin, the Taylor and Navarro Groups, the Edwards Formation, and the Glen Rose.

Many of the landfills are located in sand and gravel quarry pits along the Colorado River and its tributaries. The original quarries were excavated for alluvial material deposited by the river system. The alluvium is typically underlain by the relatively impermeable Taylor or Navarro Groups. These quarry pits were selected as landfill sites because they were an available hole, and they could be filled to reclaim otherwise unusable land. The disadvantages of these sites are that the alluvium is relatively permeable to landfill leachate. Since these landfills are often located near rivers or streams, the leachate may migrate to the river and, during high water conditions in the river or stream, groundwater may rise and mix directly with the waste. Where the waste is located above the high water table level, leachate may migrate vertically until the groundwater, or a less permeable layer, is encountered. A well-graded and compacted cover on these landfills is important to minimize infiltration and leachate generation.

Four sites identified in this study are located in the Austin Chalk Formation. These sites are the Balcones Research Center Landfill, Brinkley-Anderson, Texaco Chemical Company landfill, and the Sprinkle site. The Austin Chalk consists of light gray chalk, limy marl, and chalky limestone with small amounts of bentonite, glauconite, and pyrite nodules. The formation yields small quantities of water from cracks and faults in the outcrop area. This groundwater is typically under water table conditions and subject to contamination. The coefficient of

joints. Where the groundwater encounters a bed of less permeable marl in its downward migration, the water may move laterally to a surface seep. This situation apparently occurred at the Highway 71 County Landfill, and resulted in a seep of water with landfill leachate into a drainage below the site.

#### Site Evaluation Criteria

The URM evaluation of the potential for significant hazardous chemical and industrial wastes in the landfill was based on these factors:

- Records of hazardous wastes in landfill files;
- Documented, photographed, and undocumented observations of hazardous waste at a site;
- Documented and undocumented reports of drums or other containers likely to contain chemical waste;
- Disposal site users;
- Period of landfill operation relative to the time during the 1970's when large inventories of hazardous wastes were disposed; and
- The opportunities for illicit dumping based on landfill fences, maintenance personnel, and security.

At several sites, one of the first three factors provides definitive information that a landfill was used to dispose of potentially hazardous wastes. In the absence of reported hazardous wastes, however, it is extremely difficult to make a responsible determination that a site is "safe" or "clean". On many sites, the only available information consists of the operator and the dates of operation. This information provides some clues from typical waste disposal practices during the period of operation. Generally, sites which were used only for municipal waste, sites which were closed before 1965 and were fenced, sites with a

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site operator, or those which were operated for a short time are judged to have a low potential for significant hazardous waste contents. The Mabel Davis site, however, is an example of a site which, based on these criteria, would be rated as a low potential. Illegal dumping apparently occurred after the site was closed, however, and significant amounts of pesticide were later accidentally uncovered. Rainfall runoff over the site dissolved the exposed pesticide and contaminated the stream below the site.

Every waste disposal site in Travis County potentially contains some hazardous wastes. At many sites, like St. Stephen's School, the amount of wastes is probably very small. The objective of the URM evaluation is to identify those sites where the potential for significant groundwater contamination is high, and where additional groundwater monitoring may be warranted. All waste sites, however, should be handled with an awareness of the possibility that the site may contain hazardous materials.

## **4. TCEQ-0602 Temporary Stormwater Section**

# Temporary Stormwater Section

## Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(b)(4)(A), (B), (D)(I) and (G); Effective June 1, 1999

***To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.***

***Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.***

## Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **Temporary Stormwater Section** is hereby submitted for TCEQ review and executive director approval. The application was prepared by:

Print Name of Customer/Agent: Chad Richards, PE

Date: January 26, 2018

Signature of Customer/Agent:



Regulated Entity Name: City of Austin Zilker Park

## Project Information

### Potential Sources of Contamination

*Examples: Fuel storage and use, chemical storage and use, use of asphaltic products, construction vehicles tracking onto public roads, and existing solid waste.*

1. Fuels for construction equipment and hazardous substances which will be used during construction:

☐ The following fuels and/or hazardous substances will be stored on the site: \_\_\_\_\_

These fuels and/or hazardous substances will be stored in:

- ☐ Aboveground storage tanks with a cumulative storage capacity of less than 250 gallons will be stored on the site for less than one (1) year.

- ☐ Aboveground storage tanks with a cumulative storage capacity between 250 gallons and 499 gallons will be stored on the site for less than one (1) year.
- ☐ Aboveground storage tanks with a cumulative storage capacity of 500 gallons or more will be stored on the site. An Aboveground Storage Tank Facility Plan application must be submitted to the appropriate regional office of the TCEQ prior to moving the tanks onto the project.
- ☒ Fuels and hazardous substances will not be stored on the site.
- 2. ☒ **Attachment A - Spill Response Actions.** A site specific description of the measures to be taken to contain any spill of hydrocarbons or hazardous substances is attached.
- 3. ☒ Temporary aboveground storage tank systems of 250 gallons or more cumulative storage capacity must be located a minimum horizontal distance of 150 feet from any domestic, industrial, irrigation, or public water supply well, or other sensitive feature.
- 4. ☒ **Attachment B - Potential Sources of Contamination.** A description of any activities or processes which may be a potential source of contamination affecting surface water quality is attached.

### ***Sequence of Construction***

- 5. ☒ **Attachment C - Sequence of Major Activities.** A description of the sequence of major activities which will disturb soils for major portions of the site (grubbing, excavation, grading, utilities, and infrastructure installation) is attached.
  - ☒ For each activity described, an estimate (in acres) of the total area of the site to be disturbed by each activity is given.
  - ☒ For each activity described, include a description of appropriate temporary control measures and the general timing (or sequence) during the construction process that the measures will be implemented.
- 6. ☒ Name the receiving water(s) at or near the site which will be disturbed or which will receive discharges from disturbed areas of the project: Lady Bird Lake

### ***Temporary Best Management Practices (TBMPs)***

*Erosion control examples: tree protection, interceptor swales, level spreaders, outlet stabilization, blankets or matting, mulch, and sod. Sediment control examples: stabilized construction exit, silt fence, filter dikes, rock berms, buffer strips, sediment traps, and sediment basins. Please refer to the Technical Guidance Manual for guidelines and specifications. All structural BMPs must be shown on the site plan.*

- 7. ☒ **Attachment D – Temporary Best Management Practices and Measures.** TBMPs and measures will prevent pollution of surface water, groundwater, and stormwater. The construction-phase BMPs for erosion and sediment controls have been designed to retain sediment on site to the extent practicable. The following information is attached:

- ☒ A description of how BMPs and measures will prevent pollution of surface water, groundwater or stormwater that originates upgradient from the site and flows across the site.
  - ☒ A description of how BMPs and measures will prevent pollution of surface water or groundwater that originates on-site or flows off site, including pollution caused by contaminated stormwater runoff from the site.
  - ☒ A description of how BMPs and measures will prevent pollutants from entering surface streams, sensitive features, or the aquifer.
  - ☒ A description of how, to the maximum extent practicable, BMPs and measures will maintain flow to naturally-occurring sensitive features identified in either the geologic assessment, TCEQ inspections, or during excavation, blasting, or construction.
8. ☒ The temporary sealing of a naturally-occurring sensitive feature which accepts recharge to the Edwards Aquifer as a temporary pollution abatement measure during active construction should be avoided.
- ☐ **Attachment E - Request to Temporarily Seal a Feature.** A request to temporarily seal a feature is attached. The request includes justification as to why no reasonable and practicable alternative exists for each feature.
- ☒ There will be no temporary sealing of naturally-occurring sensitive features on the site.
9. ☒ **Attachment F - Structural Practices.** A description of the structural practices that will be used to divert flows away from exposed soils, to store flows, or to otherwise limit runoff discharge of pollutants from exposed areas of the site is attached. Placement of structural practices in floodplains has been avoided.
10. ☒ **Attachment G - Drainage Area Map.** A drainage area map supporting the following requirements is attached:
- ☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin will be provided.
  - ☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a smaller sediment basin and/or sediment trap(s) will be used.
  - ☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin or other equivalent controls are not attainable, but other TBMPs and measures will be used in combination to protect down slope and side slope boundaries of the construction area.
  - ☒ There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. A smaller sediment basin and/or sediment trap(s) will be used in combination with other erosion and sediment controls within each disturbed drainage area.

- ☐ There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. Erosion and sediment controls other than sediment basins or sediment traps within each disturbed drainage area will be used.
11. ☐ **Attachment H - Temporary Sediment Pond(s) Plans and Calculations.** Temporary sediment pond or basin construction plans and design calculations for a proposed temporary BMP or measure have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer. All construction plans and design information must be signed, sealed, and dated by the Texas Licensed Professional Engineer. Construction plans for the proposed temporary BMPs and measures are attached.
- ☒ N/A
12. ☒ **Attachment I - Inspection and Maintenance for BMPs.** A plan for the inspection of each temporary BMP(s) and measure(s) and for their timely maintenance, repairs, and, if necessary, retrofit is attached. A description of the documentation procedures, recordkeeping practices, and inspection frequency are included in the plan and are specific to the site and/or BMP.
13. ☒ All control measures must be properly selected, installed, and maintained in accordance with the manufacturer's specifications and good engineering practices. If periodic inspections by the applicant or the executive director, or other information indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations.
14. ☒ If sediment escapes the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain).
15. ☒ Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50%. A permanent stake will be provided that can indicate when the sediment occupies 50% of the basin volume.
16. ☒ Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from becoming a pollutant source for stormwater discharges (e.g., screening outfalls, picked up daily).

## ***Soil Stabilization Practices***

*Examples: establishment of temporary vegetation, establishment of permanent vegetation, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, or preservation of mature vegetation.*

17. ☒ **Attachment J - Schedule of Interim and Permanent Soil Stabilization Practices.** A schedule of the interim and permanent soil stabilization practices for the site is attached.

- 18. ☒ Records must be kept at the site of the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.
- 19. ☒ Stabilization practices must be initiated as soon as practicable where construction activities have temporarily or permanently ceased.

### ***Administrative Information***

- 20. ☒ All structural controls will be inspected and maintained according to the submitted and approved operation and maintenance plan for the project.
- 21. ☒ If any geologic or manmade features, such as caves, faults, sinkholes, etc., are discovered, all regulated activities near the feature will be immediately suspended. The appropriate TCEQ Regional Office shall be immediately notified. Regulated activities must cease and not continue until the TCEQ has reviewed and approved the methods proposed to protect the aquifer from any adverse impacts.
- 22. ☒ Silt fences, diversion berms, and other temporary erosion and sediment controls will be constructed and maintained as appropriate to prevent pollutants from entering sensitive features discovered during construction.

# Attachment A: Spill Response Actions

The construction contractor will be capable of responding at any time to a spill. The contractor will have the tools available to dike, boom, or block off inlets to contain and prevent a spill that may occur on the site. The contractor will have contact information available for additional contractors to support larger spills.

"Reportable spills" will be reported to the TCEQ at the Austin Region Call Number 512-339-2929 or Spill Reporting [24 Hour] at 800-832-8224 within 24 hours of the spill event. A reportable spill is one that meets any of the following criteria:

- 25 gallons of oil, fuel, and other hydrocarbon onto the ground.
- Any amount of hydrocarbon and/or crude oil that causes a visible sheen on waters of the United States including, but not limited to, stormwater runoff.

# Attachment B: Potential Sources of Contamination

The anticipated primary potential pollutant is sediment. Other potential pollutants are vehicle fluids, trash, and bacteria.

Potential sources of sediment to stormwater runoff:

- Soil disturbing activities will include clearing, preparation of the ROW, grading, and excavation for inlets, storm sewers, swales, utilities, and the water quality pond.

Potential pollutant and sources, other than sediment, to stormwater runoff:

Material	Storm Water Pollutants	Location
Lubricant	Hydrocarbons	Equipment parking area
Fuel	Hydrocarbons	Equipment parking area
Coolant	Organic compounds	Equipment parking area
Trash	Floatables	Project ROW
Portable toilet fluids	Bacteria	Break station
Cleaning supplies/solvents	Detergents, organic compounds	Equipment washing areas
Fertilizers	Nutrients	Storage areas/seeding locations
Wood	Floatables	Fence Lines

Any unanticipated hazardous materials and/or petroleum contamination encountered during construction within the subject property will be handled according to applicable rules and regulations.

Multiple utility lines are located within the project area. Coordination with the owner/operators of these utilities will be necessary prior to construction of the project.

# Attachment C: Sequence of Major Activities

1. The environmental project manager or site supervisor must contact the development services department, environmental inspection, at 512-974-2278, 72 hours prior to the scheduled date of the required onsite pre-construction meeting (no site acreage disturbed).
2. Send Notice of Intent to the Texas Commission on Environmental Quality (TCEQ) at least 48 hours prior to commencement of construction (no site acreage disturbed).
3. The contractor shall post site notice at the project site and install erosion/sedimentation controls (rock berms, sediment traps, silt fences, a stabilized construction entrance/exit, etc.), tree/natural area protective fencing, and conduct "pre-construction" tree fertilization (if applicable) prior to any site preparation work (no site acreage disturbed).
4. The erosion sedimentation control plan (ESC) and stormwater pollution prevention plan (SWPPP) will be followed by the environmental project manager, site supervisor, the designated responsible party, and the general contractor. The temporary erosion and sedimentation controls will be revised (if needed) to comply with city inspectors' directives, and revised construction schedule relative to the water quality plan requirements and the erosion plan (no site acreage disturbed).
5. The pond(s) will be rough graded at 100% proposed capacity (approximately 0.8 acres disturbed). The permanent outlet or a temporary outlet must be constructed prior to the development of embankment or excavation that leads to ponding. The outlet system will contain a sump, outlet (a surface outlet during the construction phase), and an emergency spillway. The outlet system shall be protected from erosion and will be maintained throughout the course of construction until installation of the permanent water quality pond.
6. Inspect and maintain the temporary erosion and sedimentation controls (no site acreage disturbed).
7. Begin site clearing/construction activities (no more than 10 acres will be disturbed at any time).
8. In the Barton Springs Zone, the environmental project manager/site supervisor will coordinate a mid-construction conference to coordinate changes in the construction schedule and to evaluate the effectiveness of the erosion control plan (no site acreage disturbed).
9. The permanent water quality pond will be cleaned out and filter media will be installed prior to/concurrently with revegetation of site (no additional acreage disturbed).
10. Complete construction, begin revegetating the site, and start the installation of landscaping (no additional acreage disturbed).
11. Upon completion of the site construction and revegetation, the design engineer will submit an engineer's letter of concurrence bearing their engineer's seal, their signature, and date to the development services department indicating that construction and revegetation is complete and in substantial compliance with the approved plans. A final inspection will be scheduled by the appropriate city inspector (no additional acreage disturbed).
12. After landscape installation, the landscape architect will submit a letter of concurrence to the development services department indicating that the landscaping is complete and in substantial conformity with the approved plans. A final inspection will be scheduled by the appropriate city inspector (no additional acreage disturbed).
13. After the final inspections have been conducted and approved by the appropriate city inspector, the temporary erosion and sedimentation controls will be removed. Any necessary revegetation resulting from the removal of the control will be completed. Maintenance and rehabilitation of the water quality pond is to be performed (no additional acreage disturbed).

# Attachment D: Temporary Best Management Practices and Measures

The following temporary BMPs and measures will prevent pollution of surface water or groundwater that originates onsite or flows offsite, including pollution caused by contaminated stormwater runoff from the site:

- Temporary silt fences
- Tree protection fences
- Temporary Rock Berms
- Stabilized construction entrance and exit
- Temporary storm inlet sediment traps
- Construction sequencing to reduce disturbance
- Temporary dewatering filter bags
- Temporary vegetative stabilization

Details pertaining to quantities, placement, maintenance, and inspection of the temporary BMPs and practices are outlined in the Construction Plan Set.

The temporary BMPs described above will prevent pollutants from entering surface streams or the aquifer. With the project site being located on top of an existing landfill and with a granted exception, a geologic assessment was not performed. If any subsurface voids are encountered during site development, work will halt immediately so that a geologist may assess the potential for the void(s) to contribute to the Edwards Aquifer.

# Attachment F: Structural Practices

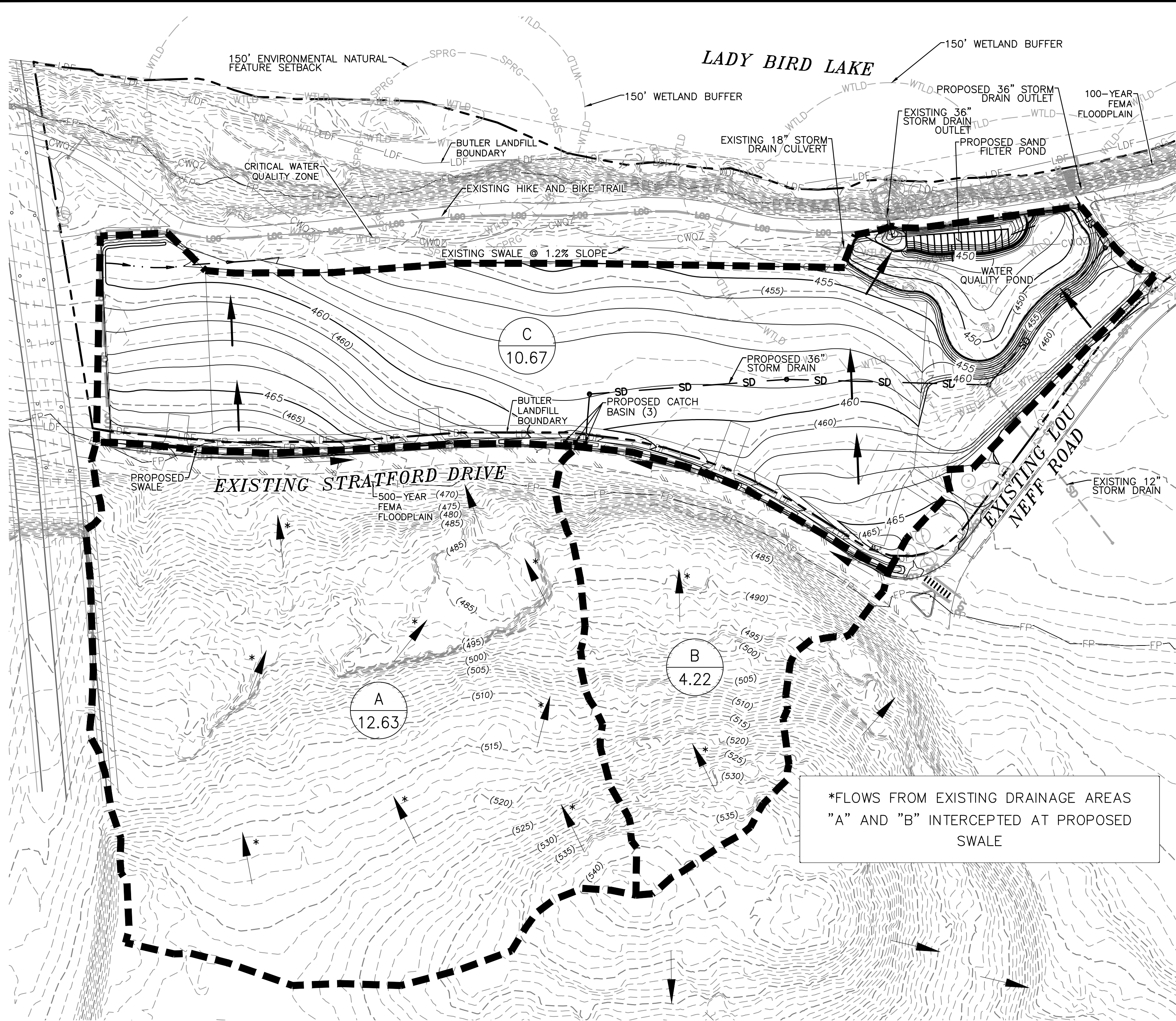
Three catch basins will be located in the proposed swale that intercepts stormwater runoff from offsite. A silt fence will be provided around the catch basins to remove sediment from runoff from overland flows prior to entering the stormwater conveyance. Silt fence will also be used to remove sediments from runoff from overland flows prior to and within a swale draining the project site and around the proposed water quality pond. Rock berms will be utilized to slow discharges downstream of the two 36-inch outfall pipes and upstream of the water quality pond outfall pipe within the pond.

If necessary, a dewatering will occur utilizing a sediment trap and dewatering filter bag.

There will not be any areas greater than 10 acres disturbed at one time within a common drainage area.

**Attachment G**  
**Drainage Area Map**

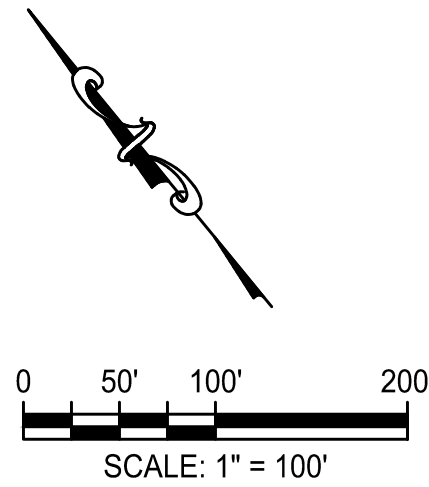
c:\pw\_work\atknatx01\and7652\dms22533\53691-10-DRAN.dwg



PROPOSED DRAINAGE AREA MAP

LEGEND

- X  
0.0 DRAINAGE AREA NO.  
DRAINAGE AREA ACRES
- DRAINAGE BOUNDARY
- ← FLOW DIRECTION
- CWOZ- EXISTING WATER QUALITY ZONE
- ==L.O.C.== LIMITS OF CONSTRUCTION
- WTL- EXISTING WETLANDS



1. DESIGN DISCHARGE (Q, cfs) CALCULATIONS:

Drainage Area (acres)		
(A)	(B)	(C)
12.63	4.22	10.67

1a. Time of Concentration:

- Notes:
- Manning's "n" values are taken from Table 2-2, COA Drainage Criteria Manual
  - Sheet flow and shallow concentrated flow are assumed; no channelized flow occurs
  - P=3.44 inches (Table 2-3)

$$T_c = T_t(\text{sheet}) + T_t(\text{shallow concentrated}) \quad (\text{Eq. 2-2})$$
$$\text{Sheet Flow, First 100 feet} \quad T_t = 0.42(nL)^{0.8} / (P^{0.5} s^{0.4}) \quad (\text{Eq. 2-3})$$
$$\text{Shallow Concentrated Flow} \quad T_t = L / (60(16.1345)(s)^{0.5}) \quad (\text{Eq. 2-4})$$

Basin A:	Manning's "n"	L (ft)	s (ft/ft)	T <sub>c</sub> (min)
Sheet Flow, First 100 feet	0.6	100	0.05	20
Shallow Concentrated Flow	0.6	690	0.11	2
<b>TOTAL</b>				<b>22</b>

Basin B:	Manning's "n"	L (ft)	s (ft/ft)	T <sub>c</sub> (min)
Sheet Flow, First 100 feet	0.6	100	0.05	20
Shallow Concentrated Flow	0.6	611	0.13	2
<b>TOTAL</b>				<b>21</b>

Basin C:	Manning's "n"	L (ft)	s (ft/ft)	T <sub>c</sub> (min)
Sheet Flow, First 100 feet	0.15	100	0.02	9
Shallow Concentrated Flow	0.15	366	0.03	2
<b>TOTAL</b>				<b>12</b>

1b. Rainfall Intensities:

$$\text{Rainfall Intensity: } i = a / (T_c + b)^c \quad (\text{Eq. 2-8})$$

Intensity Duration Frequency Curve Coefficients (Table 2-5)

Freq (yrs)	a	b	c
2	54.767	11.051	0.8116
5	62.981	10.477	0.7820
10	70.820	10.396	0.7725
25	82.936	10.746	0.7634
50	100.600	12.172	0.7712
100	118.300	13.185	0.7736
500	188.000	17.233	0.7822

Intesities for Frequencies based on each Drainage Basin

Freq (yrs)	A	B	C
2	3.21	3.25	4.36
5	4.16	4.20	5.61
10	4.84	4.89	6.51
25	5.80	5.86	7.75
50	6.63	6.69	8.75
100	7.55	7.62	9.88
500	10.69	10.77	13.57

1c. Composite Runoff Coefficients for Drainage Basins: (Table 2-1)

Basin A	A (acres)	C						
		Frequency (yrs)						
		2	5	10	25	50	100	500
Forest Woodland (steep)	11.31	0.35	0.39	0.41	0.45	0.48	0.52	0.58
Asphaltic	0.48	0.73	0.77	0.81	0.86	0.90	0.95	1.00
Grass Areas (fair & avg)	0.84	0.33	0.36	0.38	0.42	0.45	0.49	0.58
<b>TOTAL</b>	<b>12.63</b>	<b>0.36</b>	<b>0.40</b>	<b>0.42</b>	<b>0.46</b>	<b>0.49</b>	<b>0.53</b>	<b>0.60</b>

Basin B	A (acres)	C						
		Frequency (yrs)						
		2	5	10	25	50	100	500
Forest Woodland (steep)	3.45	0.35	0.39	0.41	0.45	0.48	0.52	0.58
Asphaltic	0.24	0.73	0.77	0.81	0.86	0.90	0.95	1.00
Grass Areas (fair & avg)	0.53	0.33	0.36	0.38	0.42	0.45	0.49	0.58
<b>TOTAL</b>	<b>4.22</b>	<b>0.37</b>	<b>0.41</b>	<b>0.43</b>	<b>0.47</b>	<b>0.50</b>	<b>0.54</b>	<b>0.60</b>

Basin C	A (acres)	C						
		Frequency (yrs)						
		2	5	10	25	50	100	500
Asphaltic	7.24	0.73	0.77	0.81	0.86	0.90	0.95	1.00
Grass Areas (fair & avg)	3.43	0.33	0.36	0.38	0.42	0.45	0.49	0.58
<b>TOTAL</b>	<b>10.67</b>	<b>0.60</b>	<b>0.64</b>	<b>0.67</b>	<b>0.72</b>	<b>0.76</b>	<b>0.80</b>	<b>0.86</b>

1d. Flow Rates

$$\text{Flow Rate (Q, cfs):} \quad Q = C^* I^* A \quad (\text{Eq. 2-1})$$

Basin	Basin Flow Rates for Various Frequencies (cfs)						
	2	5	10	25	50	100	500
A	14.74	21.13	25.87	33.97	41.35	50.98	80.45
B	5.06	7.22	8.85	11.60	14.11	17.39	27.45
C	27.96	38.18	46.67	59.41	70.49	84.58	125.25
A+B (swale)	19.80	28.35	34.72	45.58	55.46	68.37	107.91

2. PIPE DIMENSIONS

Pipe	25-Yr Flow Rate (cfs)	Manning's "n"	Slope (ft/ft)	Size (in)	Normal Depth (ft)	Length (ft)	Velocity (ft/s)
West Trench Drain	5.25	0.013	0.0040	24 x 12	0.59	48	6.78
Mid Trench Drain	22.04	0.013	0.0217	30 x 12	1.35	62	9.79
East Trench Drain	9.46	0.013	0.0120	24 x 12	0.86	56	7.35
Storm Drain	45.58	0.013	0.0042	36	2.64	1061	6.92

PROPOSED CONDITIONS DRAINAGE CALCULATIONS

DETENTION NOTE

PROJECT IS ON SHORE OF LADY BIRD LAKE SO DETENTION IS NOT PROPOSED. THERE IS NO DOWNSTREAM PROPERTY TO PROTECT.

THESE PLANS ARE COMPLETE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND IN COMPLIANCE WITH THE CITY OF AUSTIN DEVELOPMENT CODE.

SITE PLAN APPROVAL

Sheet 14 of 21

FILE NUMBER: SP-XXXX-XXXXX APPLICATION DATE: XX/XX/XX  
APPROVED BY COMMISSION ON N/A UNDER SECTION XXX OF CHAPTER XX-X OF THE CITY OF AUSTIN CODE.  
EXPIRATION DATE (25-5-81, LDC) CASE MANAGER XXXXXXXXXXXX  
PROJECT EXPIRATION DATE (ORD.#970905-A) DWPZ DDZ

Director, Development Review Department  
RELEASE FOR GENERAL COMPLIANCE: Zoning: \_\_\_\_\_  
Rev. 1 \_\_\_\_\_ Correction 1 \_\_\_\_\_  
Rev. 2 \_\_\_\_\_ Correction 2 \_\_\_\_\_  
Rev. 3 \_\_\_\_\_ Correction 3 \_\_\_\_\_

Final plot must be recorded by the Project Expiration Date, if applicable. Subsequent Site Plans which do not comply with the Code current at the time of filing, and all required Building Permits and/or a notice of construction (if a building permit is not required), must also be approved prior to the Project Expiration Date.

ZILKER PARK  
AUSTIN CITY LIMITS STAGING AREA  
SITE DEVELOPMENT PERMIT PLANS

PROPOSED DRAINAGE AREA MAP AND CALCULATIONS

SHEET NO. 14

OF 21 SHEETS

FILE NO. 53691-10-DRAN  
PROJECT NO. 100053691

SP-XXXX-XXXXX

ATKINS

1884 DOMAN BOULEVARD, SUITE 500  
AUSTIN, TEXAS 78758-1912 327-4640  
TBP REG. NO. 1-474



01/03/18

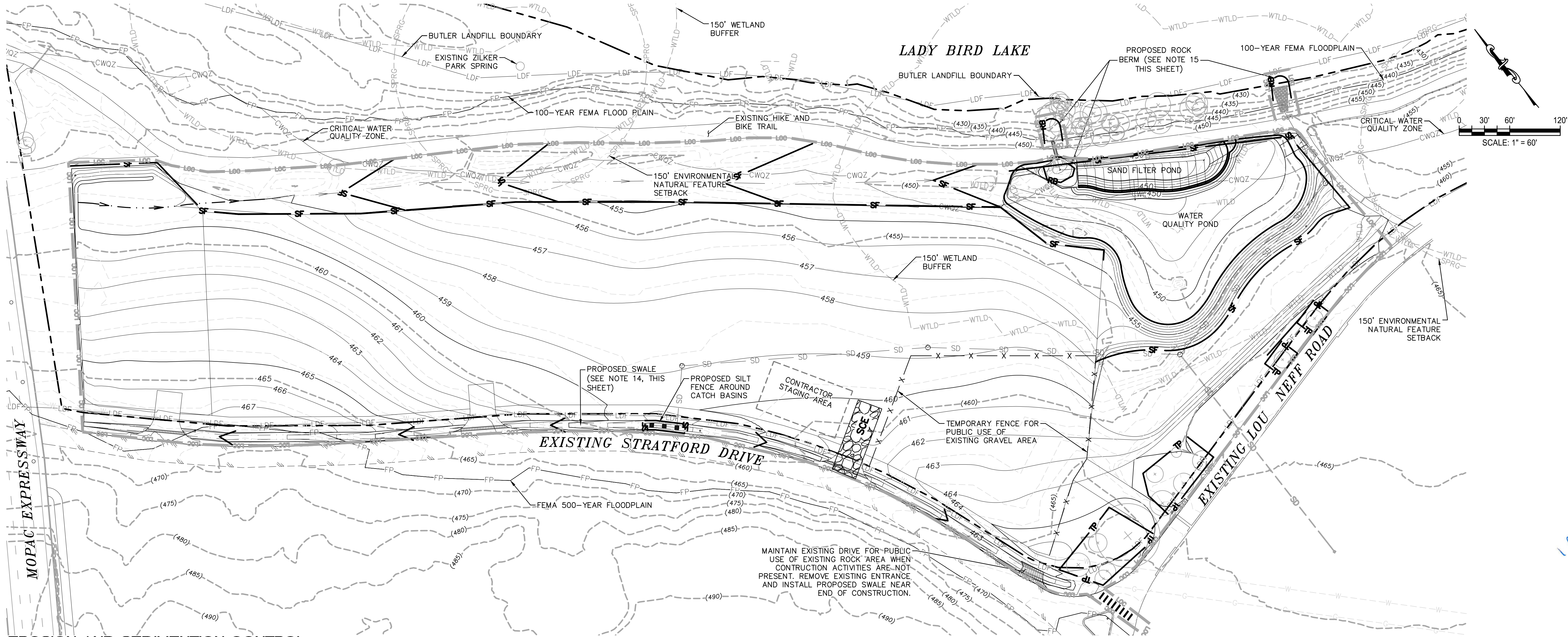
DESIGNED BY: NAB/CEA  
DRAWN BY: JLC  
CHECKED BY: PAB/TPB  
APPROVED BY: SAS  
DATE: JANUARY, 2018

NO.

REVISION

BY/DATE

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### EROSION AND SEDIMENTATION CONTROL AND TREE PROTECTION NOTES

- THE INFORMATION SHOWN ON THESE DRAWINGS INDICATING THE SIZE, TYPE, AND LOCATION OF ANY UNDERGROUND, SURFACE, AND AERIAL UTILITIES OR OTHER EXISTING FEATURES IS NOT GUARANTEED TO BE EXACT OR COMPLETE. THE CONTRACTOR SHALL CONTACT THE AUSTIN AREA "ONE CALL" SYSTEM (1-800-344-8377) FOR EXISTING UTILITY LOCATIONS AT LEAST 48 HOURS PRIOR TO BEGINNING ANY EXCAVATION. THE CONTRACTOR SHALL ALSO BE FULLY RESPONSIBLE FOR FIELD VERIFYING LOCATIONS AND ELEVATIONS OF ALL EXISTING UTILITIES AFFECTED BY THIS PROJECT'S CONSTRUCTION, IN ORDER TO AVOID DAMAGING THOSE UTILITIES, AND SHALL IMMEDIATELY ARRANGE FOR REPAIR AND RESTORATION OF CONTRACTOR-DAMAGED UTILITIES, TO THE SATISFACTION OF THE UTILITY COMPANY, AT THE EXPENSE OF THE CONTRACTOR.
- THE CONTRACTOR SHALL CONTACT ATKINS WITH ANY ITEMS ON THESE PLANS THAT NEED CLARIFICATION OR ANY FIELD CONDITIONS THAT ARE NOT CONSISTENT WITH THESE PLANS.
- THE CONTRACTOR SHALL USE CARE AND NOT DAMAGE ANY EXISTING SIDEWALKS, DRIVES, STREETS, OR OTHER FEATURES, THAT ARE NOT PART OF THIS PROJECT. ANY CONTRACTOR DAMAGE SHALL BE REPAIRED TO THE OWNER'S SATISFACTION, AT THE CONTRACTOR'S EXPENSE.
- DIGITAL FILES TO BE PROVIDED TO CONTRACTOR FOR HORIZONTAL LAYOUT.
- REFER TO SHEET-2 FOR EROSION /SEDIMENTATION AND TREE PROTECTION NOTES.
- REFER TO SHEET 4 FOR TREE PROTECTION DETAILS
- REFER TO SHEET 18 FOR EROSION /SEDIMENTATION CONTROL DETAILS.
- ADEQUATE BARRIERS BETWEEN ALL VEHICULAR USE AREAS AND ADJACENT LANDSCAPE AREAS, SUCH AS CONCRETE CURBS OR WHEEL STOPS, ARE REQUIRED AND MUST COMPLY WITH COA ENVIRONMENTAL CRITERIA MANUAL (ECM), SECTION 2.4.7, "PROTECTION OF LANDSCAPE AREAS."
- THE ENVIRONMENTAL INSPECTOR HAS THE AUTHORITY TO ADD AND/OR MODIFY EROSION/SEDIMENTATION CONTROLS ON SITE TO KEEP THE PROJECT IN COMPLIANCE WITH THE CITY OF AUSTIN RULES AND REGULATIONS.
- IF DISTURBED AREA IS NOT TO BE WORKED ON FOR MORE THAN 14 DAYS, DISTURBED AREA NEEDS TO BE STABILIZED BY REVEGETATION, MULCH, TARP OR REVEGETATION MATTING. (ECM 1.4.4.B.3, SECTION 5, I.)
- THE CONTRACTOR SHALL UTILIZE DUST CONTROL MEASURES DURING SITE CONSTRUCTION SUCH AS IRRIGATION TRUCKS AND MULCHING AS PER ECM 1.4.5(A), OR AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR.
- THE CONTRACTOR WILL CLEAN UP SPOILS THAT MIGRATE ONTO THE ROADS A MINIMUM OF ONCE DAILY. (ECM 1.4.4.D.4)
- INITIATE FINAL SLOPE STABILIZATION WITH 7 DAYS OF ACHIEVING FINAL GRADE.
- THE CONTRACTOR SHALL PLACE THE SEDIMENT FENCE IN THE PROPOSED SWALE UPON COMPLETION OF GRADING.
- ROCK BERM TO BE INSTALLED PRIOR TO WORK. REMOVE AND REPLACE AS NEEDED FOR WORK IN AREA. WHEN REMOVED, INSTALL SILT FENCE OVER PIPE OPENING. PUMP OUT WATER WHEN NEEDED THRU SEDIMENT TRAP PER 624S-1 (SHEET 18) AND DEWATERING FILTER BAG PER DETAIL ON SHEET 18.
- IN THE EVENT THAT DEWATERING IS NECESSARY, THE CONTRACTOR IS REQUIRED TO PREPARE A DEWATERING PLAN THAT WILL DESCRIBE HOW THE DEWATERING OPERATION WILL BE COMPLETED AND HOW THE PUMP EFFLUENT WILL BE MANAGED. REFERENCE THE SOILS REPORT FOR DISCUSSIONS OF GROUNDWATER CONSIDERATION. THE COST FOR DEWATERING OPERATIONS SHALL BE INCLUDED IN THE PRICE BID FOR THE STORM SEWER IMPROVEMENT. THE CONTRACTOR SHALL FURNISH AND OPERATE SUITABLE PUMPING EQUIPMENT OF SUCH CAPACITY ADEQUATE TO DEWATER THE TRENCH SHOULD WATER BE ENCOUNTERED. THE TRENCH SHALL BE SUFFICIENTLY DEWATERED SO THAT THE PLACEMENT OF BEDDING AND THE LAYING AND JOINING OF PIPE IS MADE ON FIRM, DRY GROUND. IF DEWATERING CANNOT PRODUCE ACCEPTABLE SUBGRADE, AND ONLY AS DIRECTED BY THE ENGINEER, UNSUITABLE MATERIALS SHALL BE REMOVED AND REPLACED PER CITY OF AUSTIN SPECIFICATIONS SECTION 510.3(9) AND SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS SEWER ITEMS. THE CONTRACTOR SHALL BE RESPONSIBLE TO PACE AND MAINTAIN THE NECESSARY SEDIMENT CONTROL MEASURES TO FILTER THE DEWATERING DISCHARGE. THE COST OF ANY DEWATERING OPERATIONS REQUIRED FOR THE CONSTRUCTION OF THE STORM SEWER SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS SEWER ITEMS NO SEPARATE PAYMENT SHALL BE MADE.

### LEGEND

- PROPOSED CONTOUR
- EXISTING CONTOUR
- SILT FENCE PER 642S-1 (SHEET 18)
- TREE PROTECTION FENCE PER 610S-4 (SHEET 4)
- ROCK BERM PER 639S-1 (SHEET 18)
- LIMITS OF CONSTRUCTION/DISTURBANCE
- STABILIZED CONSTRUCTION ENTRANCE PER 641S-1 (SHEET 18)
- TEMPORARY CONSTRUCTION FENCE PER 610S-4 (SHEET 4)
- EXISTING WATER QUALITY ZONE
- LIMITS OF CONSTRUCTION
- EXISTING WETLANDS

CONTRACTOR HAS THE OPTION OF SUBSTITUTING SILT FENCE FOR MULCH SOCK PER COA DETAIL

LIMITS OF CONSTRUCTION AREA= 12.9 ACRES

THESE PLANS ARE COMPLETE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND IN COMPLIANCE WITH THE CITY OF AUSTIN DEVELOPMENT CODE.

**SITE PLAN APPROVAL** Sheet 12 of 21  
FILE NUMBER: SP-XXXX-XXXXX APPLICATION DATE: XX/XX/XX  
APPROVED BY COMMISSION ON N/A UNDER SECTION XXX OF CHAPTER XX-X OF THE CITY OF AUSTIN CODE.  
EXPIRATION DATE (25-5-81, LDC) CASE MANAGER XXXXXXXXXXXX  
PROJECT EXPIRATION DATE (ORD.#970905-A) DWPZ DDZ

Director, Development Review Department  
RELEASE FOR GENERAL COMPLIANCE: \_\_\_\_\_ Zoning: \_\_\_\_\_  
Rev. 1 \_\_\_\_\_ Correction 1 \_\_\_\_\_  
Rev. 2 \_\_\_\_\_ Correction 2 \_\_\_\_\_  
Rev. 3 \_\_\_\_\_ Correction 3 \_\_\_\_\_

Final plot must be recorded by the Project Expiration Date, if applicable. Subsequent Site Plans which do not comply with the Code current at the time of filing, and all required Building Permits and/or a notice of construction (if a building permit is not required), must also be approved prior to the Project Expiration Date.

DESIGNED BY: NAB/CEA	DRAWN BY: JLC	CHECKED BY: PAB/TPB	APPROVED BY: SAS	DATE: JANUARY, 2018	NO.	REVISION	BY/DATE
<b>ATKINS</b> 1801 DOMAN BOULEVARD, SUITE 500 AUSTIN, TEXAS 78758-1912 327-4640 TBP REG. NO. 1-474							
<b>ZILKER PARK AUSTIN CITY LIMITS STAGING AREA SITE DEVELOPMENT PERMIT PLANS</b>							
<b>EROSION AND SEDIMENT CONTROL PLAN</b>							
SHEET NO. 12							
OF 21 SHEETS							
FILE NO. 53691-09-EROS PROJECT NO. 100053691							
SP-XXXX-XXXXX							

# Attachment I: Inspection and Maintenance for BMPs

Inspection requirements are outlined in the Stormwater Pollution Prevention Plan. For areas of the construction site that have not been finally stabilized, areas used for storage of materials, structural control measures, and locations where vehicles enter or exit the site, personnel provided by the permittee and familiar with the SWPPP will inspect disturbed areas at least once every 14 calendar days and within 24 hours of the end of a storm of 0.5 inch or greater. As an alternative to the above-described inspection schedule, these inspections will occur at least once every 7 calendar days.

Each contractor will designate a qualified person or persons to perform the following inspections:

- Rock berms shall be inspected daily or after each event. The stone and/or fabric core-woven sheathing shall be replaced when the structure ceases to function as intended due to sediment accumulation, washout, construction traffic damage, etc. If sediment reaches a depth equal to  $\frac{1}{3}$  the height of the berm or 1-foot, whichever is less, the sediment shall be removed.
- Locations where vehicles enter or exit the site will be inspected to prevent tracking or flowing of sediment onto public roadways.
- The dewatering filter bag shall be replaced when the bag is half filled with sediment.
- Disturbed areas and areas used for storage of materials that are exposed to precipitation will be inspected for evidence of, or the potential for, pollutants entering the drainage system.
- Erosion and sediment control measures identified in the plan will be observed to ensure that they are operating correctly.
- Where discharge locations or points are accessible, they will be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters.
- The vehicle/equipment wash area will be inspected for loss of aggregate, proper drainage, and proper maintenance of equipment.
- Silt fences should be inspected prior to forecast rain, daily during extended rain events, after rain events, or weekly. If a silt fence is damaged or inoperable, it shall be removed and replaced with a new silt fence. If sediment accumulation reaches approximately 6 inches, it shall be removed.
- The sediment trap shall be cleaned of sediment and restored to its original dimensions when the sediment has accumulated to one-half of the design depth or 1-foot, whichever is less.

After a portion of the site is finally stabilized, inspection will be conducted at least once every month.

# **Attachment J: Schedule of Interim and Permanent Soil Stabilization Practices**

This schedule is as included in the site plans.

1. Install erosion/sediment controls, tree/natural area protective fencing, and conduct “pre-construction” tree fertilization (if applicable) prior to any site preparation work.
2. Stabilized construction exits will be provided using coarse aggregate or approved substitute.
3. The on-site staging and parking area will be stabilized using coarse aggregate or approved substitute.
4. All disturbed areas to be revegetated are required to place a minimum of 6-inches of topsoil. Topsoil is to not be added within the critical root zone of existing trees.
5. The establishment of temporary and permanent stabilization will be applied to disturbed areas.
6. All disturbed land within the ROW will be stabilized to minimize erosion and sedimentation as soon as possible.
7. Remove temporary erosion controls when the site is stabilized.

## **5. TCEQ-0600 Permanent Stormwater Section**

# Permanent Stormwater Section

## Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(b)(4)(C), (D)(li), (E), and (5), Effective June 1, 1999

***To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.***

***Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.***

## Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **Permanent Stormwater Section** is hereby submitted for TCEQ review and executive director approval. The application was prepared by:

Print Name of Customer/Agent: Chad Richards, PE

Date: January 26, 2018

Signature of Customer/Agent



Regulated Entity Name: City of Austin Zilker Park

## Permanent Best Management Practices (BMPs)

***Permanent best management practices and measures that will be used during and after construction is completed.***

1. ☒ Permanent BMPs and measures must be implemented to control the discharge of pollution from regulated activities after the completion of construction.  
☐ N/A
2. ☒ These practices and measures have been designed, and will be constructed, operated, and maintained to insure that 80% of the incremental increase in the annual mass loading of total suspended solids (TSS) from the site caused by the regulated activity is removed. These quantities have been calculated in accordance with technical guidance prepared or accepted by the executive director.  
☒ The TCEQ Technical Guidance Manual (TGM) was used to design permanent BMPs and measures for this site.

☒ A technical guidance other than the TCEQ TGM was used to design permanent BMPs and measures for this site. The complete citation for the technical guidance that was used is: The Environmental Criteria Manual provided by the City of Austin ([https://library.municode.com/TX/Austin/codes/Environmental\\_Criteria\\_Manual](https://library.municode.com/TX/Austin/codes/Environmental_Criteria_Manual))

☐ N/A

3. ☒ Owners must insure that permanent BMPs and measures are constructed and function as designed. A Texas Licensed Professional Engineer must certify in writing that the permanent BMPs or measures were constructed as designed. The certification letter must be submitted to the appropriate regional office within 30 days of site completion.

☐ N/A

4. Where a site is used for low density single-family residential development and has 20 % or less impervious cover, other permanent BMPs are not required. This exemption from permanent BMPs must be recorded in the county deed records, with a notice that if the percent impervious cover increases above 20% or land use changes, the exemption for the whole site as described in the property boundaries required by 30 TAC §213.4(g) (relating to Application Processing and Approval), may no longer apply and the property owner must notify the appropriate regional office of these changes.

☐ The site will be used for low density single-family residential development and has 20% or less impervious cover.

☐ The site will be used for low density single-family residential development but has more than 20% impervious cover.

☒ The site will not be used for low density single-family residential development.

5. The executive director may waive the requirement for other permanent BMPs for multi-family residential developments, schools, or small business sites where 20% or less impervious cover is used at the site. This exemption from permanent BMPs must be recorded in the county deed records, with a notice that if the percent impervious cover increases above 20% or land use changes, the exemption for the whole site as described in the property boundaries required by 30 TAC §213.4(g) (relating to Application Processing and Approval), may no longer apply and the property owner must notify the appropriate regional office of these changes.

☐ **Attachment A - 20% or Less Impervious Cover Waiver.** The site will be used for multi-family residential developments, schools, or small business sites and has 20% or less impervious cover. A request to waive the requirements for other permanent BMPs and measures is attached.

☐ The site will be used for multi-family residential developments, schools, or small business sites but has more than 20% impervious cover.

☒ The site will not be used for multi-family residential developments, schools, or small business sites.

6. ☒ **Attachment B - BMPs for Upgradient Stormwater.**

- ☐ A description of the BMPs and measures that will be used to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site is attached.
- ☒ No surface water, groundwater or stormwater originates upgradient from the site and flows across the site, and an explanation is attached.
- ☐ Permanent BMPs or measures are not required to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site, and an explanation is attached.
7. ☒ **Attachment C - BMPs for On-site Stormwater.**
- ☒ A description of the BMPs and measures that will be used to prevent pollution of surface water or groundwater that originates on-site or flows off the site, including pollution caused by contaminated stormwater runoff from the site is attached.
- ☐ Permanent BMPs or measures are not required to prevent pollution of surface water or groundwater that originates on-site or flows off the site, including pollution caused by contaminated stormwater runoff, and an explanation is attached.
8. ☐ **Attachment D - BMPs for Surface Streams.** A description of the BMPs and measures that prevent pollutants from entering surface streams, sensitive features, or the aquifer is attached. Each feature identified in the Geologic Assessment as sensitive has been addressed.
- ☒ N/A
9. ☒ The applicant understands that to the extent practicable, BMPs and measures must maintain flow to naturally occurring sensitive features identified in either the geologic assessment, executive director review, or during excavation, blasting, or construction.
- ☒ The permanent sealing of or diversion of flow from a naturally-occurring sensitive feature that accepts recharge to the Edwards Aquifer as a permanent pollution abatement measure has not been proposed.
- ☐ **Attachment E - Request to Seal Features.** A request to seal a naturally-occurring sensitive feature, that includes, for each feature, a justification as to why no reasonable and practicable alternative exists, is attached.
10. ☒ **Attachment F - Construction Plans.** All construction plans and design calculations for the proposed permanent BMP(s) and measures have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer, and are signed, sealed, and dated. The plans are attached and, if applicable include:
- ☒ Design calculations (TSS removal calculations)
- ☐ TCEQ construction notes
- ☐ All geologic features
- ☒ All proposed structural BMP(s) plans and specifications
- ☐ N/A

11. ☒ **Attachment G - Inspection, Maintenance, Repair and Retrofit Plan.** A plan for the inspection, maintenance, repairs, and, if necessary, retrofit of the permanent BMPs and measures is attached. The plan includes all of the following:
- ☒ Prepared and certified by the engineer designing the permanent BMPs and measures
  - ☒ Signed by the owner or responsible party
  - ☒ Procedures for documenting inspections, maintenance, repairs, and, if necessary retrofit
  - ☒ A discussion of record keeping procedures
- ☐ N/A
12. ☐ **Attachment H - Pilot-Scale Field Testing Plan.** Pilot studies for BMPs that are not recognized by the Executive Director require prior approval from the TCEQ. A plan for pilot-scale field testing is attached.
- ☒ N/A
13. ☐ **Attachment I - Measures for Minimizing Surface Stream Contamination.** A description of the measures that will be used to avoid or minimize surface stream contamination and changes in the way in which water enters a stream as a result of the construction and development is attached. The measures address increased stream flashing, the creation of stronger flows and in-stream velocities, and other in-stream effects caused by the regulated activity, which increase erosion that results in water quality degradation.
- ☒ N/A

### ***Responsibility for Maintenance of Permanent BMP(s)***

***Responsibility for maintenance of best management practices and measures after construction is complete.***

14. ☒ The applicant is responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property (such as without limitation, an owner's association, a new property owner or lessee, a district, or municipality) or the ownership of the property is transferred to the entity. Such entity shall then be responsible for maintenance until another entity assumes such obligations in writing or ownership is transferred.
- ☐ N/A
15. ☐ A copy of the transfer of responsibility must be filed with the executive director at the appropriate regional office within 30 days of the transfer if the site is for use as a multiple single-family residential development, a multi-family residential development, or a non-residential development such as commercial, industrial, institutional, schools, and other sites where regulated activities occur.
- ☒ N/A

# **Attachment B: BMPs for Upgradient Stormwater**

A proposed swale will intercept all upgradient, offsite flow and discharge into Lady Bird Lake via a 36-inch storm drain outlet.

# **Attachment C: BMPs for On-Site Stormwater**

The water quality goal is to remove 80% of the increased total suspended solids (TSS) from the proposed project. This will be accomplished using an onsite water quality pond that will consist of a combined extended detention basin and bioretention facility. There is no existing impervious cover within the proposed limits of construction. The proposed project adds 7.87 acres of impervious cover requiring 6,850-lbs of TSS removal.

The extended detention pond will remove over 5,500-lbs of TSS and the bioretention system will remove over 5,000-lbs of TSS for a total of 10,500-lbs of TSS. The proposed onsite water quality pond is sufficient for the removal of TSS on this project, and will be located on the eastern end of the project site.

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.

Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.

Characters shown in red are data entry fields.

Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreadsheet.

**1. The Required Load Reduction for the total project:**

Calculations from RG-348

Pages 3-27 to 3-30

Page 3-29 Equation 3.3:  $L_M = 27.2(A_N \times P)$

where:

$L_M$  TOTAL PROJECT = Required TSS removal resulting from the proposed development = 80% of increased load

$A_N$  = Net increase in impervious area for the project

P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	<b>Travis</b>	
Total project area included in plan =	<b>12.90</b>	acres
Predevelopment impervious area within the limits of the plan =	<b>0.00</b>	acres
Total post-development impervious area within the limits of the plan =	<b>7.87</b>	acres
Total post-development impervious cover fraction =	<b>0.61</b>	
P =	<b>32</b>	inches

$L_M$  TOTAL PROJECT = **6850** lbs.

\* The values entered in these fields should be for the total project area.

Number of drainage basins / outfalls areas leaving the plan area = **1**

**2. Drainage Basin Parameters (This information should be provided for each basin):**

Drainage Basin/Outfall Area No. = **1**

Total drainage basin/outfall area =	<b>10.67</b>	acres
Predevelopment impervious area within drainage basin/outfall area =	<b>0.00</b>	acres
Post-development impervious area within drainage basin/outfall area =	<b>7.87</b>	acres
Post-development impervious fraction within drainage basin/outfall area =	<b>0.74</b>	
$L_M$ THIS BASIN =	<b>6850</b>	lbs.

**3. Indicate the proposed BMP Code for this basin.**

Proposed BMP = **Extended Detention**  
Removal efficiency = **75** percent

Aqualogic Cartridge Filter  
Bioretention  
Contech StormFilter  
Constructed Wetland  
Extended Detention  
Grassy Swale  
Retention / Irrigation  
Sand Filter  
Stormceptor  
Vegetated Filter Strips  
Vortechs  
Wet Basin  
Wet Vault

**4. Calculate Maximum TSS Load Removed ( $L_R$ ) for this Drainage Basin by the selected BMP Type.**

RG-348 Page 3-33 Equation 3.7:  $L_R = (\text{BMP efficiency}) \times P \times (A_i \times 34.6 + A_p \times 0.54)$

where:

$A_C$  = Total On-Site drainage area in the BMP catchment area

$A_i$  = Impervious area proposed in the BMP catchment area

$A_p$  = Pervious area remaining in the BMP catchment area

$L_R$  = TSS Load removed from this catchment area by the proposed BMP

$A_C$  = **10.67** acres

$A_i$  = **7.87** acres

$A_p$  = **2.80** acres

$L_R$  = **6572** lbs

##### 5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired  $L_{in}$  THIS BASIN = 5500 lbs.

F = 0.84

##### 6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area.

Calculations from RG-348

Pages 3-34 to 3-36

Rainfall Depth = 1.26 inches  
Post Development Runoff Coefficient = 0.55  
On-site Water Quality Volume = 26630 cubic feet

Calculations from RG-348 Pages 3-36 to 3-37

Off-site area draining to BMP = 0.00 acres  
Off-site Impervious cover draining to BMP = 0.00 acres  
Impervious fraction of off-site area = 0  
Off-site Runoff Coefficient = 0.00  
Off-site Water Quality Volume = 0 cubic feet

Storage for Sediment = 5326

Total Capture Volume (required water quality volume(s) x 1.20) = 31956 cubic feet

The following sections are used to calculate the required water quality volume(s) for the selected BMP.  
The values for BMP Types not selected in cell C45 will show NA.

##### 7. Retention/Irrigation System

Designed as Required in RG-348

Pages 3-42 to 3-46

Required Water Quality Volume for retention basin = NA cubic feet

Irrigation Area Calculations:

Soil infiltration/permeability rate = 0.1 in/hr Enter determined permeability rate or assumed value of 0.1  
Irrigation area = NA square feet  
NA acres

##### 8. Extended Detention Basin System

Designed as Required in RG-348

Pages 3-46 to 3-51

Required Water Quality Volume for extended detention basin = 31956 cubic feet

##### 9. Filter area for Sand Filters

Designed as Required in RG-348

Pages 3-58 to 3-63

##### 9A. Full Sedimentation and Filtration System

Water Quality Volume for sedimentation basin = NA cubic feet

Minimum filter basin area = NA square feet

Maximum sedimentation basin area = NA square feet

Minimum sedimentation basin area = NA square feet For minimum water depth of 2 feet  
For maximum water depth of 8 feet

##### 9B. Partial Sedimentation and Filtration System

Water Quality Volume for combined basins = NA cubic feet

Minimum filter basin area = NA square feet

Maximum sedimentation basin area = NA square feet

Minimum sedimentation basin area = NA square feet For minimum water depth of 2 feet  
For maximum water depth of 8 feet

##### 10. Bioretention System

Designed as Required in RG-348

Pages 3-63 to 3-65

Required Water Quality Volume for Bioretention Basin = NA cubic feet

##### 11. Wet Basins

Designed as Required in RG-348

Pages 3-66 to 3-71

Required capacity of Permanent Pool = NA cubic feet

Required capacity at WQV Elevation = NA cubic feet

Permanent Pool Capacity is 1.20 times the WQV  
Total Capacity should be the Permanent Pool Capacity  
plus a second WQV.

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.

Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.

Characters shown in red are data entry fields.

Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreadsheet.

#### 1. The Required Load Reduction for the total project:

Calculations from RG-348

Pages 3-27 to 3-30

Page 3-29 Equation 3.3:  $L_M = 27.2(A_N \times P)$

where:

$L_M$  TOTAL PROJECT = Required TSS removal resulting from the proposed development = 80% of increased load

$A_N$  = Net increase in impervious area for the project

P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	<b>Travis</b>	
Total project area included in plan =	<b>12.90</b>	acres
Predevelopment impervious area within the limits of the plan =	<b>0.00</b>	acres
Total post-development impervious area within the limits of the plan =	<b>7.87</b>	acres
Total post-development impervious cover fraction =	<b>0.61</b>	
P =	<b>32</b>	inches

$L_M$  TOTAL PROJECT = **6850** lbs.

\* The values entered in these fields should be for the total project area.

Number of drainage basins / outfalls areas leaving the plan area = **1**

#### 2. Drainage Basin Parameters (This information should be provided for each basin):

Drainage Basin/Outfall Area No. = **1**

Total drainage basin/outfall area =	<b>10.67</b>	acres
Predevelopment impervious area within drainage basin/outfall area =	<b>0.00</b>	acres
Post-development impervious area within drainage basin/outfall area =	<b>7.87</b>	acres
Post-development impervious fraction within drainage basin/outfall area =	<b>0.74</b>	
$L_M$ THIS BASIN =	<b>6850</b>	lbs.

#### 3. Indicate the proposed BMP Code for this basin.

Proposed BMP = **Bioretention**  
Removal efficiency = **89** percent

Aqualogic Cartridge Filter  
Bioretention  
Contech StormFilter  
Constructed Wetland  
Extended Detention  
Grassy Swale  
Retention / Irrigation  
Sand Filter  
Stormceptor  
Vegetated Filter Strips  
Vortechs  
Wet Basin  
Wet Vault

#### 4. Calculate Maximum TSS Load Removed ( $L_R$ ) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7:  $L_R = (\text{BMP efficiency}) \times P \times (A_i \times 34.6 + A_p \times 0.54)$

where:

$A_C$  = Total On-Site drainage area in the BMP catchment area

$A_i$  = Impervious area proposed in the BMP catchment area

$A_p$  = Pervious area remaining in the BMP catchment area

$L_R$  = TSS Load removed from this catchment area by the proposed BMP

$A_C$  = **10.67** acres

$A_i$  = **7.87** acres

$A_p$  = **2.80** acres

$L_R$  = **7798** lbs

**5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area**Desired  $L_{in}$  THIS BASIN = 5000 lbs.

F = 0.64

**6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area.**

Calculations from RG-348

Pages 3-34 to 3-36

Rainfall Depth = 0.66 inches  
Post Development Runoff Coefficient = 0.55  
On-site Water Quality Volume = 13843 cubic feet

Calculations from RG-348 Pages 3-36 to 3-37

Off-site area draining to BMP = 0.00 acres  
Off-site Impervious cover draining to BMP = 0.00 acres  
Impervious fraction of off-site area = 0  
Off-site Runoff Coefficient = 0.00  
Off-site Water Quality Volume = 0 cubic feet

Storage for Sediment = 2769

Total Capture Volume (required water quality volume(s) x 1.20) = 16612 cubic feet

The following sections are used to calculate the required water quality volume(s) for the selected BMP.

The values for BMP Types not selected in cell C45 will show NA.

**7. Retention/Irrigation System**

Designed as Required in RG-348

Pages 3-42 to 3-46

Required Water Quality Volume for retention basin = NA cubic feet

Irrigation Area Calculations:

Soil infiltration/permeability rate = 0.1 in/hr Enter determined permeability rate or assumed value of 0.1  
Irrigation area = NA square feet  
NA acres

**8. Extended Detention Basin System**

Designed as Required in RG-348

Pages 3-46 to 3-51

Required Water Quality Volume for extended detention basin = NA cubic feet

**9. Filter area for Sand Filters**

Designed as Required in RG-348

Pages 3-58 to 3-63

**9A. Full Sedimentation and Filtration System**

Water Quality Volume for sedimentation basin = NA cubic feet

Minimum filter basin area = NA square feet

Maximum sedimentation basin area = NA square feet

Minimum sedimentation basin area = NA square feet For minimum water depth of 2 feet

For maximum water depth of 8 feet

**9B. Partial Sedimentation and Filtration System**

Water Quality Volume for combined basins = NA cubic feet

Minimum filter basin area = NA square feet

Maximum sedimentation basin area = NA square feet

Minimum sedimentation basin area = NA square feet For minimum water depth of 2 feet

For maximum water depth of 8 feet

**10. Bioretention System**

Designed as Required in RG-348

Pages 3-63 to 3-65

Required Water Quality Volume for Bioretention Basin = 16612 cubic feet

**11. Wet Basins**

Designed as Required in RG-348

Pages 3-66 to 3-71

Required capacity of Permanent Pool = NA cubic feet

Required capacity at WQV Elevation = NA cubic feet

Permanent Pool Capacity is 1.20 times the WQV  
Total Capacity should be the Permanent Pool Capacity  
plus a second WQV.

**Attachment F**

**Construction Plans**

**(REFER TO ZILKER PARK AUSITN CITY LIMITS STAGING AREA PLAN SET)**

# Attachment G: Inspection, Maintenance, Repair and Retrofit Plan

The City of Austin Parks and Recreation Department will perform the required maintenance activities as listed:

- During the first growing season, inspections will occur biweekly until 95% vegetative cover is established.
- During the first year, monthly inspections will include the removal of accumulated sediments.
- Quarterly inspections will include the removal of debris and accumulated sediments. Soil media will be replaced in voided areas caused by settlement. Eroded areas will be repaired and voided areas will be re-mulched by hand.
- Semi-annual inspections will include the removal and replacement of any dead/diseased vegetation and removal of debris and accumulated sediments. If the drawdown time exceeds 96 hours, the top layer of sediment will be removed, mulch will be added, and vegetation will be replaced. Alternatively, the soil may be de-compacted through scarification and mulch and disturbed vegetation replaced. Sediment removal will be performed at least once every two years.
- In late winter, bunch grasses will be trimmed no lower than 18-inches from the ground. Turf grass will be mowed no lower than 4-inches from the ground. All clippings/trimmings will be removed from the site. Mulching may be used to control weeds by blocking light and air space. Gravel or crushed recycled glass equivalent in size to gravel may be used to cover the soil surface. Weed fabric should not be utilized.
- In spring, the previous mulch layer will be removed and a new mulch layer will be applied by hand (option) once every two to three years.
- The underdrain piping network will be cleaned every five years, or as needed, to remove any sediment build-up.

An amended copy of this document will be provided to TCEQ within 30 days of any changes in the following information.

Responsible Party for Maintenance:	City of Austin, Texas
Title:	Parks and Recreation Department
Mailing Address:	200 S Lamar Blvd
City, State, Zip Code:	Austin, Texas 78704
Telephone:	512-974-9471
Signature:	

## 6. TCEQ-0599 Agent Authorization Form

**Agent Authorization Form**  
For Required Signature  
Edwards Aquifer Protection Program  
Relating to 30 TAC Chapter 213  
Effective June 1, 1999

I Charles Vaclavik,  
Print Name

Division Manager Parks and Recreation Department,  
Title - Owner/President/Other

of City of Austin, Texas,  
Corporation/Partnership/Entity Name

have authorized Chad Richards,  
Print Name of Agent/Engineer

of Atkins North America, Inc.,  
Print Name of Firm

to represent and act on the behalf of the above named Corporation, Partnership, or Entity for the purpose of preparing and submitting this plan application to the Texas Commission on Environmental Quality (TCEQ) for the review and approval consideration of regulated activities.

I also understand that:

1. The applicant is responsible for compliance with 30 Texas Administrative Code Chapter 213 and any condition of the TCEQ's approval letter. The TCEQ is authorized to assess administrative penalties of up to \$10,000 per day per violation.
2. For those submitting an application who are not the property owner, but who have the right to control and possess the property, additional authorization is required from the owner.
3. Application fees are due and payable at the time the application is submitted. The application fee must be sent to the TCEQ cashier or to the appropriate regional office. The application will not be considered until the correct fee is received by the commission.
4. A notarized copy of the Agent Authorization Form must be provided for the person preparing the application, and this form must accompany the completed application.
5. No person shall commence any regulated activity on the Edwards Aquifer Recharge Zone, Contributing Zone or Transition Zone until the appropriate application for the activity has been filed with and approved by the Executive Director.

SIGNATURE PAGE:

[Signature]  
Applicant's Signature

1.29.2018  
Date

THE STATE OF Texas §

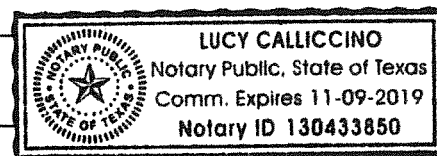
County of Travis §

BEFORE ME, the undersigned authority, on this day personally appeared Charles Vachvik known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that (s)he executed same for the purpose and consideration therein expressed.

GIVEN under my hand and seal of office on this 29 day of January, 2018.

[Signature]  
NOTARY PUBLIC

Lucy Callicino  
Typed or Printed Name of Notary



MY COMMISSION EXPIRES: 11/9/2019

## 7. TCEQ-0574 Application Fee Form

# Application Fee Form

## Texas Commission on Environmental Quality

Name of Proposed Regulated Entity: City of Austin Zilker Park

Regulated Entity Location: Zilker Park East of MoPac to Lou Neff, Stratford Dr. to Lady Bird Lake

Name of Customer: City of Austin

Contact Person: Charles Vaclavik

Phone: 512-974-9471

Customer Reference Number (if issued): CN 600135198

Regulated Entity Reference Number (if issued): RN 102761764

### Austin Regional Office (3373)

☐ Hays

☒ Travis

☐ Williamson

### San Antonio Regional Office (3362)

☐ Bexar

☐ Medina

☐ Uvalde

☐ Comal

☐ Kinney

Application fees must be paid by check, certified check, or money order, payable to the **Texas Commission on Environmental Quality**. Your canceled check will serve as your receipt. **This form must be submitted with your fee payment.** This payment is being submitted to:

☒ Austin Regional Office

☐ San Antonio Regional Office

☐ Mailed to: TCEQ - Cashier

☐ Overnight Delivery to: TCEQ - Cashier

Revenues Section

Mail Code 214

P.O. Box 13088

Austin, TX 78711-3088

12100 Park 35 Circle

Building A, 3rd Floor

Austin, TX 78753

(512)239-0357

### Site Location (Check All That Apply):

☒ Recharge Zone

☐ Contributing Zone

☐ Transition Zone

<i>Type of Plan</i>	<i>Size</i>	<i>Fee Due</i>
Water Pollution Abatement Plan, Contributing Zone Plan: One Single Family Residential Dwelling	Acres	\$
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks	Acres	\$
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	12.9 Acres	\$ 6,500
Sewage Collection System	L.F.	\$
Lift Stations without sewer lines	Acres	\$
Underground or Aboveground Storage Tank Facility	Tanks	\$
Piping System(s)(only)	Each	\$
Exception	Each	\$
Extension of Time	Each	\$

Signature: 

Date: January 31, 2018

# Application Fee Schedule

Texas Commission on Environmental Quality

Edwards Aquifer Protection Program 30 TAC Chapter 213 (effective 05/01/2008)

## ***Water Pollution Abatement Plans and Modifications***

### ***Contributing Zone Plans and Modifications***

<b><i>Project</i></b>	<b><i>Project Area in Acres</i></b>	<b><i>Fee</i></b>
One Single Family Residential Dwelling	< 5	\$650
Multiple Single Family Residential and Parks	< 5	\$1,500
	5 < 10	\$3,000
	10 < 40	\$4,000
	40 < 100	\$6,500
	100 < 500	\$8,000
	≥ 500	\$10,000
Non-residential (Commercial, industrial, institutional, multi-family residential, schools, and other sites where regulated activities will occur)	< 1	\$3,000
	1 < 5	\$4,000
	5 < 10	\$5,000
	10 < 40	\$6,500
	40 < 100	\$8,000
	≥ 100	\$10,000

### ***Organized Sewage Collection Systems and Modifications***

<b><i>Project</i></b>	<b><i>Cost per Linear Foot</i></b>	<b><i>Minimum Fee- Maximum Fee</i></b>
Sewage Collection Systems	\$0.50	\$650 - \$6,500

### ***Underground and Aboveground Storage Tank System Facility Plans and Modifications***

<b><i>Project</i></b>	<b><i>Cost per Tank or Piping System</i></b>	<b><i>Minimum Fee- Maximum Fee</i></b>
Underground and Aboveground Storage Tank Facility	\$650	\$650 - \$6,500

### ***Exception Requests***

<b><i>Project</i></b>	<b><i>Fee</i></b>
Exception Request	\$500

### ***Extension of Time Requests***

<b><i>Project</i></b>	<b><i>Fee</i></b>
Extension of Time Request	\$150

## 8. TCEQ-10400 Core Data Form



# TCEQ Core Data Form

TCEQ Use Only

For detailed instructions regarding completion of this form, please read the Core Data Form Instructions or call 512-239-5175.

## SECTION I: General Information

1. Reason for Submission (If other is checked please describe in space provided.)		
<input checked="" type="checkbox"/> New Permit, Registration or Authorization (Core Data Form should be submitted with the program application.)		
<input type="checkbox"/> Renewal (Core Data Form should be submitted with the renewal form)	<input type="checkbox"/> Other	
2. Customer Reference Number (if issued)	<a href="#">Follow this link to search for CN or RN numbers in Central Registry**</a>	3. Regulated Entity Reference Number (if issued)
CN 600135198		RN 102761764

## SECTION II: Customer Information

4. General Customer Information		5. Effective Date for Customer Information Updates (mm/dd/yyyy)			
<input type="checkbox"/> New Customer <input type="checkbox"/> Update to Customer Information <input type="checkbox"/> Change in Regulated Entity Ownership					
<input type="checkbox"/> Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)					
<b>The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).</b>					
6. Customer Legal Name (If an individual, print last name first: e.g.: Doe, John)				If new Customer, enter previous Customer below:	
7. TX SOS/CPA Filing Number		8. TX State Tax ID (11 digits)		9. Federal Tax ID (9 digits)	
10. DUNS Number (if applicable)					
11. Type of Customer:		<input type="checkbox"/> Corporation		<input type="checkbox"/> Individual	
Government: <input type="checkbox"/> City <input type="checkbox"/> County <input type="checkbox"/> Federal <input type="checkbox"/> State <input type="checkbox"/> Other		<input type="checkbox"/> Sole Proprietorship		Partnership: <input type="checkbox"/> General <input type="checkbox"/> Limited	
12. Number of Employees		13. Independently Owned and Operated?			
<input type="checkbox"/> 0-20 <input type="checkbox"/> 21-100 <input type="checkbox"/> 101-250 <input type="checkbox"/> 251-500 <input type="checkbox"/> 501 and higher		<input type="checkbox"/> Yes <input type="checkbox"/> No			
14. Customer Role (Proposed or Actual) - as it relates to the Regulated Entity listed on this form. Please check one of the following:					
<input type="checkbox"/> Owner <input type="checkbox"/> Operator <input type="checkbox"/> Owner & Operator					
<input type="checkbox"/> Occupational Licensee <input type="checkbox"/> Responsible Party <input type="checkbox"/> Voluntary Cleanup Applicant <input type="checkbox"/> Other:					
15. Mailing Address:					
City		State		ZIP	
16. Country Mailing Information (if outside USA)				17. E-Mail Address (if applicable)	
18. Telephone Number		19. Extension or Code		20. Fax Number (if applicable)	
( ) -				( ) -	

## SECTION III: Regulated Entity Information

21. General Regulated Entity Information (If "New Regulated Entity" is selected below this form should be accompanied by a permit application)	
<input type="checkbox"/> New Regulated Entity <input type="checkbox"/> Update to Regulated Entity Name <input checked="" type="checkbox"/> Update to Regulated Entity Information	
<b>The Regulated Entity Name submitted may be updated in order to meet TCEQ Agency Data Standards (removal of organizational endings such as Inc, LP, or LLC).</b>	
22. Regulated Entity Name (Enter name of the site where the regulated action is taking place.)	

23. Street Address of the Regulated Entity: (No PO Boxes)								
	City		State		ZIP		ZIP + 4	
24. County								

Enter Physical Location Description if no street address is provided.

25. Description to Physical Location:								
26. Nearest City					State		Nearest ZIP Code	
27. Latitude (N) In Decimal:			28. Longitude (W) In Decimal:					
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds			
29. Primary SIC Code (4 digits)		30. Secondary SIC Code (4 digits)		31. Primary NAICS Code (5 or 6 digits)		32. Secondary NAICS Code (5 or 6 digits)		
33. What is the Primary Business of this entity? (Do not repeat the SIC or NAICS description.)								
34. Mailing Address:		200 S. Lamar Blvd						
		City	Austin	State	TX	ZIP	78704	ZIP + 4
35. E-Mail Address:		charles.vaclavik@austintexas.gov						
36. Telephone Number			37. Extension or Code		38. Fax Number (if applicable)			
( 512 ) 974 - 9471					( ) -			

**39. TCEQ Programs and ID Numbers** Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form. See the Core Data Form instructions for additional guidance.


<input type="checkbox"/> Dam Safety	<input type="checkbox"/> Districts	<input type="checkbox"/> Edwards Aquifer	<input type="checkbox"/> Emissions Inventory Air	<input type="checkbox"/> Industrial Hazardous Waste
<input type="checkbox"/> Municipal Solid Waste	<input type="checkbox"/> New Source Review Air	<input type="checkbox"/> OSSF	<input type="checkbox"/> Petroleum Storage Tank	<input type="checkbox"/> PWS
<input type="checkbox"/> Sludge	<input type="checkbox"/> Storm Water	<input type="checkbox"/> Title V Air	<input type="checkbox"/> Tires	<input type="checkbox"/> Used Oil
<input type="checkbox"/> Voluntary Cleanup	<input type="checkbox"/> Waste Water	<input type="checkbox"/> Wastewater Agriculture	<input type="checkbox"/> Water Rights	<input type="checkbox"/> Other:

#### SECTION IV: Preparer Information

40. Name:	Chad Richards		41. Title:	Senior Engineer
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address	
( 281 ) 529 - 4200		( 713 ) 576 - 8501	chad.richards@atkinsglobal.com	

#### SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 6 and/or as required for the updates to the ID numbers identified in field 39.

Company:	Atkins	Job Title:	Senior Engineer
Name (In Print):	Chad Richards	Phone:	( 281 ) 529 - 4200
Signature:		Date:	01/31/18

**Chad Richards**

Atkins  
17220 Katy Freeway  
Building 1  
Suite 200  
Houston  
TX 77094

**[chad.richards@atkinsglobal.com](mailto:chad.richards@atkinsglobal.com)**

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'Plan Design Enable' are trademarks of Atkins Ltd.

Bryan W. Shaw, Ph.D., P.E., *Chairman*  
Toby Baker, *Commissioner*  
Jon Niermann, *Commissioner*  
Richard A. Hyde, P.E., *Executive Director*



## TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

*Protecting Texas by Reducing and Preventing Pollution*

February 9, 2018

Mr. David Johns, P.G.  
Watershed Protection Department  
City of Austin  
PO Box 1088  
Austin, Texas 78767

Re: Edwards Aquifer, **Travis County**  
PROJECT NAME: **Zilker Park Austin City Limits Staging Area**; NW of Lou Neff Rd  
and Stratford Dr; Austin, Texas  
PLAN TYPE: Application for Approval of a Water Pollution Abatement Plan (WPAP);  
30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer Protection  
Program ID No. 11001004

Dear Mr. Johns:

The enclosed WPAP application is being forwarded to you pursuant to the Edwards Aquifer rules. The Texas Commission on Environmental Quality (TCEQ) is required by 30 TAC Chapter 213 to provide copies of all applications to affected incorporated cities, groundwater conservation districts, and counties in which the proposed regulated activity is located.

Please forward any comments to this office by **March 11, 2018**.

Should you have any questions concerning this matter, please contact a representative of the Edwards Aquifer Protection Program at the Austin Regional Office (512) 339-2929.

Sincerely,



Robert Sadlier  
Water Section Team Leader  
Austin Region Office

RCS/lcw  
Enclosure

Bryan W. Shaw, Ph.D., P.E., *Chairman*  
Toby Baker, *Commissioner*  
Jon Niermann, *Commissioner*  
Richard A. Hyde, P.E., *Executive Director*



## TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

*Protecting Texas by Reducing and Preventing Pollution*

February 9, 2018

Mr. John Dupnik, P.G., General Manager  
Barton Springs/Edwards Aquifer  
Conservation District  
1124A Regal Row  
Austin, Texas 78748

Re: Edwards Aquifer, **Travis County**  
PROJECT NAME: **Zilker Park Austin City Limits Staging Area**; NW of Lou Neff Rd  
and Stratford Dr; Austin, Texas  
PLAN TYPE: Application for Approval of a Water Pollution Abatement Plan (WPAP);  
30 Texas Administrative Code (TAC) Chapter 213; Edwards Aquifer Protection  
Program ID No. 11001004

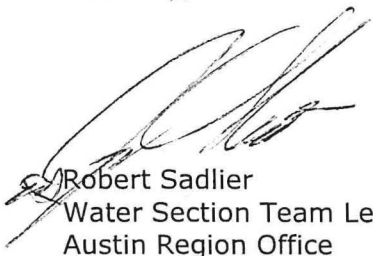
Dear Mr. Dupnik:

The enclosed WPAP application is being forwarded to you pursuant to the Edwards Aquifer rules. The Texas Commission on Environmental Quality (TCEQ) is required by 30 TAC Chapter 213 to provide copies of all applications to affected incorporated cities, groundwater conservation districts, and counties in which the proposed regulated activity is located.

Please forward any comments to this office by **March 11, 2018**.

Should you have any questions concerning this matter, please contact a representative of the Edwards Aquifer Protection Program at the Austin Regional Office (512) 339-2929.

Sincerely,



Robert Sadlier  
Water Section Team Leader  
Austin Region Office

RCS/lcw  
Enclosure

Bryan W. Shaw, Ph.D., P.E., *Chairman*  
Toby Baker, *Commissioner*  
Jon Niermann, *Commissioner*  
Richard A. Hyde, P.E., *Executive Director*



## TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

*Protecting Texas by Reducing and Preventing Pollution*

February 9, 2018

The Honorable Sarah Eckhardt  
Travis County Judge  
Travis County Courthouse  
PO Box 1748  
Austin, Texas 78767

Re: Edwards Aquifer, **Travis County**  
PROJECT NAME: **Zilker Park Austin City Limits Staging Area**; NW of Lou Neff Rd  
and Stratford Dr; Austin, Texas  
PLAN TYPE: Application for Approval of a Water Pollution Abatement Plan (WPAP);  
30 Texas Administrative Code (TAC) Chapter 213; Edwards Aquifer Protection  
Program ID No. 11001004

Dear Judge Eckhardt:

The enclosed WPAP application is being forwarded to you pursuant to the Edwards Aquifer rules. The Texas Commission on Environmental Quality (TCEQ) is required by 30 TAC Chapter 213 to provide copies of all applications to affected incorporated cities, groundwater conservation districts, and counties in which the proposed regulated activity is located.

Please forward any comments to this office by **March 11, 2018**.

Should you have any questions concerning this matter, please contact a representative of the Edwards Aquifer Protection Program at the Austin Regional Office (512) 339-2929.

Sincerely,



Robert Sadlier  
Water Section Team Leader  
Austin Region Office

RCS/lcw  
Enclosure