

AN EFFECTIVE STRUCTURAL CONTROL PROGRAM:

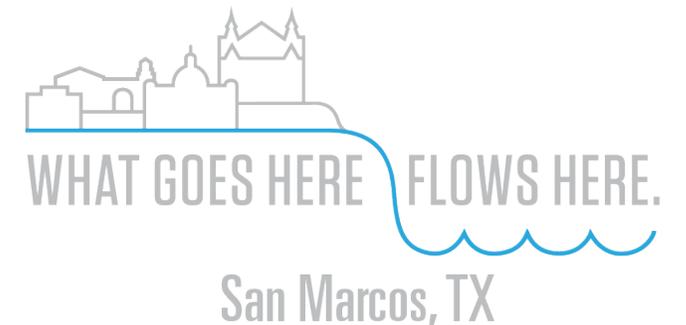
A FLOOD OF INFORMATION



Presented by:

Rachel Wolfshohl
and

Alex O'Connor, CISEC #2145

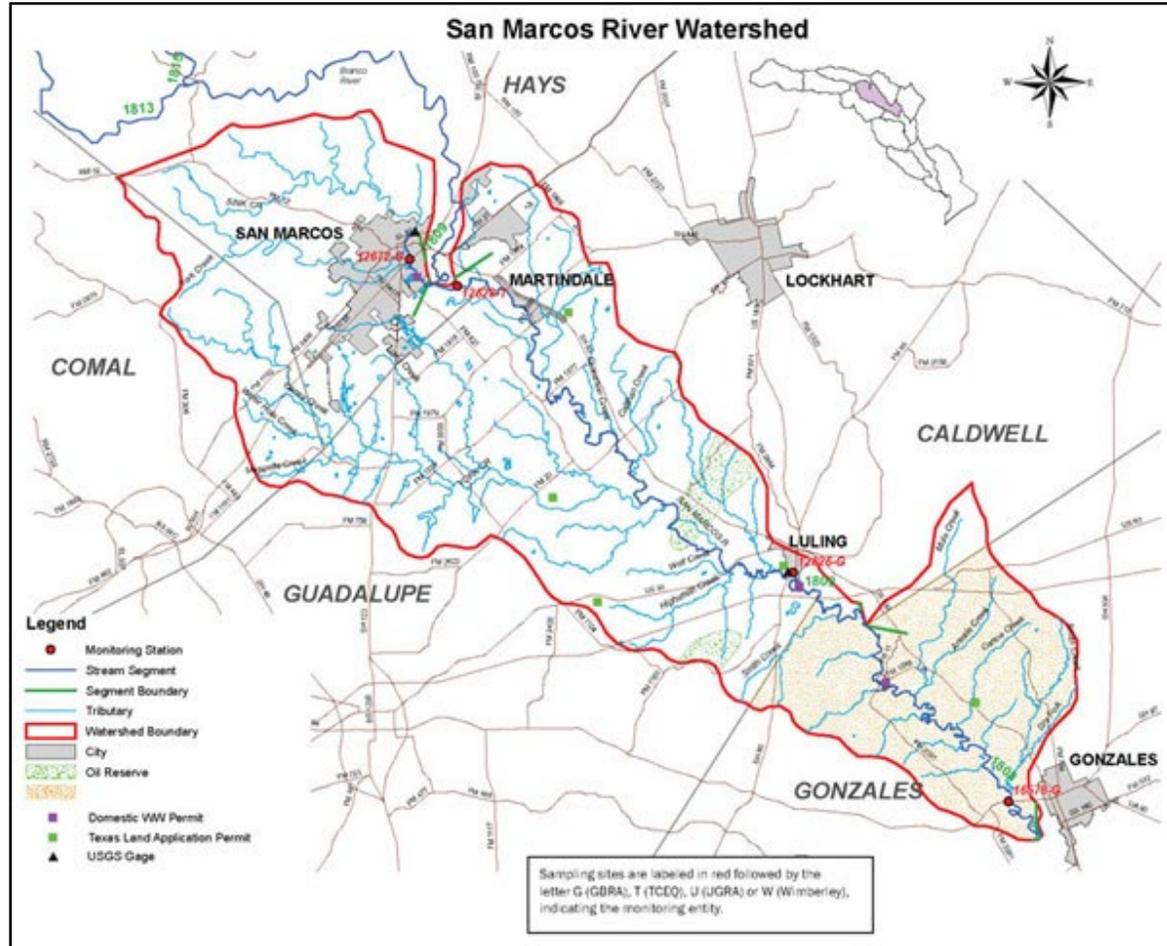


SAN MARCOS, TX



- Between Austin and San Antonio (IH-35/innovation corridor)
- Population ~68,000
- Texas State University (5th largest university in Texas)
- Tanger & Premium outlet mall

SAN MARCOS RIVER



- Located within the Guadalupe-Blanco Watershed
- Edwards Aquifer
- San Marcos River begins from spring fed lake in town
 - Multiple endangered species
 - San Marcos Salamander and Texas Wild Rice
 - Arguably one of the most pristine rivers in Texas



**PHASE II SMALL MS4
(LEVEL 3)
TXR040485**

MCM 1: Public Education, Outreach & Involvement

MCM 2: Illicit Discharge Detection & Elimination

MCM 3: Construction Site Stormwater Runoff Control

MCM 4: Post Construction Management in New Development and Redevelopment

MCM 5: Pollution Prevention & Good Housekeeping for Municipal Operations

- Authorized as an MS4 in 2014
- MCM 4 of the Stormwater Management Program (SWMP)
 - Created requirement for annual inspections of structural controls
 - Enforced through City ordinance
 - Passed in 2017
 - Private engineering companies perform inspections due to lack of City staff

Ownership	Structural Controls
CoSM	87
Private	394
Hays County	2
SMCISD	18
TxDOT	4
Texas State	7
Other (Federal)	3

STRUCTURAL CONTROL PROGRAM



- Why inspect structural controls?
 - Flood control/water quality
- Who is required to get an inspection?
 - Commercial, residential (apartments), HOA's
 - City of San Marcos
- What is subject to inspections?
 - New and existing controls
 - Water quality and storage
 - Wet/dry ponds, swales, vegetated filter strips, hydro-dynamic separators, permeable pavers/concrete, bio-retention, constructed wetlands, underground detention etc....



STRUCTURAL CONTROL PROGRAM

- Who inspects?

- Texas Professional Engineer (PE)
 - Private firms
 - CoSM does not have enough staff to inspect
- PE must submit an application
 - Have active license in Texas
 - Worked on at least 5 relevant projects (design/inspections)
 - Pass a reference check

City of San Marcos

MS4 Structural Control Inspection Pre-certification Application

General Information:

Name: _____

Professional Engineer License Number: _____

Firm Name: _____ Branch: _____

Firm Address: _____

Telephone: _____ Fax: _____

Email: _____

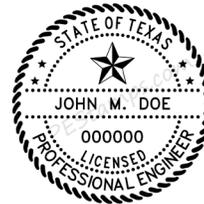
Engineering firms are automatically pre-certified if they have one or more employees who are pre-certified.

Certification Information: List all degrees, certifications, and trainings relevant to structural control inspections.

1. Degree Type _____
(Type of degree, if any, held by this individual)

Training Type _____
(Type of training or certification)

Training Date _____
Month Day Year



City of San Marcos

Post Construction BMP Inspection Pre-certification Checklist

Applicant Name: _____

Professional Engineer License Number: _____

Firm Name: _____ Branch: _____

Firm Address: _____

Telephone: _____ Fax: _____

Email: _____

Is the applicant a licensed Professional Engineer in the State of Texas? Yes No
If the applicant is not a licensed engineer in the State of Texas they are automatically disqualified from participation in this program.

Note: A total score of 350 or greater and no individual criteria scored less than 70 shall be considered passing for precertification

Criteria	Notes	Score (0-100)
Does the applicant have sufficient training to conduct inspections of permanent stormwater management facilities?		
Does the applicant have at least 2 years of relevant experience with inspections and/or design experience of permanent stormwater management facilities?		
Has applicant worked on 5 relevant projects?		
Have projects listed on the application been successful?		
Have reference checks resulted in positive responses?		
Total Score		

STRUCTURAL CONTROL PROGRAM

- Owner responsibility:
 - Contact PE to perform the inspection
 - Cost associated with inspection/maintenance
- PE responsibility:
 - Contact Stormwater Management for design plans/relevant documents
 - Perform the inspection/submit report
 - Must use City generated inspection form, maintenance guidelines from detail sheets and Maintenance Covenant (if applicable)




**Structural Control
Inspection Form Cover Sheet**

Instructions: Include 1 cover sheet per address and attach inspection forms for each structural control inspected.

Inspection Date: _____ Inspection Time: _____

Project Name: _____

Site Address: _____ City: _____ State: _____ Zip: _____

Owner Name: _____ Owner Phone Number: _____

Owner Address: _____ City: _____ State: _____ Zip: _____

Designer Name: _____ Designer Company: _____

Are maintenance records being kept?:
 Y ___ N ___ N/A ___ Reason if N or N/A: _____

Date of previous inspection: _____

Was previous inspection reviewed prior to conducting this inspection?: Y ___ N ___ N/A ___

Are there any outstanding corrective actions?: Y ___ N ___ N/A ___

If yes, explain: _____

Site Contact Name: _____ Site Contact Phone Number: _____

Site Contact Email: _____

Inspector: _____ Inspector Phone Number: _____

Inspector Email: _____

Inspector Company/Firm: _____

Inspection Forms Included In Packet		
Mark All That Apply		
Dry Detention Basin	<input type="checkbox"/>	Hydrodynamic Separator <input type="checkbox"/>
Bioretention System	<input type="checkbox"/>	Permeable Pavers/Pavement <input type="checkbox"/>
Sand Filter	<input type="checkbox"/>	Wet Basin <input type="checkbox"/>
Other	<input type="checkbox"/>	Underground Detention <input type="checkbox"/>
		Vegetated Swale <input type="checkbox"/>
		Constructed Wetland <input type="checkbox"/>

STRUCTURAL CONTROL PROGRAM




Structural Control Inspection Form Dry Detention Basin

Inspection report submitted for year:

City of San Marcos Ordinance Section 86.531 - Maintenance and repair of structural controls:

Owner(s) of structural controls that discharge or connect to the City of San Marcos stormwater utility (MS4) or discharge into Waters of the United States within San Marcos city limits must conduct, at a minimum, inspection of each structural control every three (3) years following a passing inspection beginning in 2020. The inspection must be performed by a Texas-licensed engineer and the licensed engineer must be chosen from a list of precertified engineers provided by the city.




Structural Control Inspection Form Dry Detention Basin

Revised August, 2020

Legend:
 S = Satisfactory – Control is in a condition that meets original design specs.
 U = Unsatisfactory – Control is in a condition that does not meet original design specs.
 N/A = Not Applicable

Type of Dry Detention:
 Detention Sand Filter
 Other: _____

Inflow Points Assessment (Where the inflow into the pond originates)

Inspection	S	U	N/A	Corrective Actions	Expected Completion
Obstruction (vegetation/debris/sediment)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Erosion/undercutting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Displacement of filter fabric or rip rap	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Sediment accumulation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Inflow point structural condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Energy dissipation structural issues	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Comments					




Inspection results:

Pass
 Inspection determined that the structure is operating as it was originally designed and no apparent problems exist.

Pass with conditions
 The structure is operating as it was originally designed, however, some maintenance items should be addressed as a good housekeeping measure to prevent future deficiencies. These maintenance items are addressed in the above assessments and/or in the additional comments listed below.

Fail
 Inspection of the structure determined that deficiencies were discovered and the facility is not operating as it was originally designed. Maintenance and/or recommended repairs are addressed in the individual assessments and/or in the additional comments section of this report. See enforcement actions listed below

Enforcement Actions

Enforcement procedures are as followed:

Failed inspection reports must be submitted to the City of San Marcos within 5 business days from the time of inspection. Maintenance and/or repairs must be addressed within 30 days of the City of San Marcos receipt of this report. If it is infeasible to address any maintenance and/or repairs of the facility within 30 days of the City of San Marcos receipt of this report, please contact the City of San Marcos Stormwater Systems Manager (512-393-8036) in regards to providing a maintenance/repair schedule.

PROGRAM IMPLEMENTATION

- Policies and procedures
- Press releases
- Public meetings
- Sent certified letters to both property owners and physical location
 - Some property owners live out of state
 - Used Hays County Appraisal District (HaysCAD) & Northstar for owner information

THE DAILY RECORD • San Marcos, TX • Sunday, November 11, 2018 • Page 5A

City to host open house on private pond inspections

The city will host an open house to answer questions about the new inspection requirements for owners of permanent stormwater management facilities on Thursday, Nov. 15 from 1-3 p.m. at the San Marcos Rec Hall, 170 Charles Austin.

Owners of stormwater facilities typically include HOAs, commercial properties, and multifamily developments.

This does not relate to stock ponds as they are not permanent stormwater management facilities, but rather to the inspection and maintenance of stormwater management facilities that are privately owned. Permanent stormwater management facilities are designed to capture, treat and release stormwater run-off.

City staff will give a brief presentation and provide information on annual inspection requirements for these facilities. Cities in Texas with a Municipal Storm Sewer System Permit (MS4) have requirements in regards to inspecting/maintaining permanent stormwater management facilities. However, each MS4 may vary in their requirements.

Types of stormwater facilities covered include:

- Dry detention
- Wet detention
- Bio retention
- Underground detention
- Constructed wetland
- Vegetated swale
- Permeable pavers
- Hydrodynamic separators

On July 5, 2017 ordinance no. 2017-33 was passed requiring owners of permanent stormwater management facilities to conduct annual inspections of each facility. This ordinance (section 86.531 of City Code) stems down from the Clean Water Act which is regulated in Texas by the Texas Commission on Environmental Quality (TCEQ). These stormwater management facilities mitigate the effects of impervious cover in urban areas related to both water quality and quantity. If permanent stormwater management facilities are operating as it they were originally designed, benefits include pollutant removal before discharging to local waterbodies and decreasing the occurrence of flooding.

The inspection report must be prepared by a Texas-licensed engineer who has been pre-certified by the city. Property owners are required to submit an annual inspection report to the city by Jan. 31, 2019.

Owners of permanent stormwater management facilities are encouraged to visit <http://www.sanmarcostx.gov/298/Stormwater-Management> to view a list of pre-certified engineers who are able to conduct inspections of permanent stormwater management facilities in San Marcos.

For more information, call 512-393-8036.

Submitted by the city of San Marcos

PUBLIC NOTICE: APARTMENT, COMMERCIAL AND HOA PROPERTIES

On July 5, 2017, the City of San Marcos passed ordinance no. 2017-33, which requires owners of permanent stormwater management facilities to conduct annual inspections of each facility.

Types of permanent stormwater facilities covered include, but are not limited to:

- Dry detention
- Wet detention
- Bio-retention
- Underground detention
- Constructed wetland
- Vegetated swale
- Permeable pavers
- Hydrodynamic separators

The inspection report must be prepared by a Texas-licensed engineer who has been pre-certified by the City of San Marcos. Property owners must submit an annual inspection report to the City no later than January 31, 2019. The City will accept inspection reports beginning June 1, 2018.

Owners of permanent stormwater management facilities are encouraged to visit <http://sanmarcostx.gov/298/Stormwater-Management> to view a list of pre-certified engineers who are able to conduct inspections of permanent stormwater management facilities in San Marcos. For more information, contact the City of San Marcos Public Services-Transportation Department at 512.393.8036.

COMPLIANCE

- Failed inspections
 - Owners required to contact CoSM within 5 business days from the time of inspection
 - CoSM schedules an inspection with the owner
 - Create punch list of corrective actions based on the report
 - Corrective maintenance schedule
 - Based on scope of work
 - Re-inspection (by PE) is performed after items have been addressed
- Non-compliant
 - Did not submit inspection by due date: December 31st of each required year
 - Sent 4 letters via certified mail:
 - Each letter had progressively shorter deadlines
 - Letters outlined possible enforcement actions
 - If the report is not submitted by the end of the 14 day notice, a formal complaint is filed at CoSM Municipal Court

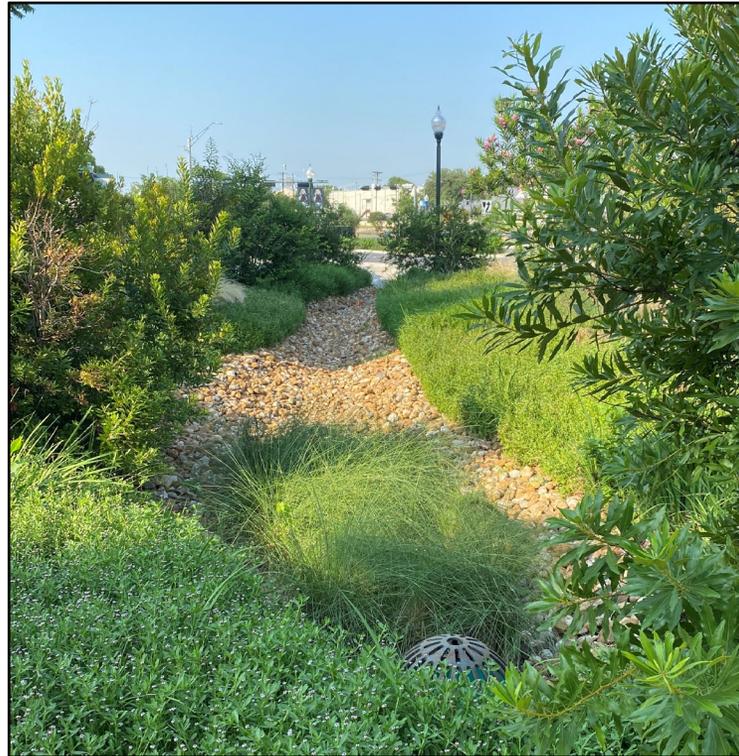
2018-2021 RESULTS

	2018	2019	2020	2021
TOTAL	167 Properties	164 Properties	171 Properties	8 Properties
PASSED/PASSED WITH CONDITIONS	160	159	169	8
FAILED	7	5	2	0
LATE	37 (22%)	59 (36%)	23 (13%)	2 (25%)

PROGRAM UPDATES

- 2020 Updates

- Tightened ordinance language (closed loopholes)
- Inspection once every 3 years (following passing inspection)
- Inspection report due Dec. 31 of each required year
- Policies and procedures
 - Perform random inspections on 2%
- Reduced number of enforcement letters (3 vs 4)
- Creating maintenance guidelines (applicable to sites not over Edwards Aquifer)
- Inspection forms



- New and Redevelopment

- Must complete the following for Certificate of Occupancy:
 - Maintenance Covenant
 - Guidelines for proper routine maintenance
 - Drainage/Water Quality Easements
 - Engineers Letter of Concurrence
 - Triggers CoSM inspection for conformance with plans

WE DID IT, AND SO CAN YOU!

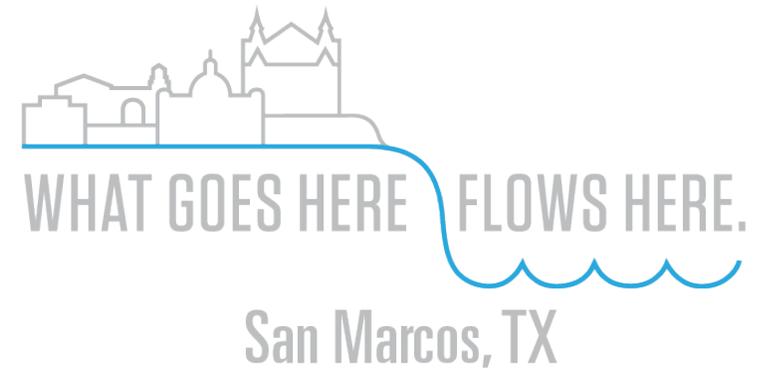
- Don't over commit
 - Focus on water quality and storage
 - If possible, exclude conveyance (i.e. channels)
- Work with the property owners
 - Be understanding of their limited resources
- Build good relationships with PE's
- Create a tracking system
 - Spreadsheet, environmental management system, etc...
- Stay organized and **SAVE EVERYTHING**



QUESTIONS?

Rachel Wolfshohl rwolfshohl@sanmarcostx.gov

Alexandra O'Connor aoconnor@sanmarcostx.gov



<https://www.sanmarcostx.gov/298/Stormwater-Management>