



**Texas State Soil and Water Conservation Board  
 Clean Water Act §319(h) Nonpoint Source Grant Program  
 FY 2003 Project Workplan (03-19)**

<b>NONPOINT SOURCE SUMMARY PAGE          for the CWA §319(h) Agricultural/Silvicultural Nonpoint Source Grant Program</b>			
Title of Project:	Surface Water Quality Monitoring to Support Plum Creek Watershed Protection Plan Development [Short Title: SWQM for Plum Creek WPP]		
Project Goals/Objectives:	Provide quality assured surface water quality monitoring data to support development and implementation of a Watershed Protection Plan for the Plum Creek Watershed in Caldwell, Hays and Travis Counties.		
Project Tasks:	<ol style="list-style-type: none"> <li>1) Project Administration and Coordination</li> <li>2) Routine Ambient Surface Water Quality Monitoring</li> <li>3) Targeted Watershed Surface Water Quality Monitoring</li> <li>4) Stormflow Surface Water Quality Monitoring</li> <li>5) 24-hour DO Surface Water Quality Monitoring</li> <li>6) Effluent Surface Water Quality Monitoring</li> <li>7) Springflow Surface Water Quality Monitoring</li> <li>8) Quality Assurance</li> <li>9) Data Management and Final Report</li> </ol>		
Measures of Success:	Data of known and acceptable quality are generated for surface water quality monitoring (routine ambient, targeted watershed, stormflow, 24-hour DO, effluent and springflow) of main stem and tributary stations on Segment 1810 (Plum Creek) for field, conventional, flow, bacteria and effluent parameters.		
Project Type:	Statewide ( ); Watershed Implementation/Education ( ); Watershed Planning/Assessment (X); Watershed Protection (X)		
Status of Water Body: 2004 Water Quality Inventory and 303(d) List	Segment ID: 1810	Impairment: bacteria Concerns: ammonia; nitrate+nitrite nitrogen; total phosphorus	Category: 5c
Project Location:	Plum Creek (Segment 1810) Watershed (entirety of HUC 1210020304) in Caldwell, Hays and Travis Counties		
Key Project Activities:	Hire Staff (X); Monitoring (X); Regulatory Assistance ( ); Technical Assistance ( ); Education ( ); Implementation ( ); Demonstration ( ); Other ( )		
NPS Management Program Elements:	<ul style="list-style-type: none"> <li>• Element One (STG 1A; STG 1B; STG 1C; STG 1D)</li> <li>• Element Two</li> <li>• Element Five</li> </ul>		
Project Costs:	Federal:	\$138,603	Non-Federal Match: \$32,561 Total: \$171,164
Project Management:	Guadalupe-Blanco River Authority		
Project Period:	May 1, 2007 – March 31, 2010		

## Part I – Applicant Information

Applicant							
Project Lead		Debbie Magin					
Title		Water Quality Services Director					
Organization		Guadalupe-Blanco River Authority					
E-mail Address		<a href="mailto:dmagin@gbra.org">dmagin@gbra.org</a>					
Street Address		933 E Court St					
City	Seguin	County	Guadalupe	State	TX	Zip Code	78155
Telephone	830-379-5822			Fax	830-379-9718		

Project Partners	
Names	Roles & Responsibilities
Guadalupe-Blanco River Authority (GBRA)	Perform all work described in tasks. Provide non-federal match.
Texas Commission on Environmental Quality (TCEQ)	Provide non-federal match through Clean Rivers Program funds.
Plum Creek Conservation District (PCCD), Caldwell-Travis Soil and Water Conservation District (SWCD 304), and Hays County Soil and Water Conservation District (SWCD 351)	Assist in providing access to certain sampling locations throughout watershed.
Texas A&M University Spatial Sciences Laboratory (TAMU SSL)	Utilize data to characterize watershed with geostatistical analysis and modeling to develop WPP through TSSWCB CWA §319(h) project 04-17.
Texas AgriLife Extension Service (AgriLife)	Facilitate stakeholder process and provide technical assistance to develop WPP through TSSWCB CWA §319(h) projects 04-17 and 05-05.
Texas State Soil and Water Conservation Board (TSSWCB)	Provide state oversight and management of all project activities, ensure coordination of activities with TCEQ, and provide technical assistance to develop WPP through TSSWCB CWA §319(h) project 04-19.

**Part II – Project Information**

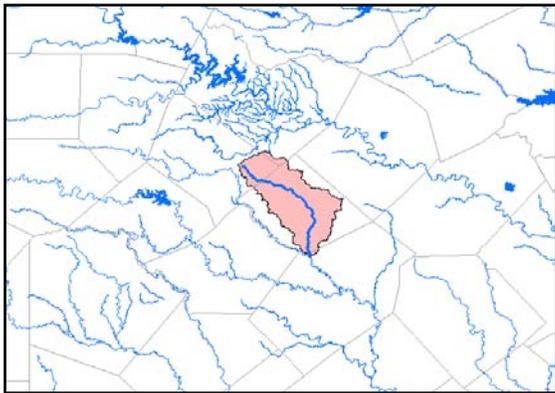
Project Type							
Surface Water	X	Groundwater					
Does the project implement recommendations made in a completed Watershed Protection Plan or approved TMDL Report or Implementation Plan?				Yes	X	No	
If yes, identify the document.		Plum Creek Watershed Protection Plan					
If yes, identify the agency/group that developed and/or approved the document.		Plum Creek Watershed Partnership facilitated by the Texas AgriLife Extension Service and TSSWCB		Year Developed		2008	

Watershed Information				
Watershed Name(s)	Hydrologic Unit Code (8 Digit)	Segment ID	305(b) Category (2004)	Size (Acres)
Plum Creek Watershed	12100203	1810	5c	288,240

## Project Narrative

### Problem/Need Statement

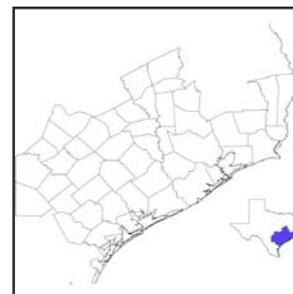
Plum Creek rises in Hays County north of Kyle and runs south through Caldwell County, passing Lockhart and Luling, and eventually joins the San Marcos River at their confluence north of Gonzales County (see map below left). Plum Creek is 52 miles in length and has a drainage area of 389 mi<sup>2</sup>. According to the *2004 Texas Water Quality Inventory and 303(d) List*, Plum Creek (Segment 1810) is impaired by elevated bacteria concentrations (category 5c) and exhibits nutrient enrichment concerns for ammonia, nitrate+nitrite nitrogen and total phosphorus.



As a part of TSSWCB CWA §319(h) project 04-19, *Regional Watershed Coordinator*, the TSSWCB Wharton Regional Watershed Coordinator established the Regional Watershed Coordination Steering Committee (WCSC) in January 2005. Over the course of the next twelve months, the WCSC quantified criteria to prioritize watersheds in southeast and south central Texas for Watershed Protection Plan (WPP) development. The WCSC is composed of river authorities, councils of governments, other state agencies, federal agencies, and land grant institutions with water quality responsibilities across the 47 counties in

the TSSWCB Wharton Regional Office Service Area (see map below right). Information about the Wharton Regional WCSC is available at <http://www.tsswcb.state.tx.us/cwp>.

Discussions among WCSC members led to a consensus in December 2005 that Plum Creek (Segment 1810) had the highest potential to produce a successfully developed and implemented WPP. Key factors included the water quality issues, increasing urban development in the northern third of the watershed, oil and gas production, and potential for agricultural NPS pollution. As such, a WPP for the Plum Creek watershed will be developed. AgriLife will facilitate the stakeholder process and provide technical assistance to develop the WPP through TSSWCB CWA §319(h) projects 04-17, *Development of the Plum Creek Watershed Protection Plan*, and 05-05, *Community-based Water Quality Curriculum Which Enhances Stakeholder Involvement in Watershed Protection Plan Initiatives*. TSSWCB will provide technical assistance to develop the WPP through TSSWCB CWA §319(h) project 04-19.



TSSWCB and AgriLife convened the Plum Creek Watershed Partnership (PCWP) in April 2006 with a series of three public meetings. The Plum Creek Watershed Steering Committee was formalized after meeting in May and again in June 2006. The Steering Committee directed the formation of five Work Groups to carry out the detailed work of developing the WPP. These five Work Groups (Agricultural NPS, Urban NPS & Stormwater, Habitat & Water Quality, Outreach & Education, and Wastewater Infrastructure & Industry) and Steering Committee met almost monthly for the next 20 months. Additionally, a Plum Creek Watershed Technical Advisory Group (TAG) consisting of state and federal agencies also met during the WPP process. The PCWP Steering Committee completed the "Plum Creek Watershed Protection Plan" in February 2008. Information about the PCWP is available at <http://plumcreek.tamu.edu/>.

Originally, the WPP would be developed using only existing water quality data. However, discussions with the Steering Committee, the Work Groups and the TAG, identified data gaps which would make source identification and establishment of water quality goals difficult at best. Accurate source identification is key to prioritizing implementation projects for funding. This project will close that data gap allowing for successful WPP development and implementation. GBRA will collect SWQM data to characterize the Plum Creek watershed through this project. TAMU SSL will utilize data from this project to characterize the Plum Creek watershed with geostatistical analysis and modeling through TSSWCB CWA §319(h) project 04-17.

## Project Narrative

### General Project Description

Currently, routine ambient water quality data is collected monthly at 2 main stem stations by GBRA (17406 and 12640) and quarterly at a third main stem station by the TCEQ (12647). This project will generate data of known and acceptable quality for surface water quality monitoring of main stem and tributary stations on Segment 1810 (Plum Creek) for field, conventional, flow, bacteria and effluent parameters to support development of a WPP for the Plum Creek watershed in Caldwell, Hays and Travis Counties. Six types of surface water quality monitoring will be conducted: routine ambient, targeted watershed, stormflow, 24-hour DO, effluent and springflow.

GBRA will conduct all work performed under this project including technical and financial supervision, preparation of status reports, coordination with local stakeholders, surface water quality monitoring sample collection and analysis, and data management. GBRA will participate in the Plum Creek Watershed Partnership, Steering Committee, TAG and appropriate Work Groups in order to efficiently and effectively achieve project goals and to summarize activities and achievements made throughout the course of this project.

GBRA will conduct routine ambient monitoring at 5 sites monthly and at 1 site twice per quarter year, collecting field, conventional, flow and bacteria parameter groups. Sampling period extends over 20 months. This will complement existing routine ambient monitoring regimes conducted by GBRA and TCEQ such that routine water quality monitoring is conducted monthly at 8 sites in the Plum Creek watershed. GBRA will coordinate with the TCEQ Regional Office to avoid duplicative routine ambient monitoring at site 12642. GBRA will conduct targeted watershed monitoring at 35 sites twice per season, once under dry weather conditions and once under wet weather conditions each season, collecting field, conventional, flow and bacteria parameter groups. Sampling period extends through 6 seasons. Spatial, seasonal and meteorological variation will be captured in these snapshots of watershed water quality. GBRA will conduct automated stormflow monitoring at 1 urban/residential site during 4 storm events collecting field, conventional, flow and bacteria parameter groups. This will characterize urban/residential NPS loadings in the rapidly developing upper third of the watershed. Sampling period extends over 12 months. Depending on meteorological conditions, seasonal variation in storm events will be captured. GBRA will conduct 24-hour DO monitoring at 8 sites monthly during the index period collecting field and flow parameter groups. These sites shall be the same as the sites for routine ambient monitoring. Sampling period extends over 8 months during the index period. GBRA will conduct effluent monitoring at 7 WWTFs once per season collecting field, conventional, flow, bacteria and effluent parameter groups. Sampling period extends through 6 seasons. This will characterize WWTF contributions to flow regime and pollutant loadings. GBRA will conduct springflow monitoring at 3 springs once per season collecting field, conventional, flow and bacteria parameter groups. Sampling period extends through 4 seasons. Spatial, seasonal and meteorological variation in springflow will be captured. This will characterize spring contributions to flow regime and pollutant loadings.

GBRA will develop and implement a QAPP to ensure water quality data of known and acceptable quality are generated through this project. See table on page 5 or map on page 6 for proposed sites for all types of monitoring. The QAPP will precisely identify sites. GBRA will manage monitoring data for use in the development of a Plum Creek WPP. GBRA will submit monitoring data to TAMU SSL for use in characterizing the Plum Creek watershed with geostatistical analysis and modeling through TSSWCB CWA §319(h) project 04-17. GBRA will submit monitoring data to TSSWCB for inclusion in the TCEQ SWQM database.

GBRA will post monitoring data to the GBRA website in a timely manner. GBRA will summarize the results and activities of this project through inclusion in GBRA's Clean Rivers Program Basin Highlights Report and/or Basin Summary Report. Additionally, the results and activities of this project will be summarized in the Plum Creek WPP developed through TSSWCB CWA §319(h) project 04-17.

Federal funds will provide for technicians' salary and travel and analysis of water quality samples and automated sampling equipment. GBRA and TCEQ Clean Rivers Program will each provide portions of the non-federal match.

<b>Proposed Monitoring Locations</b>				
<b>Station_ID<sup>1</sup></b>	<b>Lat_dd</b>	<b>Long_dd</b>	<b>Task</b>	<b>Short_Description<sup>2,3,4</sup></b>
12556	29.760135	-97.602083	2 – ROUTINE	CLEAR FORK PLUM CREEK AT SALT FLAT RD (CR 128)
12558	29.941452	-97.699623	2 – ROUTINE	ELM CREEK AT CR 233

12640	29.657329	-97.601895	2 – ROUTINE	PLUM CREEK AT CR 135
12647	29.865290	-97.615261	2 – ROUTINE	PLUM CREEK AT OLD MCMAHAN RD (CR 202)
17406	29.960328	-97.798169	2 – ROUTINE	PLUM CREEK AT PLUM CREEK RD
20488	29.961136	-97.747981	2 – ROUTINE	BRUSHY CREEK AT ROCKY RD (UPSTREAM OF NRCS 14)
20491	29.904499	-97.639690	2 – ROUTINE	DRY CREEK AT FM 672
20500	29.699616	-97.611752	2 – ROUTINE	WEST FORK PLUM CREEK AT BIGGS RD (CR 131)
12555	29.676201	-97.624745	3 – TARGETED	SALT BRANCH AT FM 1322
12557	29.885462	-97.665213	3 – TARGETED	TOWN CREEK AT E MARKET ST (UPSTREAM OF LOCKHART 1 WWTF)
12559	29.973520	-97.812572	3 – TARGETED	PORTER CREEK AT DAIRY RD
12642	29.699576	-97.603849	3 – TARGETED	PLUM CREEK AT BIGGS RD (CR 131)
12643	29.752783	-97.592958	3 – TARGETED	PLUM CREEK AT FM 1322
12645	29.821800	-97.584232	3 – TARGETED	PLUM CREEK AT YOUNG LN (CR 197)
12648	29.881869	-97.630368	3 – TARGETED	PLUM CREEK AT CR 186
12649	29.937758	-97.725391	3 – TARGETED	PLUM CREEK AT CR 233
14945	29.826294	-97.667809	3 – TARGETED	CLEAR FORK PLUM CREEK AT OLD LULING RD (CR 213)
16709	29.892423	-97.691030	3 – TARGETED	TOWN CREEK WEST OF LOCKHART
18343	29.923288	-97.678864	3 – TARGETED	PLUM CREEK UPSTREAM OF US 183
20480	30.019034	-97.878859	3 – TARGETED	PLUM CREEK DOWNSTREAM OF NRCS 1 SPILLWAY
20481	29.971198	-97.818635	3 – TARGETED	BUNTON BRANCH AT HEIDENREICH LN
20482	30.033032	-97.771327	3 – TARGETED	BRUSHY CREEK AT FM 2001 (DOWNSTREAM OF NRCS 12)
20487	29.978394	-97.765739	3 – TARGETED	BRUSHY CREEK AT SH 21
20483	29.997951	-97.743359	3 – TARGETED	ELM CREEK AT SH 21 (DOWNSTREAM OF NRCS 16)
20489	29.980675	-97.711878	3 – TARGETED	COWPEN CREEK AT SCHUELKE RD
20496	29.796080	-97.562103	3 – TARGETED	TENNEY CREEK AT TENNEY CREEK RD
20490	29.920943	-97.794519	3 – TARGETED	CLEAR FORK PLUM CREEK AT FARMERS RD
20493	29.852633	-97.696935	3 – TARGETED	CLEAR FORK PLUM CREEK AT PR 10 (STATE PARK)
20497	29.782009	-97.681234	3 – TARGETED	WEST FORK PLUM CREEK AT FM 671
99915	30.020278	-97.823333	3 – TARGETED	PORTER CREEK UPSTREAM OF NRCS 6
20495	29.857500	-97.580278	3 – TARGETED	DRY CREEK AT FM 713
20484	29.963415	-97.830645	3 – TARGETED	PLUM CREEK AT HEIDENREICH LN (DOWNSTREAM OF KYLE WWTF)
20501	29.687082	-97.640094	3 – TARGETED	SALT BRANCH AT SALT FLAT RD (UPSTREAM OF LULING WWTF)
20498	29.752690	-97.485810	3 – TARGETED	COPPERAS CREEK AT TENNEY CREEK RD (DOWNSTREAM OF CAL-MAINE)
12538	30.030363	-97.827320	3 – TARGETED	ANDREWS BRANCH AT CR 131
20505	30.024289	-97.831044	3 – TARGETED	RICHMOND BRANCH AT DACY LANE
20504	30.024378	-97.822186	3 – TARGETED	PORTER CREEK TRIBUTARY AT QUAIL COVE ROAD
20510	29.766720	-97.55702	3 – TARGETED	HINES BRANCH AT TENNEY CREEK ROAD (CR 141 – DOWNSTREAM OF CALMAINE)
20503	29.991145	-97.858179	3 – TARGETED	PLUM CREEK AT LEHMAN ROAD
20502	30.009444	-97.846667	3 – TARGETED	BUNTON BRANCH AT DACY LANE (UPSTREAM OF NRCS 5)
20479	30.003040	-97.887410	4 – STORM	UNNAMED TRIBUTARY AT FM 150 NEAR HAWTHORN DR
20492	29.884318	-97.662874	6 – WWTF	10210-001 CITY OF LOCKHART [#1] & GBRA
20494	29.871627	-97.621926	6 – WWTF	10210-002 GBRA [& CITY OF LOCKHART #2]
20499	29.685416	-97.627428	6 – WWTF	10582-002 CITY OF LULING
20486	29.969940	-97.831670	6 – WWTF	11041-002 CITY OF KYLE & AQUASOURCE INC
99923	30.056882	-97.835838	6 – WWTF	11060-001 CITY OF BUDA & GBRA
99936	30.043056	-97.806111	6 – WWTF	14431-001 SHADOW CREEK WWTP
99937	30.082750	-97.799333	6 – WWTF	14377-001 SUNFIELD WWTP
20509	29.886656	-97.668058	7 – SPRING	LOCKHART SPRINGS
20507	29.874722	-97.737500	7 – SPRING	SWN 67-11-104 CLEAR FORK SPRINGS
20508	29.870000	-97.710278	7 – SPRING	SWN 67-11-105 BOGGY CREEK SPRINGS

1 – 999## indicates temporary Station ID

2 – NRCS # indicates PCCD Floodwater Retarding Dam

3 – #####-### indicates TCEQ Wastewater Discharge Permit

4 – SWN indicates Texas Water Development Board State Well Number

## Water Quality Impairment

Describe all known causes (pollutants of concern) of water quality impairments from any of the following sources: 2004 Water Quality Inventory and 303(d) List, 2004 Summary of Waterbodies with Water Quality Concerns (Secondary Concerns List) or Other Documented Sources (ex. Clean Rivers Program Basin Summary or Basin Highlights Reports).

- 2002 TWQI – contact recreation use concern, nutrient enrichment concerns
- 2004 TWQI – contact recreation use impairment, nutrient enrichment concerns
- 2003 GBRA CRP Basin Summary Report – significant oil and gas activity, historic occasional spills, and improperly plugged wells make observations of TDS, sulfates and chlorides extremely important
- 2005 and 2006 GBRA CRP Basin Highlights Report – rapid urbanization resulting in changes to runoff characteristics, wastewater disposal concerns, and NPS pollution

**Project Goals**

Generate data of known and acceptable quality for surface water quality monitoring (routine ambient, targeted watershed, stormflow, 24-hour DO, effluent and springflow) of main stem and tributary stations on Segment 1810 (Plum Creek) for field, conventional, flow, bacteria and effluent parameters to support development of a WPP for the Plum Creek watershed in Caldwell, Hays and Travis Counties.

**Tasks, Objectives and Schedules**

Task 1:	Project Administration and Coordination					
Costs:	Federal:	\$0	Non-Federal:	\$9,674	Total:	\$9,674

Objective:	To effectively coordinate and monitor all work performed under this project including technical and financial supervision, preparation of status reports, and coordination with local stakeholders.			
Subtask 1.1:	GBRA will prepare electronic quarterly progress reports for submission to TSSWCB. Progress reports shall document all activities performed within a quarter and shall be submitted by the 15th of January, April, July, and October. All progress reports will also be provided to AgriLife, TAMU SSL, USGS, and TCEQ.			
	Start Date:	Month 1	Completion Date:	Month 35
Subtask 1.2:	GBRA will perform accounting functions for project funds and will submit appropriate Reimbursement Forms to TSSWCB at least quarterly.			
	Start Date:	Month 1	Completion Date:	Month 35
Subtask 1.3:	GBRA will participate in the Plum Creek Watershed Partnership, Steering Committee, Technical Advisory Group and appropriate Work Groups in order to efficiently and effectively achieve project goals and to summarize activities and achievements made throughout the course of this project.			
	Start Date:	Month 1	Completion Date:	Month 35
Deliverables	<ul style="list-style-type: none"> <li>Quarterly Reports in electronic format.</li> <li>Reimbursement Forms in either electronic or hard copy format.</li> </ul>			

Tasks, Objectives and Schedules					
Task 2:	Routine Ambient Surface Water Quality Monitoring				
Costs:	Federal:	\$38,112	Non-Federal:	\$13,056	Total: \$51,168
Objective:	To provide water quality data to support the on-going WPP development process in the Plum Creek watershed by enhancing current routine ambient monitoring regimes.				
Subtask 2.1:	GBRA will conduct routine ambient monitoring at 5 sites monthly and at 1 site twice per quarter year, collecting field, conventional, flow and bacteria parameter groups. See table on page 5 or map on page 6 for proposed sites. The QAPP, as detailed in Task 8, will precisely identify sites.				
	Sampling period extends over 20 months. Total number of sample events scheduled for collection through this subtask is 105. This will complement existing routine ambient monitoring regimes conducted by GBRA and TCEQ such that routine water quality monitoring is conducted monthly at 8 sites in the Plum Creek watershed.				
	Currently, routine ambient monitoring is conducted monthly at 2 stations by GBRA (17406 and 12640) and quarterly at 1 station by TCEQ (12647). GBRA will coordinate with the TCEQ Regional Office to avoid duplicative routine ambient monitoring at site 12647.				
	GBRA's Regional Laboratory will conduct sample analysis.				
Deliverables	Field parameters are pH, temperature, conductivity, and dissolved oxygen. Conventional parameters are total suspended solids, turbidity, sulfate, chloride, nitrate nitrogen, ammonia nitrogen, chlorophyll a, pheophytin, total hardness, total kjeldahl nitrogen and total phosphorus. Flow parameters are flow collected by gage, electric, mechanical or Doppler, including severity. Bacteria parameters are <i>E. coli</i> .				
	Start Date:	Month 2	Completion Date:	Month 35	
Deliverables	<ul style="list-style-type: none"> <li>Water quality data from routine ambient monitoring as reported through Tasks 1 and 9.</li> </ul>				

Tasks, Objectives and Schedules					
Task 3:	Targeted Watershed Surface Water Quality Monitoring				
Costs:	Federal:	\$57,500	Non-Federal:	\$0	Total: \$57,500
Objective:	To provide water quality data to support the on-going WPP development process in the Plum Creek watershed through targeted watershed monitoring.				

Subtask 3.1:	GBRA will conduct targeted watershed monitoring at 35 sites twice per season, once under dry weather conditions and once under wet weather conditions each season, collecting field, conventional, flow and bacteria parameter groups. Of these 35 sites, 8 sites shall be the same as the sites for routine ambient monitoring described in Task 2 and 1 site shall be the same as the site for stormflow monitoring described in Task 4, allowing for 26 sites for targeted watershed monitoring only. See table on page 5 or map on page 6 for proposed sites. The QAPP, as detailed in Task 8, will precisely identify sites.			
	Sampling period extends through 6 seasons. Total number of sample events scheduled for collection through this subtask is 318. Spatial, seasonal and meteorological variation will be captured in these snapshots of watershed water quality.			
	GBRA's Regional Laboratory will conduct sample analysis.			
	Field parameters are pH, temperature, conductivity and dissolved oxygen. Conventional parameters are nitrate nitrogen, ammonia nitrogen, total kjeldahl nitrogen and total phosphorus. Flow parameters are flow collected by gage, electric, mechanical or Doppler, including severity. Bacteria parameters are <i>E. coli</i> .			
	Start Date:	Month 2	Completion Date:	Month 35
Deliverables	<ul style="list-style-type: none"> <li>Water quality data from targeted watershed monitoring as reported through Tasks 1 and 9.</li> </ul>			

**Tasks, Objectives and Schedules**

Task 4:	Stormflow Surface Water Quality Monitoring				
Costs:	Federal:	\$17,155	Non-Federal:	\$0	Total: \$17,155
Objective:	To provide water quality data to support the on-going WPP development process in the Plum Creek watershed through stormflow monitoring.				
Subtask 4.1:	GBRA will conduct automated stormflow monitoring at 1 urban/residential site during 4 storm events collecting field, conventional, flow and bacteria parameter groups. This will characterize urban/residential NPS loadings in the rapidly developing upper third of the watershed. See table on page 5 or map on page 6 for proposed site. The QAPP, as detailed in Task 8, will precisely identify sites. Depending on meteorological conditions and funds availability, additional sites may be identified for stormflow monitoring.				
	Sampling period extends over 12 months. Total number of storm events scheduled for collection through this subtask is 4. Depending on meteorological conditions, seasonal variation in storm events will be captured.				
	GBRA's Regional Laboratory will conduct sample analysis.				
	Field parameters are pH, temperature, conductivity and dissolved oxygen. Conventional parameters are total suspended solids, sulfate, chloride, nitrate nitrogen, ammonia nitrogen, and total phosphorus. Flow parameters are flow collected by gage, electric, mechanical or Doppler, including severity. Bacteria parameters are <i>E. coli</i> .				
	Start Date:	Month 2	Completion Date:	Month 13	
Deliverables	<ul style="list-style-type: none"> <li>Water quality data from stormflow monitoring as reported through Tasks 1 and 9.</li> </ul>				

**Tasks, Objectives and Schedules**

Task 5:	24-hour DO Surface Water Quality Monitoring				
Costs:	Federal:	\$11,318	Non-Federal:	\$0	Total: \$11,318
Objective:	To provide water quality data to support the on-going WPP development process in the Plum Creek watershed through 24-hour DO monitoring.				

Subtask 5.1:	GBRA will conduct 24-hour DO monitoring at 8 sites monthly during the index period collecting field and flow parameter groups. These sites shall be the same as the sites for routine ambient monitoring described in Task 2. See table on page 5 or map on page 6 for proposed sites. The QAPP, as detailed in Task 8, will precisely identify sites.			
	Sampling period extends over 8 months during the index period between March 15 and October 15. Samples will be collected during the index period in 2007 and 2008. Total number of sample events scheduled for collection through this subtask is 64.			
	Field parameters are pH, temperature, conductivity and dissolved oxygen. Flow parameters are flow collected by gage, electric, mechanical or Doppler, including severity.			
	Start Date:	Month 2	Completion Date:	Month 13
Deliverables	<ul style="list-style-type: none"> <li>Water quality data from 24-hour DO monitoring as reported through Tasks 1 and 9.</li> </ul>			

**Tasks, Objectives and Schedules**

Task 6:	Effluent Surface Water Quality Monitoring				
Costs:	Federal:	\$7,776	Non-Federal:	\$0	Total: \$7,776
Objective:	To provide water quality data to support the on-going WPP development process in the Plum Creek watershed through effluent monitoring.				
Subtask 6.1:	GBRA will conduct effluent monitoring at 7 WWTFs once per season collecting field, conventional, flow, bacteria and effluent parameter groups. See table on page 5 or map on page 6 for proposed sites. The QAPP, as detailed in Task 8, will precisely identify sites.				
	Sampling period extends through 6 seasons. Total number of sample events scheduled for collection through this subtask is 22.				
	GBRA's Regional Laboratory will conduct sample analysis.				
	Field parameters are pH, temperature, conductivity and dissolved oxygen. Conventional parameters are total suspended solids, sulfate, chloride, nitrate nitrogen, ammonia nitrogen, and total phosphorus. Flow parameters are flow collected by gage, electric, mechanical or Doppler, including severity. Bacteria parameters are <i>E. coli</i> . Effluent parameters are BOD, CBOD and COD.				
	Start Date:	Month 2	Completion Date:	Month 35	
Deliverables	<ul style="list-style-type: none"> <li>Water quality data from effluent monitoring as reported through Tasks 1 and 9.</li> </ul>				

**Tasks, Objectives and Schedules**

Task 7:	Springflow Surface Water Quality Monitoring				
Costs:	Federal:	\$3,382	Non-Federal:	\$0	Total: \$3,382
Objective:	To provide water quality data to support the on-going WPP development process in the Plum Creek watershed through springflow monitoring.				

Subtask 7.1:	GBRA will conduct springflow monitoring at 3 springs once per season collecting field, conventional, flow and bacteria parameter groups. See table on page 5 or map on page 6 for proposed site. The QAPP, as detailed in Task 8, will precisely identify sites.					
	Sampling period extends through 4 seasons. Total number of sample events scheduled for collection through this subtask is 12. Spatial, seasonal and meteorological variation in springflow will be captured.					
	GBRA's Regional Laboratory will conduct sample analysis.					
	Field parameters are pH, temperature, conductivity and dissolved oxygen. Conventional parameters are total suspended solids, sulfate, chloride, nitrate nitrogen, ammonia nitrogen, and total phosphorus. Flow parameters are flow collected by gage, electric, mechanical or Doppler, including severity. Bacteria parameters are <i>E. coli</i> .					
	Start Date:	Month 2	Completion Date:	Month 13		
Deliverables	<ul style="list-style-type: none"> <li>Water quality data from springflow monitoring as reported through Tasks 1 and 9.</li> </ul>					

Tasks, Objectives and Schedules						
Task 8:	Quality Assurance					
Costs:	Federal:	\$3,360	Non-Federal:	\$4,428	Total:	\$7,788
Objective:	To develop and implement DQOs and QA/QC activities to ensure water quality data of known and acceptable quality are generated through this project.					
Subtask 8.1:	GBRA will develop a QAPP for activities in Tasks 2-7 consistent with <i>EPA Requirements for Quality Assurance Project Plans (QA/R-5)</i> and the <i>TSSWCB Environmental Data Quality Management Plan</i> .					
	All monitoring procedures and methods prescribed in the QAPP shall be consistent with the guidelines detailed in the <i>TCEQ Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods for Water, Sediment, and Tissue (RG-415)</i> and <i>Volume 2: Methods for Collecting and Analyzing Biological Assemblage and Habitat Data (RG 416)</i> .					
	Start Date:	Month 1	Completion Date:	Month 1		
Subtask 8.2:	GBRA will implement approved QAPP. GBRA will submit amendments to the QAPP as needed.					
	Start Date:	Month 2	Completion Date:	Month 35		
Deliverables	<ul style="list-style-type: none"> <li>QAPP for Tasks 2-7 approved by TSSWCB and USEPA in both electronic and hard copy formats.</li> <li>Data of know and acceptable quality as reported through Tasks 1 and 9.</li> </ul>					

Tasks, Objectives and Schedules						
Task 9:	Data Management and Final Report					
Costs:	Federal:	\$0	Non-Federal:	\$5,403	Total:	\$5,403

Objective:	To manage and transfer monitoring data for use in the development of a Plum Creek WPP and for inclusion in the TCEQ SWQM database and to develop a final report summarizing the results and activities of the project.		
Subtask 9.1:	GBRA will submit Station Location Requests as needed to obtain TCEQ stations numbers for new monitoring sites from activities in Tasks 2-7.		
	Start Date:	Month 1	Completion Date: Month 6
Subtask 9.2:	GBRA will transfer monitoring data from activities in Tasks 2-7 to TSSWCB for inclusion in the TCEQ SWQM database. Data will be transferred in the correct format using the TCEQ file structure, along with a completed Data Summary, as described in the most recent version of <i>TCEQ Surface Water Quality Monitoring Data Management Reference Guide</i> .		
	Data Correction Request Forms will be submitted to TSSWCB whenever errors are discovered in data already reported.		
	All monitoring data files, Data Summary and Data Correction Request Forms will also be provided to AgriLife and TAMU SSL.		
	Start Date:	Month 1	Completion Date: Month 35
Subtask 9.3	GBRA will post monitoring data from activities in Tasks 2-7 to the GBRA website in a timely manner.		
	Start Date:	Month 1	Completion Date: Month 35
Subtask 9.4	No independent final report will be prepared for this project.		
	Rather, GBRA will summarize the results and activities of this project through inclusion in GBRA's Clean Rivers Program Basin Highlights Report and/or Basin Summary Report.		
	Additionally, the results and activities of this project will be summarized in the Plum Creek Watershed Protection Plan developed through TSSWCB CWA §319(h) project 04-17.		
	Start Date:	Month 1	Completion Date: Month 35
Deliverables	<ul style="list-style-type: none"> <li>• Station Location Request Forms (as needed) in electronic format.</li> <li>• Monitoring data files and Data Summary in electronic format.</li> <li>• Data Correction Request Forms (as needed) in electronic format.</li> <li>• Monitoring data updates posted to the GBRA website.</li> <li>• Final report (GBRA CRP BHR and/or BSR) at culmination of project in both electronic and hard copy formats.</li> </ul>		

#### Measures of Success

- Data of known and acceptable quality are generated for surface water quality monitoring (routine ambient, targeted watershed, stormflow, 24-hour DO, effluent and springflow) of main stem and tributary stations on Segment 1810 (Plum Creek) for field, conventional, flow, bacteria and effluent parameters.

**2005 Texas Nonpoint Source Management Program Document Reference**

Goals &/or Milestone(s)

NPS Management Program - Element One – Explicit short- and long-term goals, objectives and strategies that protect surface and groundwater.

Short-Term Goal One – Data Collection and Assessment – Objective A - Identify surface waterbodies...from the *Texas Water Quality Inventory and 303(d) List*...that need additional information to characterize non-attainment of designated uses and quality standards.

Short-Term Goal One – Data Collection and Assessment – Objective B - Ensure that monitoring procedures meet quality assurance requirements and are in compliance with EPA-approved TCEQ and/or TSSWCB Quality Management Plans.

Short-Term Goal One – Data Collection and Assessment – Objective C - Conduct special studies to determine sources of NPS pollution and gain information to target...BMP implementation.

Short-Term Goal One – Data Collection and Assessment – Objective D – Develop...Watershed Protection Plans to maintain and restore water quality in waterbodies identified as impacted by NPS pollution.

NPS Management Program - Element Two – Working partnerships and linkages to appropriate state, interstate, tribal, regional, and local entities, private sector groups, and Federal agencies.

NPS Management Program - Element Five – The state program identifies waters and their watersheds impaired by nonpoint source pollution and identifies important unimpaired waters that are threatened or otherwise at risk. Further, the state establishes a process to progressively address these identified waters by conducting more detailed watershed assessments and developing watershed implementation plans, and then by implementing the plans.

**Part III – Financial Information**

**Budget Summary**

Federal 319(h)	\$ 138,603	% of total project	81%
Non-Federal Match	\$ 32,561	% of total project (≥ 40%)	19%
Total Project Cost	\$ 171,164		

Category	Federal 319(h)	Non-Federal Match	Total Project Cost
Personnel	\$ 21,189	\$ 13,056	\$ 34,245
Fringe Benefits	\$ 8,051	\$ 4,962	\$ 13,013
Subtotal Personnel & Fringe	\$ 29,240	\$ 18,018	\$ 47,258
Travel	\$ 4,050	\$ 1,446	\$ 5,496
Equipment	\$ 10,480	\$ 0	\$ 10,480
Supplies	\$ 250	\$ 0	\$ 250
Contractual	\$ 0	\$ 0	\$ 0
Construction	\$ 0	\$ 0	\$ 0
Other (Analysis)	\$ 88,226	\$ 9,180	\$ 97,406
Subtotal	\$ 103,006	\$ 10,626	\$ 113,632
Total Direct Costs	\$ 132,246	\$ 28,644	\$ 160,890
Indirect Costs (≤ 15%)	\$ 6,357	\$ 3,917	\$ 10,274
Total Project Costs	\$ 138,603	\$ 32,561	\$ 171,164

**Budget Justification**

Category	Total Amount	Justification
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Personnel & Fringe Benefits	\$ 29,240	<u>Federal</u> <ul style="list-style-type: none"> <li>GBRA – Technicians salary to collect and analyze water quality samples for Tasks 2-7. Amend QAPP.</li> </ul>
	\$ 15,437	<u>Non-Federal:</u> <ul style="list-style-type: none"> <li>GBRA – Water Quality Services Director salary for project administration, QA/QC, reporting, data management and PCWP participation.</li> </ul>
	\$ 2,581	<ul style="list-style-type: none"> <li>CRP – Technicians salary to collect and analyze water quality samples for pre-existing sites.</li> </ul>
Travel	\$ 4,050	<u>Federal</u> <ul style="list-style-type: none"> <li>GBRA – Technicians mileage to collect water quality samples for Tasks 2-7.</li> </ul>
	\$ 712	<u>Non-Federal:</u> <ul style="list-style-type: none"> <li>GBRA – Water Quality Services Director mileage for PCWP participation.</li> </ul>
	\$ 734	<ul style="list-style-type: none"> <li>CRP – Technicians mileage to collect water quality samples for pre-existing sites.</li> </ul>
Equipment	\$ 10,480	<u>Federal:</u> <ul style="list-style-type: none"> <li>GBRA – Purchase of automated sampling equipment for Task 4 including ISCO with bubble flow meter, Hydrolab DataSonde.</li> </ul>
Supplies	\$ 250	<u>Federal:</u> <ul style="list-style-type: none"> <li>GBRA – Purchase of supplies necessary for installation of automated sampling equipment for Task 4 including housing, batteries.</li> </ul>
Contractual	\$ 0	
Construction	\$ 0	
Other (Analysis)	\$ 88,226	<u>Federal:</u> <ul style="list-style-type: none"> <li>GBRA – Analysis of water quality samples for Tasks 2-7.</li> </ul>
	\$ 9,180	<u>Non-Federal:</u> <ul style="list-style-type: none"> <li>CRP – Analysis of water quality samples for pre-existing sites.</li> </ul>
Indirect	\$ 6,357	<u>Federal:</u> <ul style="list-style-type: none"> <li>GBRA – Established 30% of salary only.</li> </ul>
	\$ 3,356	<u>Non-Federal:</u> <ul style="list-style-type: none"> <li>GBRA – Established 30% of salary only.</li> </ul>
	\$ 561	<ul style="list-style-type: none"> <li>CRP – Established 30% of salary only.</li> </ul>