

City of New Braunfels, TX

Scope of Work for the Landa Park Drive Parking and Biofiltration System

December 4, 2025

EXHIBIT A: SCOPE

The City of New Braunfels (City) is a partner in the Edwards Aquifer Habitat Conservation Plan (EAHCP). The EAHCP, managed by the Edwards Aquifer Authority (EAA), protects endangered species that live in the San Marcos and Comal Springs fed by the Edwards Aquifer by managing groundwater use, implementing proactive programs to protect habitat and improve water quality (e.g., green infrastructure and habitat restoration), and supporting measures (e.g., monitoring, research and refugia). Each year, the City participates in the EAHCP in a variety of ways, including by implementing new capital projects in New Braunfels to protect the Comal Springs.

This project includes reconstruction of a new 15 – 17 slot parking lot along Landa Park Drive with boundaries as shown in Figure 1. To capture and treat stormwater from this parking lot, the City is also constructing a biofiltration system. The biofiltration system will reduce non-point source pollution to the Comal River by collecting and infiltrating stormwater that would otherwise discharge into the river. The parking lot will be reconfigured to optimize traffic flow, maximize the number of parking spaces, and potentially regrade the lot to improve water flow. The biofiltration basin will be designed along the boundary with Landa Park Drive to capture flow from the parking lot and the prior recreational center and Parks Department maintenance building roofs draining to the parking lot. A new outfall will be designed underneath Landa Park Drive to convey water from the biofiltration basin underdrain to an outfall on the opposite side of Landa Park Drive.

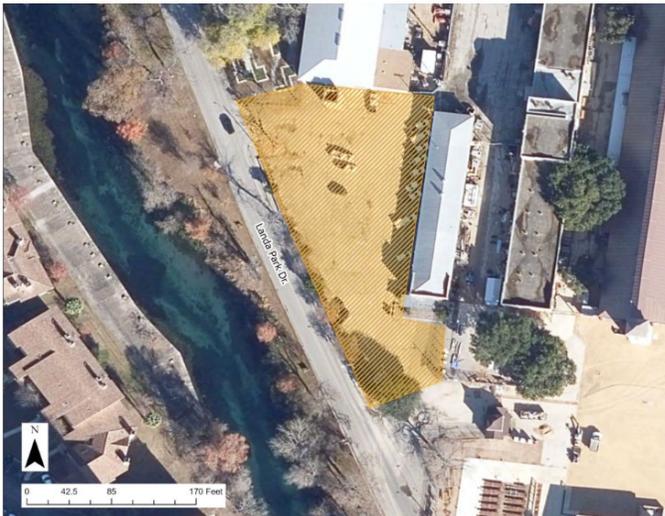


Figure 1: Project Boundaries for the Parking Lot and Biofiltration Basin

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The City requires Arcadis U.S., Inc. (Arcadis) to provide the design and construction administration services outlined in Tasks 1 through 8 below.

Task 1 – Project Management

Arcadis will practice effective and efficient communication to enable the City to make prompt and informed decisions and keep the project focused on meeting targeted goals. Arcadis will conduct project management and administration activities for the project including planning work activities, maintaining the project schedule, invoicing, coordinating with the City's representatives, facilitating communications to team members, and providing routine monitoring and control for effective facilitation and implementation of the project.

Task 1 Meetings

- Monthly virtual progress meetings with City staff, up to six total
- Attendance at one in-person stakeholder meeting or public meeting

Task 1 Deliverables

- Monthly invoicing and progress updates
- Project schedule within 10 calendar days of award, updated monthly
- Monthly (as applicable) invoices with progress report.

Task 1 Assumptions

- This Scope of Work (SOW) may be modified in writing, as necessary, to meet the needs of the City and the Project as implementation progresses.
- Arcadis (Engineer) may perform the Services through a combination of its own employees and employees of its affiliates and any use of such affiliate labor shall not be deemed a subcontract for purposes of this Agreement. Engineer shall be entitled to invoice for any affiliated labor in the same manner as it invoices its own employees.
- Monthly virtual progress meetings begin in the second month; the final meeting may be delayed until after responses are received from permitting agency(ies)

Task 2 – Summary of Needs Study

Arcadis will develop and address the requirements, goals and the constraints for the project. This effort includes a civil assessment of the site, site survey, geotechnical analysis, environmental studies reviewing known environmental issues and identifying potential environment concerns and identifying and reviewing known or potential permitting issues. The study will include reviews of City, State, and Federal guidelines, standards, ordinances, and codes. An executive summary and an Opinion of Probable Construction Cost following AACE guidelines will be provided.

Task 2 Meetings

- Virtual project kickoff call; will include maintenance staff to capture lessons learned from maintenance/performance of other parking lot and biofiltration projects and feedback on the previously developed Operations and Maintenance Manuals
- Virtual draft Summary of Needs Study review workshop

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Task 2 Deliverables

- Draft and final executive summary of project needs (Summary of Needs Study)
- AACE Level 5 Opinion of Probable Construction Cost (OPCC)
- Site survey
- Geotechnical analysis including soil boring(s) and infiltration test(s) as a part of geotechnical report.
- Response log for review comments

Task 2 Assumptions

- City provides requested data for existing conditions, drawings and any other related information for the project in a timely manner.
- Review of environmental and permitting requirements will be done at a desktop level. No field investigations except for the site survey and geotechnical investigation are included.
- Survey needs are anticipated to remain within the City Right-of-Way or other City-owned property. Survey needs outside of these limits would need to be coordinated through the City.
- The site survey will include a Boundary verification survey, Topographic survey, and an optional Easement survey. Survey scope of services is included as an Exhibit to this document.
- The geotechnical investigation will be limited to investigating subsurface conditions and characterize soil and rock, a total of three (3) borings will be drilled. Two (2) borings will be drilled to a depth of 20 feet each for the pond in the parking lot area and one (1) boring will be drilled to a depth of 30 feet for the outfall structure. Geotechnical scope of services is included as an Exhibit to this document.
- No technology review is included in this SOW.

Task 3 – Schematic Design

Arcadis will define the site and structure relationships, and layout and establish the project scope and design criteria. Arcadis will provide a schematic set of plans and specifications which illustrate all components of the Project, including the use of the site corridor survey to establish the northing/easting coordinates and elevations of existing drainage infrastructure within the survey limits for use in producing unit hydrographs within Autodesk Civil 3D Storm and Sanitary Sewer Analysis (SSA) software. Arcadis will delineate the tributary drainage area, develop hydrologic input data for stormwater runoff, establish hydraulic inputs based on survey data and reasonable assumptions, and establish appropriate boundary conditions for hydrologic and hydraulic (H&H) analysis of the project area. The size, extents, and level of resolution in the H&H model will be determined based on the configuration of the local drainage area. Arcadis will review and define the extent of parking lot upgrades required, and also define the type of landscaping that will best fit the site and have minimal maintenance. The 30% design schematics will include:

- Cover Sheet with Overall Location Plan
- Large-scale site plan
- Preliminary layout of stormwater features in plan view on site plan
- Concept drainage area map on site plan

Task 3 Meetings

- Virtual schematic design review workshop

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Task 3 Deliverables

- Report including, but not limited to:
 - Design criteria with calculations that includes contributing drainage areas (impervious and pervious), storage volume, loading ratio, calculations of release rates, and storm size managed
 - Hydrologic and hydraulic model results
 - Site survey, utility conflict matrix and site plan
 - Schematic drawings and specifications
 - Description of all materials, components, and systems
 - Summary of permitting and code requirements
- Response log for review comments
- AACE Level 3 OPCC

Task 3 Assumptions

- Arcadis will design the site civil requirements, traffic control considerations, and permitting considerations for Final Design.
- The City will provide review comments within one week of the Review Workshop.
- The City will coordinate internally to provide the City's latest standard contracting documents and templates.
- The stormwater model will be developed for a single drainage catchment area, utilizing the unit hydrograph method for rainfall-runoff analysis to estimate runoff volumes and peak flows.
- Model will assume the following:
 - All runoff within the project boundary will be modeled as draining to a single outfall point.
 - Standard design rainfall events and catchment characteristics will be based on available data or typical published values.
 - Model outputs will include hydrographs, summary tables of peak flows and runoff volumes for each design event.
- An easement may be required for the biofiltration underdrain and new outfall located between Landa Park Drive and the Comal River.
- Design will assume the following:
 - An open-cut excavation will be required to lay a new outfall pipe under Landa Park Drive; the trench will be repatched and a traffic plan will be included in the construction documents.
 - Vegetation for the biofiltration basin will be drought-tolerant, native and low-maintenance; the variety of plants will be limited to ease future maintenance.
 - The parking lot surface will be removed and reconstructed, with possible changes made to select areas to enhance drainage; permeable pavement will not be used as the City does not own the equipment required to maintain.
 - A single or series of linear biofiltration basins will be constructed along the parking lot boundary with Landa Park Drive.
 - No Total Maximum Daily Loads (TMDLs) are in place for the Comal River that need to be addressed by the biofiltration basin design; however, the City does have a TCEQ-approved Watershed Protection Plan.
 - No historical or archaeological permits will be required as the site has been previously developed.
 - No species impacts are assumed. If any species impacts are identified, contingency services would be used to address additional requirements.

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- No floodplain study will be required by the City as the percentage of impervious cover at the site will be slightly reduced.
- A biofilter underdrain will be required; based on other biofiltration designs in the area, geotechnical infiltration testing is anticipated to demonstrate the site soil conditions will not allow for significant infiltration.
- No roadway redesign is included, with the exception of patching the location that is cut for the new outfall.
- No more than 25% of the parking lot will require redesign to improve drainage.
- No new utility work or rework is included.

Task 4 – Final Design

Arcadis will incorporate feedback from the schematic design workshop and develop detailed design and bidding documents for construction. This includes parking lot design, pipe crossing the roadway, outfall design, biofiltration system design, landscaping, completing permitting applications with identified authorities having jurisdiction (USACE, City (TCP)), resolving any utility conflicts, determining any temporary or permanent easements and editing the City's standard contract documents and bid tabs. Final (100%) design drawings are anticipated to include:

- Title Sheet
- Index and Legend
- General Notes
- Existing
- Demolition
- Site Layout
- Grading Plan (Parking Lot)
- Erosion Control
- Plan and Profiles
- Civil and Erosion Control Details
- Biofiltration Basin Design
- Planting Plan
- Planting Details
- Special Details

Task 4 Meetings

- 90% design review workshop
- Project closeout meeting, including next steps

Task 4 Deliverables

- 90% and 100% construction drawings and specifications
- Bid documents, including edits to the City's standard contract documents and bid tab
- Record of permit applications and recommended temporary/permanent easements
- Final design calculations and H&H model results
- Response log for review comments
- AACE Level 1 OPCC

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Task 4 Assumptions

- The City will provide review comments within one week after Final Design Review Workshop.
- The City will pay any required permitting fees.
- The City will acquire any permanent easements
- No permits are assumed to be needed from TCEQ or EAA.
- The Contractor will be required to prepare and obtain the Traffic Control Plan and permit.
- No floodplain study is required.
- Only one recommended site layout will be provided; no alternatives are included.

Task 5 – O&M Manual for the Biofiltration Basin

- No services are included for 2026.

Task 6 – Construction Administration

- No services are included for 2026.

Task 7 – Post Construction Activities

- No services are included for 2026.

Task 8 – Contingency

Arcadis will seek prior written approval from the City's Project Manager before commencing work on any contingency services described in this task. Contingency services for this project may include, but are not limited to:

- Attendance at additional stakeholder meetings and/or public meetings
- Assistance in obtaining an easement survey for the new outfall
- Assistance in obtaining USACE permit for the new outfall and/or addressing requirements if any species impacts are identified.
- Additional permitting not outlined in Tasks 1 – 6
- Graphical design
- Coordination or reporting with Edwards Aquifer Authority
- Value engineering reviews or design updates
- Design updates to accommodate code or permitting changes
- Design updates and project extension to accommodate unknown site conditions discovered during site investigations or during construction
- Completion of a floodplain study
- Additional inspections of plantings during establishment/warranty period
- Construction duration extension

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EXHIBIT B: PAYMENT SCHEDULE

The total compensation for the work described in this SOW is not to exceed \$275,000, as shown in Table 1. Monthly invoices shall be submitted on a time and materials basis per task.

Table 1. Time & Materials Compensation

| Contract Task No. | Task Title | Fee |
|-------------------|------------------------------|------------|
| 1 | Project Management | \$ 15,000 |
| 2 | Summary of Needs Study | \$ 40,000 |
| 3 | Schematic Design | \$ 85,000 |
| 4 | Final Design | \$ 110,000 |
| 5 | O&M Manual | \$ 0 |
| 6 | Construction Administration | \$ 0 |
| 7 | Post Construction Activities | \$ 0 |
| 8 | Contingency | \$ 25,000 |
| | | \$ 275,000 |

EXHIBIT C: COMPLETION SCHEDULE

The tasks described herein will be completed between January 1, 2026 and December 31, 2026.

EXHIBIT D: SUBCONSULTANTS' SCOPE OF SERVICES

The exhibit contains the scope of services provided by the survey, and geotechnical subconsultants.