AMERICAN
STRUCTUREPOINT
INC.

February 16, 2018

Paul Pickett, PE
City Engineer
City of Green
1755 Town Park Boulevard
Green, Ohio 44232

Re: The HUB – Phase 3, Massillon Road & Boettler Road Roundabout
PID No. 103173

Dear Mr. Pickett:

Enclosed is one copy of our fee proposal to provide engineering services to complete up to and including Stage 1 of the detailed design of the roundabout at the intersection of Massillon Road and Boettler Road. This is Phase 3 of The HUB project with the City of Green. We have reviewed all Subconsultant proposals contained in this fee proposal for mathematical accuracy and adherence to the scope of services. We propose to perform this contract work based on a lump-sum fee.

If you have any questions or comments about the enclosed fee proposal, please contact Frank Aransky or me at (614) 901-2235. We look forward to working with you to complete this project.

Very truly yours,
American Structurepoint, Inc.

Walid E. Gemayel, PE
Senior Vice President

WEG:mek

Enclosures

201301008

2550 Corporate Exchange Drive, Suite 300, Columbus, Ohio 43231 TEL 614.901.2235 FAX 614.901.2236 www.structurepoint.com

Cost Packet

For Professional Engineering Services

The Hub – Phase 3 Massillon Road and Boettler Rd

City of Green
1755 Town Park Blvd, Green, OH 44232

November 2, 2017

Revised: February 16, 2018

AMERICAN STRUCTUREPOINT INC.

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Scope of Services

The HUB – Phase 3 Roundabout project consists of replacing the existing signalized intersection at Massillon Road (SR 241) and Boettler Rd/Franks Pkwy with a modern roundabout. A traffic study, prepared by American Structurepoint, was completed based off of traffic data obtained from a previous traffic study and projected to the current and design year traffic. Based upon project coordination to date, new traffic data will be collected to verify existing counts and projection and have the traffic data certified by ODOT. Our approach to delivering this project is based upon the following:

- Verify previously completed traffic analysis against current traffic counts and the latest methodology used by the industry. Perform 10-year sensitivity check to determine whether 10-year and 20-year lane configurations differ from one another. If so, American Structurepoint will discuss design elements to accommodate both configurations to limit the amount of throw away construction in the future before developing detailed construction plans. Additional services may be warranted depending on the extent of areas that will have a 10-year and 20-year design layout based upon this discussion with the City of Green.
- Perform topographical survey, create a topographic map, develop a digital terrain model, and resolve existing right-of-way
- Design roundabout and approach work, including geometric layout, pavement design, signing, pavement markings, potential retaining walls, drainage, pedestrian/bicycle facilities, and roadway lighting
- Perform subsurface investigation to determine whether subgrade stabilization is needed and to generate the CBR for pavement design
- Prepare construction plans and specifications for public bidding
- Develop a community outreach plan and material for the City of Green to present to the public
- Prepare NEPA documentation for approval of a CE document

American Structurepoint and our subconsultants propose to perform the following tasks to complete the plan preparation for the improvements of the HUB – Phase 3. The proposed tasks are based upon our coordination with ODOT to obtain environmental clearance from ODOT/FHWA, and City of Green/ODOT approval of design and construction plans.

The classification rates shown in Appendix A show previously established rates for 2017, along with escalators for the subsequent year over the anticipated duration of the project.

1. Project Management and Control

1.1 Prepare a detailed schedule and provide a monthly progress report including services accomplished in the current month and anticipated services to be completed the following month

1.2 Prepare a roadway and drainage design criteria document that summarizes all design criteria to be used for the project

1.3 Prepare an index of plan sheets

1.4 Prepare a project contact list that includes all utility company names, addresses, and telephone numbers, as well as all contacts for the project

1.5 Monitor the status of the services to keep the project on schedule and within budget

1.6 Prepare survey requirements for the survey crew

1.7 Coordinate locations of existing utilities and relocation needs with the utility companies based upon the proposed work. Provide the City of Green with a copy of all correspondence.

1.8 Perform quality control checking of all submittals with an independent team led by the project manager

1.9 Conduct eight meetings with the City of Green including 1 project kick-off, 3 review meetings, 1 utility meeting, and 3 design concurrence meetings requested by American Structurepoint to lock in influential elements to limit plan rework. American Structurepoint will attend quarterly ODOT meetings at the request of the City of Green.

2. Field Survey

The proposed field survey limits for the project are shown in Appendix B. The general limits are as follows.

Roadway	Approximate Width	Approximate Length
Massillon Rd	Approx. 100' LT & RT of existing centerline	600' north of Boettler Rd to 600' south of Boettler Rd
Boettler Rd	Approx. 75' LT & RT of existing centerline	500' west of Massillon Rd intersection
Franks Pkwy	Approx. 75' LT & RT of existing centerline	500' east of Massillon Rd intersection

The survey services will include the following tasks.

2.1 Prepare property owner notification letters and send out on American Structurepoint or City of Green letterhead.

2.2 Research records at the courthouse to obtain record information for property lines and ownership. Research will include property owner names and addresses, plats, and deeds.

2.3 Establish a random field control traverse and twelve horizontal control points. The horizontal control will be based on the Ohio State Plane Coordinate System, North Zone.

2.4 Establish twelve benchmarks on the project site. The benchmark datum will be based on the 1988 North American datum.

2.5 Search for and tie in all centerline monuments and property monuments for the property owners adjacent to the project

2.6 Reduce all field notes

2.7 Fit right-of-way lines and property lines from record information to the field monuments found and resolve the location of the right-of-way lines and property lines for all parcels adjacent to the project

2.8 Locate all topographic features

2.9 Locate the edges of existing driveways and obtain a centerline profile

2.10 Locate and obtain invert elevations of all existing drainage structures

2.11 Obtain cross-sections and additional spot elevations to provide sufficient data to develop an accurate digital terrain model

2.12 Resolve the location of the centerline of the existing right-of-way for Massillon Road, Thorn Road, and Corporate Woods Circle

2.13 Contact OUPS and utility companies to mark utility locations in the field

2.14 Field tie the location of all utilities marked in the field and other aboveground evidence of utilities (manholes, hand holes, risers, valves, poles, etc.).

2.15 Update Base Topographic Map and Digital Terrain Model (DTM)

2.15.1 Import field survey data to drawing file

2.15.2 Plot topographic features, review, and edit changes

2.15.3 Develop digital terrain model and existing contours

2.15.4 Field check basemap

3. Obtain Utility Records from Utility Companies and Plot Locations in Basemap

Contact OUPS and OGPUPS to obtain the names, addresses, and telephone numbers of utility companies. Contact each utility company to obtain drawings of the location of existing utilities. Plot utility line locations and sizes in basemap. We shall make a request through OUPS to have public utilities marked within the public rights-of-way and recorded easements. We will not be responsible for damages resulting from a utility company who does not respond or for utilities that are not marked or that are mismarked.

Collect Level "B" subsurface utility engineering survey and prepare basemap. Although geophysical methods provide reasonably accurate results, the possibility for error does exist, therefore we will not be responsible for damages resulting from a private utility locate service.

4. Subsurface Investigation

The subsurface investigation will be performed by a subconsultant as part of this contract. Five pavement cores and one retaining wall boring will be included in this scope of services. A geotechnical report will be created and include the subgrade stabilization recommendation, a CBR value, and any additional recommendations or findings. Soil profile sheets will be created for this project. Services will be performed in accordance with ODOT's *Specifications for Geotechnical Explorations* and *Geotechnical Bulletin 1* requirements.

5. Traffic Impact Study Review

American Structurepoint will update the existing traffic impact study for the four intersections in the traffic study completed for the City of Green. The initial study was performed in 2014 and recommended the construction of roundabouts at all four intersections, in a phased sequence. This

work will update the report, update the traffic counts, and revise, if necessary, any findings based on new information, per request of ODOT. Traffic data will then be submitted to ODOT for certification.

STUDY APPROACH

5.1 Attend one coordination meeting with ODOT, the City of Green, and others as identified, to document the study parameters in a Memorandum of Understanding. The primary focus is updating/revising the traffic impact study report prior to construction of improvements at the four study intersections.

5.2 Obtain new traffic counts at the four study intersections to replace the counts collected in 2014.

5.2.1 Obtain 6-hour traffic counts on a typical weekday to account for AM and PM peaks (6AM-9AM & 3PM-6PM Tuesday – Thursday) using Miovision Technologies video data collection for the following study intersections:

5.2.2 Corporate Woods Circle & Corporate Woods Parkway

5.2.3 Massillon Road & Corporate Woods Circle

5.2.4 Massillon Road & Boettler Rd

5.2.5 Boettler Road & Corporate Woods Parkway

5.3 Revise the existing four-step model for the identified study area based on the latest land use information available. Development has since been implemented in the vicinity of the study area from the date of the previous traffic counts; therefore, any additional development expected near the study area should be accounted for.

5.4 Revise the traffic projections for a to-be-determined design year (2038 or later) based on the delayed opening year of the project. The traffic growth will maintain the growth rate used in the previous study, unless otherwise directed.

5.5 Revise the existing capacity analysis for Alternative 1 and Alternative 2 for the Design Year and for an Interim Year, as identified during the phased-construction analysis. The phasing analysis will be completed for the recommended alternative only.

5.5.1 Synchro is to be utilized for the analysis of signalized intersections.

5.5.2 SIDRA is to be utilized for the analysis of roundabout intersections.

5.5.3 VISSIM micro-simulation modeling will be utilized to confirm the proposed geometry.

5.6 Submit a preliminary draft of the updated traffic impact study report for review and comment.

5.7 Attend one progress meeting to present the findings of the traffic impact study report.

5.8 Submit the final updated traffic impact study report.

We anticipate completing the draft revision of the traffic impact study for review within 60 days of receiving the notice to proceed. The final revised report would be completed within 14 days after receipt of comments on the preliminary study from all parties.

DELIVERABLES

5.9 Preliminary revised traffic impact study report for comment and review. Report will include the analysis of the four study intersections for the following:

- 5.9.1 AM & PM peak hours
- 5.9.2 Interim Year (Phasing Analysis) & Design Year
- 5.9.3 Recommendations for intersection improvements (as necessary)

5.10 Final revised traffic impact study report

6. Preliminary Studies

Retaining Wall Justification Study

We will evaluate and compare the cost of a retaining wall versus slope and right-of-way costs along the north side of the intersection. This will be for Conrad's Tire Express and Total Car Care. There are existing retaining walls at this location. Recommendations will be based upon the least expensive option. We will prepare plan and profile sheets showing construction limits for each option, along with cross-sections for each. A report will be prepared and submitted. In lieu of completing a retaining wall type study if it is determined that a wall is needed, American Structurepoint will discuss with the City of Green and determine which wall type is appropriate for the location.

Maintenance of Traffic Analysis

American Structurepoint will analyze two different concepts to construct the project based upon economics and speed of construction. We will work with the City to establish viable detour routes and time constraints for short-term closures to minimize phasing. We will analyze traffic queues to determine whether lane restrictions are viable for short-term closures or potential nighttime construction. Our analysis will determine approximate duration times to establish overall project construction periods, as well as the associated maintenance-of-traffic costs. Concepts will aim to maintain access with traffic signals, which may be moved onto temporary supports. Our report will provide our recommendation based upon our analysis of each concept studied.

Drainage Analysis

American Structurepoint will hydraulically size the culvert and storm sewer system along with the conceptual layout of the BMPs for the project area. The drainage design criteria will be established and presented to the City of Green for their concurrence.

Conceptual Right-of-Way

American Structurepoint will lay out the permanent right-of-way and temporary easements based on preliminary roundabout concepts. The conceptual right-of-way will be presented to the City of Green for its concurrence.

Design Exception Determination

American Structurepoint will evaluate all of the roadway design criteria in the ODOT *Location and Design Manual, Vol. 1* against our design to determine whether any design exceptions are needed.

Coordinate with the City of Green to prepare proprietary waiver request on lighting and other pertinent items.

Preliminary Roundabout Geometrics.

American Structurepoint will develop horizontal and vertical geometry for the preliminary alignment to aid in the maintenance-of-traffic analysis and the retaining wall justification study.

7. Environmental Field Studies

7.1 Ecological Survey Report

Field surveys and impact assessments will be conducted in accordance with the most recent version of the ODOT Ecological Manual to verify and collect data on ecological resources within the project area and assess potential impacts by the proposed action. A Level 1 Ecological Survey Report will be required. If in coordination with ODOT-Office of Environmental Services (OES) it is determined the Level 1 Ecological Survey Report needs to be elevated to a Level 2 Ecological Survey, efforts required to prepare an elevated report will be considered out of scope.

7.2 Environmental Site Assessment (ESA)/Regulated Materials Review (RMR)

The Regulated Materials Review (RMR) will be conducted to identify any sites within the feasible alternatives that may require a Phase I ESA. As part of the RMR, regulatory databases will be reviewed along with present and historic land uses associated with properties in the project area. The results of the RMR will be presented on the RMR Review Form that will be prepared in accordance with ODOT's RMR guidance (currently July 2017). If in coordination with ODOT-OES it is determined that hazardous materials concerns may exist on a parcel, a Phase I and/or II ESA may be deemed necessary. The Phase I ESA and Phase II ESA are considered out of scope. The Phase I ESA task is provided in the "If Authorized" Tasks section.

7.3 Section 106 Scoping Request

The Section 106 Scoping Request will provide information to allow ODOT- OES to determine the appropriate scope and effort of Phase I cultural resources investigations for the project, should they prove necessary. The Section 106 Scoping Request will document the existing conditions within the study area, as well as previously identified cultural resources in the vicinity. This data package is to provide information that will allow an accurate assessment of potential impacts to known cultural resources for ODOT-OES to determine whether the project is an exempt action or if additional documentation is needed. Upon review, ODOT-OES may request further cultural resources studies. These additional cultural resource studies are considered out of scope. The Phase I Archaeological Survey task is provided in the "If Authorized" Tasks section.

7.4 Waterway Permit Determination Request

Prepare and submit a Waterway Permit Determination to ODOT-OES for their review and confirmation of the type of waterway permit required for the project. Preparation of the waterway permit determination request package will follow the most recent version of the ODOT Permit Determination Request Instructions.

7.5 Section 404 Nationwide Permit – U.S. Army Corps of Engineers

Prepare and submit the Section 404 Nationwide Permit to the United States Army Corps of Engineers (USACE). If jurisdictional waters are impacted, it is anticipated the USACE will allow the project to be permitted under a Nationwide 14 permit for linear transportation

projects, as described in the March 21, 2017, USACE Nationwide Permits for the State of Ohio. Furthermore, if jurisdictional waters are impacted, it is anticipated that the project will impact less than 300 linear feet of stream and less than 0.1 acre of wetland. If in coordination with USACE it is determined that an individual permit and/or mitigation for losses to aquatic resources is required or that isolated wetlands will be impacted, the services to prepare the applications and mitigation plans will be considered out of scope.

7.6 Environmental Document

The proposed action will likely be processed as a C2 Level Categorical Exclusion (CE) National Environmental Policy Act (NEPA) document. This document will be developed and submitted via ODOT's EnviroNet (on-line CE system) and will incorporate studies and other tasks performed as part of this proposed action. If consultation with ODOT-OES indicates a lower or higher level of CE documentation is necessary, efforts required to prepare this CE will be considered out of scope, and additional or supplemental services will be required.

8. Stage 1 Plan Development

American Structurepoint will perform the following tasks to complete the Stage 1 plans and deliverables.

8.1 Prepare title sheet

8.2 Prepare schematic plan

8.3 Prepare roundabout geometric plan

8.4 Calculate pavement build-up

8.5 General notes sheet with utility companies

8.6 Prepare typical sections

8.7 Prepare **plan and profile sheets** (H: 1" = 20', V: 1" = 5'). Existing utility lines will be shown in color for easier identification.

8.8 Prepare roundabout profile sheets

8.9 Cross-sections with utilities shown (H/V: 1" = 10')

8.10 Drainage and BMP design

8.10.1 Calculate peak flow runoff for drainage areas

8.10.2 Prepare drainage area map

8.10.3 Perform spread calculations

8.10.4 Perform capacity and hydraulic grade line calculations

8.10.5 Prepare BMP calculations. Treatment for water quality flow only. Water quantity is not expected due to less than one acre of new impervious area in new permanent right-of-way. Thus, the expected calculations are only for manufactured systems, vegetated biofilters, and vegetated filter strips.

8.10.6 Prepare LD-33 Form

8.10.7 Prepare and submit Drainage Report

8.11 Revise and establish maintenance-of-traffic concept, and submit on scroll plot

8.12 Establish detour routes for vehicular and pedestrian traffic

8.13 Prepare pavement marking plans

8.14 Prepare intersection and splitter island detail sheets

8.15 Prepare driveway profile and details

8.16 Prepare retaining wall plans

8.17 Proprietary lighting documentation.

8.18 Prepare lighting plans.

8.19 Perform airway/highway clearance analysis.

8.20 Site/civil design due to R/W impacts

8.21 Compute estimated quantities and prepare opinion of probable construction cost

8.22 Submit Stage 1 plans to the City of Green, ODOT, and utility companies including maintenance-of-traffic scroll plots

8.23 QA/QC will be performed throughout the Stage 1 Plan development.

See Appendix A for anticipated sheet counts for each submittal stage. City of Green will be responsible for preparing and submitting the proprietary waiver requests for lighting and traffic signal related items.

9. Public Outreach and Public Involvement Plan

American Structurepoint will coordinate and develop a community outreach and official public involvement plan with the City of Green staff and obtain buy-in from ODOT.

As part of our coordination, we will discuss the following:

9.1 The proposed action will require public involvement activities throughout the project development process. The following public involvement activities are included:

9.1.1 Contact Local Stakeholders: American Structurepoint will provide the City of Green with names and addresses for the local stakeholders, a letter, and associated materials (maps, etc.) informing them of the proposed project and requesting feedback. The City will print and mail the letters and materials on City letterhead.

9.1.2 Public Involvement Meeting Invitations: American Structurepoint will provide the City of Green with names and addresses for the public meeting invitations. The City will print and mail the invitations on City letterhead.

9.1.3 Prepare a press release for advertisement in at least one local newspaper (The Suburbanite, The Akron Beacon Journal, and/or The Repository), and on the City's website. American Structurepoint will consult with ODOT on the number of newspapers to advertise the press release. American Structurepoint will provide the City of Green with the press release. The City will coordinate the press release with the newspaper(s) and make payment for the press release. Advertisement for the press release will occur on two occasions in the newspaper(s).

9.1.4 Attend one open house-style public meeting. The City of Green will arrange the public meeting at a site within the general project location area (church, school, or other public meeting place). We anticipate a morning and afternoon session at the meeting.

9.1.5 Public Meeting Materials: American Structurepoint will prepare the following items for the public meeting: sign-in sheets, a project fact sheet, providing a Federal Highway Administration information brochure on roundabouts (printed on 8.5"x11" for distribution), and project exhibits. The exhibits may include Stage 1 plans, the detour map (if needed), and large graphics (approximately 22" x 34") displayed on easels.

10. Independent Review

American Structurepoint will have the traffic analysis and roundabout design peer reviewed by an independent consultant for the preliminary design.

10.1 Roundabout Operational Analysis (Massillon Road Corridor for two roundabouts)

10.1.1 Review the operational analysis of the corridor of two roundabouts: the Corporate Woods Circle and the Franks Way/Boettler Road intersection at Massillon Road. We will review AM and PM peak hour forecasted traffic volumes for both roundabouts under this Phase 3 assignment using Arcady and HCM capacity analysis software packages. We can provide residual capacity prediction for staged expandability. City of Green to provide property owner feedback on the anticipated impacts.

10.1.2 Independent Reviewer to review any simulation output (VISSIM) for input parameters and assumptions to validate the corridor level analysis of two roundabouts.

10.1.3 Independent Reviewer to attend up to two (2) teleconference meetings with American Structurepoint staff to kick off the project to discuss design criteria, data collection, and schedule. The second meeting will be to discuss initial findings of the operational analysis review.

10.1.4 Independent Reviewer will prepare an operational analysis report that summarizes the traffic analysis conclusions and lane configuration recommendations for the Phase 2 and Phase 3 roundabouts.

10.2 Roundabout Preliminary Design Review

10.2.1 Independent Reviewer will review preliminary roundabout horizontal geometrics for functionality (NCHRP 672, Ch 6) considerations and staged expandability.

10.2.2 Independent Reviewer will attend up to two (2) teleconference meetings with American Structurepoint staff to kick off the project, discuss design criteria, data collection, and schedule.

11. If Authorized Items

11.1 Phase I Archaeological Survey - The Phase I Archaeology Survey will involve identification of the archaeological resources within the study area so the effects of the project on archaeological resources can be considered. If in coordination with agencies it is determined additional surveys are required, the services to prepare the surveys and reports will be out of scope.

11.2 Prepare OHPO I form if necessary

12. Services not included with this proposal

The following are also not included in this scope of services.

12.1 Channel relocation plans

12.2 Noise wall plans

12.3 Irrigation plans

12.4 Private utility relocation plans (gas, electric, phone, cable, etc.)

12.5 Appraisal review

12.6 Right-of-way staking for negotiations

12.7 Water quantity treatment for BMP design

12.8 Preparation of additional permit applications to the USACE, the OEPA, or other local, state, or federal agencies not mentioned above in this proposal.

12.9 Additional environmental surveys including, but not limited to: Level 2 or 3 Ecological Survey; Phase II Environmental Site Assessment; noise surveys; air quality surveys; Underserved Populations Reports, including an Underserved Populations Impact Analysis Report (UPIAR); and a lower/higher level of categorical exclusion documentation preparation.

12.10 If consultation with ODOT-OES indicates additional public involvement requirements are necessary, the services necessary to meet these requirements will be out of scope.

12.11 Traffic tasks as listed below:

- 12.11.1 Traffic signal modifications for any intersections
- 12.11.2 Traffic analysis for any additional intersections
- 12.11.3 Traffic signal warrant study for any intersection improvements
- 12.11.4 Traffic data collection for any additional intersections.
- 12.11.5 Traffic signal design for any intersections.

AMERICAN STRUCTUREPOINT INC.

Appendix A – Proposal Cost Breakdown, Summary, and Rate Schedule

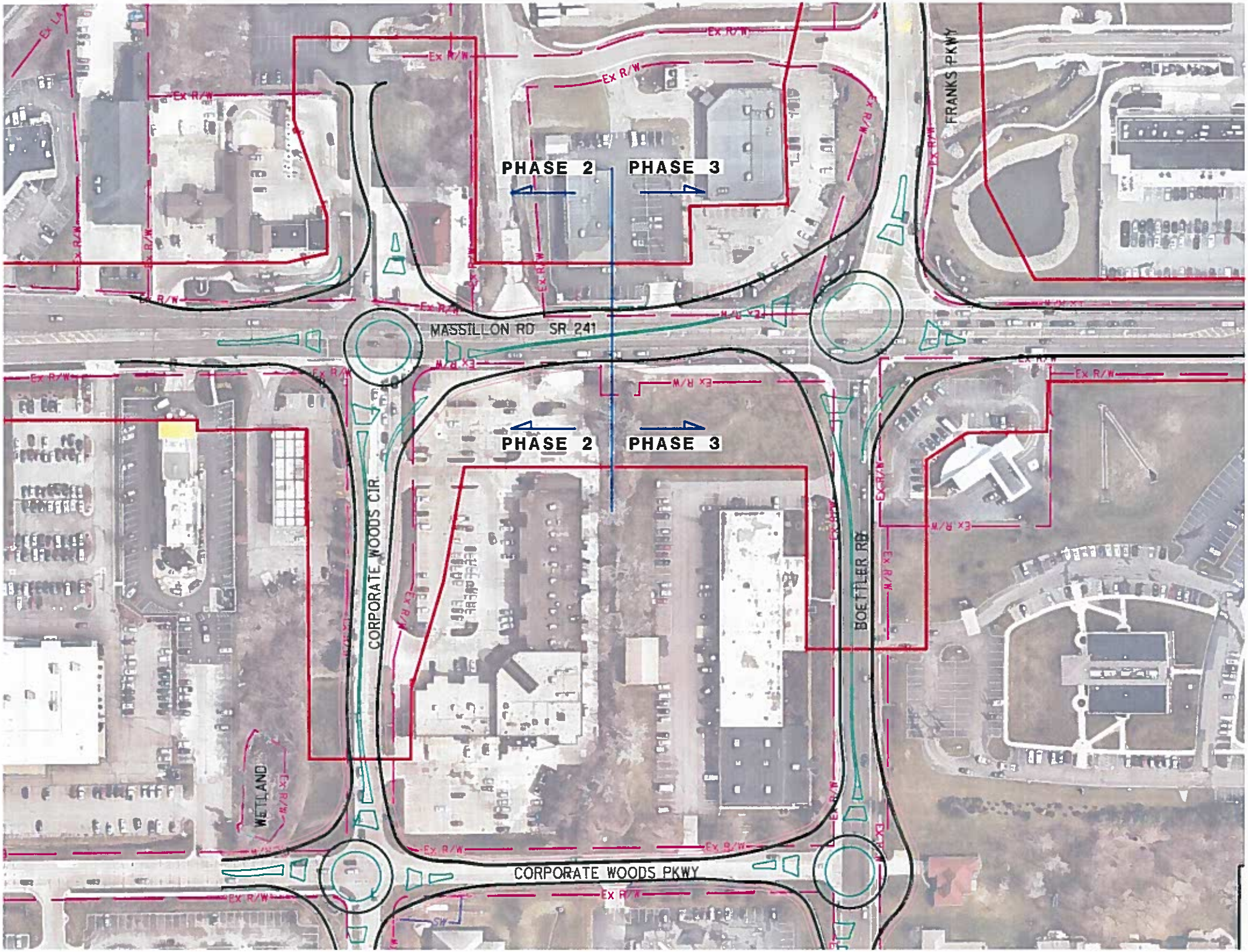
Fee Proposal
Phase 3 Massillon - Boettler
November 2, 2017

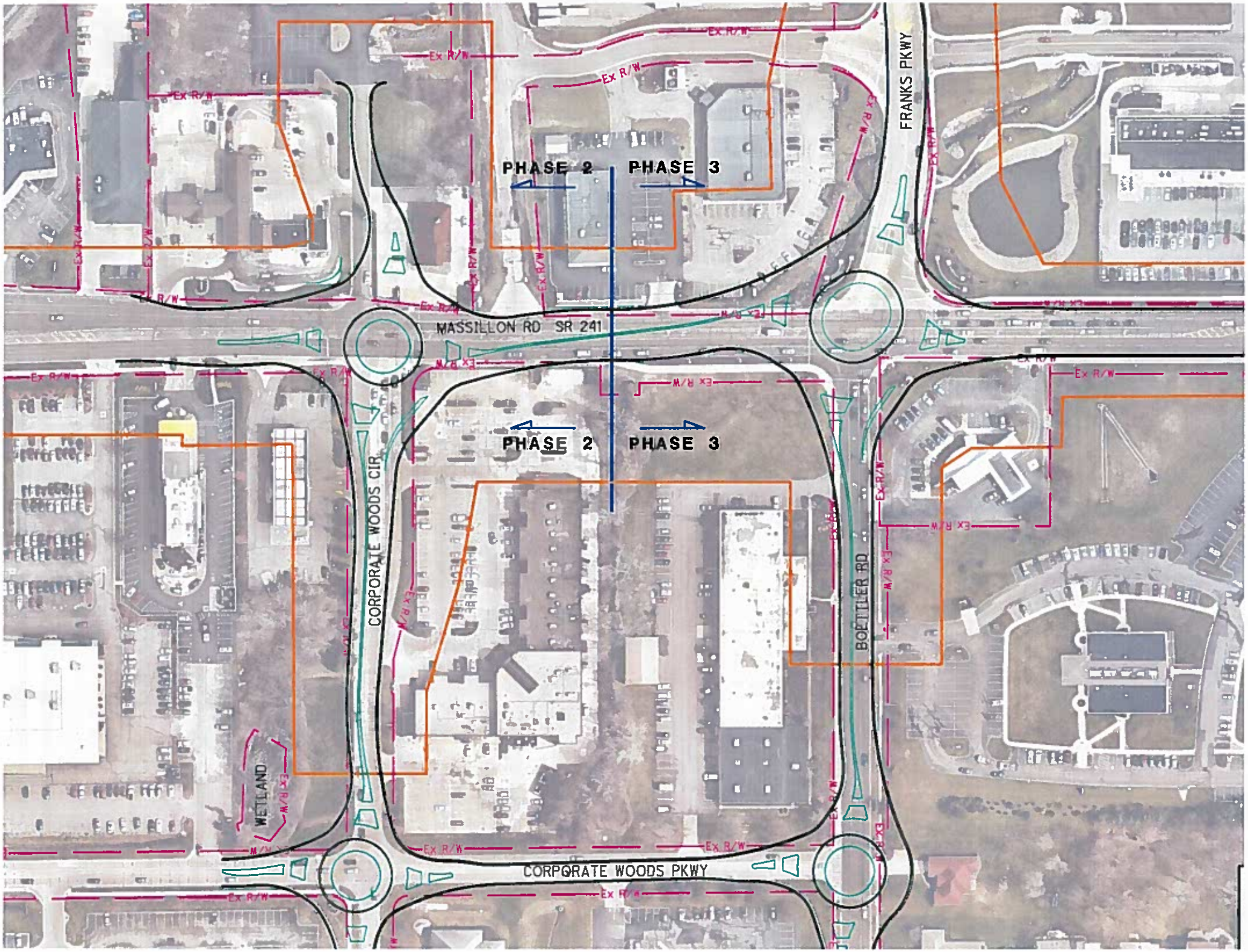
		Principal	Project Manager	Senior Engineer	Senior Env. Scientist	Project Engineer	Senior Technician	Staff Engineer / Technician	Env. Specialist	Total Hours	Subconsultant	Non-Labor Direct Costs	Total Cost
		$260.00	$208.00	$182.00	$166.50	$145.50	$140.50	$99.00	$99.00				
Task 2 - Field Survey													
2.1	Project Control, Benchmarks, and Reference Points									0	$525		$525
2.2	Monument Recovery									0	$525		$525
2.3	Base Mapping (including field verify)			4						4	$9,130		$9,858
2.4	Establish property lines, tax id, and ownership on basemap									0	$4,855		$4,855
2.5	Property owner notification									0	$1,538		$1,538
	Subtotal Task 2	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**4**	**$16,573**	**$0**	**$17,301**
Task 3 - Utility Coordination													
3.1	SUE Level "B"									0	$26,202		$26,202
3.2	Utility coordination meeting		6	6		4				16		$150	$3,072
	Subtotal Task 3	**0**	**6**	**6**	**0**	**4**	**0**	**0**	**0**	**16**	**$26,202**	**$150**	**$29,274**
Task 4 - Subsurface Investigation													
4.1	Reconnaissance and Planning									0	$1,929		$1,929
4.2	Field Coordination									0	$1,368		$1,368
4.3	Field Exploration									0	$3,565		$3,565
4.4	Laboratory Testion									0	$2,875		$2,875
4.5	Geotechnical Exploration Report			4						4	$6,446		$7,174
	Subtotal Task 4	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**4**	**$16,183**	**$0**	**$16,911**
Task 5 - Traffic Impact Study Review													
5.1	Coordinate Traffic Data Collection			2						2		$2,000	$2,364
5.2	Meetings (2)			9				9		18		$300	$2,829
5.3	Update Traffic Analysis		2	8				32		42			$5,040
5.4	Verify Previous Roundabout Staging/Sequencing Plans		1	4				8		13			$1,728
5.5	Review/Revise Traffic Models and Lane Configurations		2	4				40		46			$5,104
5.6	Update Traffic Impact Study Report		2	8				16		26			$3,456
5.7	QA/QC		2	4				8		14			$1,936
	Subtotal Task 5	**0**	**9**	**39**	**0**	**0**	**0**	**113**	**0**	**161**	**$0**	**$2,300**	**$22,457**
Task 6 - Preliminary Studies													
6.1	Retaining Wall Justification		2			24		12		38			$5,096
6.2	MOT Analysis		2	4		16	12	12		46			$6,346
6.3	Drainage Analysis									0	$4,610		$4,610
6.4	Conceptual Right-of-Way									0	$2,100		$2,100
6.5	Design Exception determination		2			6				8			$1,289
6.6	Preliminary roundabout geometrics		2	4		12	6	6		30			$4,327
	Subtotal Task 6	**0**	**8**	**8**	**0**	**58**	**18**	**30**	**0**	**122**	**$6,710**	**$0**	**$23,768**
Task 7 - Environmental Field Studies													
7.1	Ecological Survey Report				16				40	56		$200	$6,824
7.2	Environmental Site Assessment/Regulated Materials Review				10				14	24		$200	$3,251
7.3	Section 106 Scoping Request				8				12	20			$2,520
7.4	Waterway Permit Determination				8				12	20			$2,520
7.5	Section 404 Nationwide Permit				14				32	46			$5,499
7.6	Environmental Document				14				32	46			$5,499
	Subtotal Task 7	**0**	**0**	**0**	**70**	**0**	**0**	**0**	**142**	**212**	**$0**	**$400**	**$26,113**

Fee Proposal
Phase 3 Massillon - Boettler
November 2, 2017

		Principal	Project Manager	Senior Engineer	Senior Env. Scientist	Project Engineer	Senior Technician	Staff Engineer / Technician	Env. Specialist	Total Hours	Subconsultant	Non-Labor Direct Costs	Total Cost
		$260.00	$208.00	$182.00	$166.50	$145.50	$140.50	$99.00	$99.00				
Task 8 - Stage 1 Construction Plans (Sheet Count)													
8.1	Title Sheet (1)			2		6	2	2		12			$1,716
8.2	Schematic Plan (1)		1	4		8	6	6		25			$3,537
8.3	Roundabout Geometric Plan (1)		1	4		8	6	6		25			$3,537
8.4	Pavement build-up calculations			3		3				6			$983
8.5	General Notes with utility companies (1)					2	2	2		6	$2,400		$3,170
8.6	Typical Sections and Details (3)			4		12	16	16		48			$6,306
8.7	Plan and Profile (5)		1	12		52	32	32		129			$17,622
8.8	Roundabout Profiles (3)			8		16	12	12		48			$6,658
8.9	Cross Sections (8)			6		40	20	20		86			$11,702
8.10	Drainage and BMP Design (6)		1	4						5	$14,231		$15,167
8.11	Revise MOT Concept			2		8	6	6		22			$2,965
8.12	MOT Detour plan (vehicle/pedestrian) (4)			2		4	2	2		10			$1,425
8.13	Pavement marking plan (5)		1	12		24	18	18		73			$10,195
8.14	Intersection and splitter island details (4)		1	12		24	12	12		61			$8,758
8.15	Driveway Details (3)		1	8		24	16	16		65			$8,988
8.16	Retaining Wall Plan (2)		1	6		24	16	16		63			$8,624
8.17	Proprietary Lighting Documentation									0	$286		$286
8.18	Lighting Plans (2)									0	$2,190		$2,190
8.19	Airway/highway clearance analysis			2		4	3	3		12			$1,665
8.20	Site/Civil design due to R/W impacts									0	$5,290		$5,290
8.21	Compute quantitites and prepare cost estimate					12	8			20	$2,457		$5,327
8.22	Stage 1 Submittal and utility plan coordination		1	4		2	4	4		15			$2,185
8.23	QA/QC		20	20						40			$7,800
8.24	Project Management		12							12	$2,196	$150	$4,842
8.25	General Oversight	8	40							48	$2,562		$12,962
	Subtotal Task 8	**8**	**81**	**115**	**0**	**273**	**181**	**173**	**0**	**831**	**$31,612**	**$150**	**$153,899**
Task 14 - Public Outreach / Public Involvement Plan													
14.2	Public Meeting	4	8	8	19	10	3	3	22	77	$2,490	$125	$14,290
	Subtotal Task 14	**4**	**8**	**8**	**19**	**10**	**3**	**3**	**22**	**77**	**$2,490**	**$125**	**$14,290**
Task 15 - Independent Review													
15.1	Roundabout Operational Analysis									0	$4,595		$4,595
15.2	Roundabout Preliminary Design Review		2	2						4	$4,080		$4,860
	Subtotal Task 15	**0**	**2**	**2**	**0**	**0**	**0**	**0**	**0**	**4**	**$8,675**	**$0**	**$9,455**
TOTAL BASE CONTRACT		12	114	186	89	345	202	319	164	1431	$108,445	$3,125	$313,468
"If Authorized" Services													
16.1	Phase I Archaeological Survey and Report				2					2	$7,222		$7,555
16.2	Prepare OHPO I form				2					2	$3,840		$4,173
	Subtotal Task "If Authorized"	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**4**	**$11,062**	**$0**	**$11,728**
TOTAL BASE CONTRACT		12	114	186	93	345	202	319	164	1435	$119,507	$3,125	$325,196

Appendix B – Field Survey and Project Area Limits


PHASE 2
PHASE 3
PHASE 2
PHASE 3
MASSILLON RD SR 241
CORPORATE WOODS CIR
BOETTLER RD
FRANKS PKWY
CORPORATE WOODS PKWY
WETLAND
Ex R/W


PHASE 2
PHASE 3
PHASE 2
PHASE 3
FRANKS PKWY
MASSILLON RD SR 241
CORPORATE WOODS CIR
BOETTLER RD
WETLAND
CORPORATE WOODS PKWY
Ex R/W

Appendix C – Subconsultant Cost Breakdown and Summary

Cardno
Shaping the Future

Mr. Anthony J. Lenhart, PE
Project Manager, Transportation
American Structurepoint, Inc.
2550 Corporate Exchange Dr. Suite 300
Columbus, Ohio 43231

October 26, 2017

RE: SUM-241-Boettler Rd/Franks Blvd Phase 3 – PID #103173
City of Green, Summit County Ohio
Subsurface Utility Engineering (SUE) – Cost Proposal
Quality Level B - Utility Designating
Quality Level A - Utility Test Holes (If-Authorized)

Mr. Lenhart,

Thank you for requesting that Cardno, Inc. prepare a cost proposal for providing a Subsurface Utility Engineering investigation on the above referenced project. Cardno proposes to complete this project per the attached Scope of Services and cost estimate.

Our proposal is based on your email dated 10/19/17 with 103172-Survey limits.pdf attached, a site visit, a Google Maps site review of the project locations, OUPS design requests and a phone conversation between Joe Welsh (Cardno) and Tony Lenhart on 10/24/17, clarifying the project limits and the survey of the SUE work.

This proposal is based on Cardno providing SUE Quality Level B – utility designating and SUE Quality Level A – utility test hole services (If-Authorized), as a sub-consultant at your direction.

Survey of the SUE work will be performed by our sub-consultant surveyors using datum supplied by American Structurepoint.

Gravity sewer investigations are not included in this cost proposal

Once the Notice to Proceed has been received and a Sub Consultant agreement has been signed, we can schedule this work, usually within two weeks.

If you have any questions, please do not hesitate to call me. I look forward to working with you on this very important project.

Sincerely,

Keith A Furukawa, PE
Director
Cardno, Inc.

cc: file

Cardno
Shaping the Future

SUBSURFACE UTILITY ENGINEERING

Quality Level B Designating / Quality Level A Test Holes

SUM-241-Boettler Rd/Franks Blvd Phase 3
PID #103173

City of Green, Summit County Ohio

Industry Standard of Care- The subsurface utility engineering (SUE) performed under this contract will be in accordance with ASCE Standard 38-02 "Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data" and industry standards as of the NTP.

SCOPE OF SERVICES

Utility Designating - (Quality Level B)

Using electromagnetic methods, Cardno will attempt to designate the approximate horizontal location of the existing known conductive documented buried utilities within the project limits, as directed by American Structurepoint. The approximate Phase 3 project limits are as shown with a red border on the attached plan sheet provided by American Structurepoint on 10/19/17, located in the City of Green, Summit County Ohio.

"Designating" means to indicate the presence and horizontal location of underground utilities using geophysical prospecting techniques, including electromagnetic methods. Possible conductive utilities include, but are not limited to: water, sewer force main, gas, telephone, fiber optics, telecommunications, and electric. **Gravity sewer investigations, residential utility services, private electric and/or communications to business signs, private site lighting, traffic loop detectors and sprinkler systems are not included in this cost proposal.**

Upon review of the project site, information received and utility records obtained through OUPS design tickets, we anticipate telephone, telecommunication, gas, water, electric, traffic control and sewer force mains to be found within the project limits.

Electromagnetic equipment to be used but not limited to, are the Radio Detection (RD) 8100, Vivax vLoc Pro 2, MetroTech VM810, Fisher TW6 and Pipehorn 800 Series.

Designating vehicles to be used but not limited to are a rubber tired Dodge Ram 1500 4x4 crew cab pickup truck equipped with beacons and/or 4 corner strobes.

The ASCE Standard 38-02 does not specify the horizontal accuracy of Quality Level B designating. The horizontal accuracy of our designating work is strongly dependent on the depth of the utility, signal strength and the material type of the buried utility. Test Holes (Quality Level A) will provide greater accuracy. As part of utility designating, Cardno will contact the Ohio Utility Protection Service (OUPS) and the Oil and Gas Producers Underground Protection Service (OGPUPS) and provide equipment and personnel necessary to perform utility designating.

Cardno will perform this service with due diligence and use every reasonable effort to designate the utilities. Cardno does not guarantee that all active or abandoned utility systems can or will be detected, including but not limited to, utilities located underneath other utilities and non-conductive utilities.

Utility Locating - (Quality Level A) – Test Holes – "If-Authorized"
Utilizing non-destructive air/vacuum excavation methods, Cardno will perform utility test hole (SUE Quality Level A) services, in an attempt to determine the exact horizontal and vertical location of the existing buried utility at conflict locations, as directed by American Structurepoint.

There are twenty (20) proposed test hole locations at this time and are part of this scope. Exact test hole locations are not known at this time.

Cardno will perform this service with due diligence and use every reasonable effort to locate the requested utilities. Cardno does not guarantee that all active or abandoned utility systems can or will be detected, including but not limited to, utilities located underneath other utilities, non-conductive utilities and utilities deeper than typical depths.

Vacuum Excavation equipment to be used but not limited to, is the SERVAC air/vacuum unit, mounted on the bed of a rubber tired Dodge Ram Super Duty 5500 4x4 flatbed truck.

As part of utility locating, Cardno will contact the Ohio Utility Protection Service (OUPS) and the Oil and Gas Producers Underground Protection Service (OGPUPS) and provide equipment and personnel necessary to perform the test holes. Cardno will supply individual test hole data sheets for each test hole. The test hole data sheet will include: utility size and material, and depth of cover. Cardno will restore all test hole locations to their original condition and with proper compaction.

Survey of the SUE work – Cardno will utilize our sub-consultants surveyors to survey the SUE work. Survey datum will be supplied by American Structurepoint. Cardno will coordinate with our sub-consultant surveyors to facilitate the collection of the utility data.

Deliverables – Once the surveyed SUE information is received from our sub-consultant surveyors, Cardno will generate a utility file independent of the basemap. The utility file will be in the same plane coordinate system as the base topography for the project. The utility file will be able to be referenced to the base topo file. The SUE information shown on this file shall adhere to SUE quality level B and/or SUE quality level A, unless otherwise stated.

Deliverables will include plan sheets (hardcopy and electronic) showing the horizontal and vertical locations of the surveyed SUE utility information, in color. Other deliverables will include our Test Hole Data Sheet and Verified Utility Matrix.

Maintenance of Traffic (MOT):

- Cardno vehicles come equipped with advanced warning signage, safety cones, cone bars and vehicle beacons/strobes to provide basic MOT/safety services.
- If more complex MOT is needed, Cardno sub contracts with a professional MOT service provider. **MOT costs are included in the Level A test hole portion of this estimate.**

Working Hours - We plan to perform this SUE investigation during normal business hours (7:00 AM to 5:00PM) Monday thru Friday, unless otherwise directed by American Structurepoint and/or the City of Green.

Site Access:

Cardno will need access to the public and private properties in and around the project limits with our personnel, vehicles and equipment.

Personal Protective Equipment (PPE):

Cardno employees are provided with proper PPE to perform our duties in a safe and efficient manner and as required by project site specific standards. PPE to be used but not limited to is: hard hats, safety glasses, gloves, steel/composite toed boots, retroreflective safety vests, retroreflective long sleeve shirts and work trousers (no shorts).

EXCLUSIONS:

- Confined space entry
- Underground storage tank investigation
- Gravity sewer investigation
- Residential utility services
- Business and/or commercial private utilities (electric and/or communication) to signage, card readers or site lighting
- Sprinkler systems
- Traffic loop detectors

SUBSURFACE UTILITY ENGINEERING SERVICES COST PROPOSAL

QUALITY LEVEL B - UTILITY DESIGNATING

Client: American Structurepoint, Inc.
Project Name: SUM-Boettler Rd/Franks Blvd Phase 3
PID: #103173
City/County/State: Green/Summit/Ohio

Date: 10/26/2017
SUE Provider: Cardno, Inc.
SUE Survey Provider: DLZ Ohio

Pay Item	Type of Unit	No. of Units	Fee per Unit	Total Amount
1. Utility Designating Services (Level B)	Linear Foot	14,000	$1.57	$21,980.00
2. Subsurface Utility Locate Services (Test Hole) (Level A)				
a. 0.00 ft- 7.00 ft	Per Hole		$994.80	
b. 7.01 ft- 13.00 ft	Per Hole		$1,409.30	
c. 13.01 ft- 20.00 ft	Per Hole		$2,113.95	
d. Over 20.00 ft	Per Hole		$3,382.32	
3. Unit Rates (not otherwise included above)				
a. Designating	Per Hour	12	$112.93	$1,355.16
b. Locating	Per Hour		$108.09	
c. Surveying	At cost			$2,100.00
d. Records Research	Per Hour	4	$123.72	$494.88
e. CADD	Per Hour		$83.18	
f. Professional Surveyor/Engineer	Per Hour		$202.55	
g. Principal	Per Hour			
h. GPR	Per day		$3,000.00	
	Per day		$800.00	
4. Direct Costs				
a. Project Manager Mileage	Per Mile	60	$0.52	$31.20
b. Per Diem	Per day/room		$35.00	
c. Hotel	Per day/room		$103.00	
d. Mailing	Each		At Cost	$20.00
e. Permit Fees	Each		At Cost	
f. Copies	Each		At Cost	$20.00
5. Miscellaneous Costs				
a. Vacuum Excavation Truck - Mobilization	Each		$500.00	
b. Designating Vehicle - Mobilization	Each	1	$200.00	$200.00
c. Traffic Control Vehicle	Each			
d. MOT (Professional Service Provider)	Per day		$800.00	
TOTALS				$26,201.24

SUBSURFACE UTILITY ENGINEERING SERVICES COST PROPOSAL

QUALITY LEVEL A - TEST HOLES - (IF-AUTHORIZED)

Client: American Structurepoint, Inc.
Project Name: SUM-Boettler Rd/Franks Blvd Phase 3
PID: #103173
City/County/State: Green/Summit/Ohio

Date: 10/26/2017
SUE Provider: Cardno, Inc.
SUE Survey Provider: DLZ Ohio

Pay Item	Type of Unit	No. of Units	Fee per Unit	Total Amount
1. Utility Designating Services (Level B)	Linear Foot	1,000	$1.57	$1,570.00
2. Subsurface Utility Locate Services (Test Hole) (Level A)				
a. 0.00 ft- 7.00 ft	Per Hole	15	$994.80	$14,922.00
b. 7.01 ft- 13.00 ft	Per Hole	5	$1,409.30	$7,046.50
c. 13.01 ft- 20.00 ft	Per Hole		$2,113.95	
d. Over 20.00 ft	Per Hole		$3,382.32	
3. Unit Rates (not otherwise included above)				
a. Designating	Per Hour		$112.93	
b. Locating	Per Hour	12	$108.09	$1,297.08
c. Surveying	At cost			$1,600.00
d. Records Research	Per Hour		$123.72	
e. CADD	Per Hour		$83.18	
f. Professional Surveyor/Engineer	Per Hour		$202.55	
g. Principal	Per Hour			
h. GPR	Per day		$3,000.00	
	Per day		$800.00	
4. Direct Costs				
a. Project Manager Mileage	Per Mile		$0.52	
b. Per Diem	Per day/room		$35.00	
c. Hotel	Per day/room		$103.00	
d. Mailing	Each		At Cost	$20.00
e. Permit Fees	Each		At Cost	$500.00
f. Copies	Each		At Cost	$20.00
5. Miscellaneous Costs				
a. Vacuum Excavation Truck - Mobilization	Each	1	$500.00	$500.00
b. Designating Vehicle - Mobilization	Each	1	$200.00	$200.00
c. Traffic Control Vehicle	Each			
d. MOT (Professional Service Provider)	Per day	3	$800.00	$2,400.00
TOTALS				$30,075.58

CTL Engineering, Inc.
2860 Fisher Road, P.O. Box 44548, Columbus, Ohio 43204-3538
Phone: 614/276-8123; Fax: 614/276-6377
Email: ctl@ctleng.com

AN EMPLOYEE OWNED COMPANY

CTL ENGINEERING

Consulting Engineers • Testing • Inspection Services • Analytical Laboratories

Established 1927

July 12, 2017

American Structurepoint
2550 Corporate Exchange Drive, Suite 300
Columbus, Ohio 43231

Attention: Mr. Anthony J. Lenhart, P.E.
Project Manager, Transportation

Reference: Proposal for Roadway Exploration
Proposed Roundabout – Phase 3
PID No. 103173
Massillon Road
Green, Ohio
CTL Proposal No. 17050145COLP

Dear Mr. Lenhart:

CTL Engineering, Inc. is pleased to submit the following cost proposal to provide geotechnical engineering services for the above referenced project.

Project Description

The project involves the construction of a new roundabout at the intersection of State Route 241 (Massillon Road) and Boettler Road/Franks Parkway in Green, Ohio. At the time that this proposal was prepared, few details about the proposed project were available. However, it is understood that a retaining wall may be needed east of the State Route 241 near the northern terminus of the project. It is assumed that the retaining wall height will be less than 7.5 feet high, with an exposed height not exceeding 3.5 to 4 feet.

Scope of Work

Field Testing

The scope of work will involve performing five (5) roadway borings, and one (1) retaining wall boring. The roadway borings will be extended to depths of 10 feet, the retaining wall boring will be drilled to a depth of 20 feet each.

For the roadway borings, continuous split spoon sampling will be performed in the upper 7 feet, and an additional sample will be collected from a depth of 8.5 to 10.0 feet. For the retaining wall boring, split spoon samples will be collected at 2.5 foot intervals throughout the drilled depth. Upon completion of drilling, the borings will be backfilled with soil cuttings or sealed.

It is assumed that access to the boring south of the intersection will require clearing some brush. We have included the cost for clearing in the estimated fee. It is assumed that CTL will be provided written permission to enter the private property, in the event that this boring is on private property.

For the borings drilled through the pavement, traffic control consisting of signs, cones and an arrow board will be required to divert traffic around our work zone. We have included the cost of the traffic control in the estimated fee. CTL Engineering will contact OUPS and OGPUPS to have utilities marked in the area of the proposed borings.

CTL will layout the test borings prior to drilling. Upon completion of drilling, it is assumed that American Structurepoint personnel will arrange to have the boring locations surveyed in and they will provide CTL Engineering with the boring survey data.

Based upon our experience with similar projects, it is expected that the field testing will take about 1 day to complete.

Laboratory Testing

The recovered soil samples will be visually described in the field and laboratory and tested for natural moisture content. Representative soil samples will be subjected to additional laboratory testing including hand penetrometer, grain size analysis and Atterberg limits. Representative samples from the roadway borings will be subjected to sulfate testing.

Roadway Exploration Report

CTL will prepare a roadway exploration report. The report will address geological and geotechnical concerns and address specific design features for the project. These design features will include preparing recommendations for subgrade improvements and an estimated CBR value. It is understood that pavement thickness design will be performed by others.

Structure Foundation Exploration Report

CTL will prepare a structure foundation exploration report. The report will address geological and geotechnical concerns and address specific design features for the project. These design features will include preparing recommendations for retaining wall bearing resistance, sliding, limiting eccentricity and global slope stability.

Combined Soil Profile/Structure Foundation Exploration Sheets

Combined Soil Profile/Structure Foundation Exploration sheets will be prepared for this project per ODOT requirements.

Estimated Cost

Detailed breakdowns of the associated costs for these explorations are provided on the attached ODOT style spreadsheets. CTL Engineering, Inc. proposes to furnish all services, tools, labor, materials, supplies, equipment, machinery, facilities, transportation, deliveries, and incidentals necessary for the performance of all the work for a Net Fee of $838.00, and a Total Maximum Fee of $16,183.00. The Overhead rates used in the computation is the ODOT approved O.H. rate.

Closing

We appreciate the opportunity to submit this proposal and look forward to working with you on this project. If you have any questions, please contact us.

Respectfully submitted,

CTL Engineering, Inc.

Joe Grani, P.E.
Manager, Geotechnical Services

Boring Schedule

Boring No.	Boring Type	Estimated Total Depth (feet)	Estimated Soil Depth (feet)	Estimated Rock Depth (feet)
B-001-0-17	A/B	10	10	0
B-002-0-17	E3a	20	20	0
B-003-0-17	A/B	10	10	0
B-011-0-17	A/B	10	10	0
B-012-0-17	A/B	10	10	0
B-013-0-17	A/B	10	10	0
Totals		70	70	0

PROPOSAL
for the
GEOTECHNICAL EXPLORATION

Massilon Rd Roundabout - Phase 3

103173

5 roadway borings & 1 retaining wall borings with Report - Combned Soil Profile/SFE sheets

CTL Engineering, Inc.

Prepared By: **Joe Grani, P.E.**

Date prepared: **July 12, 2017**

CTL Engineering, Inc.
2860 Fisher Road
Columbus, OH 43204

(614) 276-8123
jgrani@ctleng.com

GEOTECHNICAL EXPLORATION PROPOSAL — **COST SUMMARY**

C/R/S :	Massilon Rd Roundabout - Phase 3	Overhead Percentage =	183.53%
PID NO.:	103173	ODOT Statewide Percentage for Net Fee =	151.58%
CONSULTANT:	CTL Engineering, Inc.	Net Fee Percentage =	11.00%
DATE:	July 12, 2017	Cost of Money =	2.57%

Task		Hourly Rate	Total Hours	Direct Labor Costs	Overhead Costs	Cost of Money	Other Direct Costs	Subcon. Costs	Net Fee	Total Cost	Percent of Total Cost
RECONNAISSANCE AND PLANNING											
Office Reconnaissance		$59.00	1	$59	$108	$2			$16	$185	
Field Reconnaissance		$58.50	6	$351	$644	$9			$97	$1,101	
Exploration Plan		$41.25	4	$165	$303	$4	$125	$0	$46	$643	
	Subtotal	**$52.27** Avg. Rate	**11**	**$575**	**$1,055**	**$15**	**$125**	**$0**	**$159**	**$1,929**	12%
FIELD COORDINATION											
Field Coordination		$44.00	9	$396	$727	$10	$125		$110	$1,368	8%
Logging (if drilling is subcontracted)		$0.00	0	$0	$0	$0	$0		$0	$0	0%
	Subtotal	**$44.00** Avg. Rate	**9**	**$396**	**$727**	**$10**	**$125**		**$110**	**$1,368**	
FIELD EXPLORATION											
	Subtotal							**$0**		**$3,565**	22%
LABORATORY TESTING											
	Subtotal							**$0**		**$2,875**	18%
GEOTECHNICAL EXPLORATION REPORT											
Subgrade and Roadway		$35.24	41	$1,445	$2,652	$37	$0	$0	$400	$4,534	
Bridge		$0.00	0	$0	$0	$0		$0	$0	$0	
Other Structures (retaining wall)		$38.06	16	$609	$1,118	$16		$0	$169	$1,912	
Geohazard (describe)		$0.00	0	$0	$0	$0		$0	$0	$0	
	Subtotal	**$36.04** Avg. Rate	**57**	**$2,054**	**$3,770**	**$53**	**$0**	**$0**	**$569**	**$6,446**	40%
											Cost per foot
GRAND TOTAL ALL PARTS	**Total**	**$39.29** Avg. Rate	**77**	**$3,025**	**$5,552**	**$78**	**$250**	**$0**	**$838**	**$16,183**	$231

GEOTECHNICAL EXPLORATION PROPOSAL **LABOR HOURS**

C/R/S : **Massilon Rd Roundabout - Phase 3**

PID NO.: **103173**

CONSULTANT: **CTL Engineering, Inc.**

DATE: **July 12, 2017**

HOURLY RATES

Personnel Category	Salary Rate
Manager, P.E.	$58.50
Project Engineer, P.E.	$58.50
Staff Engineer	$41.50
CADD Technician	$31.25
Field Supervisor	$30.00
Technician	$19.00
Geologist	$30.00
Secretary	$17.50

HOURS BY PERSONNEL CATEGORY

Task		Manager	Project Engineer	Staff Engineer	CADD Technician	Field Supervisor	Technician	Geologist	Secretary	Total Hours	Labor Costs
RECONNAISSANCE AND PLANNING											
Office Reconnaissance		1	0	0	0	0	0	0	0	1	$59
Field Reconnaissance		6	0	0	0	0	0	0	0	6	$351
Exploration Plan		2	0	0	0	1	0	0	1	4	$165
	Subtotal	9	0	0	0	1	0	0	1	11	$575
FIELD COORDINATION											
Field Coordination		2	0	6	0	1	0	0	0	9	$396
Logging (if drilling is subcontracted)		0	0	0	0	0	0	0	0	0	$0
	Subtotal	2	0	6	0	1	0	0	0	9	$396
GEOTECHNICAL EXPLORATION REPORT											
Subgrade and Roadway		1	4	8	24	0	0	0	4	41	$1,445
Bridge		0	0	0	0	0	0	0	0	0	$0
Other Structures (retaining wall)		1	2	4	8	0	0	0	1	16	$609
Geohazard (describe)		0	0	0	0	0	0	0	0	0	$0
	Subtotal	2	6	12	32	0	0	0	5	57	$2,054
LABOR TOTAL ALL PARTS	**Total**	13	6	18	32	2	0	0	6	77	$3,025

GEOTECHNICAL EXPLORATION PROPOSAL **FIELD EXPLORATION**

C/R/S: Massillon Rd Roundabout - Phase 3

PID NO.: 103173

CONSULTANT: CTL Engineering, Inc.

DATE: July 12, 2017

Task	Quantity	Unit	Unit Cost	Cost	Task Description
Mobilization/Demobilization	1	lump	$1,200.00	$1,200	Getting the necessary equipment and personnel to and from the project site. Includes crew travel time and mileage to and from the site, at the start and upon completion.
			Subtotal	$1,200	
Traffic Maintenance					Describe each traffic control set-up, as referenced in the Ohio Manual of Uniform Traffic Control Devices, by the Typical Application No. Includes all flaggers, law enforcement, per-diem, mileage, and equipment and personnel to set-up, maintain, and tear down traffic control zones
Typical Application No.	Arrowboard				
	1	days	$650.00	$650	
Typical Application No.					
	0	days		$0	
Railroad Traffic Control		days		$0	
			Subtotal	$650	
Subsurface Exploration					Includes all necessary equipment, materials, and personnel to move equipment and crew between borings, set-up, drill, sample, supply water, perform visual descriptions of rock samples, prepare field logs, backfill borehole, and contain, preserve and transport samples. All drilling footage measured from the ground surface or the bottom of the body of water, as applicable.
Hand Sampling					Includes all equipment and personnel to excavate, sample, log and backfill each hand sampling method
Method Description					
		feet		$0	
Method Description					
		feet		$0	
Test Pits		each		$0	Includes all equipment and personnel to excavate, sample, log and backfill test pit
Pavement/Bridge Deck Coring					Includes all equipment, personnel, and material to core and patch pavement/bridge deck and either handle or dispose of core.
Core Diameter		in.			
		each		$0	
Core Diameter		in.			
		each		$0	
Truck/ATV/Trailer Mounted Rotary Drilling					Includes all methods of rotary drilling on land, except skid rig
Number of Drill Rig Days	1	days			
Total Soil Footage (ft)	70	70 ft/day			
Total Rock Footage (ft)	0	0 ft/day			
No Sampling		feet	$15.00	$0	
5-ft SPT		feet	$19.00	$0	
2.5-ft SPT	35	feet	$19.00	$665	
Continuous SPT	35	feet	$22.00	$770	
Undisturbed Samples	0	each	$100.00	$0	Includes press, preservation, transport, and extraction, minimum 50% recovery
Rock Coring	0	feet	$60.00	$0	
Permanent Borehole Sealing	0	feet	$8.00	$0	
Skid Drilling					
Number of Drill Rig Days		days			
Total Soil Footage (ft)	0	0 ft/day			
Total Rock Footage (ft)	0	0 ft/day			
No Sampling		feet		$0	
5-ft SPT		feet		$0	
2.5-ft SPT		feet		$0	
Continuous SPT		feet		$0	
Undisturbed Samples		each		$0	Includes press, preservation, transport, and extraction, minimum 50% recovery
Rock Coring		feet		$0	
Permanent Borehole Sealing		feet		$0	
Barge Drilling					
Number of Drill Rig Days		days			
Total Soil Footage (ft)	0	0 ft/day			
Total Rock Footage (ft)	0	0 ft/day			
5-ft SPT		feet		$0	
2.5-ft SPT		feet		$0	
Continuous SPT		feet		$0	
Undisturbed Samples		each		$0	Includes press, preservation, transport, and extraction, minimum 50% recovery
Rock Coring		feet		$0	
Permanent Borehole Sealing		feet		$0	
Barge		days		$0	Includes all costs associated with barge drilling access (permits, spuds, safety equipment, boats, tugs, etc.)
Other Exploratory Methods					CPT, DCP, Geophysical, etc. Propose a daily rate to include all costs associated with performing the described exploratory method.
Method Description					
		days		$0	
Method Description					
		days		$0	
In-situ Testing					Includes all mobilization/demobilization, equipment, material, labor, travel, per diem, calibration, and data reduction
Test:					
		days		$0	
Test:					
		days		$0	
Installation/Reading of Geotechnical Instruments					Excludes cost of drilling - present above. Includes all material and labor for installation
Open Standpipe Piezometer		feet		$0	
Monitoring Well		feet		$0	
Inclinometer		feet		$0	
Misc (describe)					pneumatic or vibrating wire piezometers, strain gages, extensometers, TDR cable, etc.
		each		$0	
Instrument Readings		trips		$0	Includes all equipment, material, labor, travel, per diem, calibration, and data reduction
			Subtotal	$1,435	
Direct Costs					
Drill Crew Meals and Lodging	1	night	$280.00	$280	
Other (describe)				$0	
			Subtotal	$280	
FIELD EXPLORATION TOTAL ALL PARTS			Total	$3,565	

GEOTECHNICAL EXPLORATION PROPOSAL **LABORATORY TESTING**

C/R/S : **Massilon Rd Roundabout - Phase 3**

PID NO.: **103173**

CONSULTANT: **CTL Engineering, Inc.**

DATE: **July 12, 2017**

	Test	Test Method AASHTO	Test Method ASTM	Quantity	Unit	Unit Cost	Cost	Remarks
Soil Testing								
	Complete Classification	Multiple	Multiple	13	each	$160	$2,080	Includes Visual Description per SGE Section 602, T265, T88, T89, T90
	Water Content Test and Visual Description	T265	D2216	25	each	$12	$300	Visual Description per SGE Section 602
	Particle Size Analysis - Sieve Only	T88	D422	0	each	$57	$0	As modified per SGE Section 603.3
	Particle Size Analysis - Sieve and 2-hour Hydrometer	T88	D422	0	each	$88	$0	As modified per SGE Section 603.3
	Liquid Limit Test	T89	D4318	0	each	$40	$0	As modified per SGE Section 603.3
	Plastic Limit Test	T90	D4318	0	each	$37	$0	As modified per SGE Section 603.3
	Organic Content by Loss on Ignition	T267	D2974	0	each	$50	$0	
	Soil Unconfined Compression Test	T208	D2166	0	each	$78	$0	
	Unconsolidated-Undrained Triaxial Compression Test	T296	D2850	0	1 point	$183	$0	
	Consolidated-Undrained Triaxial Compression Test (with pore pressure measurement)	T297	D4767	0	3 points	$930	$0	
	One-Dimensional Consolidation Test	T216	D2435	0	each	$500	$0	
	Specific Gravity Test	T100	D854	0	each	$63	$0	
	Direct Shear Test	T236	D3080	0	3 points	$510	$0	
	Sulfate Content in Soils, Colorimetric Method	TEX-145-E	NA	5	each	$99	$495	Identify the test and test method for any tests not listed above
	Misc. (identify test)			0			$0	Identify the test and test method for any tests not listed above
	Misc. (identify test)			0			$0	Identify the test and test method for any tests not listed above
					Subtotal		**$2,875**	
Rock Testing								
	Unconfined Compressive Strength of Intact Rock Core Specimen	NA	D7012, Method C	0	each	$96	$0	
	Slake Durability of Shales and Similar Weak Rocks	NA	D4644	0	each	$222	$0	
	Determination of the Point Load Strength Index of Rock	NA	D5731	0	each	$64	$0	
	Elastic Moduli of Intact Rock Core Specimens in Uniaxial Compression	NA	D7012, Method D	0	each	$229	$0	
	Misc. (identify test)			0			$0	Identify the test and test method for any tests not listed above
	Misc. (identify test)			0			$0	Identify the test and test method for any tests not listed above
	Misc. (identify test)			0			$0	Identify the test and test method for any tests not listed above
					Subtotal		**$0**	
LABORATORY TESTING TOTAL ALL PARTS					**Total**		**$2,875**	

GEOTECHNICAL EXPLORATION PROPOSAL **DIRECT COSTS**

C/R/S : **Massilon Rd Roundabout - Phase 3**

PID NO.: **103173**

CONSULTANT: **CTL Engineering, Inc.**

DATE: **July 12, 2017**

Task	Quantity	Unit	Unit Cost	Cost
RECONNAISSANCE AND PLANNING				
Mileage	240	miles	$0.52	$124.80
(describe)	0		$0.00	$0.00
(describe)	0		$0.00	$0.00
			Subtotal	**$124.80**
FIELD COORDINATION				
Field Coordination				
Meals and Lodging	0	day	$0.00	$0.00
Mileage	240	mile	$0.52	$124.80
Permits	0	each	$0.00	$0.00
Dozer and Operator (site access and restoration)	0	hour	$175.00	$0.00
Site Restoration (not including Dozer)	0	site	$125.00	$0.00
Railroad Permits	0	each	$0.00	$0.00
Other (describe)	0		$0.00	$0.00
Other (describe)	0		$0.00	$0.00
			Subtotal	$124.80
Logging (if drilling is subcontracted)				
Meals and Lodging	0	day	$0.00	$0.00
Mileage	0	mile	$0.52	$0.00
Other (describe)	0		$0.00	$0.00
			Subtotal	$0.00
			Subtotal	**$124.80**
GEOTECHNICAL EXPLORATION REPORT				
(describe)	0		$0.00	$0.00
(describe)	0		$0.00	$0.00
			Subtotal	**$0.00**
DIRECT COSTS TOTAL ALL PARTS			**Total**	**$249.60**

Environmental Design Group

CORPORATE
450 Grant Street / Akron, OH 44311
P 330.375.1390 / F 330.375.1590
TF 800.835.1390

CLEVELAND OFFICE
2800 Euclid Ave, Suite 509
Cleveland, Ohio 44115

COLUMBUS OFFICE
580 N. Fourth Street, Suite 220
Columbus, Ohio 43215

envdesignqroup.com

SCOPE CLARIFICATIONS

Phase 3 – Massillon Road/Boettler Road RAB/Franks Boulevard
American Structurepoint
October 25, 2017 - Revised

Clarifications to our work tasks are as follows:

2.3.A – Field Survey

1. Existing base map and base files will be utilized for the project. The files will be converted from AutoCAD to MicroStation. Base map will be provided in DGN format using ODOT level library and cells. The base map will include a surface (.tin). The survey limits from the original study apply to the final design. EDG will perform field survey for the areas that have changed since the original survey was completed. This includes the right turn lane addition on Massillon Road at Boettler Road. Other areas of survey will result in a contract modification.

2. Subsurface utility information will be provided to EDG as MicroStation files. EDG will incorporate SUE information into the base map.

3. Two base map files will be provided to American Structurepoint; one for field survey and one for existing right-of-way lines, property lines, and property owners.

2.6.A – Public Involvement

1. Includes attendance at one public involvement meeting and addressing questions (comments regarding EDG's design elements).

2.7.A – Roadway

1. Site/civil design does not include retaining walls.

2.7.B – Drainage

1. Drainage design includes spread calculations and pipe sizing.

3.3.F – Lighting

1. Assumes LED ornamental lighting will be utilized. Match style utilized on section north of I-77.

3.3.J – Utilities

1. Includes coordination with Aqua Ohio Water and Summit County Department of Sanitary Sewer Services.

2. Other utility coordination is excluded.

3.4 – Right-of-Way Plans

1. Plans are based on 6 parcels impacted.
2. Appraisals, negotiations and recordings are excluded.

4.6 – Pre-Bid Activities

1. No bidding services are included.

5.1 – Construction Phase

1. No construction services are included.

IF AUTHORIZED – Phase 1 Archaeological Survey and Report

1. The fee only includes the level of effort for a Phase 1 Report. If OHPO requires a Level 2 or 3 investigation, this will be an additional service.

	$238.00	$183.00	$143.00	$111.00	$96.00	$89.00	$79.50	$175.00	$175.00
rmini									
gh)									
2 - Project Initiation Package	0	0	0	0		0	0	0	0
is									
Intersections - No Build									
s and Ramps - No Build									
on									
lition									
Data, Research and Analysis	0	0	0	0		0	0	0	0
Involvement Plan									
Stakeholder Involvement and Public Involvement Plan	0	0	0	0		0	0	0	0
hase									
agement for Planning Phase	0	0	0	0		0	0	0	0
g Phase	0	0	0	0	0	0	0	0	0
ase									
Study Report									

/Architecture Survey								
Environmental Field Studies	0	0	0	0	0	0	0	0
and Reference Points							1	2
							1	2
/.)						40	12	22
, & ownerships on base map					2	6	12	12
							8	
ical Profile - Mainline								
ns (LD-35)				1				
rm sewer trunk lines			6	20				
				12	1			
treams, & other regulated								
mitigation								
Bid Justification - Lighting			2					
vestigation								
e Analysis								
ıt MOTAA)								
nentation								
]								
for retaining walls								
cels								
ception								
TOTAL 2.3 - AER Design	0	0	8	33	3	46	34	38

				12	12				
mpacts				22	32				
			3	12	34				
			12	38					
				22	12				
nentation									
and/or sewer work									
(SUE)									
eets									
eport									
ance analysis									
nd subsurface drainage									
pdate Milestones									
			6	12	3				
			6	12					
s									
TOTAL - 2.7 - Stage 1 Design	0	0	27	130	93	0	0	0	
Engineering Phase									
		12							

ry/Architecture Survey

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ental Justice Issues
onceptual Survey
y Listed Species

ments
from Railway

Inventory Report
sment

rdination

Studies and Refined Impacts	0	0	0	0	0	0	0	0

pacts	6	22	56
	2	12	32
		12	12
		4	2
) - Adding Temporary		6	12
) - MOT Drainage		12	

(Modification of Existing or									
lacement									
s									
ation									
s and Earthwork									
ils									
etails - Temporary Drive									
s - Plan Insert Sheets									
			12	6					
nd Details			12	2		22			
ails			22	12		42			
			12	2					
			8	2					
				56			12		
				22			12		
nentation									
			6	22		32			
				6		12			
			6	22		32			
ation and Report									
TOTAL 3.3 - Stage2	0	0	86	220		254	24	0	0
ew								12	
							8	6	
							8	6	
							12	6	
f Way							12	6	
							44	8	
e Calculations				6				8	
nate								6	
								6	
							8	2	
Owners				2				2	
appropriate documents									
								2	4

ltigation Plans Coordination	0	0	0	0		0	0	0	0
Milestone									
			6	12		6			
imates and Revise Milestone	0	0	6	12		6	0	0	0
ntal Engineering Phase									
		12		12					
		14							
3.9 - Project Management for onmental Engineering Phase	0	26	0	12		0	0	0	0
mental Engineering Phase	0	26	92	252	0	260	116	70	4
Phase									
			6	16		22			
nmary									
ıry									
			6	12		6			
			6	12		6			
			2	6		2			
reway Details (if included on									
			22	6		12			
			6	18		22			

Milestone									
			3	6		3			
imates and Revise Milestone	0	0	3	6		3	0	0	0
Documentation			3	12		12			
4.4 - Final Plan Package	0	0	3	12		12	0	0	0
eering and Right of Way									
		12							
		14							
al Engineering and Right of Way Phase	0	26	0	0		0	0	0	0
OTAL 4.6 - Pre-Bid Activities	0	0	0	0		0	0	0	0
- Final Engineering Phase	0	28	70	120	0	135	0	0	0
ction									
ruction									
rvices during Construction	0	0	0	0		0	0	0	0
TAL - Construction Phase	0	0	0	0	0	0	0	0	0
UTHORIZED PARTS BLES	0	92	209	535	0	503	162	104	42
GRAND TOTAL	0	92	209	535	0	503	162	104	42

2310 Parklake Drive NE
Suite 390
Atlanta, GA 30345
Tel: (678) 335-6084
www.msa-ps.com

October 27, 2017

Anthony J. Lenhart, PE
Project Manager, Transportation
AMERICAN STRUCTUREPOINT, INC.
2550 Corporate Exchange Drive, Suite 300
Columbus, OH 43231

Dear Mr. Lenhart:

RE: Roundabout Review Services – City of Green Corporate Square Phase 3 – Massillon Road at Franks Parkway/Boettler Road
Ourston Proposal No. 19054001

Thank you for your invitation to submit a proposal to provide roundabout review services to American Structurepoint, Inc. (Structurepoint) for the above-captioned project. We understand that our role is primarily to validate and/or adjust the designs that you have prepared in concept. Our retainer will end at a stage where the final horizontal geometry is complete.

TASK 1: Roundabout Operational Analysis (Massillon Road Corridor of two roundabouts) **Fee: $4,595**

- Review the operational analysis of the corridor of two roundabouts; the Corporate Woods Circle/Thorn Drive and the Franks Parkway/Boettler Road intersections at Massillon Road. We will review AM and PM peak hour forecasted traffic volumes for both roundabouts under this Phase 3 assignment using Arcady and HCM capacity analysis software packages. We can provide residual capacity prediction for staged expandability.
- Review VISSIM simulation models for input parameters and assumptions to validate the corridor level analysis of two roundabouts.
- Attend up to two (2) teleconference meetings with Structurepoint staff to kick-off the project, discuss design criteria, data collection, project constraints, and schedule. The second meeting will be to discuss initial findings of the operational analysis review.
- Ourston will prepare an operational analysis report that summarizes the traffic analysis conclusions and lane configuration recommendations for the Phase 2 and Phase 3 roundabouts.

TASK 2: Roundabout Preliminary Design Review (One Roundabout) **Fee: $4,080**

- Ourston will review preliminary roundabout horizontal geometrics for functionality considerations (NCHRP 672, Chapter 6) and staged expandability. Our comments will be redline and CAD based. We have budgeted sufficiently to allow for exploration of changes in circle location and alignment of approaches.
- Attend up to two (2) teleconference meetings with Structurepoint staff to discuss Structurepoint's concept design and our redlines.

The following files are needed to review the preliminary roundabout design:

- Digital aerial photos and available topographic survey file(s) – showing existing roadway curbs, right-of-way, easements, and property lines
- Potential utility conflicts (public and franchised utilities)

2310 Parklake Drive NE
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www.msa-ps.com

- Alignment files (roadway centerlines)
- Preliminary paving files (roadway back of curb or face of curb mid-block beyond the limits of the proposed roundabout tie-ins)
- Roundabout paving geometries (curbs, truck aprons, and crosswalks)

We propose services based on our hourly rates not to exceed **Eight Thousand Six Hundred and Seventy-five Dollars ($8,675.00)** in accordance with the above scope for services.

Kind Regards,
MSA Professional Services, Inc. dba Ourston

Mark Lenters
Principal, Roundabout Practice Leader
678-335-6084

Amanda DeAmico, PE
Project Manager
608-216-2060

Appendix D – Project Schedule

Phase 3 Schedule			
Milestone	Begin Date	Completion Date	Days
Notice to proceed	4/2/2018		
Environmental Document	4/2/2018	8/2/2019	487
Field Survey and Basemap	4/2/2018	5/18/2018	46
Traffic Analysis	4/2/2018	6/1/2018	60
Preliminary Studies	5/21/2018	6/29/2018	39
Preliminary Studies Review	7/2/2018	7/20/2018	18
Initial Utility Coordination	7/23/2018	7/27/2018	4
Public Meeting	7/23/2018	7/27/2018	4
Stage 1 Design	7/23/2018	1/11/2019	172
Conceptual Right-of-Way	12/3/2018	1/11/2019	39
Stage 1 Review by City of Green/ODOT	1/14/2019	3/1/2019	46
Stage 2 Design	3/4/2019	8/23/2019	172
Preliminary Right of Way Design	3/4/2019	5/31/2019	88
Public Meeting	5/13/2019	5/17/2019	4
Preliminary Right of Way Review	6/3/2019	6/28/2019	25
Final Right of Way Design	7/1/2019	8/23/2019	53
Environmental Document Review	8/5/2019	10/4/2019	60
Stage 2 Review by City of Green/ODOT	8/26/2019	10/11/2019	46
Final Right of Way Review	8/26/2019	10/11/2019	46
Environmental Document Approval	10/14/2019		
Utility Coordination Meeting	10/14/2019	10/18/2019	4
Right-of-Way Tracings	10/14/2019	11/1/2019	18
Stage 3 Design	10/14/2019	4/3/2020	172
Right-of-Way Acquisition	11/4/2019	11/30/2020	392
Stage 3 Review by City of Green/ODOT	4/6/2020	5/22/2020	46
Final Tracings/Bid Document	5/25/2020	1/1/2021	221
Utilities Relocate	1/7/2021	7/1/2021	175
Award Bid	5/1/2021		
Construction	7/1/2021	12/1/2022	518