

RESOLUTION NO. 09-2023

A RESOLUTION OF THE CITY COUNCIL OF CLINTON, MISSOURI APPROVING AN AGREEMENT BETWEEN THE CITY OF CLINTON (CITY) AND CJW TRANSPORTATION CONSULTANTS, LLC (CJW).

WHEREAS, City wishes to enter into an Agreement with CJW for professional design and bid services for the extension of Commerce Drive; and

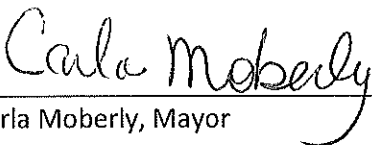
WHEREAS, CJW is qualified to complete the project;

NOW THEREFORE BE IT HEREBY RESOLVED BY THE CITY COUNCIL OF CLINTON, MISSOURI AS FOLLOWS:

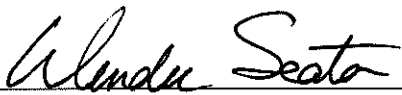
**Section 1.** The Agreement with CJW Transportation Consultants, LLC, not to exceed \$38,668.00 (Exhibit A), is hereby approved.

**Section 2.** The City Administrator is hereby authorized to execute said Agreement on behalf of the City of Clinton.

Read and passed this 20<sup>th</sup> day of June, 2023.

  
Carla Moberly, Mayor

ATTEST

  
Wendee Seaton, City Clerk



**SHORT FORM OF AGREEMENT  
BETWEEN OWNER AND ENGINEER  
FOR  
PROFESSIONAL SERVICES**

THIS IS AN AGREEMENT effective as of \_\_\_\_\_ (“Effective Date”) between  
\_\_\_\_\_ (“Owner”)  
City of Clinton

and

\_\_\_\_\_ (“Engineer”).  
CJW Transportation Consultants, LLC

Owner's Project, of which Engineer's services under this Agreement are a part, is generally identified as follows:

\_\_\_\_\_ (“Project”).  
Box Culvert Improvement Design

Engineer's Services under this Agreement are generally identified as follows:

**Task 1. Meeting and Coordination** – CJW will work closely with staff and other stakeholders to maintain communication throughout the duration of the project including obtaining input, providing progress updates, and discussing relevant design and construction issues. CJW will provide coordination with key stakeholders such as reviewing agencies and other parties having an interest in the project. This task includes preparation of meeting agendas and preparation of minutes following the meeting. The following meetings are anticipated.

- a. **Kickoff Meeting** – CJW will attend kickoff meeting with City of Clinton.
- b. **Coordination Meeting** – CJW will schedule and attend a coordination meeting with City of Clinton to discuss the design project. It is anticipated that one coordination meeting will occur following City of Clinton 65% review and 95% review.

**Task 2. Data Acquisition** – CJW will acquire relevant background data from various sources including but not limited to the following items:

- a. 1" = 100' aerial photography
- b. 1" = 100' topographic maps
- c. Utility maps for water, sewer, overhead electric, etc.
- d. City of Clinton standard contract documents
- e. City/MODOT Design details
- f. Relevant GIS files
- g. Other relevant background data as available

**Task 3. Topographic Survey** – CJW will perform topographic survey using in-house personnel and equipment. It is anticipated that the survey will include a complete ROW topo to approximately 300 feet either side of the Box Culvert along W. Commerce Dr. The survey may include additional areas in and around the proposed structure. Relevant surface features will be surveyed horizontally and vertically. This includes above and below ground observed public and private utilities, trees, fences, etc. Public utility

structures will also be accessed and pipe sizes, invert elevations, flow directions, materials, etc. will be measured from the surface. property corners will also be referenced.

**Task 4. Utility Coordination** – CJW will list contacts from utility companies (telephone, gas, electric, cable, etc.). CJW will coordinate with the contacts to verify utility locations and depths. The task also includes coordination with the City of Clinton.

**Task 5. Preliminary Plans** – Data from the data acquisition, topographic survey, and utility coordination tasks will be downloaded and compiled into our AutoCAD based system to produce base plans of existing conditions. Profiles along anticipated alignments will also be produced. Base plan and profile sheets will be plotted (1 inch = 20 feet) and provided to City of Clinton and utility companies for review and verification of facilities.

**Task 6. Geotechnical Analysis** – It is anticipated that four soil borings at a depth of 15' will be taken within the project limits. Boring locations are planned to be within the road rights-of-way. Soil sampling will also be obtained. This task is included to prepare the PE certification needed to construct the project.

**Task 7. Wetland Delineation** – CJW will delineate wetlands downstream of the Box Culvert Improvement. This will include the area within the downstream and through the channel to approximately 500 feet. The purpose of the delineation will be to show that the indirect impacts of the replacement Box Culvert will not adversely impact the downstream wetlands.

**Task 8. Hydrologic and Hydraulic Analysis** – The required hydrologic/hydraulic analysis for this project is to illustrate a no rise condition. This task and analysis must be compiled into a report form and prepared by a professional engineer.

**Task 9. 60% Plans, Specifications, and Estimates (PS & E)** – This task includes the preparation of PS & E (60%) for the Box Culvert improvement. It is anticipated that plans will include the following:

- a. Cover Sheet and Location Map
- b. General Notes and Typical Sections
- c. Summary of Quantities and Schedule of Quantities
- d. Alignment, Ties, and Benchmarks
- e. Traffic Control Plans and Details
- f. Plan and Profile Sheets
- g. Utility Plans
- h. Storm Water Pollution Prevention Plans
- i. Restoration Plans
- j. Construction Details
- k. Cost Estimate

This task includes the preparation of specifications and an engineer's opinion of probable construction cost. In conjunction with the submittal of the plan set the consultant will perform a value engineering to identify cost saving measures prior to developing the 95% plans.

**Task 10. Permitting** – CJW will work with the City of Clinton to obtain the permits needed to construct the project.

**Task 11. Structural Design** – CJW will provide structural design for the project consistent with the standard specifications and plan requirements of the City of Clinton or MoDOT.

**Task 12. 100% Plans, Specifications and Estimates (PS & E)** – This task includes the preparation of PS & E (100%) for the Box Culvert Project. It is anticipated that the plans will include the following sheets:

- a. Cover Sheet and Location Map
- b. General Notes and Typical Sections
- c. Summary of Quantities and Schedule of Quantities
- d. Alignment, Ties, and Benchmarks
- e. Traffic Control Plans and Details
- f. Plan and Profile Sheets
- g. Utility Plans
- h. Stormwater Pollution Prevention Plans
- i. Restoration Plans
- j. Construction Details
- k. Cost Estimate

This task includes the preparation of specifications and final engineer's opinion of probable construction cost.

**Task 13. Bidding Assistance** – It is anticipated that the project will be advertised for bid. Consultant will provide bidding assistance for the project. This work will include answering bidder questions, attendance at a pre-bid meeting, preparation of addenda as required, and recommendations for award of the construction contract.

### **PROJECT DELIVERABLES**

All Plans, Specifications, Estimates, Alternate Evaluations and Calculations will be provided in .pdf format. All design work will be performed using the ACAD DWG drawing platform and supplemented with Microsoft Office Programs.

See detailed task breakout of services & exhibits for Construction Inspection and Material Testing Services

Owner and Engineer further agree as follows:

#### *12.01 Basic Agreement and Period of Service*

- A. Engineer shall provide, or cause to be provided, the services set forth in this Agreement. If authorized by Owner, or if required because of changes in the Project, Engineer shall furnish services in addition to those set forth above. Owner shall pay Engineer for its services as set forth in Paragraphs 7.01 and 7.02.
- B. Engineer shall complete its services within a reasonable time.

#### *13.01 Payment Procedures*

- A. *Invoices:* Engineer shall prepare invoices in accordance with its standard invoicing practices and submit the invoices to Owner on a monthly basis. Invoices are due and payable within 30 days of receipt. If Owner fails to make any payment due Engineer for services and expenses within 30 days after receipt of Engineer's invoice, then the amounts due Engineer will be increased at the rate of 1.0% per month (or the maximum rate of interest permitted by law, if less) from said thirtieth day. In addition, Engineer may, after

giving seven days written notice to Owner, suspend services under this Agreement until Engineer has been paid in full all amounts due for services, expenses, and other related charges. Owner waives any and all claims against Engineer for any such suspension. Payments will be credited first to interest and then to principal.

14.01 *Termination*

- A. The obligation to continue performance under this Agreement may be terminated:
1. For cause,
    - a. By either party upon 30 days written notice in the event of substantial failure by the other party to perform in accordance with the Agreement's terms through no fault of the terminating party. Failure to pay Engineer for its services is a substantial failure to perform and a basis for termination.
    - b. By Engineer:
      - 1) upon seven days written notice if Owner demands that Engineer furnish or perform services contrary to Engineer's responsibilities as a licensed professional; or
      - 2) upon seven days written notice if the Engineer's services for the Project are delayed for more than 90 days for reasons beyond Engineer's control.

Engineer shall have no liability to Owner on account of a termination by Engineer under Paragraph 3.01.A.1.b.

  - c. Notwithstanding the foregoing, this Agreement will not terminate as a result of a substantial failure under Paragraph 3.01.A.1.a if the party receiving such notice begins, within seven days of receipt of such notice, to correct its substantial failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of notice; provided, however, that if and to the extent such substantial failure cannot be reasonably cured within such 30 day period, and if such party has diligently attempted to cure the same and thereafter continues diligently to cure the same, then the cure period provided for herein shall extend up to, but in no case more than, 60 days after the date of receipt of the notice.
2. For convenience, by Owner effective upon Engineer's receipt of written notice from Owner.
- B. The terminating party under Paragraph 3.01.A may set the effective date of termination at a time up to 30 days later than otherwise provided to allow Engineer to complete tasks whose value would otherwise be lost, to prepare notes as to the status of completed and uncompleted tasks, and to assemble Project materials in orderly files.
- C. In the event of any termination under Paragraph 3.01, Engineer will be entitled to invoice Owner and to receive full payment for all services performed or furnished in accordance with this Agreement and all reimbursable expenses incurred through the effective date of termination.

15.01 *Successors, Assigns, and Beneficiaries*

- A. Owner and Engineer are hereby bound and the successors, executors, administrators, and legal representatives of Owner and Engineer (and to the extent permitted by Paragraph 4.01.B the assigns of Owner and Engineer) are hereby bound to the other party to this Agreement and to the successors, executors, administrators, and legal representatives (and said assigns) of such other party, in respect of all covenants, agreements, and obligations of this Agreement.
- B. Neither Owner nor Engineer may assign, sublet, or transfer any rights under or interest (including, but without limitation, moneys that are due or may become due) in this Agreement without the written consent of the other, except to the extent that any assignment, subletting, or transfer is mandated or restricted by law. Unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under this Agreement.
- C. Unless expressly provided otherwise, nothing in this Agreement shall be construed to create, impose, or give rise to any duty owed by Owner or Engineer to any contractor, subcontractor, supplier, other individual or entity, or to any surety for or employee of any of them. All duties and responsibilities undertaken pursuant to this Agreement will be for the sole and exclusive benefit of Owner and Engineer and not for the benefit of any other party.

16.01 *General Considerations*

- A. The standard of care for all professional engineering and related services performed or furnished by Engineer under this Agreement will be the care and skill ordinarily used by members of the subject profession practicing under similar circumstances at the same time and in the same locality. Engineer makes no warranties, express or implied, under this Agreement or otherwise, in connection with Engineer's services. Subject to the foregoing standard of care, Engineer and its consultants may use or rely upon design elements and information ordinarily or customarily furnished by others, including, but not limited to, specialty contractors, manufacturers, suppliers, and the publishers of technical standards.
- B. Engineer shall not at any time supervise, direct, control, or have authority over any contractor's work, nor shall Engineer have authority over or be responsible for the means, methods, techniques, sequences, or procedures of construction selected or used by any contractor, or the safety precautions and programs incident thereto, for security or safety at the Project site, nor for any failure of a contractor to comply with laws and regulations applicable to such contractor's furnishing and performing of its work.
- C. This Agreement is to be governed by the law of the state or jurisdiction in which the Project is located.
- D. Engineer neither guarantees the performance of any contractor nor assumes responsibility for any contractor's failure to furnish and perform its work in accordance with the contract between Owner and such contractor. Engineer is not responsible for variations between actual construction bids or costs and Engineer's opinions or estimates regarding construction costs.
- E. Engineer shall not be responsible for the acts or omissions of any contractor, subcontractor, or supplier, or of any of their agents or employees or of any other persons (except

Engineer's own employees) at the Project site or otherwise furnishing or performing any construction work; or for any decision made regarding the construction contract requirements, or any application, interpretation, or clarification of the construction contract other than those made by Engineer.

- F. All documents prepared or furnished by Engineer are instruments of service, and Engineer retains an ownership and property interest (including the copyright and the right of reuse) in such documents, whether or not the Project is completed. Owner shall have a limited license to use the documents on the Project, extensions of the Project, and for related uses of the Owner, subject to receipt by Engineer of full payment for all services relating to preparation of the documents and subject to the following limitations: (1) Owner acknowledges that such documents are not intended or represented to be suitable for use on the Project unless completed by Engineer, or for use or reuse by Owner or others on extensions of the Project, on any other project, or for any other use or purpose, without written verification or adaptation by Engineer; (2) any such use or reuse, or any modification of the documents, without written verification, completion, or adaptation by Engineer, as appropriate for the specific purpose intended, will be at Owner's sole risk and without liability or legal exposure to Engineer or to its officers, directors, members, partners, agents, employees, and consultants; (3) Owner shall indemnify and hold harmless Engineer and its officers, directors, members, partners, agents, employees, and consultants from all claims, damages, losses, and expenses, including attorneys' fees, arising out of or resulting from any use, reuse, or modification of the documents without written verification, completion, or adaptation by Engineer; and (4) such limited license to Owner shall not create any rights in third parties.
- G. To the fullest extent permitted by law, Owner and Engineer (1) waive against each other, and the other's employees, officers, directors, agents, insurers, partners, and consultants, any and all claims for or entitlement to indirect, or consequential damages arising out of, resulting from, or related to the Project, and (2) agree that Engineer's total liability to Owner under this Agreement shall be limited to Engineer's applicable limit of professional liability and applicable umbrella coverage.
- H. The parties acknowledge that Engineer's scope of services does not include any services related to a Hazardous Environmental Condition (the presence of asbestos, PCBs, petroleum, hazardous substances or waste as defined by the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq., or radioactive materials). If Engineer or any other party encounters a Hazardous Environmental Condition, Engineer may, at its option and without liability for consequential or any other damages, suspend performance of services on the portion of the Project affected thereby until Owner: (1) retains appropriate specialist consultants or contractors to identify and, as appropriate, abate, remediate, or remove the Hazardous Environmental Condition; and (2) warrants that the Site is in full compliance with applicable Laws and Regulations.
- I. Owner and Engineer agree to negotiate each dispute between them in good faith during the 30 days after notice of dispute. If negotiations are unsuccessful in resolving the dispute, then the dispute shall be mediated. If mediation is unsuccessful, then the parties may exercise their rights at law.
- J. Engineer shall, by sworn affidavit and provision of documentation, affirm its enrollment and participation in E-Verify, a federal work authorization program, with respect to the employees working in connection to the contracted services. Engineer shall sign and

submit the affidavit affirming that it does not and will not knowingly employ any person who is an unauthorized alien in connection to the contracted services.

17.01 *Total Agreement*

- A. This Agreement (including any expressly incorporated attachments), constitutes the entire agreement between Owner and Engineer and supersedes all prior written or oral understandings. This Agreement may only be amended, supplemented, modified, or canceled by a duly executed written instrument.

12.01 *Basis of Payment—Hourly Rates Plus Reimbursable Expenses*

Using the procedures set forth in Paragraph 2.01, Owner shall pay Engineer as follows:

CJW Tasks		
Task 1.0	Project Meetings/Coordination	\$1,260
Task 2.0	Data Acquisition/Field Review	\$880
Task 3.0	Topographical Survey	\$4,460
Task 4.0	Utility Coordination	\$1,450
Task 5.0	Preliminary Design (30%)	\$6,255
Task 6.0	Geotechnical Analysis	\$5,188
Task 7.0	Wetland Delineation	\$1,165
Task 8.0	Hydrologic/Hydraulic Analysis	\$4,130
Task 9.0	Right of Way / Easements (60%)	\$2,240
Task 10.0	Permitting	\$1,350
Task 11.0	Structural Design	\$2,760
Task 12.0	Final Design Plan (95% & 100%)	\$5,030
Task 13.0	Bidding Assistance	\$1,262
	Direct Costs	\$1,238
<b>Roadway/Box Culvert Subtotal</b>		<b>\$38,668</b>

- I. The total compensation for services and reimbursable expenses of this addendum shall not exceed **\$38,668.00**

7.02 *Additional Services:* For additional services of Engineer’s employees engaged directly on the Project, Owner shall pay Engineer an amount equal to the cumulative hours charged to the Project by each class of Engineer’s employees times standard hourly rates for each applicable billing class; plus, reimbursable expenses and Engineer’s consultants’ charges, if any. Engineer’s standard hourly rates are attached as Appendix 1.

Attachments: Scope of Services, Conceptual Exhibits, Hourly Rates, Task Breakout, Certificate of Insurance, E-Verify Information

IN WITNESS WHEREOF, the parties hereto have executed this Agreement, the Effective Date of which is indicated on page 1.

OWNER: City of Clinton

By: Christina A. Maggi  
Christy Maggi, Project Representative

Title: City Administrator

Date Signed: 06/21/2023

Address for giving notices:

105 E. Ohio

Clinton, Missouri 64735

\_\_\_\_\_

\_\_\_\_\_

ENGINEER: CJW Transportation Consultants, LLC

By: C. Jay Wynn  
C. Jay Wynn, PE, PTOE

Title: CEO/Owner

Date Signed: 6-14-23

Engineer License or Firm's Certificate  
Number: 027249

State of: Missouri

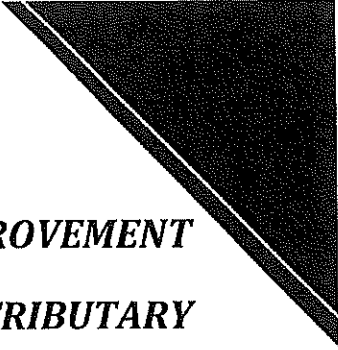
Address for giving notices:

5051 S. National Avenue, Suite 7A

Springfield, Missouri 65810

\_\_\_\_\_

\_\_\_\_\_



***CJW # 23083 BOX CULVERT IMPROVEMENT  
OVER UNNAMED TRIBUTARY  
GERHART INDUSTRIAL PARK***

***CLINTON, MO***

***DESIGN COST ESTIMATES,  
PRELIMINARY CONSTRUCTION COST ESTIMATE,  
DESIGN SCOPE OF SERVICES,***

**Prepared for:**

Christy A. Maggi  
City Administrator  
City of Clinton, MO  
105 E. Ohio  
Clinton, MO64735

**In Care of:**

T. Williams  
Street Department Superintendent  
City of Clinton, MO  
801 E. Sedalia Street  
Clinton, MO 64735

**June 13, 2023**

**PREPARED BY:**



**CJW #23083 Box Culvert Improvements  
Gerhart Industrial Park  
CLINTON, MO  
HENRY COUNTY**

**EXECUTIVE SUMMARY**

This project includes preliminary and final Box Culvert design for the proposed box culvert located in the Gerhart Industrial Park in Clinton, MO. The scope of work includes the box culvert and associated roadway sections, topographical surveying, permitting, right-of-way clearance, oversight of all geotechnical work and construction inspection services.

This Scope of Work document includes a detailed breakdown of all task, the cost of each task, along with an estimated timeline for completing the design of the new structure as well as the advertising and letting of the project.

CJW will oversee all aspects of the Box Culvert/roadway design, stormwater and wetland analysis, as well as handle all permits. CJW will also assist with the project letting and project bidding.

The proposed structure is a double cell box culvert (each cell is 5' x 9') with approximately 960.0 sq. ft. of deck area, 36 feet of concrete abutment, 16 feet of masonry abutment, and two (2) wing masonry wing walls.

Final box culvert design will include detailed plans and specifications, and JSPs for project, in accordance with the City of Clinton or MoDOT standards.

This project will be done in coordination with the City of Clinton and is consistent with local planning goals and objectives. Throughout the design process, opportunities for agency coordination will be provided to gather input on the design and construction phases. When possible, plan review meetings will be held using teleconference or web meetings to reduce travel time and costs for agencies.

Preliminary costs are estimated at \$422,344 which includes project design, construction, and inspection costs.

**DESIGN COST ESTIMATE**

<b>CJW Tasks</b>		
Task 1.0	Project Meetings/Coordination	\$1,260
Task 2.0	Data Acquisition/Field Review	\$880
Task 3.0	Topographical Survey	\$4,460
Task 4.0	Utility Coordination	\$1,450
Task 5.0	Preliminary Design (30%)	\$6,255
Task 6.0	Geotechnical Analysis	\$5,188

Task 7.0	Wetland Delineation	\$1,165
Task 8.0	Hydrologic/Hydraulic Analysis	\$ 4,130
Task 9.0	Right of Way / Easements (60%)	\$2,240
Task 10.0	Permitting	\$1,350
Task 11.0	Structural Design	\$2,760
Task 12.0	Final Design Plan (95% & 100%)	\$ 5,030
Task 13.0	Bidding Assistance	\$1,262
	Direct Costs	\$1,238
<b>Roadway/Box Culvert Subtotal</b>		<b>\$38,668</b>

## SCHEDULE

Proposed milestones and submittal dates:

- Notice to Proceed – June 2023
- Preliminary Roadway/Box Culvert Plans – July 2023
- Final Roadway & Box Culvert Plans and Specifications (unstamped) – August 2023
- Final Roadway & Box Culvert Plans and Specifications (signed and sealed) – September 2023
- Project Letting – September 2023

Note: Construction inspection services **IS** included in the Box Culvert construction costs shown below.

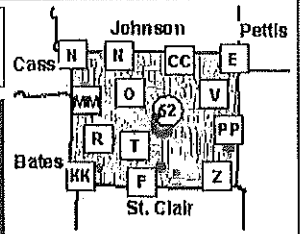
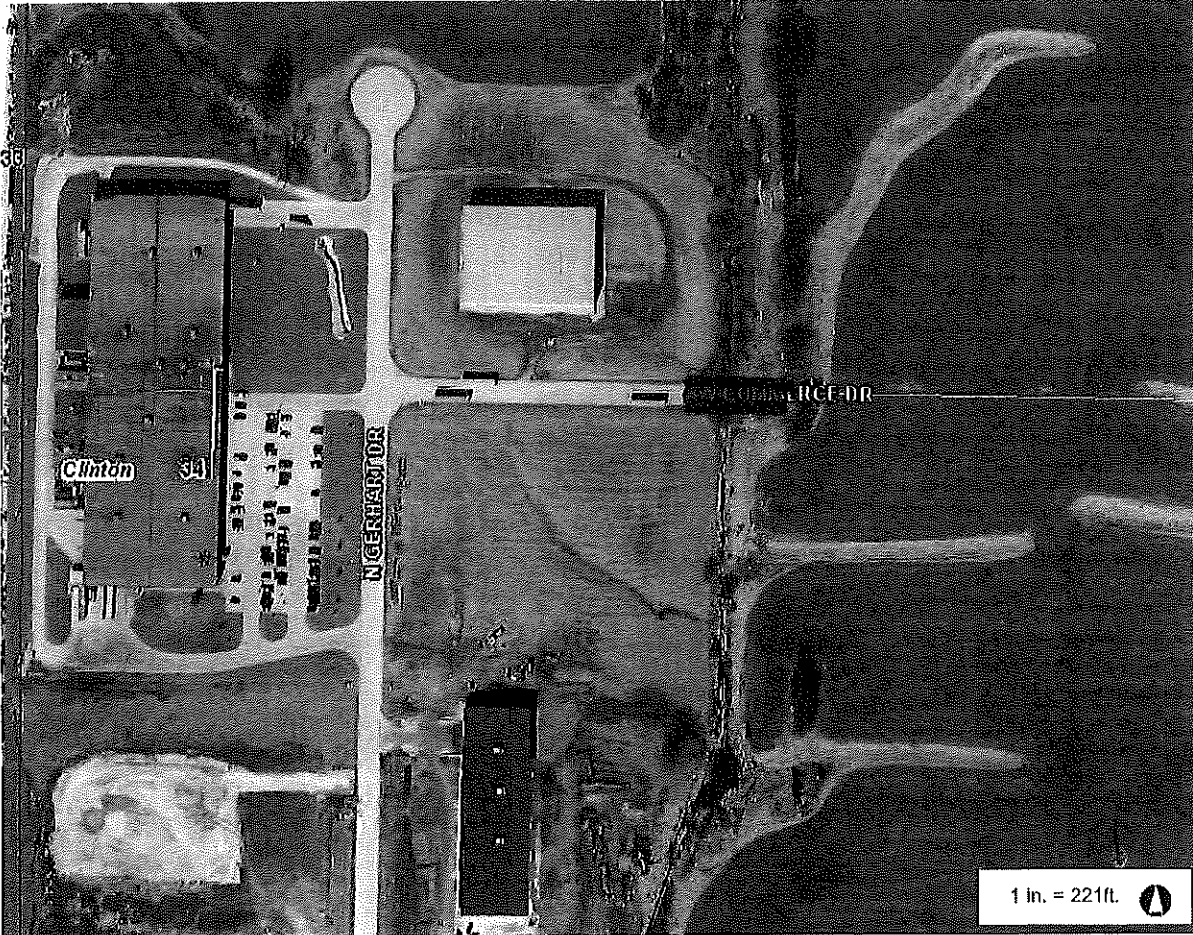
## PRELIMINARY CONSTRUCTION COST ESTIMATE

Preliminary Estimate		
Section A	General	\$12,500
Section B	Removals	\$10,000
Section C	Roadway Grading	\$15,200
Section D	Pavement, Fencing, etc.	\$49,075
Section E	Excavation, Embankment, etc.	\$20,794
Section F	Box Culvert	\$226,000
Section G	Contingency (10%)	\$33,357
<b>Construction Improvements Total</b>		<b>\$366,926</b>
<b>Design Services Total</b>		<b>38,668</b>


<b>Construction Inspection Services Total</b>	<b>\$16,750</b>
<b>Grand Total – Construction &amp; Design</b>	<b>\$422,344</b>

Note: This cost estimate is an opinion of probable construction costs based on engineering experience using values that are current and reasonable at time estimate was created. Because CJW Transportation Consultants have no control over the cost of labor, materials, equipment, or services furnished by others, the actual construction costs will vary from the opinion. Final costs are dependent on approved construction plans and receiving actual bids from contractors. This cost estimate is subject to final design considerations and governing agency requirements at time of construction.

# Gerhart Industrial Park - Commerce Dr. Extension



- Legend**
- BLL
  - Corporate Limit
  - Surrounding Counties
  - Kaly Trail
  - Road
    - <all other values>
    - STATE NUMBERED HIGHWAY
    - STATE LETTERED HIGHWAY
  - Railroad

1 in. = 221ft. 

441.0      0      220.50      441.0 Feet

This Cadastral Map is for informational purposes only. It does not purport to represent a property boundary survey of the parcels shown and shall not be used for conveyances or the establishment of property boundaries.  
THIS MAP IS NOT TO BE USED FOR NAVIGATION

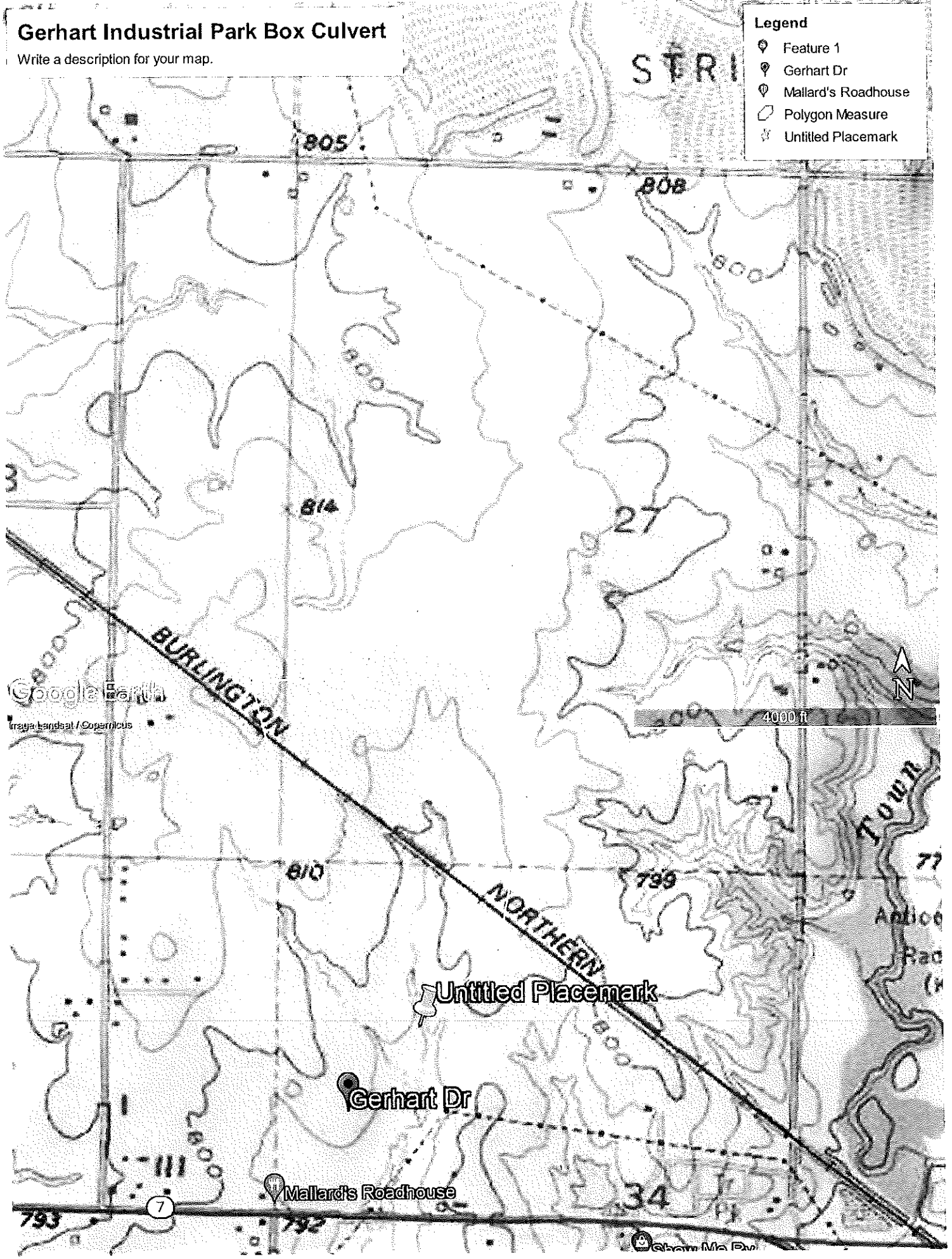
**Notes**

# Gerhart Industrial Park Box Culvert

Write a description for your map.

**Legend**

- Feature 1
- Gerhart Dr
- Mallard's Roadhouse
- Polygon Measure
- Untitled Placemark



**Project Name: Gerhart Dr. and Commerce Dr. Box Culvert**

Time of Concentration (Kirpich Equation)

$$T_c = 0.0078[L/(S)^{.5}]^{.77}$$

L (ft) = Distance from design point to watershed divide

S (ft/ft) = Slope measured along "L"

L =	3326
S =	0.0084

Note: Shaded Cells are Input

T<sub>c</sub> = 25.3 min

NOTE: If time of concentration is less than 5 minutes, use five minutes

$$Q \text{ (cfs)} = C I A$$

C = Runoff Coefficients

I (in/hr) = Rainfall Intensity

A(ac) = Contributing Area, total area upstream of the design point or directly connected impervious area.

	2-yr	10-yr	25-yr	100-yr
C =	0.70			
I(in/hr) =	3.08	4.32	5.12	6.4
A(ac) =	100			
<b>Q(cfs) =</b>	<b>215.6</b>	<b>302.4</b>	<b>358.4</b>	<b>448.0</b>

# Culvert Report

## Box Culvert

Invert Elev Dn (ft) = 100.00  
 Pipe Length (ft) = 40.00  
 Slope (%) = 0.50  
 Invert Elev Up (ft) = 100.20  
 Rise (in) = 60.0  
 Shape = Box  
 Span (in) = 108.0  
 No. Barrels = 2  
 n-Value = 0.012  
 Culvert Type = Flared Wingwalls  
 Culvert Entrance = 30D to 75D wingwall flares  
 Coeff. K,M,c,Y,k = 0.026, 1, 0.0347, 0.81, 0.4

### Embankment

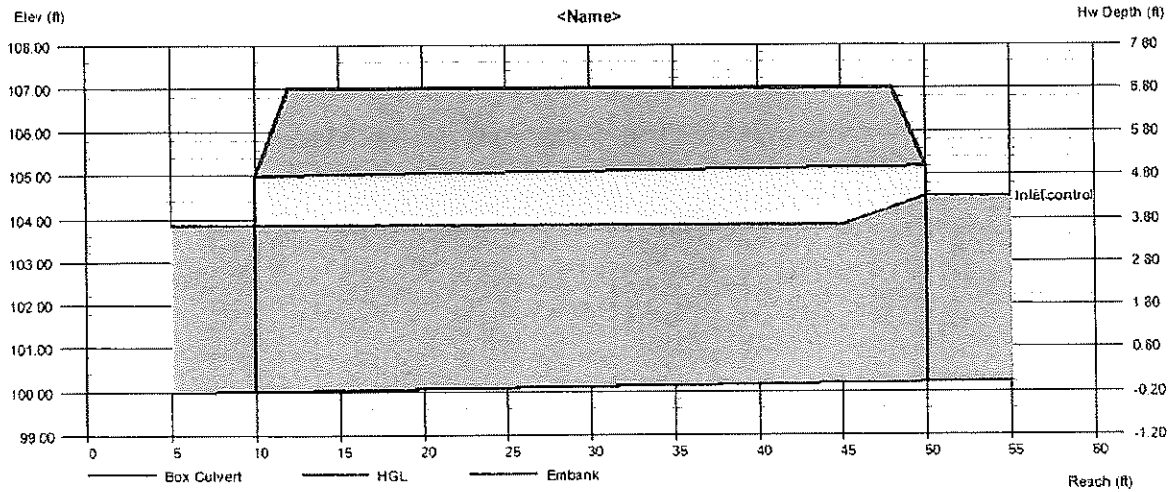
Top Elevation (ft) = 107.00  
 Top Width (ft) = 36.00  
 Crest Width (ft) = 100.00

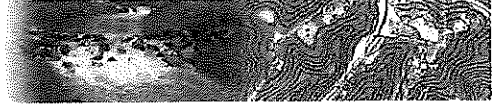
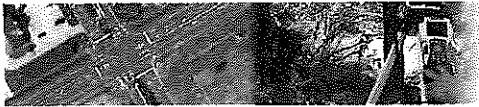
### Calculations

Qmin (cfs) = 450.00  
 Qmax (cfs) = 500.00  
 Tailwater Elev (ft) = (dc+D)/2

### Highlighted

Qtotal (cfs) = 450.00  
 Qpipe (cfs) = 450.00  
 Qovertop (cfs) = 0.00  
 Veloc Dn (ft/s) = 6.51  
 Veloc Up (ft/s) = 6.86  
 HGL Dn (ft) = 103.84  
 HGL Up (ft) = 103.84  
 Hw Elev (ft) = 104.51  
 Hw/D (ft) = 0.86  
 Flow Regime = Inlet Control





# CJW

## 2023 Fee Schedule

Personnel Hourly Rates:

Principal	\$187.00
Senior Engineer	\$165.00
Project Engineer	\$119.00
Project Manager	\$115.00
Engineer Intern	\$87.00
Inspector	\$82.00
Senior Designer	\$92.00
Senior Designer II	\$86.00
Survey Manager / PLS	\$97.00
Survey Crew Chief	\$80.00
Survey Crew Member	\$66.00
2 Person Survey Crew	\$146.00
Traffic Data Collector	\$33.00
Engineering Technician	\$69.00
Administrator	\$38.00
Clerical	\$33.00

Expenses and Equipment Charges:

Vehicle (3/4 ton or less)	\$0.655/mile
Copies	\$0.10/each
Blueprints	\$0.55/sq. ft.
Real Time GPS Equipment	\$275.00/day
Robotic Prism-Less Instrument	\$215.00/day
Drone Usage	\$300.00/hour

**Reimbursable:** Travel Expenses, Outside Printing, Sub-Contractor Expenses

**Overtime (Over 8 hours a day, 40 hours a week, Saturdays, Sundays, and Holidays):**

1.5 times the hourly rate

