January 10, 2014

Travis Underhill, P. E.
City Engineer, City of Franklin
70 E. Monroe Street
Franklin, Indiana 46131

RE: Greenways Corridor Design
Supplemental Fee Request

Dear Travis:

As we have discussed, we are requesting approval of Supplemental Agreement No. 5 to our existing contract. This supplemental agreement is precipitated by the relinquishment of SR 44 from INDOT to the City and covers various preliminary engineering, right of way engineering, and right of way acquisition services required. The project limits on SR 44 are from 0.25 miles west of US 31, eastward through the City, to Eastview Drive. The professional services will be performed in accordance with FHWA and INDOT guidelines and requirements and are described in the attached Description of Anticipated Work Elements. Following the description of work elements is a Fee Schedule that presents each service, the proposed fee budget for that service, and the basis of payment.

We will utilize subconsultants to perform some of the services. All of these firms will be INDOT prequalified to perform these services, and all of them will be firms with whom we have worked previously. The functions expected to be performed by subconsultants include Section 106 Environmental Documentation, Phase I Environmental Site Assessment, Landscape Architectural Services, Geotechnical Investigation, Pavement Section Design, Title Research, Appraising, and Buying services.

Attached is the proposed Supplemental Agreement No. 5 for your review. If you should have any questions or need any further information, please do not hesitate to call me or Trent Newport.

Sincerely,

CrossRoad Engineers, PC

Chip Charles, P. E.
President

3417 Sherman Drive ■ Beech Grove, Indiana 46107 ■ Tel 317·780·1555 ■ Fax 317·780·6525

# DESCRIPTION OF ANTICIPATED WORK ELEMENTS

**Supplemental Field Survey** – Much of the topographic survey was completed as a function of the Greenways Corridor Design project. However, the proposed improvements to SR 44 will require additional data to be collected. Most of this effort will be within the limits of the existing pavement and will primarily focus on the existing drainage system and utilities. In addition, pavement replacement will require additional survey on all connecting streets as compared to the original survey. Upon the completion of the field work, we will establish all section lines, right-of-way lines, and property lines per deeds and platted subdivisions; complete all survey line work; generate the TIN surface model and also create one foot interval contours; and add all relative survey notes to the drawings. A Route Survey Plat will be prepared in accordance with Section 865 of the Indiana Administrative Code.

**Environmental Document Preparation - CE** – This task includes the services necessary to complete the environmental documentation required by the National Environmental Policy Act (NEPA) and other pertinent and applicable laws and regulations. It is assumed that a Level 2 Categorical Exclusion document will be required. Included is the early coordination with the various regulatory agencies that is required. In order to satisfy the Section 106 documentation requirements, several analyses will be performed, including an archaeological records check and an historical / architectural records check. It is assumed that no more than one Phase 1 Environmental Site Assessment (one site) will be required.

**Engineering Assessment Report** – This work includes the reconnaissance and reporting of the capacities and conditions of the existing storm sewer infrastructure as well as the traffic count analysis of the intersections within the project scope limits. Following the field and office work described below, a formal Engineering Assessment Report will be generated and distributed for review, discussion, and implementation. The goal of the overall assessment is to identify areas within the project limits that require improvements and/or modifications to meet the City's future needs. Remediation alternatives, along with corresponding preliminary engineer's estimates will be presented.

Stormwater Assessment: Field investigations will be performed to inventory the major components of the storm drainage infrastructure which are anticipated to be impacted by the project. A report of the storm network will be generated which will identify size, type, location (plan and elevation), and condition of the existing infrastructure. Analysis will be performed to determine contributing watersheds of the respective facilities and following the City of Franklin's current storm water design standards, the required capacities of storm sewers and culverts within the limits of the project. Previously generated storm water reports with information pertinent to the limits of this project will be reviewed and incorporated into the assessment as needed. Those sections of storm drainage infrastructure requiring remediation for condition, capacity, or both will be highlighted and a construction estimate for necessary improvements will be created for budgetary purposes.

Traffic Analysis: Peak hour turning movement counts will be collected and capacity analysis performed at the intersection of Home Avenue and Jefferson Street. The capacity analysis will include the existing condition and up to two proposed alternatives.

**Road Design & Plan Preparation** – In general, this task involves the preparation of design plans and bidding documents to allow the selected alternative presented in the Engineering Assessment Report to be constructed. In order to facilitate desired construction scheduling or available funding, the project may be subdivided into as many as four design plan phases, if requested by the City. All of this work will be performed in accordance with FHWA, INDOT and City of Franklin guidelines and standards. Additionally, INDOT's LPA process will be followed. In an effort to keep the City as informed and involved as possible, and in an effort to get interim INDOT approvals as the project develops, submittals will include Stage 1 Plans, Stage 2 Plans, Stage 3 Plans, and Tracings. This task also includes the development of construction plans for the proposed street lighting, including the sizing and layout of the wiring plan, as well as design modifications of existing traffic signals, or design of new traffic signals within the project limits as determined by the Engineering Assessment Report. Included at the appropriate stages will be design computations, hydraulic calculations, quantity computations, and special provisions. Cost estimates will also be prepared, and as the project development progresses, these cost estimates will be updated.

**Intersection Improvements @ SR 44 & Eastview Drive** – This task includes professional services necessary to design the intersection improvements for the selected alternative presented in the Engineering Assessment Report. Included will be the geometric design, signing, lighting, and pavement marking layout of the proposed intersection improvements. This work will be performed in accordance with FHWA, INDOT and City of Franklin guidelines and standards. This information will then be included within the design plans and bidding documents that will be developed under the Road Design & Plan Preparation task.

**Landscape Design & Plan Preparation** – These services will consist of preparing schematic designs and construction plans. These plans will incorporate elements and standards specified within the 2009 *Gateways, Greenways and Redevelopment Study.* Included will be the redefinition of the right of way areas, including the sidewalk / urban trail area, upgraded lighting fixtures, trees, commercial areas, residential areas, crosswalks / curb ramps, and ornamental landscaping as described in the attached proposal from Remenschneider Associates, Inc.

**Utility Coordination** – This work will follow the current INDOT process for federally funded projects. Included will be research to discover all of the utilities located within the project limits. We will coordinate with the representatives from each of those utility companies though the development of the project. We will communicate any relocation of facilities that may be needed and then review the relocation plans that the utility companies prepare. We will prepare the reimbursable agreements for the affected utility companies and review their proposed reimbursable relocation costs. This task does not include work associated with field locating the vertical depth of any utilities. Although not anticipated, since the utilities should perform this work on their own, if any 'potholing' of facilities will be required, this service will be performed separately and is not included.

**Public Hearing Requirements / Public Information Meetings** – Although there are federal public hearing requirements that must be met, an official public hearing may not be required. Regardless, we propose holding a total of two (2) public meetings. These meetings will provide a forum for sharing project information between all stakeholders. One public meeting will be held during the design phase and will include satisfying the public hearing requirements, if required. The second will be held just prior to the start of construction. The costs that are presented for this effort include preparation for the meetings as well as attendance at the meetings by CrossRoad personnel. It is expected that the City will provide a facility for holding the meetings as well as a transcript of the public hearing proceedings if one is required.

**Regulatory Submittals** – This task includes the preparation of the necessary applications for submittal, review, and approval of the construction plans prepared as part of this project. This task will also include the coordination efforts with the applicable regulatory agencies. These agencies include the Johnson County Soil and Water Conservation for Storm Water Pollution Prevention Plan (SWPPP) review and approval; and IDEM for Rule 5 approval.

**Geotechnical Evaluation** – Patriot Engineering and Environmental will perform a geotechnical engineering investigation and the pavement design for this project. Please see the attached proposal for the detailed scope of work and estimated fee.

**Right of Way Engineering** – This work will include the preparation of right of way plans, property plats, and legal descriptions for those right of way parcels that need to be acquired for the project. This effort also includes a 20 year title research for the permanent right of way to be acquired.

**Right of Way Acquisition Services** – This work includes the management and all of the activities necessary to procure the required parcels of right of way. These activities include the appraisal problem analyses, the appraisals, appraisal reviews, buying of right of way, and right of way management. It also includes a title update and title insurance commensurate with the offer amount. Transfer documents will be prepared and recorded. If requested, the proposed right of way will be field staked.

# Fee Schedule

The work, as outlined in "Description of Anticipated Work Elements", will be invoiced as work is performed in accordance with the following fee schedule. Note that all fees are lump sum unless otherwise indicated.

| | | |
|---|---|---|
| Supplemental Field Survey | $43,700 | |
| Engineering Assessment Report | $31,900 | |
| Road Design & Plan Preparation | $544,000 | |
| Intersection Improvements @ SR 44 & Eastview Drive | $29,400 | |
| Landscape Design & Plan Preparation | $119,750 | [1] |
| Utility Coordination | $38,400 | |
| Public Hearing / Public Information Meetings (Total of 2 meetings) | $10,400 | |
| Regulatory Submittals | $27,300 | [2] |
| Environmental Document Preparation – CE Level 2 | $63,200 | [3] |
| Geotechnical Evaluation (Unit Price, see attached proposal) | $45,600 | [4] |
| **Subtotal Preliminary Engineering Tasks** | **$953,650** | |
| Preliminary T & E Reports – Permanent Parcels (15 @ $600 each) | $9,000 | [4] |
| Last Deeds of Record – Temporary Parcels (15 @ $150 each) | $2,250 | [4] |
| Right of Way Engineering (30 parcels @ $1,200 each) | $36,000 | |
| Right of Way Plats (15 parcels @ $500 each) | $7,500 | |
| Right of Way Legal Descriptions (30 parcels @ $600 each) | $18,000 | |
| **Subtotal R/W Plan Development & Title Research (Estimated)** | **$72,750** | |
| **TOTAL Preliminary Engineering & R/W Engineering** | **$1,026,400** | |
| R/W Acquisition Services (Unit Price, see attached spreadsheet) | $196,700 | [5] |
| **TOTAL R/W Acquisition Services** | **$196,700** | |

[1] This is a subcontracted work element and the cost shown here is based upon the assumptions listed in the attached fee proposal from Remenschneider Associates, Inc.

[2] This amount includes an anticipated amount for the payment of fees/costs to procure permits from the variously affected agencies such as Rule 5 permit application fees, or NOI Advertisement costs.

[3] A portion of this work is subcontracted and the cost shown here is based upon the assumptions listed in the attached fee proposals from Patriot Engineering and Environmental, Inc. and from Green 3, LLC.

[4] This is a subcontracted item and the fee shown here is estimated. The final cost will consist of the actual invoiced amounts from the subcontractor plus a 10% mark-up for task coordination and administrative efforts.

[5] A portion of this work will be subcontracted and the fee shown here is estimated. These subcontracted amounts will consist of the actual invoiced amounts from the subcontractor plus a 10% mark-up for task coordination and administrative efforts. The total amount is estimated and will depend upon the actual number of parcels of right of way required.

PROJECT: JEFFERSON STREET CORRIDOR IMPROVEMENTS – US 31 to EASTVIEW DRIVE
LOCATION: FRANKLIN, INDIANA
DATE: JANUARY 7, 2014

Remenschneider Associates, Inc. (RAI) is pleased to provide this scope of services to CrossRoad Engineers (CRE) for landscape architectural services for Jefferson Street corridor improvements from approximately 1500 feet east of US 31 to Eastview Drive.

Our firm will coordinate with the project design team, led by CrossRoad Engineers, to prepare schematic designs and construction plans per the scope of work outlined below. The schematic design plans will, upon the City's request, incorporate elements and standards specified within the North Main Street corridor as well as the recent downtown streetscape enhancement project. Following acceptance of design concepts, RAI will prepare construction drawings for non-vehicular related hardscape elements and ornamental landscape plantings.

Three (3) design review meetings and appropriate cost estimates have also been programmed.

**SCOPE OF WORK**

***Phase I – Project Initiation / Schematic Design***

A. CAD base drawings downloaded / reviewed / prepared
B. Coordination with project design team and client to further understand:
    1. Budget
    2. Determination of Site elements
C. Preparation of corridor schematic design plans to include the following elements:
    1. Street trees within corridors east and west of downtown
        a. Existing tree identification and assessment (and/or review of Davey Tree's assessment)
        b. Proposed new locations and species
    2. Path / trail design outside of downtown
    3. Lighting design throughout corridor
        a. Lighting locations and spacing
        b. Conduit routing to minimize impact on existing trees
    4. US 31 intersection design
        a. Incorporation of desired pedestrian elements
        b. ROW needs coordination with CRE
    5. Retaining wall design immediately west of downtown, north side of street
        a. Location and layout
        b. Proposed materials
    6. Downtown small-scale gateway monument design
        a. Art panel information
        b. Location
    7. Downtown streetscape
        a. Sidewalk design / coordination with CRE
        b. Site appurtenances locations
        c. Green spaces design / landscape

Stutz Building / 212 W. 10th Street, Suite B435 / Indianapolis, IN 46202
phone: (317) 955-9060 fax: (317) 955-9061
www.remenschneider.com

d. Upgraded signal pole, mast arm design

8. King St median design
9. Green infrastructure bioswales within side ditches on King St

D. Design review meeting with applicable City staff

***Deliverables:***

(1 qty) Schematic Design Concept Master Plan with CAD linework
(2 qty) Client meetings

***Phase II – Construction Documents and Specifications***

Work to be performed within this phase includes preparation of landscape architectural construction drawings and coordination with civil engineering. This work will be based upon selected schematic design elements.

A. Design coordination with CrossRoad Engineers
   1. Design grades for feature areas
   2. Crosswalk striping patterns
   3. Lighting location placement and conduit routing; service points by others
   4. Tree protection
   6. Sidewalk decorative score pattern with feature area detailing
   7. Site appurtenances specifications and locations
   8. Right-of-way acquisition needs
B. Site hardscape construction plans including:
   1. Material selections
   2. Typical masonry sections and details
   3. Construction specifications
C. Landscape planting plans including:
   1. Planting installation details
   2. Plant material specifications
      a. Species botanical and common name
      b. Installation size
      c. Quantity
   3. Installation specifications
D. Prepare estimate of probable site work costs for Phase II Section B and C listed above
E. Completion of construction drawings

***Deliverables:***

(1 qty) Landscape Architectural construction drawing set (24" x 36") with necessary plans & details listed above for INDOT submittals
(1 qty) Estimate of probable site work costs
(1 qty) Design review coordination meetings

**PROFESSIONAL FEES**

Professional services as described in the scope of work outlined above are listed below:

| | | | |
|---|---|---|---|
| **Phase I:** | Project Initiation / Schematic Design | $ | 45,500.00 |
| **Phase II:** | Construction Documents and Specifications | $ | 74,250.00 |

The above fees total $ 119,750.00 through completion of Phase II and will proceed per authorization of this proposal. Professional services will be billed on a monthly complete basis. All invoices are due upon receipt and

1.5% interest will be charged per month for any invoices not paid within 45 days. Professional fees associated with the above scope will expire if not accepted within 60 days from the date of this contract.

**ADDITIONAL SERVICES**

Additional services beyond the above scope of work can be provided upon request or as needed. These include, but are not limited to, further design studies beyond those outlined above, design review meetings and studies requested beyond those outlined, agency coordination beyond outlined above, color renderings, presentation to or attendance at public meetings/hearings, state or federal environmental process meetings and coordination, construction documents and specifications beyond those outlined, onsite inventory of existing trees, competitive contractor bidding, irrigation design, as built/record drawings, and regulatory application and permit fees.

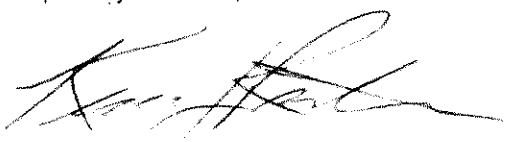
| | | | |
|---|---|---|---|
| Principal landscape architect | 160 | Staff landscape architect | 90 |
| Project landscape architect | 120 | Administrative support | 50 |

**INTELLECTUAL PROPERTY**

All designs indicated by the drawings and plans created for use on this project are the intellectual property of Remenschneider Associates Inc. No such designs or ideas shall be used by any other person, firm or corporation to advance the designs to the level of construction documents without written permission and procured release.

If the above meets with your approval, please return a copy of the executed contract to confirm our agreement and initiate work on your project.

Respectfully submitted,



Kenneth J. Remenschneider, President

Authorization Date

PATRIOT ENGINEERING
and Environmental, Inc.

Consulting Environmental, Geotechnical
and Construction Materials Engineers

July 12, 2013

Mr. Jay Vorisek, P.E.
CrossRoad Engineers, P.C.
3417 Sherman Drive
Beech Grove, IN 46107

**RE: Proposal for Environmental Services**
**Phase I Environmental Site Assessment**
**Approximately 2-Mile SR 44 Corridor**
**INDOT RFP130402 SR44**
**Franklin, Indiana**
**Patriot Proposal No. P13-0497**

Dear Mr. Vorisek,

Patriot Engineering and Environmental, Inc. (*Patriot*) is pleased to provide you with this proposal to conduct a Phase I Environmental Site Assessment (ESA) of an approximately 2-mile long section of State Road 44 in central Franklin Indiana (the Site). The ESA will be conducted as part of project described in the INDOT RFP 130402. *Patriot* understands that the actual study site is limited to area occupied by the current SR 44 and its right-of-ways, and that the project does not include the acquisition of property. The following presents *Patriot's* scope of work and estimated fee to perform the service.

## Scope of Work

*Patriot* will conduct an ESA in accordance with the INDOT requirements for Phase I ESAs, and the ASTM International (ASTM) Standard E1527-05, *Standard Practice for Environmental Site Assessments*, which complies with the United States Environmental Protection Agency's (USEPA) *Standards for Conducting All Appropriate Inquiries* (AAI) presented in 40 CFR 312. The purpose of the assessment is to identify "recognized environmental conditions" (RECs) associated with the Site. RECs may include off-site properties

The ASTM 1527 Standard defines a REC as "the presence or likely presence of any hazardous substances or petroleum products on a Site under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the Site or into the ground, ground water, or surface water of the Site". The ESA is intended to identify potential areas of contamination that may be encountered during construction activities on the roadway.

The scope of work for the ESA will include:

- Obtaining and reviewing state and federal environmental regulatory agency records within the search distances specified in ASTM E1527-05.
- Obtaining and reviewing historic records for the Site and surrounding properties. Historic records will include, but not be limited to, historic aerial photographs, Sanborn fire insurance maps, and City Directories from appropriate time intervals.
- A physical inspection of the Site (Site Reconnaissance), including observation of adjacent properties from the public right-of-ways.
- Report preparation and submittal

This ESA will not include any media sampling or any chemical analysis. *Patriot* assumes no responsibility for environmental concerns, which may exist and are not visually apparent during the Site inspection or available from record searches.

***Required Information***

The ESA process requires the environmental professional to contact a key Site manager or persons knowledgeable of the Site. *Patriot* will require name(s) and contact information in order to reach these persons by email or telephone. Patriot will also require an accurate depiction of the study area.

***Project Schedule***

*Patriot's* estimated turnaround time (TAT) for completion of the Phase I ESA is 15 business days (three weeks) following your authorization to proceed. Preliminary findings will be verbally provided upon completion of the Site reconnaissance and regulatory agency records review. Please contact the undersigned *Patriot* personnel if a different completion date is required.

***Project Fees***

The ESA Scope of Work will be conducted for a fee of **$4,850.00**. This fee includes all charges for labor, travel and expense, preparation of a final report, and project management and coordination.

***Authorization to Proceed***

*Patriot* will initiate project activities upon receipt of the completed, attached Proposal Acceptance Agreement. *Patriot's* attached Terms and Conditions are an integral part of this proposal. The work can also be authorized by a Purchase Order or Subcontractor Agreement referencing this proposal.

If you have any questions regarding this proposal or require additional information, please don't hesitate to contact me at 317-576-8058 (office) or (317) 435-3494 (cell). Your authorization to proceed can be returned via fax to 317-570-7182, or to my email (mcasper@patrioteng.com)

Once again, thank you for this opportunity to provide you with this proposal.

Sincerely,

**Patriot Engineering and Environmental, Inc.**

Michael F. Casper, LPG
Principal
Environmental Division Manager

**Attachments:**

**Name of Project: SR 44 Reconstruction in City of Franklin Des. No. 1297010**
Job Type: Section 106 - Road reconstruction in historic downtown
Contact Information:

Chip Charles
CrossRoad Engineers
3417 Sherman Drive
Beech Grove, Indiana 46107
317.780.1555

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**Date:** January 10, 2014

## Fee Justification

| Task Description | Principal 1 (QP) | Landscape Architect | Totals |
|---|---|---|---|
| **Section 106 Documentation - Complex Long Form with MOA and 4f (de minimus)** | | | |
| Project Administration | 1.0 | 4.0 | 5.0 |
| Internal Compilation of Existing Project-Related Information | 0.0 | 4.0 | 4.0 |
| Standard Records Check | 0.0 | 2.0 | 2.0 |
| Inventory Field Work | 8.0 | 16.0 | 24.0 |
| APE Map Preparation | 2.0 | 4.0 | 6.0 |
| Additional Map Exhibit Preparation | 1.0 | 6.0 | 7.0 |
| Preparation of Photographic Exhibits | 1.0 | 60.0 | 61.0 |
| Preparation of Resource Table with Assessor's Records Data | 1.0 | 30.0 | 31.0 |
| Initial Evaluation of Resources | 50.0 | 0.0 | 50.0 |
| Preparation of Preliminary Report to Engineer | 8.0 | 8.0 | 16.0 |
| Subtotal - Field Exp. and PR to Eng. | 72.0 | 134.0 | 206.0 |
| Identification of Consulting Parties (CPs) & Early Coordination | | | |
| Mailing | 1.0 | 4.0 | 5.0 |
| Subtotal - Early Coord. | 1.0 | 4.0 | 5.0 |
| Preparation of Historic Context (Utilize existing with refinements) | 2.0 | 2.0 | 4.0 |
| In-depth property evaluations and research | 24.0 | 0.0 | 24.0 |
| Preparation of Historic Property Report (HPR) Long Form | 8.0 | 16.0 | 24.0 |
| HPR Revisions and Correspondence with INDOT CRO | 4.0 | 8.0 | 12.0 |
| Mailing of HPR to CPs and SHPO | 0.0 | 2.0 | 2.0 |
| Subtotal - Coord. of HPR | 38.0 | 28.0 | 66.0 |
| Additional research as required | 4.0 | 12.0 | 16.0 |
| Compilation of response to CP and SHPO comments | 6.0 | 2.0 | 8.0 |
| Mailing of additional information supplement | 0.0 | 2.0 | 2.0 |
| Coordination of meeting with INDOT, SHPO, and CPs | 1.0 | 3.0 | 4.0 |
| Onsite meeting with Consulting Parties | 6.0 | 6.0 | 12.0 |
| Preparation and mailing of minutes | 0.0 | 4.0 | 4.0 |
| Subtotal - Coord. Meet. to Finding of Eff. | 17.0 | 33.0 | 50.0 |
| Preparation of Effect Finding (expecting Adverse Effect) | 8.0 | 12.0 | 20.0 |
| Preparation of Draft Memorandum of Agreement (MOA) | 8.0 | 12.0 | 20.0 |
| Review, comment, & coordination of 4f Programmatic Analysis | 8.0 | 8.0 | 16.0 |
| Revisions and Correspondence with INDOT CRO | 6.0 | 6.0 | 12.0 |
| Mailing of Effect Finding, Draft MOA, and Prog. An. to CPs and SHPO | 0.0 | 2.0 | 2.0 |
| Drafting and Publishing of Public Notice | 1.0 | 2.0 | 3.0 |
| Subtotal - Finding, MOA, 4f | 31.0 | 44.0 | 75.0 |
| Preparation, Coordination, & Mailing of MOA for execution | 5.0 | 5.0 | 10.0 |
| Revision and update of Effect Finding documentation | 2.0 | 4.0 | 6.0 |
| Prep. and mailing of 106 complete documentation for SHPO & CPs | 2.0 | 2.0 | 4.0 |
| Prep. and transmittal of final 106 documentation for use in CE | 2.0 | 2.0 | 4.0 |
| Subtotal - MOA and 106 Wrap-up | 11.0 | 13.0 | 24.0 |
| Total Hours | 170.0 | 250.0 | 420.0 |
| 1 Direct Rate | $32.45 | $24.52 | |
| 2 OH Rate @ 152.03% of line 1 | $49.33 | $37.28 | |
| 3 Direct & OH (lines 1+2) | $81.78 | $61.80 | |
| 4 Profit @ 10.9% of line 3 | $8.91 | $6.74 | |
| 5 Rate & Profit (lines 3+4) | $90.70 | $68.53 | |
| 6 FCCM @ 0.33% of line 1 | $0.11 | $0.08 | |
| Billing Rates (lines 5+6) (INDOT approval January 10, 2013) | **$90.81** | **$68.61** | |
| Fee | $15,436.89 | $17,153.66 | $32,590.55 |
| *Expenses: Archaeology Records Check* | | | *$1,500.00* |
| *Archaeological Field Reconnaissance (if required)* | | | *$5,200.00* |
| *Printing, binding, postage* | | | *$380.00* |
| *Publication fee* | | | *$100.00* |
| *Mileage* | | | *$80.00* |
| **Total Fee** | | | **$39,850.55** |

Notes:

1. This fee does not include 4f above de minimus, National Register nomination, or other special studies.
2. This fee includes one onsite meeting with consulting parties and regulatory agencies and one major round of additional info.
3. If additional work is requested/required by SHPO or INDOT OES/CRO, then it will be in addition to this contract.
4. This fee includes all Section 106 documentation for roadway reconstruction from 1000' west of US 31 to Eastview Drive and trail/sidewalk/streetscape improvements included in Franklin Greenways project as presented in email received 1/9/2014 and phone conversation on 1/9/2014.
5. The Archaeological Records Check fee is based on performing an Archaeology Records Check for the roadway reconstruction and trail/sidewalk/streetscape improvements. The extents of an Archaeological Field Reconnaissance can not be determined at the point. It may not be required at all, or the costs could be as much as $5,200. Only work requested will be invoiced.
6. Major late-stage scope changes may require redo of earlier work and thus increase total level of work--additional fee to complete project may be required in this case.

**PATRIOT ENGINEERING and Environmental, Inc.**
*Engineering Value for Project Success*
*Consulting Environmental, Geotechnical and Materials Engineers*

November 1, 2013

Mr. Mark Beck
CrossRoad Engineers, PC
3417 Sherman Drive
Beech Grove, Indiana 46107

Re: **Revised** Preliminary Boring Locations & Cost Estimate
**State Road 44 Reconstruction**
**Franklin, Indiana (Johnson County)**
**Designation No.: 1297010**
Patriot Proposal No.: P13-0488

Dear Mark:

The proposed project involves the total reconstruction of State Road 44 through the City of Franklin, Indiana (Johnson County). We understand the reconstruction will extend from U.S. 31 east approximately 1.9 miles and west of U.S. 31 approximately 0.25 miles. At this time no horizontal changes and minimal vertical changes to the State Road 44 profile are anticipated. Due to the preliminary nature of this project, the proposed scope of services provided below and attached here-in has been based on our experience with similar projects of size and type. Once more details (i.e. plans, cross-section, profiles, etc...) are available for the proposed final design, the scope of services provided below should be further evaluated to ensure all aspects of the project design are being covered by the proposed scope of work.

Based on the proposed reconstruction, we are recommending a total of twenty-nine (29) soil borings along with pavement cores be completed along the referenced alignment. We anticipate that all borings will be performed within existing roadway areas and will be accessible to a truck-mounted drill rig. It should be noted that traffic control will be required to facilitate completion of the borings within the roadway areas. Additionally, *Patriot* proposes to evaluate and provide pavement design sections for the reconstruction of the State Road.

Attached are the proposed preliminary boring locations for the above referenced project along with the Appendix "D" Cost Estimate Worksheet; which includes preliminary quantities and an estimated cost to provide geotechnical services. It is expected that our Geotechnical Report will be submitted within 90 to 120 days of authorization to proceed.

As our formal authorization to proceed, please complete and sign the Proposal Acceptance Agreement form included with this proposal, indicating proper billing instructions, and return an executed copy of this acceptance agreement for our files. Also, please note the Terms and Conditions included with this proposal, which is an integral part of this proposal. Alternatively, this work may be authorized by a written purchase order or a letter instructing us to proceed, which provides for the Terms and Conditions herein.

If you have any questions regarding this letter or require any additional information, please do not hesitate to contact the office.

Sincerely,
**Patriot Engineering and Environmental, Inc.**

Sean Smith, P.E.
Geotechnical Division Manager

Attachments:
Proposed Preliminary Boring Locations
Preliminary INDOT Cost Estimate Worksheet – Appendix "D"
Terms and Conditions
Proposal Acceptance Agreement

# PROPOSED PRELIMINARY BORING LOCATIONS

# PROPOSED BORING LOCATION TABLE
# STATE ROAD 44 RECONSTRUCTION
# FRANKLIN, INDIANA (JOHNSON COUNTY)
# DESIGNATION NO.: 1297010
# PATRIOT PROPOSAL NO.: P13-0488

ROADWAY BORINGS & CORINGS

| BORING NUMBER | STATION LINE "UNKNOWN" (FEET) | OFFSET LINE "UNKNOWN" (FEET) | SAMPLE TYPE | MINIMUM DEPTH (FEET) | RIG TYPE | PROPOSED CONSTRUCTION |
|---|---|---|---|---|---|---|
| RB-1 | WESTERN EXTREM | LT. 8 | SS | 7.5 | TRUCK | ROADWAY RECONSTRUCTION |
| RB-2 | 400 | RT. 8 | SS | 7.5 | TRUCK | ROADWAY RECONSTRUCTION |
| RB-3 | 800 | LT. 8 | SS | 7.5 | TRUCK | ROADWAY RECONSTRUCTION |
| RB-4 | 1,200 | RT. 8 | SS | 7.5 | TRUCK | ROADWAY RECONSTRUCTION |
| RB-5 | 1,600 | LT. 8 | SS | 7.5 | TRUCK | ROADWAY RECONSTRUCTION |
| RB-6 | 2,000 | RT. 8 | SS | 7.5 | TRUCK | ROADWAY RECONSTRUCTION |
| RB-7 | 2,400 | LT. 8 | SS | 7.5 | TRUCK | ROADWAY RECONSTRUCTION |
| RB-8 | 2,800 | RT. 8 | SS | 7.5 | TRUCK | ROADWAY RECONSTRUCTION |
| RB-9 | 3,200 | LT. 8 | SS | 7.5 | TRUCK | ROADWAY RECONSTRUCTION |
| RB-10 | 3,600 | RT. 8 | SS | 7.5 | TRUCK | ROADWAY RECONSTRUCTION |
| RB-11 | 4,000 | LT. 8 | SS | 7.5 | TRUCK | ROADWAY RECONSTRUCTION |
| RB-12 | 4,400 | RT. 8 | SS | 7.5 | TRUCK | ROADWAY RECONSTRUCTION |
| RB-13 | 4,800 | LT. 8 | SS | 7.5 | TRUCK | ROADWAY RECONSTRUCTION |
| RB-14 | 5,200 | RT. 8 | SS | 7.5 | TRUCK | ROADWAY RECONSTRUCTION |
| RB-15 | 5,600 | LT. 8 | SS | 7.5 | TRUCK | ROADWAY RECONSTRUCTION |
| RB-16 | 6,000 | RT. 8 | SS | 7.5 | TRUCK | ROADWAY RECONSTRUCTION |
| RB-17 | 6,400 | LT. 8 | SS | 7.5 | TRUCK | ROADWAY RECONSTRUCTION |
| RB-18 | 6,800 | RT. 8 | SS | 7.5 | TRUCK | ROADWAY RECONSTRUCTION |
| RB-19 | 7,200 | LT. 8 | SS | 7.5 | TRUCK | ROADWAY RECONSTRUCTION |
| RB-20 | 7,600 | RT. 8 | SS | 7.5 | TRUCK | ROADWAY RECONSTRUCTION |
| RB-21 | 8,000 | LT. 8 | SS | 7.5 | TRUCK | ROADWAY RECONSTRUCTION |
| RB-22 | 8,400 | RT. 8 | SS | 7.5 | TRUCK | ROADWAY RECONSTRUCTION |
| RB-23 | 8,800 | LT. 8 | SS | 7.5 | TRUCK | ROADWAY RECONSTRUCTION |
| RB-24 | 9,200 | RT. 8 | SS | 7.5 | TRUCK | ROADWAY RECONSTRUCTION |
| RB-25 | 9,600 | LT. 8 | SS | 7.5 | TRUCK | ROADWAY RECONSTRUCTION |
| RB-26 | 10,000 | RT. 8 | SS | 7.5 | TRUCK | ROADWAY RECONSTRUCTION |
| RB-27 | 10,400 | LT. 8 | SS | 7.5 | TRUCK | ROADWAY RECONSTRUCTION |
| RB-28 | 10,800 | RT. 8 | SS | 7.5 | TRUCK | ROADWAY RECONSTRUCTION |
| RB-29 | EASTERN EXTREM | LT. 8 | SS | 7.5 | TRUCK | ROADWAY RECONSTRUCTION |

Notes:

1) "SS" – Split-spoon sample
2) A minimum of three (3) bulk samples will be obtained for resilient modulus testing.
3) 24-hour groundwater readings will be obtained at even fifth roadway boring.
4) Traffic control services will be required to facilitate completion of the proposed borings along this alignment.
5) Scope of services provided above is based on limited project scope and limitations. The proposed serivices are subject to change based on final design plans.

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**PRELIMINARY INDOT COST ESTIMATE WORKSHEET**
**(APPENDIX "D")**

# INDOT COST ESTIMATE WORKSHEET
## Appendix "D"

Cost Estimate for:
State Road 44 Reconstruction
Franklin, Indiana (Johnson County)

| | | Unit | Quantity | Unit Price | Total Price |
|---|---|---|---|---|---|
| **GEOTECHNICAL FIELD** | | | | | |
| 1. | Mobilization and Field Coordination | | | | |
| | a. SPT Rig | Each | 1 | 240.00 | 240.00 |
| | b. CPT | Each | | 400.00 | 0.00 |
| | c. Field Coordination with Utilities | Lump Sum | 1 | 300.00 | 300.00 |
| | d. Field Coordination with Property Owners | | | | |
| | i. 1-10 | Lump Sum | | 275.00 | 0.00 |
| | ii. 11-25 | Lump Sum | | 430.00 | 0.00 |
| | iii. Over 25 | Lump Sum | | 610.00 | 0.00 |
| | e. Mileage | Per Mile | 50 | 3.00 | 150.00 |
| **HAND AND TRUCK DRILLING** | | | | | |
| 2. | Truck Mounted Borings Split-Spoon Sampling | | | | |
| a. | Standard | Foot | 217.5 | 16.60 | 3,610.50 |
| b. | Night Time | Foot | | 19.60 | 0.00 |
| 3. | Truck Mounted Borings Using Drilling Fluid | | | | |
| a. | Standard | Foot | | 16.50 | 0.00 |
| b. | Night Time | Foot | | 19.50 | 0.00 |
| 4. | Truck Mounted Core Drilling | | | | |
| a. | Standard | Foot | | 34.20 | 0.00 |
| b. | Night Time | Foot | | 40.40 | 0.00 |
| 5. | Truck Mounted Borings | | | | |
| a. | Truck Mounted Boring through Bedrock, Boulders or Concrete Pavement | | | | |
| | i. Standard | Foot | | 31.50 | 0.00 |
| | ii. Night time | Foot | | 37.20 | 0.00 |
| b. | Bridge Deck Coring and Restoration | | | | |
| | i. Standard | Each | | 300.00 | 0.00 |
| | ii. Night time | Each | | 354.00 | 0.00 |
| 6. | Cone Penetrometer Testing | | | | |
| a. | Set Up | | | | |
| | i. Standard | Each | | 66.00 | 0.00 |
| | ii. Night time | Each | | 77.90 | 0.00 |
| b. | Subsurface Profiling | | | | |
| | i. Standard | Foot | | 10.75 | 0.00 |
| | ii. Night time | Foot | | 12.70 | 0.00 |
| c. | Profiling with Pore Pressure Measurement | | | | |
| | i. Piezometric Saturation | | | | |
| | a. Standard | Each | | 85.00 | 0.00 |
| | b. Night Time | Each | | 100.30 | 0.00 |
| | ii. Penetration | | | | |
| | a. Standard | Foot | | 12.75 | 0.00 |
| | b. Night Time | Foot | | 15.05 | 0.00 |
| | iii. Pore Water Dissipation Test | | | | |
| | a. Standard | per Hour | | 200.00 | 0.00 |
| | b. Night Time | per Hour | | 236.00 | 0.00 |

## INDOT COST ESTIMATE WORKSHEET
## Appendix "D"

Franklin, Indiana (Johnson County)

| | | | | |
|---|---|---|---|---|
| | iv.Hyraulic Conductivity and Consolidation | | | |
| | a. Standard | Each | 64.00 | 0.00 |
| | b. Night Time | Each | 75.55 | 0.00 |
| d. | Profiling with Shearwave Velocity Measurement | | | |
| | i. Standard | Foot | 12.75 | 0.00 |
| | ii. Night time | Foot | 15.05 | 0.00 |
| e. | Sample | | | |
| | i. Standard | Each | 20.00 | 0.00 |
| | ii. Night time | Each | 23.60 | 0.00 |
| 7. | Hand or Truck Soundings | | | |
| a. | Standard | Foot | 10.30 | 0.00 |
| b. | Night Time | Foot | 12.15 | 0.00 |
| 8. | Hand Auger Drilling | | | |
| a. | Standard | Foot | 11.25 | 0.00 |
| b. | Night Time | Foot | 13.30 | 0.00 |
| **SKID DRILLING** | | | | |
| 9. | Skid Mounted Borings with Split-Spoon Sampling | | | |
| a. | Standard | Foot | 25.60 | 0.00 |
| b. | Night Time | Foot | 30.20 | 0.00 |
| 10. | Skid Mounted Borings using Drilling Fluid | | | |
| a. | Standard | Foot | 25.25 | 0.00 |
| b. | Night Time | Foot | 29.80 | 0.00 |
| 11. | Skid Mounted Core Drilling | | | |
| a. | Standard | Foot | 37.00 | 0.00 |
| b. | Night Time | Foot | 43.65 | 0.00 |
| 12. | Skid Mounted Boring through Bedrock or Boulders | | | |
| a. | Standard | Foot | 41.00 | 0.00 |
| b. | Night Time | Foot | 48.40 | 0.00 |
| 13. | Skid Mounted Soundings | | | |
| a. | Standard | Foot | 15.00 | 0.00 |
| b. | Night Time | Foot | 17.70 | 0.00 |
| **BARGE DRILLING** | | | | |
| 14. | Furnishing of Boat | Cost | 0.00 | 0.00 |
| 15. | Barge Set-Up Expenses | | | |
| | a. Navigable Water | | | |
| | i. Barge Set-Up | Each | 4,930.00 | 0.00 |
| | ii. Rental of Support Equipment and/or Boat | Cost | 0.00 | 0.00 |
| | iii. Drill Rig Down Time | Hour | 125.00 | 0.00 |
| | b. Barge Set-up Non-Navigable Water | Each | 4,300.00 | 0.00 |
| 16. | Additional Disassembly and Re-assembly | | | |
| | a. Navigable Water | Each | 1,835.00 | 0.00 |
| | b. Non-Navigable Water | Each | 1,660.00 | 0.00 |
| 17. | Barge Mounted Borings with Splitspoon Sampling | Foot | 28.40 | 0.00 |

## INDOT COST ESTIMATE WORKSHEET
## Appendix "D"

Franklin, Indiana (Johnson County)

| | | | | | |
|---|---|---|---|---|---|
| 18. | Barge Mounted Core Drilling | Foot | | 38.50 | 0.00 |
| 19. | Barge Mounted Boring through Bedrock and Boulders | Foot | | 43.25 | 0.00 |
| 20. | Barge Mounted Soundings | Foot | | 17.00 | 0.00 |
| 21. | Casing through Water | Foot | | 7.50 | 0.00 |
| 22. | Uncased Sounding through Water | Foot | | 4.70 | 0.00 |
| 23. | Set Up for Borings and Machine Soundings | | | | |
| | a. Borings and Machine Soundings less than 20 ft. Deep | Each | 29 | 60.75 | 1,761.75 |
| | b. Rock Core Borings less than 15 ft. Deep | Each | | 105.00 | 0.00 |
| 24. | Additional 2 in. Split-Spoon Sampling | Each | | 18.00 | 0.00 |
| 25. | 3 in. Split-Spoon Samples | Each | | 20.50 | 0.00 |
| 26. | 3 in. Shelby Tube Samples | Each | 29 | 54.00 | 1,566.00 |
| 27. | Bag Samples | | | | |
| | a. 300 lb. Sample | Each | | 100.00 | 0.00 |
| | b. 25 lb. Sample | Each | 6 | 35.00 | 210.00 |
| 28. | Field Vane Shear Test | | | | |
| a. | Standard | Each | | 100.00 | 0.00 |
| b. | Night Time | Each | | 118.00 | 0.00 |
| 29. | 4 ½ in. Cased Hole | Foot | | 10.80 | 0.00 |
| 30. | Installation of Geotechnical Instruments | | | | |
| a. | Inclinometer Casing Installation | | | | |
| | ia. Standard | Foot | | 13.50 | 0.00 |
| | ib. Night Time | Foot | | 15.95 | 0.00 |
| b. | Piezometer Installation – up to 25 ft. below surface | Each | | 230.00 | 0.00 |
| c. | Piezometer Installation – deeper than 25 ft. below surface | Each | | 315.00 | 0.00 |
| d. | Metal protective outer cover for Inclinometer and | | | | |
| | Piezometer Casings | Each | | 110.00 | 0.00 |
| 31. | Geotechnical Engineer | Per Hour | 8 | 100.00 | 800.00 |
| 32. | Railroad Expenses | Cost | | 0.00 | 0.00 |
| 33. | 24-Hour Water Levels | | | | |
| a. | Field Measurements | | | | |
| | i. Standard | Each | 6 | 33.50 | 201.00 |
| | ii. Night Time | Each | | 39.55 | 0.00 |
| b. | PVC Slotted Pipe | Foot | | 5.10 | 0.00 |
| 34. | Special Backfilling of Boreholes | | | | |
| a. | 0 to 30 feet | | | | |
| | i. SPT | | | | |
| | 1. Standard | Each | 29 | 95.00 | 2,755.00 |
| | 2. Night Time | Each | | 112.10 | 0.00 |
| | ii. CPT | | | | |

## INDOT COST ESTIMATE WORKSHEET
## Appendix "D"

| | | | | | |
|---|---|---|---|---|---|
| | Franklin, Indiana (Johnson County) | | | | |
| | 1. Standard | Each | | 40.00 | 0.00 |
| | 2. Night Time | Each | | 47.20 | 0.00 |
| b. | More than 30 feet | | | | |
| | i. SPT | | | | |
| | 1. Standard | Per Foot | | 5.60 | 0.00 |
| | 2. Night Time | Per Foot | | 6.60 | 0.00 |
| | ii. CPT | | | | |
| | 1. Standard | Per Foot | | 1.75 | 0.00 |
| | 2. Night Time | Per Foot | | 2.10 | 0.00 |
| c. | Pavement Restoration | | | | |
| | 1. Standard | Each | 29 | 52.00 | 1,508.00 |
| | 2. Night Time | Each | | 61.35 | 0.00 |
| 35. | Dozer Rental | Cost | | 0.00 | 0.00 |
| 36. | Traffic Control | | | | |
| | a. Flag Crew | Per Day | | 525.00 | 0.00 |
| | b. Equipment Rental | Cost | | 0.00 | 0.00 |
| | c. Flag Crew with Equipment | Per Day | 6 | 600.00 | 3,600.00 |
| 37. | Centerline Surveying | Cost | | 0.00 | 0.00 |
| **GEOTECHNICAL LABORATORY** | | | | | |
| 38. | Sieve Analysis | Each | 5 | 43.00 | 215.00 |
| 39. | Hydrometer Analysis | Each | 5 | 49.00 | 245.00 |
| 40. | Moisture Content Test | Each | 87 | 5.75 | 500.25 |
| 41. | Liquid Limit | Each | 5 | 29.75 | 148.75 |
| 42. | Plastic Limit & Plasticity Index | Each | 5 | 21.75 | 108.75 |
| 43. | a. Unconfined Compression Test | Each | | 39.00 | 0.00 |
| | b. Remolding of 3 Soil Samples with Chemical Admixtures with Chemical Soil Modification/Stabilization (3 Samples are Equal to 1 Unit) | Each | | 101.00 | 0.00 |
| 44. | Specific Gravity Test | Each | 3 | 32.00 | 96.00 |
| 45. | Unit Weight Determination | Each | 29 | 15.75 | 456.75 |
| 46. | Hydraulic Conductivity Test | | | | |
| | a. Constant Head | Each | | 230.00 | 0.00 |
| | b. Falling Head | Each | | 250.00 | 0.00 |
| 47. | Consolidation Test | Each | | 400.00 | 0.00 |
| 48. | Triaxial Test | | | | |
| | a. Unconsolidated-Undrained (UU) | Each | | 300.00 | 0.00 |
| | b. Consolidated-Undrained (CU) | Each | | 440.00 | 0.00 |
| | c. Consolidated-Drained (CD) | Each | | 600.00 | 0.00 |
| | d. Pore Pressure Measurement with a. or b. and use of Back Pressure for Saturation | Each | | 225.00 | 0.00 |

## INDOT COST ESTIMATE WORKSHEET
## Appendix "D"

Franklin, Indiana (Johnson County)

| | | | | | |
|---|---|---|---|---|---|
| 49. | Soil Support Testing | | | | |
| | a. California Bearing Ratio Test | Each | | 500.00 | 0.00 |
| | b. Subgrade Resilient Modulus | Each | 6 | 420.00 | 2,520.00 |
| 50. | Standard Moisture-Density Relationship Test | Each | 3 | 122.00 | 366.00 |
| 51. | Loss on Ignition Test | Each | | 21.25 | 0.00 |
| 52. | pH Test | Each | 5 | 13.25 | 66.25 |
| | a. Sulfate Testing | Each | 5 | 70.00 | 350.00 |
| 53 | Collapse Potential Evaluation Test | Each | | 335.00 | 0.00 |
| **GEOTECHNICAL ENGINEERING** | | | | | |
| 54. | Geotechnical Profile and Related Work | | | | |
| | a. Without Soil Subgrade Drawings | | | | |
| | > 1st Mile | Lump Sum | | 1,040.00 | 0.00 |
| | > Each Additional Mile | Per Mile | | 480.00 | 0.00 |
| | b. With Soil Subgrade Drawings | | | | |
| | > 1st Mile | Lump Sum | | 1,235.00 | 0.00 |
| | > Each Additional Mile | Per Mile | | 550.00 | 0.00 |
| | c. Soil Subgrade Drawings (only) | | | | |
| | > 1st Mile | Lump Sum | | 320.00 | 0.00 |
| | > Each Additional Mile | Per Mile | | 200.00 | 0.00 |
| 55. | Geotechnical Report | | | | |
| | a. Without Soil Subgrade Investigation | | | | |
| | > 1st Mile | Lump Sum | | 1,400.00 | 0.00 |
| | > Each Additional Mile | Per Mile | | 625.00 | 0.00 |
| | b. With Soil Subgrade Investigation | | | | |
| | > 1st Mile | Lump Sum | 1 | 1,660.00 | 1,660.00 |
| | > Each Additional Mile | Per Mile | 1 | 710.00 | 852.00 |
| | c. Soil Subgrade Investigation (only) | | | | |
| | > 1st Mile | Lump Sum | | 540.00 | 0.00 |
| | > Each Additional Mile | Per Mile | | 330.00 | 0.00 |
| 56. | Settlement Analysis and Recommendations for Embankment | | | | |
| | a. Proposed Embankment | Each | | 450.00 | 0.00 |
| | b. Proposed and Existing Embankment | Each | | 500.00 | 0.00 |
| 57. | Ground Modification Design | Each | | 1,330.00 | 0.00 |
| 58. | Slope Stability Analysis | | | | |
| | a. C, Ø, or C and Ø Analysis | Each | | 720.00 | 0.00 |
| | b. Corrective Measures | Each | | 720.00 | 0.00 |
| | c. Stage Construction Corrective Method | Each | | 1,250.00 | 0.00 |
| 59. | Bridge Foundation Analysis and Recommendation | | | | |
| | a. Shallow Foundation | Each | | 430.00 | 0.00 |
| | b. Deep Foundation | | | | |
| | i. Deep Foundation Analyses | Each | | 770.00 | 0.00 |
| | ii. Wave Equation Analyses | Each | | 300.00 | 0.00 |
| | c. Settlement Analysis for Bridge Pier Foundation | | | | |
| | i. Bridge Pier | Each | | 340.00 | 0.00 |
| | ii. Embankment Plus Pier | Each | | 380.00 | 0.00 |
| | iii. Embankment Plus Pier Plus all Other Loads | Each | | 440.00 | 0.00 |
| | d. Foundation on Bedrock | Each | | 330.00 | 0.00 |

## INDOT COST ESTIMATE WORKSHEET
## Appendix "D"

Franklin, Indiana (Johnson County)

| | | | | | |
|---|---|---|---|---|---|
| 60. | Retaining Structure Analysis Recommendations | | | | |
| | a. Conventional Retaining Structures | | | | |
| | i. Shallow Foundation | Each | | 790.00 | 0.00 |
| | ii. Deep Foundation | Each | | 1,050.00 | 0.00 |
| | iii. Settlement Analysis for Retaining Wall Foundation | Each | | 335.00 | 0.00 |
| | b. Pile Retaining Structure Analysis and Recommendations | | | | |
| | i. Free Standing Structure | Each | | 910.00 | 0.00 |
| | ii. Retaining Structure with Tie-Back Systems | Each | | 1,340.00 | 0.00 |
| | c. Drilled-In-Pier Retaining Structure Analysis and Recommendations | | | | |
| | i. Free Standing Structure | Each | | 940.00 | 0.00 |
| | ii. Retaining Structure with Tie-Back System | Each | | 1,360.00 | 0.00 |
| | d. Soil Nailing Wall Analysis | Each | | 915.00 | 0.00 |
| 61. | Seepage Analysis | Each | | 1,280.00 | 0.00 |
| 62. | Deep Dynamic Compaction Analysis | Each | | 1,300.00 | 0.00 |
| | **CONSTRUCTION INSPECTION AND MONITORING** | | | | |
| 63. | Field Inspector | Per Hour | | 65.00 | 0.00 |
| 64. | Monitoring Geotechnical Instrumentation | Per Hour | | 65.00 | 0.00 |
| 65. | Integrity Testing | Cost | | 0.00 | 0.00 |
| 66. | Dynamic Pile Analysis | Each | | 900.00 | 0.00 |
| 67. | Static Load Test | Each | | 900.00 | 0.00 |
| 68. | Dynamic Pile Load Test | Cost | | 0.00 | 0.00 |
| 69. | CAPWAP-C Analysis | Each | | 440.00 | 0.00 |
| 70. | Final Construction Inspection Report | Each | | 840.00 | 0.00 |
| | **FOUNDATION EVALUATION BY NON-DESTRUCTIVE METHODS** | | | | |
| 71. | a. Surface Test / Pier or Foundation | Cost | | 0.00 | 0.00 |
| | b. Borehole Test / Pier or Foundation | Cost | | 0.00 | 0.00 |
| | **GEOTECHNICAL PROJECT MANAGEMENT** | | | | |
| 72. | Project Management | | | | |
| | a. Project Coordination | Per Mile | | 1,500.00 | 0.00 |
| | b. Project Website | Lump Sum | | 3,000.00 | 0.00 |
| 73. | Geotechnical Review | | | | |
| | a. Structure Report | Each | | 300.00 | 0.00 |
| | b. Roadway Report | Per Mile | | 250.00 | 0.00 |
| | **PAVEMENT INVESTIGATION** | | | | |
| 1. | Mobilization of Coring Equipment | Each | 1 | 200.00 | 200.00 |
| 2. | Mobilization Mileage for Coring Equipment | Per Mile | 50 | 1.55 | 77.50 |
| 3. | Pavement Core (Partial Depth) | Each | | 115.00 | 0.00 |
| 4. | Pavement Core (Full Depth) | | | | |

## INDOT COST ESTIMATE WORKSHEET
## Appendix "D"

| | | | | | |
|---|---|---|---|---|---|
| | Franklin, Indiana (Johnson County) | | | | |
| | 1) Standard | Each | 29 | 170.00 | 4,930.00 |
| | 2) Night Time | Each | | 200.60 | 0.00 |
| 5. | Sub-Base Sample | Each | | 56.00 | 0.00 |
| 6. | Cement Concrete Pavement Core Density Determination | Each | | 30.00 | 0.00 |
| 7. | Cement Concrete Core Compressive Strength Test | Each | | 29.00 | 0.00 |
| 8. | Bituminous Extraction Test | Each | | 79.00 | 0.00 |
| 9. | Sieve Analysis of Extracted Aggregate Test | Each | | 52.00 | 0.00 |
| 10. | Recovery of Asphalt from Solution by Abson Method | Each | | 350.00 | 0.00 |
| 11. | Theoretical Maximum Specific Gravity Test | Each | | 66.00 | 0.00 |
| 12. | Bulk Specific Gravity Tests | Each | | 30.50 | 0.00 |
| 13. | Air Voids Calculation | Each | | 26.00 | 0.00 |
| 14. | Core Report for Partial Depth Core | Each | | 30.50 | 0.00 |
| 15. | Core Report for Full Depth Core | Each | 29 | 40.00 | 1,160.00 |
| 16. | Pavement Analysis and Report | Each | | 700.00 | 0.00 |
| 17. | Pavement Design Evaluation | Each | 4.00 | 2,700.00 | 10,800.00 |
| | | | | ***TOTAL*** | ***41,454.50*** |