Michigan Department
Of Transportation
5100B (05/13)

CHECKLIST TO DESIGNATE AREAS OF EVALUATION FOR REQUESTS FOR PROPOSAL (RFP)

REQUISITION NUMBER	DUE DATE	TIME DUE
1654	1/5/2015	noon EST

MDOT PROJECT MANAGER	JOB NUMBER (JN)	CONTROL SECTION (CS)
Christopher Van Norwick	45790, 118558	41027

DESCRIPTION
Freeway Reconstruction on I-96 between Fuller Ave and Maryland Ave

MDOT PROJECT MANAGER: Check all items to be included in RFP WHITE = REQUIRED ** = OPTIONAL Check the appropriate Tier in the box below			**CONSULTANT:** Provide only checked items below in proposal
☐ **TIER 1 ($50,000 - $150,000)**	☐ **TIER II ($150,000-$1,000,000)**	☑ **TIER III (>$1,000,000)**	
☐	☐	☑	Understanding of Service **
☐	☐	☑	*Innovations*
☐	☐	☑	Organizational Chart
☐	☐	☑	Qualifications of Team
Not required as part of Official RFP	Not required as part of Official RFP	☑	Quality Assurance/Quality Control **
☐	☐	☑	**Location:** The percentage of work performed in Michigan will be used for all selections unless the project is for on-site p=inspection or survey activities, then location should be scored using the distance from the consultant office to the on-site inspection or survey activity.
N/A	N/A	☐	Presentation **
N/A	N/A	☐	Technical Proposal (if Presentation is required)
3 pages (MDOT Forms not counted) **(No Resumes)**	7 pages (MDOT Forms not counted)	14 pages (MDOT forms not counted)	Total maximum pages for RFP **not including key personnel resumes.** Resumes limited to 2 pages per key staff personnel.

PROPOSAL AND BID SHEET EMAIL ADDRESS – mdot-rfp-response@michigan.gov

GENERAL INFORMATION

Any questions relative to the scope of services must be submitted by e-mail to the MDOT Project Manager. Questions must be received by the Project Manager at least five (5) working days prior to the due date and time specified above. All questions and answers will be placed on the MDOT website as soon as possible after receipt of the questions, and at least three (3) days prior to the RFP due date deadline. The names of vendors submitting questions will not be disclosed.

MDOT is an equal opportunity employer and MDOT DBE firms are encouraged to apply. The participating DBE firm, as currently certified by MDOT's Office of Equal Opportunity, shall be listed in the Proposal.

MDOT FORMS REQUIRED AS PART OF PROPOSAL SUBMISSION

5100D – Request for Proposal Cover Sheet
5100J – Consultant Data and Signature Sheet (Required only for firms not currently prequalified with MDOT)

(These forms are not included in the proposal maximum page count.)

REQUEST FOR PROPOSAL

The Michigan Department of Transportation (MDOT) is seeking professional services for the project contained in the attached scope of services.

If your firm is interested in providing services, please indicate your interest by submitting a Proposal, Proposal/Bid Sheet or Bid Sheet as indicated below. The documents must be submitted in accordance with the latest (Consultant/Vendor Selection Guidelines for Services Contracts" and "Guideline for Completing a Low Bid Sheet(S)*, if a low bid is involved as part of the selection process. **Reference Guidelines are available on MDOT's website under Doing Business > Vendor/Consultant Services >Vendor/Consultant Selections.**

RFP SPECIFIC INFORMATION

☑ ENGINEERING SERVICES ☐ BUREAU OF TRANSPORTATION PLANNING ☐ OTHER

THE SERVICE WAS POSTED ON THE ANTICIPATED QUARTERLY REQUESTS FOR PROPOSALS

☐ NO ☑ YES DATED 10-1-2014 THROUGH 12-31-2014

☑ **Prequalified Services** – See the attached Scope of Services for required Prequalification Classifications.

☐ **Non-Prequalified Services** – If selected, the vendor must make sure that current financial information, including labor rates, overhead computations, and financial statements, if overhead is not audited, is on file with MDOT's Office of Commission Audits. This information must be on file for the prime vendor and all sub vendors so that the contract will not be delayed. **Form 5100J is required with Proposal for firms not currently prequalified with MDOT**

☑ **Qualifications Based Selection** – Use Consultant/Vendor Selection Guidelines

For all Qualifications Based Selections, the selection team will review the information submitted and will select the firm considered most qualified to perform the services based on the proposals. The selected firm will be asked to prepare a priced proposal. Negotiations will be conducted with the firm selected.

For a cost plus fixed fee contract, the selected vendor must have a cost accounting system to support a cost plus fixed fee contract. This type of system has a job-order cost accounting system for the recording and accumulation of costs incurred under its contracts. Each project is assigned a job number so that costs may be segregated and accumulated in the vendor's job-order accounting system.

☐ **Qualification Based Selection / Low Bid** – Use Consultant/Vendor Selection Guidelines. See Bid Sheet instructions for additional information.

For Qualification Review/Low Bid selections, the selection team will review the proposals submitted. The vendor that has met established qualification threshold and with the lowest bid will be selected.

☐ **Best Value** – Use Consultant/Vendor Selection Guidelines, See Bid Sheet Instructions below for additional information. The bid amount is a component of the total proposal score, not the determining factor of the selection.

☐ **Low Bid** (no qualifications review required – no proposal required.) See Bid Sheet Instructions below for additional instructions.

BID SHEET INSTRUCTIONS

Bid Sheet(s) must be submitted in accordance with the "Guidelines for Completing a Low Bid Sheet(s)* (available on MDOT's website). Bid Sheet(s) are located at the end of the Scope of Services. Submit bid sheet(s) with the proposal, to the email address: mdot-rfp-response@michigan.gov. Failure to comply with this procedure may result in your bid being rejected from consideration.

PARTNERSHIP CHARTER AGREEMENT

MDOT and ACEC created a Partnership Charter Agreement which establishes guidelines to assist MDOT and Consultants in successful partnering. Both the Consultant and MDOT Project Manager are reminded to review the **ACEC-MDOT Partnership Charter Agreement** and are asked to follow all communications, issues resolution and other procedures and guidance's contained therein.

NOTIFICATION
MANDATORY ELECTRONIC SUBMITTAL

Proposals submitted for this project must be submitted electronically.

The following are changes to the Proposal Submittal Requirements:

- Eliminated the Following Requirements:
  - Safety Program
  - Communication Plan
  - Past Performance as *a separate section*
  - Separate section for DBE Statement of goals. Include information in Qualification of Team section

- Implemented the Following Changes:
  - All proposals require an Organization Chart
  - Resumes must be a maximum of two pages
  - Only Key (lead) staff resumes may be submitted
  - Tier III proposal reduced from 19 to 14 pages
  - Forms 5100D, 5100I, and 5100G combined – 5100D
  - Forms 5100B and 5100H combined – 5100B
  - RFP's will be posted on a weekly basis -- on Mondays

The following are Requirements for Electronic Submittals:

- Proposals must be prepared using the most current guidelines
- The proposal must be bookmarked to clearly identify the proposal sections (See Below)
- For any section not required per the RFP, the bookmark must be edited to include "N/A" after the bookmark title.
  Example: Understanding of Service – N/A
- Proposals must be assembled and saved as a single PDF file
- PDF file must be 5 megabytes or smaller
- PDF file must be submitted via e-mail to MDOT-RFP-Response@michigan.gov
- MDOT's requisition number and company name must be included in the subject line of the e-mail. The PDF shall be named using the following format:
  - Requisition#XXX_Company Name.PDF
- MDOT will not accept multiple submittals
- Proposals must be *received* by MDOT on or before the due date and time specified in each RFP

If the submittals do not comply with the requirements, they may be determined unresponsive.

The Consultant's will receive an e-mail reply/notification from MDOT when the proposal is received. Please retain a copy of this e-mail as proof that the proposal was received on time. **Consultants are responsible for ensuring the MDOT receives the proposal on time.**

****Contact Contract Services Division immediately at 517-373-4680 if you do not get an auto response****

Required Bookmarking Format:

I. Request for Proposal Cover Sheet Form 5100D
   A. Consultant Data and Signature Sheet, Form 5100J (if applicable)
II. Understanding of Service
   A. Innovations
III. Qualifications of Team
   A. Structure of Project Team
      1. Role of Firms
      2. Role of Key Personnel
   B. Organization Chart
   C. Location
IV. Quality Assurance / Quality Control Plan
V. Resumes of Key Staff
VI. Pricing Documents/Bid Sheet (if applicable)

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NOTIFICATION
E-VERIFY REQUIREMENTS

E-Verify is an Internet based system that allows an employer, using information reported on an employee's Form I-9, Employment Eligibility Verification, to determine the eligibility of that employee to work in the United States. There is no charge to employers to use E-Verify. The E-Verify system is operated by the Department of Homeland Security (DHS) in partnership with the Social Security Administration. E-Verify is available in Spanish.

The State of Michigan is requiring, under Public Act 200 of 2012, Section 381, that as a condition of each contract or subcontract for construction, maintenance, or engineering services that the pre-qualified contractor or subcontractor agree to use the E-Verify system to verify that all persons hired during the contract term by the contractor or subcontractor are legally present and authorized to work in the United States.

Information on registration for and use of the E-Verify program can be obtained via the Internet at the DHS Web site: http://www.dhs.gov/E-Verify.

The documentation supporting the usage of the E-Verify system must be maintained by each consultant and be made available to MDOT upon request.

It is the responsibility of the prime consultant to include the E-Verify requirement documented in this NOTIFICATION in all tiers of subcontracts.

9/13/12

Michigan Department of Transportation

SCOPE OF SERVICE
FOR
DESIGN SERVICES

CONTROL SECTION(S): 41027, 41025

JOB NUMBER(S): 45790, 118558, 126499

PROJECT LOCATION:
The project is located on I-196 from Fuller Avenue east to I-96 (CS BMP 2.117 to EMP 4.168) in the city of Grand Rapids, MI. The project length is 2.051 miles.

PROJECT DESCRIPTION:
Work involved in the design of the project consists of design for a full reconstruction of the I-196 roadway within the limits given about including the reconstruction of I-196 over Plymouth Ave (S25-3,4 of 41027), and consistent with the I-196 Environmental Assessment (EA) and the subsequent Engineering Study (http://www.michigan.gov/mdot/0,4616,7-151-9621_11058_53088_66610---,00.html). This work shall include, but is not limited to, full depth removal of the existing pavement structure and replacement with pavement (concrete or HMA pending the Life Cycle Cost Analysis (LCCA) results), aggregate base, subbase, subbase under-drain, concrete median barrier, curb & gutter removal and replacement, retaining walls, permanent signal plans and staging signal plans, maintaining traffic signing, new storm sewer, storm sewer rehabilitation, freeway lighting, and all associated restoration items.

The consultant will be required to design the reconstruction of the existing lanes in kind for the scheduled Let Date. In addition, the consultant will design the full buildout of the freeway (as identified in the I-196 EA) through the Plan Review stage. If funding becomes available for construction of the full build out, a contract amendment will be processed for the hours needed to complete the final full build package.

A bridge rehab project for I-196 WB over I-96 EB (S05 of 41025) will also be included. Work for this project includes: deep concrete overlay, barrier replacement, steel repairs, full steel painting, substructure patching, approach replacement and misc repairs

ANTICIPATED SERVICE START DATE: 3-1-2015

ANTICIPATED SERVICE COMPLETION DATE: 2-5-2018

DBE PARTICIPATION REQUIREMENT: 5%

PRIMARY PREQUALIFICATION CLASSIFICATION(S):
Complex Urban Freeway

SECONDARY PREQUALIFICATION CLASSIFICATION(S):
Short & Medium Span Bridges
Bridge Load Rating Analysis
Road Design Surveys
Structure Surveys
Geotechnical Engineering Services
Maintaining Traffic Plans and Provisions
Pavement Marking Plans
Permanent Freeway Traffic Signing Plans
Traffic Signal Design
Hydraulics
Hydraulic Surveys ***(precautionary)***
Freeway Lighting ***(precautionary)***
Municipal Utilities ***(precautionary)***
Intelligent Transportation Systems Design ***(precautionary)***

MDOT PROJECT ENGINEER MANAGER:
Christopher Van Norwick, P.E.
Grand Rapids TSC – Consultant Coordinator
2660 Leonard St. NE
Grand Rapids, MI 49525
616.464.1793 (desk)
vannorwickc@michigan.gov

MDOT PROJECT ENGINEER DESIGN COORDINATOR:
Jason R. Minkus, E.I.T.
Grand Rapids TSC – Project Coordinator
2660 Leonard St. NE
Grand Rapids, MI 49525
(616) 464-1784
(616) 464-1189
minkusj@michigan.gov

CONSTRUCTION COST:

A. The estimated cost of construction is:

1.	**Mainline Pavement**	**$ 19,799,000**
2.	**Geometric Improvement**	**$**
3.	**Environmental**	**$**
4.	**Drainage**	**$**
5.	**Safety**	**$**
6.	**Non-Motorized**	**$**
7.	**Maintaining Traffic**	**$**
8.	**Bridge Cost**	**$5,400,000**
9.	**Detours and Maintaining Traffic**	**$**
10.	**Permanent Pavement Markings/Signs/Signals**	**$**
11.	**Miscellaneous**	**$_____**

CONSTRUCTION TOTAL **$25,199,000**

B. The estimated cost of real estate is: $0

The above construction total is the amount of funding programmed for this project. The Consultant is expected to design the project within the programmed amount.

If at any time the estimated cost of construction varies by more than 5% of the current programmed amount, then the Consultant will be required to submit a letter to the MDOT Project Manager justifying the changes in the construction cost estimate.

REQUIRED MDOT GUIDELINES AND STANDARDS:

Work shall conform to current MDOT, FHWA, and AASHTO practices, guidelines, policies, and standards (i.e., Road Design Manual, Standard Plans, Published MDOT Design Advisories, Drainage Manual, Roadside Design Guide, A Policy on Geometric Design of Highways and Streets, Michigan Manual of Uniform Traffic Control Devices, etc.).

The Consultant is required to use the current MDOT1 workspace version of Bentley MicroStation for CADD applications and Bentley GEOPAK for road design. Consultant shall comply with all MDOT CADD standards and file naming conventions.

MDOT RESPONSIBILITIES:

A. Schedule and/or conduct the following:
   1. Project related meetings
   2. Base Plan Review
   3. The Plan Review
   4. Omissions/Errors/Check
   5. Utility Coordination Meeting(s)
   6. Final Trnsport item cost estimates

B. Furnish pertinent reference materials.

C. Furnish prints of an example of a similar project and old plans of the area, if available. Furnish the E.A.

D. Obtain all permits for the project as outlined in previous section.

E. Coordinate any necessary utility relocation(s)

F. Furnish FTP site for software download and instructions for the MDOT Stand Alone Proposal Estimator's Worksheet (SAPW).

CONSULTANT RESPONSIBILITIES:

Complete the design of this project including, but not limited to the following:

The Consultant must adhere to all applicable OSHA and MIOSHA safety standards, including the appropriate traffic signs for the activities and conditions for this job and perform field operations in accordance with the Department's Personal Protective Equipment (PPE) policy as stated in the MDOT Guidance Document #10118.

Meet with the MDOT Project Manager to review project, location of data sources and contact persons, and review relevant MDOT operations. The Consultant shall review and clarify project issues, data needs and availability, and the sequence of events and team meetings that are essential to complete the design by the project plan completion date. Attention shall be given to critical target dates that may require a large lead time, such as geotechnical requirements, ROW submittal dates, Railroad coordination requirements, utility conflict resolution, local agency meetings, etc.

A. Perform design surveys (road and bridge). As part of the adjacent project, road survey work was performed on the majority of the project limits in 2004-2005. This survey information is currently being updated MDOT to be compatible with current design software. The consultant will be responsible for full bridge survey work, verification of the road survey data with current existing conditions, as needed densification of the existing road survey data for design, along with miscellaneous survey pick up and staking.

B. Perform and Prepare roadway pavement and soils investigations, including the structure foundation investigations. Soil borings shall be of sufficient depth and number (as per the MDOT Bridge Design Manual) so as to perform the structure foundation designs, including retaining walls. Also, the consultant will be responsible for compiling and preparing the investigation results into report format for the project pavement design and construction information to be developed. **MDOT will formulate the pavement design for this project. LCCA by MDOT will be used to complete the pavement design for the mainline pavement.**

C. The Consultant shall perform a Bridge Study for I-196 over Plymouth Avenue (S25-3, 4 of 41027) for approval MDOT and FHWA approval before design can begin.

D. Prepare required road plans, typical cross-sections, details, and specifications required for design and construction. Design work shall proceed from the information provided in the EA to develop plans and specifications, etc. **This project will be required to be designed in 3D, as per current MDOT standards.**

E. Prepare required bridge plans, typical cross-sections, details, and specifications required for design and construction. The design is to be done per LRFD specifications.

F. Following completion of the bridge design, the consultant shall perform the load rating analysis, in conjunction with MDOT Standards.

G. Perform a drainage study. This will include design plans, specifications and related hydraulic analysis for the design of this project, including the design of storm water detention facilities, if necessary. All systems will be designed for to carry the capacity needs of the EA full reconstruction design. A Drainage Study was performed as part of the EA and calculations and related design studies, as outlined in Chapter 4 of the MDOT Road Design Manual and the MDOT Drainage Design and Stormwater Management Manual. Submit all design calculations, drainage maps, and proposed profiles related to the EA drainage report to the MDOT Project Manager for review prior to the plan review.

H. Compute and verify all plan quantities.

I. Prepare Design Exception Requests if necessary for road and/or bridge issues (ie: transition rates, SSD, shoulder widths, under clearance, etc.) a list of possible design exceptions will be required at the Base Plan Review, with final drafts being submitted at the Plan Review Meeting

J. Identify all utility conflicts and provide design plans for any municipal utility relocations required as a result of the project (as directed by MDOT), including any permits required by the municipality. This also includes preparing cost sharing comparisons and related costing alternative calculations.

K. If water mains and/or sanitary sewers are present within the project limits, the Consultant shall evaluate the necessity for the relocation of water mains and sanitary sewers, in accordance with Design Division's Informational Memorandum #441B and #402R dated April 13, 1992. The Consultant shall submit a report to the Design Engineer - Municipal Utilities, Design Division for review and concurrence. A copy of the report shall be sent to the Project Manager. **If relocation is necessary and water main and/or sanitary sewer work is not part of the Scope of Work, contact the MDOT Project Manager immediately.**

L. The Consultant shall incorporate the existing as-built ITS infrastructure information into the plans as well as any additions or relocations (as a result of the proposed construction) to the existing ITS infrastructure into the design of this project as directed by MDOT. The Consultant will also be responsible for coordination with any ongoing ITS construction projects.

M. Prepare staging, detour, alternate route plans and special provisions for maintaining traffic during construction.

N. Prepare all permit information (MDEQ, Noise Ordinance Variances, etc.) consistent with those detailed in the EA. Prepare all necessary environmental permits, calculations, details, and plan sheets required by the Region Resource staff or Grand Rapids TSC staff for application on behalf of this project.

O. Provide solutions to any unique problems that may arise during the design of this project.

P. The Consultant may be required to provide Design Services during the construction phase of this project. If Construction Assistance is required, then a separate authorization for those services will be issued.

Q. Maintain a Design Project Record which includes a history of significant events (changes, comments, etc.) which influenced the development of the plans, dates of submittals and receipt of information.

R. If excavation is required, submit the excavation locations which may contain contamination. Project Manager then can proceed in requesting a Project Area Contamination Survey (PACS).

S. The Consultant shall be required to prepare and submit a CPM network for the construction of this project.

T. The Consultant representative shall record and submit type-written minutes for all project related meetings to the MDOT Project Manager within two weeks of the meeting. The Consultant shall also distribute the minutes to all meeting attendees. MDOT will provide and distribute official meeting minutes for the Plan Review Meeting.

U. The Consultant will provide to MDOT at the scheduled submittal dates, electronic copies (in Adobe PDF format) of the required specifications and plan set materials for distribution by MDOT for all reviews for this project.

V. The Consultant shall attend and be responsible for progress meetings and shall provide minutes of the meetings (frequency to be determined during contract negotiations). It is expected that the project manager, lead road engineer, lead bridge engineer, the environmental specialist, the consultant and any other staff identified by the Project Manager attend the meetings where the subject matter warrants their expertise

W. Prepare and submit electronically (native format or Adobe PDF) any information, calculations, hydraulic studies, or drawings required by MDOT for acquiring any permit (ie. NPDES, DEQ, etc), approvals (i.e. county drain commission) and related mitigation. MDOT will submit permit requests.

X. Attend any project-related meetings as directed by the MDOT Project Manager.

Y. Attend information meetings (i.e., public hearings, open houses, etc.) with the public and public officials to assist in responding to concerns and questions. May require the preparation of displays such as maps, marked-up plans, etc.

Z. The MDOT Project Manager shall be the official MDOT contact person for the Consultant **and shall be made aware of all communications regarding this project**. The Consultant must either address or send a copy of all correspondence to the MDOT Project Manager. This includes all Subcontractor correspondence and verbal contact records.

AA. The Consultant shall contact the MDOT Project Manager whenever discoveries or design alternatives have the potential to require changes in the scope, limits, quantities, costs, or right-of-way of the project.

BB. The Consultant shall be responsible for obtaining and showing on the plans the location and names of all existing utilities within the limits of the project. In the course of resolving utility conflicts, the Consultant shall make modifications to the plans or design details and provide assistance as directed by the MDOT Utility Coordinator and/or Project Manager. The Consultant shall attend any utility meetings called to ensure that the concerns are addressed on the plans involving utilities. The Consultant shall assist in the review of utility permit requests to ensure compatibility with the project.

CC. The Consultant shall be responsible for all traffic control required to perform the tasks as outlined in this Scope of Design Services.

DD. The Consultant shall be responsible for obtaining up to date access permits and pertinent information for tasks in MDOT Right of Way (ROW).

EE. This information can be obtained through Joe Rios, Utilities/Permits Section, Development Services Division at (517) 241-2103.

FF. The Consultant shall assist in the review of utility permit requests, incorporate the information in the design plans, and respond within 2 weeks from receipt of the permit information request.

GG. On the first of each month, the Consultant Project Manager shall submit a monthly project progress report to the Project Manager.

DELIVERABLES:

The Consultant shall deliver all computer files associated with the project in their native format (spreadsheets, CADD files, GEOPAK files, Roadway Designer Templates etc.) on DVD, CD or uploaded to ProjectWise, as directed by the MDOT Project Manager. All CADD/GEOPAK files shall be created and identified with standard MDOT file names. It is the Consultant's responsibility to obtain up to date MicroStation and GEOPAK seed/configuration files necessary to comply with MDOT's CADD standards which are published monthly to the MDOT website. Any CADD/GEOPAK files that do not conform to MDOT standards will be returned to the Consultant for correction at the Consultant's expense.

Proposal documents shall be submitted in their native format with standard naming conventions as well as combined into one Adobe PDF file in the sequence specified by MDOT. To provide text search capabilities the combined proposal shall be created by converting native electronic files to PDF. Scanning to PDF is discouraged except in instances where it is necessary to capture a legally signed document or a hard copy version of a document is all that exists.

Plan sheets shall be printed to an Adobe PDF set in 11" x 17" format. For final Plan Turn-In, a title sheet shall be printed, signed, sealed, and then scanned for inclusion with the Adobe PDF set. The original title sheet shall be sent to the MDOT Project Manager.

At final Plan Turn-In, Reference Information Documents (RID) shall be delivered to MDOT with standard naming conventions and content. The RID files included will depend on the design survey and work type of the project. These files range from CADD, existing terrain, proposed cross sections, 3D models and files generated for Automated Machine Guidance (AMG) and automated inspection/stakeout activities.

Stand Alone Proposal Estimator's Worksheet (SAPW) shall be used to generate the txt and csv files necessary for import into the Trns*port bid letting software. The SAPW files shall be transmitted electronically by the method specified by the MDOT Project Manager.

The project removal, construction, and profile sheets will require a scale of **1”=80’ or as approved by the Project Manager.**

All plans, special provisions, estimates, and other project related items shall meet all MDOT requirements and detailing practices (i.e., format, materials, symbols, patterns, and layout) or as otherwise directed by the Project Manager. All plans, specifications, and other project related items are subject to review and approval by MDOT.

PROJECT SCHEDULE:

The Consultant shall use the following events to prepare the proposed implementation schedule as required in the Guidelines for the Preparation of Responses on Assigned Design Services Contracts. These dates shall be used in preparing the Consultant’s Monthly Progress Reports.

MDOT PRECONSTRUCTION TASKS CONSULTANT CHECKLIST

For questions on specific tasks, refer to the P/PMS Task Manual located on the MDOT Website.
For assistance in accessing this manual, please contact:
Dennis Kelley: (517) 373-4614

Please indicate with a check in the box next to each task number whether you believe that task will require consultant involvement on the job. Milestones (a specific event at a point in time) are italicized and underlined. See the P/PMS Task Manual for more details. Scheduling assistance may be accomplished with estimated completion dates. While not part of P/PMS, an Authorization Milestone and Post-Design Tasks have been included for your reference.

STUDY (EARLY PRELIMINARY ENGINEERING)

YES	NO	P/PMS TASK NUMBER AND DESCRIPTION		DATE TO BE COMPLETED BY (mm/dd/yyyy)
		CONSULTANT CONTRACT AUTHORIZATION/EXECUTION		/ /
		INFORMATION GATHERING/STUDIES		
☐	☐	1115	Traffic Data Collection for Studies	/ /
☐	☐	1120	Prepare Traffic Analysis Report for Studies	/ /
☐	☐	1125	Traffic Capacity Analysis for Studies	/ /
☐	☐	1155	Request/Perform Safety Analysis for Studies	/ /
☐	☐	1300	Traffic Impact Study	/ /
☐	☐	1350	Determine Need for Interstate Access Change Request	/ /
☐	☐	1400	Feasibility Study	/ /
☐	☐	1500	Corridor Study	/ /
☐	☐	1555	Interstate Access Change Request	/ /
☐	☐	*155M*	*FHWA Approval of Interstate Access Change Request*	/ /
☐	☐	1600	Access Management Study Plan	/ /
☐	☐	1700	Other Miscellaneous Studies	/ /
		EPE SCOPING ANALYSIS		
☐	☐	2100	Scope Verification and Initiation of EPE Activities	/ /
☐	☐	2115	Prepare Traffic Analysis Report for EPE/Design	/ /
☐	☐	2120	Traffic Data Collection for EPE/Design	/ /
☐	☐	2125	Traffic Capacity Analysis for EPE/Design	/ /
☐	☐	2130	Prepare Project Purpose and Need	/ /
☐	☐	*213M*	*Concurrence by Regulatory Agencies with the Purpose and Need*	/ /
☐	☐	2140	Develop and Review Illustrative Alternatives	/ /
☐	☐	2155	Request/Perform Safety Analysis for EPE/Design	/ /
☐	☐	2160	Prepare and Review EIS Scoping Document	/ /
☐	☐	*216M*	*Public Information Meeting*	/ /

STUDY (EARLY PRELIMINARY ENGINEERING) (cont'd)

YES	NO	P/PMS TASK NUMBER AND DESCRIPTION		DATE TO BE COMPLETED BY (mm/dd/yyyy)	
		EPE DRAFT ANALYSIS			
☐	☐	2310	Conduct Technical SEE Studies	/	/
☐	☐	2311	Cultural Resources Survey	/	/
☐	☐	2312	Recreational Survey – Section 4(f)/6(f)	/	/
		EPE DRAFT ANALYSIS (cont'd)			
☐	☐	2313	Endangered Species Survey	/	/
☐	☐	2314	Wetland Assessment	/	/
☐	☐	2315	Wetland Mitigation	/	/
☐	☐	2316	Other Technical Reports	/	/
☐	☐	2321	Prepare for Aerial Photography	/	/
☐	☐	2322	Finish/Print Aerial Photography	/	/
☐	☐	2330	Collect EPE Geotechnical Data	/	/
☐	☐	2340	Develop and Review Practical Alternatives	/	/
☐	☐	*233M*	*Aerial Photography Flight*	/	/
☐	☐	2360	Prepare and Review EA	/	/
☐	☐	*236M*	*Approval of EA by FHWA*	/	/
☐	☐	2370	Prepare and Review Draft EIS	/	/
☐	☐	*237M*	*Approval of Draft EIS by FHWA*	/	/
☐	☐	2380	Distribute EA	/	/
☐	☐	*238M*	*Public Hearing for EA*	/	/
☐	☐	2390	Distribute DEIS	/	/
☐	☐	*239M*	*Public Hearing for DEIS*	/	/
		EPE FINAL ANALYSIS			
☐	☐	2510	Determine and Review Recommended Alternative	/	/
☐	☐	*250M*	*Concurrence by Reg Agencies with Recom Alternatives*	/	/
☐	☐	2525	Prepare and Review Engineering Report	/	/
☐	☐	2530	Prepare and Review Request for FONSI	/	/
☐	☐	*252M*	*Approval of FONSI by FHWA*	/	/
☐	☐	2540	Prepare and Review FEIS	/	/
☐	☐	*254M*	*Approval of FEIS by FHWA*	/	/
☐	☐	2550	Obtain ROD	/	/
☐	☐	*255M*	*ROD Issued by FHWA*	/	/
☐	☐	2570	ITS Concept of Operations	/	/
		CONTAMINATION INVESTIGATION			
☐	☐	2810	Project Area Contamination Survey (PCS)	/	/
☐	☐	2820	Preliminary Site Investigation (PSI) for Contamination	/	/

PRELIMINARY ENGINEERING - DESIGN

YES	NO	P/PMS TASK NUMBER AND DESCRIPTION		DATE TO BE COMPLETED BY (mm/dd/yyyy)
		DESIGN SCOPE VERIFICATION AND BASE PLAN PREPARATION		
☐	☐	3130	Verify Design Scope of Work and Cost	/ /
☐	☐	3310	Prepare Aerial Topographic Mapping	/ /
☐	☐	3320	Conduct Photogrammetric Control Survey	/ /
☐	☐	3321	Set Aerial Photo Targets	/ /
X	☐	3325	Geotechnical Structure Site Characterization	/ /
X	☐	3330	Conduct Design Survey	/ /
X	☐	3340	Conduct Structure Survey	/ /
X	☐	3350	Conduct Hydraulics Survey	/ /
X	☐	3360	Prepare Base Plans	/ /
☐	☐	*311M*	*Utility Notification*	/ /
X	☐	3361	Review and Submit Preliminary ROW Plans	/ /
☐	☐	*331M*	*Preliminary ROW Plans Distributed*	/ /
X	☐	3365	Pre-Conceptual ITS Design and Meeting	/ /
X	☐	3370	Prepare Structure Study	/ /
☐	☐	3375	Conduct Value Engineering Study	/ /
☐	☐	3380	Review Base Plans	/ /
X	☐	3385	Preliminary Load Rating	/ /
☐	☐	*332M*	*Base Plan Review (Pre-GI Inspection)*	10/01/2015
X	☐	3390	Develop the Maintaining Traffic Concepts	/ /
		PRELIMINARY PLANS PREPARATION		
X	☐	3500	Develop Transportation Management Plan	/ /
X	☐	3510	Perform Roadway Geotechnical Investigation	/ /
☐	☐	3520	Conduct Hydraulic/Hydrologic and Scour Analysis	/ /
X	☐	3522	Conduct Drainage Study, Storm Sewer Design, and use Structural Best Management Practices	/ /
X	☐	3530	Geotechnical Foundation Engineering Report	/ /
X	☐	3535	Conduct Str. Review for Arch. & Aesthetic Improvements	/ /
X	☐	3540	Develop the Maintaining Traffic Plan	/ /
☐	☐	3551	Prepare/Review Preliminary Traffic Signal Design Plan	/ /
X	☐	3552	Develop Preliminary Pavement Marking Plan	/ /
☐	☐	3553	Develop Preliminary Non-Freeway Signing Plan	/ /
X	☐	3554	Develop Preliminary Freeway Signing Plan	/ /
☐	☐	3555	Prepare/Review Preliminary Traffic Signal Operations	/ /
X	☐	3570	Prepare Preliminary Structure Plans	/ /
X	☐	3580	Develop Preliminary Plans	/ /
X	☐	3581	Review and Submit Final ROW Plans	/ /
☐	☐	*351M*	*Final ROW Plans Distributed*	/ /

PRELIMINARY ENGINEERING - DESIGN (cont'd)

YES	NO	P/PMS TASK NUMBER AND DESCRIPTION		DATE TO BE COMPLETED BY (mm/dd/yyyy)
		PRELIMINARY PLANS PREPARATION (cont'd)		
X	☐	3585	Final ITS Concept Design and Meeting	/ /
☐	☐	3590	Review Preliminary Plans (Hold Plan Review Meeting)	/ /
☐	☐	*352M*	*THE Plan Review (Grade Inspection)*	03/20/2016
X	☐	3595	Conduct ITS Structure Foundation Investigation	/ /
		UTILITIES		
X	☐	3610	Compile Utility Information	/ /
X	☐	3615	Compile ITS Utility Information	/ /
☐	☐	3650	Coordinate RR Involvement for Grade Separations	/ /
☐	☐	3655	Coordinate RR Involvement for At-Grade Crossings	/ /
X	☐	3660	Resolve Utility Issues	/ /
☐	☐	*360M*	*Utility Conflict Resolution Plan Distribution*	/ /
☐	☐	*361M*	*Utility Meeting*	/ /
X	☐	3670	Develop Municipal Utility Plans	/ /
X	☐	3672	Develop Special Drainage Structures Plans	/ /
X	☐	3675	Develop Electrical Plans	/ /
X	☐	3680	Preliminary ITS Communication Analysis	/ /
☐	☐	3690	Power Design (Power Drop in Field)	/ /
		MITIGATION/PERMITS		
X	☐	3710	Develop Required Mitigation	/ /
X	☐	3720	Assemble Environmental Permit Applications	/ /
☐	☐	3730	Obtain Environmental Permit	/ /
		FINAL PLAN PREPARATION		
X	☐	3815	Geotechnical Structure Design Review	/ /
☐	☐	3821	Prepare/Review Final Traffic Signal Design Plan	/ /
X	☐	3822	Complete Permanent Pavement Marking Plan	/ /
☐	☐	3823	Complete Non-Freeway Signing Plan	/ /
X	☐	3824	Complete Freeway Signing Plan	/ /
☐	☐	3825	Prepare/Review Final Traffic Signal Operations	/ /
X	☐	3830	Complete the Maintaining Traffic Plan	/ /
X	☐	3840	Develop Final Plans and Specifications	/ /
☐	☐	*380M*	*Plan Completion*	05/15/2017
X	☐	3850	Develop Structure Final Plans and Specifications	/ /
☐	☐	3870	Hold Omissions/Errors Check (OEC) Meeting	/ /
X	☐	3875	Final Load Rating	/ /

PRELIMINARY ENGINEERING - DESIGN (cont'd)

YES	NO	P/PMS TASK NUMBER AND DESCRIPTION	DATE TO BE COMPLETED BY (mm/dd/yyyy)
		FINAL PLAN PREPARATION (cont'd)	
☐	☐	*387M Omissions/Errors Checks Meeting*	06/05/2017
☐	☐	*389M Plan Turn-In*	12/01/2017
☐	☐	3880 CPM Quality Assurance Review	/ /
X	☐	3890 Final ITS Communication Analysis	/ /

PRELIMINARY ENGINEERING – RIGHT OF WAY

		EARLY RIGHT OF WAY WORK	
☐	☐	4120 Obtain Preliminary Title Commitments	/ /
☐	☐	4130 Prepare Marked Final Right Of Way Plans	/ /
☐	☐	*413M Approved Marked Final ROW*	/ /
☐	☐	4140 Prepare Property Legal Instruments	/ /
		ROW ACQUISITION	
☐	☐	4411 Preliminary Interviews	/ /
☐	☐	*441M Post-Decision Meeting*	/ /
☐	☐	4412 Real Estate Services Assignment Proposal and Fee Estimate (Form 633s) for Appraisal Work Authorization	/ /
☐	☐	4413 Appraisal Reports	/ /
☐	☐		
☐	☐	**ROW ACQUISITION (cont'd)**	
☐	☐	4420 Appraisal Review Reports	/ /
☐	☐	4430 Acquire Right Of Way Parcels	/ /
☐	☐	4510 Conduct Right Of Way Survey & Staking	/ /
☐	☐		
☐	☐	**ROW RELOCATION**	
☐	☐	4710 Relocation Assistance	/ /
☐	☐	4720 Prepare Improvement Removal Plan	/ /
☐	☐	*442M ROW Certification*	/ /

MDOT PRECONSTRUCTION TASKS CONSULTANT CHECKLIST

POST LETTING/AWARD TASKS (for reference only)

YES	NO	P/PMS TASK NUMBER AND DESCRIPTION		DATE TO BE COMPLETED BY (mm/dd/yyyy)
☐	☐	4810	Complete Acquisition Process	/ /
☐	☐	4820	Manage Excess Real Estate	/ /
☐	☐	4830	Provide Post-Certification Relocation Assistance	/ /
☐	☐	4910	Conduct ROW Monumentation	/ /
☐	☐	5010	Construction Phase Engineering and Assistance	/ /
☐	☐	5020	Prepare As-Built Drawings	/ /

CONSULTANT PAYMENT – Actual Cost Plus Fixed Fee:

Compensation for this project shall be on an **actual cost plus fixed fee** basis. This basis of payment typically includes an estimate of labor hours by classification or employee, hourly labor rates, applied overhead, other direct costs, subconsultant costs, and applied fixed fee.

All billings for services must be directed to the Department and follow the current guidelines. Payment may be delayed or decreased if the instructions are not followed.

Payment to the Consultant for services rendered shall not exceed the maximum amount unless an increase is approved in accordance with the contract with the Consultant. Typically, billings must be submitted within 60 days after the completion of services for the current billing. The final billing must be received within 60 days of the completion of services. Refer to your contract for your specific contract terms.

Direct expenses, if applicable, will not be paid in excess of that allowed by the Department for its own employees in accordance with the State of Michigan's Standardized Travel Regulations. Supporting documentation must be submitted with the billing for all eligible expenses on the project in accordance with the Reimbursement Guidelines. The only hours that will be considered allowable charges for this contract are those that are directly attributable to the activities of this project.

The use of overtime hours is not acceptable unless prior written approval is granted by the MDOT Region Engineer/Bureau Director and the MDOT Project Manager. Reimbursement for overtime hours that are allowed will be limited to time spent on this project in excess of forty hours per person per week. Any variations to this rule should be included in the priced proposal submitted by the Consultant and must have prior written approval by the MDOT Region Engineer/Bureau Director and the MDOT Project Manager.

The fixed fee for profit allowed for this project is 11.0% of the cost of direct labor and overhead.

MDOT will reimburse the consultant for vehicle expenses and the costs of travel to and from project sites in accordance with MDOT's Travel and Vehicle Expense Reimbursement Guidelines, dated May 1, 2013. The guidelines can be found at http://www.michigan.gov/documents/mdot/Final_Travel_Guidelines_05-01-13_420289_7.pdf?20130509082418. MDOT's travel and vehicle expense reimbursement policies are intended primarily for construction engineering work. Reimbursement for travel to and from project sites and for vehicle expenses for all other types of work will be approved on a case by case basis.

MDOT will pay overtime in accordance with MDOT's Overtime Reimbursement Guidelines, dated May 1, 2013. The guidelines can be found at http://www.michigan.gov/documents/mdot/Final_Overtime_Guidelines_05-01-13_420286_7.pdf?20130509081848. MDOT's overtime reimbursement policies are intended primarily for construction engineering work. Overtime reimbursement for all other types of work will be approved on a case by case basis.

ATTACHMENT A

SCOPE OF SERVICE
FOR
DESIGN SURVEYS
October 2014

Survey Limits: As needed for Design, Right of Way, and Construction. A description of survey limits detailing length, width and cross roads must be included in the Survey Work Plan.

NOTES: The Selected Consultant shall discuss the scope of this survey with an MDOT Region Surveyor or an MDOT Lansing Design Surveyor before submitting a priced proposal.

The Selected Consultant surveyor must contact the Region or TSC Traffic and Safety Engineer for work restrictions in the project area prior to submitting a priced proposal.

A **detailed Survey Work Plan <u>must</u>** be included in the project proposal. A **spreadsheet estimate** of hours by specific survey task such as horizontal control, leveling, mapping, alignment determination, etc., **<u>must</u>** be included in the **priced proposal**.

It is the responsibility of the Professional Surveyor to safeguard all corners of the United States Public Land Survey System, published Geodetic Control and any other Property Controlling corners that may be in danger of being destroyed by the proposed construction project.

GENERAL REQUIREMENTS:

1. Surveys must comply with **all Michigan law** relative to land surveying.

2. Surveys must be done under the **direct supervision** of a Professional Surveyor licensed to practice in the State of Michigan, according to Public Act 299 of 1980.

3. Work in any of the following categories of survey: Road Design, Structure, Hydraulic, Right-of-Way, Photogrammetric Ground Control, and/or Geodetic Control must be completed by a survey firm which is pre-qualified by MDOT for that category.

4. Surveys must meet all requirements of the Michigan Department of Transportation (MDOT) Design Surveys *Standards of Practice* dated May 2014, except for naming conventions. Please contact the MDOT Design Survey office to clarify any specific questions regarding these standards.

5. Consultants must obtain all necessary permits required to perform this survey on any public and/or private property, including an up-to-date permit from the MDOT Utilities Coordination and Permits Section.

6. Prior to performing the survey, the Consultant must contact all landowners upon whose lands they will enter. The contact may be personal, phone or letter, but must be documented. This notice must include the reasons for the survey on private land, the approximate time the survey is to take place, the extent of the survey including potential brush cutting (which must be minimized), and an MDOT contact person (the MDOT Project Manager or designate).

7. The Consultant must contact any and all Railroads prior to commencing field survey on railroad property. The cost for any permit, flaggers and/or training that is required by the Railroad will be considered as a direct cost, but only if included in the Consultant's priced proposal.

8. The Consultant must adhere to all applicable OSHA and MIOSHA safety standards, including the appropriate traffic signs for the activities and conditions for this job.

9. Consultants are responsible for a comprehensive and conscientious research of all records, including MDOT records, essential for the completion of this project.

10. Measurements, stationing, recorded data, and computations must be in **International Feet**, unless specified otherwise by the MDOT Project Manager.

11. Coordinate values shall be based upon the Michigan State Plane coordinate system NAD83. All elevations must be based upon the North American Vertical Datum of 1988 (NAVD88). The datums must be clearly stated in the Survey Work Plan and subsequent submittal.

12. **If paper copies are required**, the survey notes must be submitted to the Design Survey Unit in 10" by 12" divided portfolios with flap covers. As many portfolios should be used as are needed to contain all of the required documents and Compact Discs (CD's) or DVD's. Duplicate CD's must be included in the portfolio, with one set labeled "Region Surveyor." **Electronic submittal only unless specified otherwise.**

13. Each portfolio and CD must be labeled on the outside as in the following example:
    Survey Notes for:
    Route, Location and Project Limits [I-94 under Beaubien Street]
    Control Section [S06 of 82024] Job Number [45197D] Date [*of submittal*]
    By [*Name of Firm*]
    Michigan Professional Surveyor [ ] License # [ ]

14. Each submittal is to be divided into six sections. These sections are to be labeled as follows: **Administrative, Alignment, Control**, **Property**, **Mapping**, and **Miscellaneous**.

15. To be included in the Administrative section shall be a copy of the **Survey Project Portfolio QA/QC Check-off list**, May 2014 revision, available from the MDOT Survey Support Unit. This document shall be signed and certified by the Professional Surveyor responsible for the project QA/QC. It is highly recommended that the consultant become familiar with this document prior to preparing the proposal and again prior to assembling the final portfolio. **Failure to use and include this document may result in the immediate return of the project portfolio for completion.**

16. **All data**, whether electronic or paper, **must be recorded on non-rewritable Compact Discs (CD's) or DVD's**. All paper files, including MicroStation files, must be scanned and/or converted to Adobe Acrobat .PDF format. It is not necessary to include raw survey data files in the Adobe file. CD's must be organized in the same manner as the portfolio, such as by Administrative section, Control section, etc. A Table of Contents in Adobe Acrobat format is required that has all .PDF pages of the CD bookmarked/linked so each place in the .PDF archive can be accessed with a single click of the computer mouse. Specified format files such as Microsoft Word and MicroStation must have separate access in native format outside of the .PDF file.

17. The MDOT Project Manager is the official contact for the Consultant. The Consultant must send a copy of all project correspondence to the MDOT Project Manager. The MDOT Project Manager shall be made aware of all communications regarding this project. Any survey related questions regarding this project should be directed to an MDOT Survey Consultant Project Manager or MDOT Region Surveyor. **The MDOT Project Manager must be copied on any and all correspondence.**

At the completion of this survey for this project, legible copies of all field survey notes, all electronic data, and all research records obtained for this project will be considered the property of MDOT and **must be sent to** the MDOT, Design Division, Supervising Land Surveyor, P.O. Box 30050, Lansing, MI 48909. Please use MDOT's Form 222(5/01) entitled "SURVEY NOTES: RECEIPT AND TRANSMITTAL" for all transmittals. A copy of this transmittal form must also be sent to the MDOT Project Manager for Design.

Acceptance of this survey by the MDOT Supervising Land Surveyor and/or the MDOT Project Manager does not relieve the Consultant of any liability for the content of the survey.

WORK RESTRICTIONS

The Selected Consultant, and the Selected Consultant only, is advised to discuss Traffic Control scenarios with the MDOT Traffic and Safety Engineer at the closest MDOT TSC prior to submitting a priced proposal. Add Name and phone #

No work shall be performed or lane closures allowed during the Memorial Day, July 4th, or Labor Day holiday periods, as defined by the MDOT Project Manager or representative specifically designated by the Project Manager (the Traffic & Safety Engineer at the MDOT TSC).

Work on weekends, if approved, shall be as directed by the MDOT Project Manager or Designate.
The Consultant must call the MDOT Region or TSC Traffic and Safety Engineer before beginning work to inform him or her of surveying activity in the area. The MDOT Region or TSC must be notified at least two weeks prior to lane closures so advance notice can be posted on the Web site.

Traffic shall be maintained by the Consultant throughout the project in accordance with Sections 812, 922, 103.05 and 103.06 of the *Standard Specifications for Construction*, 2012 edition, http://mdotwas1.mdot.state.mi.us/public/specbook/2012/ and any Supplemental Specifications currently in effect clarifying the Standard Specifications for Construction. All traffic control devices shall conform to the current edition, as revised, of the *Michigan Manual of Uniform Traffic Control Devices* (MMUTCD). All warning signs for maintenance of traffic used on this project shall be fabricated with prismatic retro-reflective sheeting, and shall be set up five feet above ground.

The Consultant shall use MDOT standard "maintaining traffic" typicals for any and all closures. Typical MDOT traffic control diagrams are available on line at
http://mdotwas1.mdot.state.mi.us/public/tands/plans.cfm

COORDINATION WITH OTHER CONTRACTS IN THE VICINITY

The Consultant shall coordinate operations with contractors performing work on other projects within or adjacent to the Construction Influence Area (CIA).

MDOT maintenance crews and/or Contract Maintenance Agencies may perform maintenance work within or adjacent to the CIA. The Maintenance Division of MDOT and/or Contract Maintenance Agency will coordinate their operations with the MDOT Project Manager or Designate to minimize the interference to the Consultant.

The Consultant must contact the Development Engineer at the nearest MDOT TSC for information regarding project coordination.

The Consultant's attention is called to the requirements of cooperation with others as covered in Article 104.08 of the 2012 Standard Specifications for Construction. Other contracts or maintenance operations may occur during the life of the project.

No claim for extra compensation or adjustment in contract unit prices will be allowed on account of delay or failure of others to complete work unit scheduled.

POST SURVEY CLEAN-UP

Once the survey is complete, all stakes must be removed from the MDOT median and ROW to aid the maintenance crews and adjacent property owners. All benchmarks and control points and their witnesses must remain in place.

FINAL REPORT: DELIVERABLES

The final report for this project shall include:

1. In the first directory on the CD, and first pocket of the portfolio if requested, labeled **ADMINISTRATIVE**, the following will appear:

   a. MDOT's Form 222(5/01) entitled "SURVEY NOTES: RECEIPT AND TRANSMITTAL"

   b. The project's Professional Surveyor's Report on company letterhead, consisting of:

      i) A comprehensive synopsis of the work performed on this project, signed and sealed by the project's Professional Surveyor.

      ii) The source and methods used to establish the project horizontal and vertical control and alignment(s) for this project.

      iii) A detailed explanation of anything discovered during the survey of this project that may create a problem for the designer or another surveyor.

   c. CD or DVD with all documents scanned or converted into a Master PDF file, named (JN)123456C_TaskXXXX. Each Section and sub-section of this PDF file must be bookmarked for easy retrieval. An example can be provided upon request.

   d. MDOT QA/QC Portfolio Checklist (revised May 2014).

2. In the second directory on the CD, and second pocket of the portfolio if requested, labeled **ALIGNMENT**, the following will appear:

   a. An annotated MicroStation drawing of the alignment(s), showing:

      i) A statement defining the alignment(s) as **legal or non-legal,** and a key box with description of type and origin of all alignments, such as 1958 Survey Alignment,1966 Construction Alignment or, 2013 As Constructed Alignment

      ii) Alignment files must use the naming conventions in the MDOT Design Wiki at

      http://mdotwiki.state.mi.us/design/index.php/Chapter_3__Standard_Naming_Conventions

      iii) Stationing, source of stationing, and station equation to existing stationing

      iv) Curve data, including coordinates of P.I.s, P.C.s, and P.T.s.

v) Physical alignment points found or set

vi) Control points

vii) Reference lines and angles of crossing (if appropriate)

viii) Government corners with bearing and distance ties to alignment along the government lines.

b. Witness list for the alignment points found or set, which shows coordinates, stationing and four witnesses for each alignment point. WITNESS LISTS MUST USE ONLY UPPER CASE LETTERS.

c. LCRC's for legal alignment points with physical monumentation, found or set.

3. In the third directory on the CD, and third pocket of the portfolio if requested, labeled **CONTROL**, the following will appear:

a. Documentation of horizontal and vertical datum sources.

b. OPUS documentation, long version.

c. Least squares adjustments for the horizontal and vertical control.

d. It is not necessary to submit electronic raw survey data in hardcopy form, nor in the .PDF file.

e. Text files which contain the witness lists for the horizontal alignment points, horizontal control points, benchmarks and government corners. All witness lists must note the datum(s), a combined scale factor for state plane grid-to-ground conversion, and an example thereof. WITNESS LISTS MUST USE ONLY UPPERCASE LETTERS.

f. An MDOT-formatted Microsoft Word file, **SurveyInfoSheet.doc**, showing the data in e. above, using ONLY UPPER CASE LETTERS.

4. In the fourth directory on the CD, and fourth pocket of the portfolio if requested, labeled **PROPERTY**, the following will appear:

a. Tax maps and descriptions with owner names, addresses and phone numbers, if Right of Way is to be acquired, or if riparian ownerships are required.

b. Maps, plats, and recorded surveys.

c. Documents such as plats, Act 132 Certificates and/or tax maps marked with point numbers as property ties, if Right of Way is to be acquired.

d. Legible **recorded** copies of all Land Corner Recordation Certificates (LCRC) filed for the government corners (PLSS corners and Property Controlling Corners) used for computations and/or in danger of obliteration by impending construction.

5. In the fifth directory on the CD, and fifth pocket of the portfolio if requested, labeled **MAPPING**, the following will appear:

   a. Mapping files in MDOT MicroStation V8i format in the current MDOT workspace, and also converted to .PDF format. ALL POINT AND LINE DESCRIPTIONS MUST USE ONLY UPPER CASE LETTERS.

   b. File names must be as shown in the MDOT Design Wiki

   http://mdotwiki.state.mi.us/design/index.php/Chapter_3__Standard_Naming_Conventions

   c. All Geopak design files produced by survey, including: .xml alignment files, triangle.dgn file, .dtm, and .tin files.

   d. All field survey notes and electronic mapping data used for the project. It is not necessary to submit electronic raw survey data in hardcopy form, nor in the .PDF file.

   e. All supporting and supplemental information or data, such as drainage and utilities, electronically only if possible.

6. In the sixth directory on the CD, and sixth pocket of the portfolio if requested, labeled **MISCELLANEOUS**, the following will appear:

   a. Any photographs taken for clarity of an area

   b. Any newspaper clippings related to the project

   c. Any information not covered in this scope that will be of benefit to the designer or another surveyor

ATTACHMENT B

SCOPE OF SERVICE
FOR
HYDRAULICS SURVEY
<u>Consultant</u> Analysis

C.S. << >> Job No. << >>
<<Route>> over <<Stream>>
<< >> County

The Consultant shall perform a hydraulics survey, which provides geometric data on the stream channel upstream and downstream of the structure. **Two weeks** prior to starting the hydraulics survey, the Consultant surveyor shall schedule a site visit with an MDOT Hydraulics engineer by contacting the Design Engineer-Hydraulics/Hydrology Chris Potvin at 517-335-1919 or Assistant Design Engineer-Hydraulics/Hydrology Larry Wiggins at 517-373-1713. The purpose of the site visit is to discuss details of the survey and to clarify the intent of the survey. Notes must be taken at the site visit and submitted promptly to the MDOT Project Manager, and MDOT Survey Coordinator or Region Surveyor.

Prior to performing the survey, the Consultant must contact all landowners upon whose lands they will enter. The contact may be personal, phone or letter, but must be documented. This notice must include the reasons for the survey on private land, the approximate time the survey is to take place, the extent of the survey including potential brush cutting, and an MDOT contact person (the MDOT Project Manager or Consultant Survey Coordinator or Region Surveyor).

The Consultant must make every effort to minimize brush cutting on private property. The use of paint on private property is prohibited.

Cross-sections shall be taken at the limits and intervals specified by the MDOT Design Engineer-Hydraulics/Hydrology as shown in Attachment B. Channel cross-sections shall be taken normal to the direction of ***flood*** flow and tied to the project coordinate system so they can be accurately plotted. The sections shall be extended to the edge of the floodplain, to the elevation of the top of the road at the structure, or to a distance beyond the river bank agreed upon with the MDOT Hydraulics engineer at the site visit. Shots must be taken at approximately six foot intervals through the stream, and at significant break points. Any high water marks and date of occurrence (if available) shall be noted.

Since the hydraulics analysis is to be performed by Consultant staff, the Consultant shall meet the following requirements for hydraulics cross-sections:

1. Cross-sections shall be submitted electronically in a format acceptable to the Design Engineer-Hydraulics/Hydrology.

2. The highpoints of all berms such as roads, railroads, or driveways that cross the stream must be included as a separate chain. Each highpoints chain must also have a description or comment that identifies the type of centerline, such as "railroad berm" or "farm drive." Each individual shot in the highpoints chain should have its own identifying Feature Code or description, such as centerline, sidewalk or top of wall.

3. Each cross-section shall be submitted with the points in the chain running all left to right, looking downstream.

4. The cross-sections generally must extend a minimum of 100 feet into the floodplain from the stream top of bank.

5. For each cross-section, the vegetation break point (the "friction point" between the natural channel and the surrounding vegetation) shall be shot. It should have a comment or description of "break point."

6. Subsequent vegetation break points, if applicable, shall be shot with a comment or description such as "friction point – grass to shrub," or "friction point – shrub to trees" as appropriate.

7. The water surface elevations at each cross section shall be taken at the left edge of water and right edge of water looking downstream. The Consultant must note if any stream bed cross sections were dry, and water surface elevation shots were unavailable.

The project surveyor must ensure that all required information is legible and in a form which is easily accessible to the Hydraulics/Hydrology Unit. A HEC-RAS file is acceptable. Other formats must be discussed in advance with the Survey Project Manager or MDOT Hydraulics Engineer.

All elevations shall be referenced to the North American Vertical Datum of 1988 (NAVD88), or project datum, if established and different. If a project datum is used, the MDOT Hydraulics Engineer may require a reference to NAVD88 or National Geodetic Vertical Datum of 1929 (NGVD29). Two benchmarks must be established at the stream crossing, one on each side of the stream. All benchmarks must be accurately described. Benchmark leveling shall be a closed loop of at least third-order accuracy, which requires an error of closure between known benchmarks of not more than 0.06 feet times the square root of the distance in miles.

Note: It is not necessary to provide least squares analyses for horizontal and vertical control for a Hydraulics Survey upstream and downstream from the structure. Electronic evidence of horizontal and vertical closure is required. The surveyor must use professional judgment to determine whether the closures are acceptable for use on a Hydraulics Survey. It is necessary to provide accurate elevations for underclearances, road profiles, weirs, and anything that controls flow. It is not necessary to provide extremely accurate closures for vertical and horizontal control used for hydraulics cross-sections.

It is not necessary to provide a witness list of horizontal control points set for hydraulics cross-sections.

A list containing at least two benchmarks, one on either side of the bridge, with descriptions, elevations and datum, must be provided. Since these benchmarks will be used for road/bridge design and construction, least squares analysis is required.

THE PORTFOLIO FOR THE HYDRAULICS SURVEY MUST BE DELIVERED ELECTRONICALLY. All field measurements, notes, sketches, and calculations must be included in the final transmission.

ATTACHMENT BB

C.S. Job No.
M-xx over Stream Name: Section 37, T33N, R55E
<< >> County

FINAL REPORT: DELIVERABLES FOR HYDRAULICS SURVEY

1. The **riparian owners and addresses** in the four quadrants of the structure and stream, clearly shown. It may be necessary to draw the stream on an Equalization map.

2. **First water access** of all buildings within the survey limits. These shots should use Feature Code **FF** in MicroStation. A description should be included noting exactly what element was shot, such as basement window, walkout basement, or first floor.

3. All **pertinent structure data** including water surface elevations, flow lines, invert or footing elevations, opening widths, length, pier thickness and underclearance elevations, both upstream and downstream, **at the stream structure**. Include an elevation view sketch of both sides of the structure showing this information. Note structure width across the road.

4. All **pertinent structure data** including water surface elevations, flow lines, invert or footing elevations, opening widths, length, and underclearance elevations, both upstream and downstream, at **any other structures** encountered within the reach of the survey. Include an elevation view sketch of both sides of all such structures showing this information. Note structure width across the roadway or railroad.

5. Water surface elevations at each section must be provided, with the date taken. The water surface elevations at each cross section shall be taken at the left edge of water and right edge of water. **All water surface elevations should be taken on the same day if possible.** If not, note the date taken and any event which may affect the evaluation.

6. A **profile of the highpoints of all berms** such as roads, railroads, or driveways that cross the stream must be included as separate chains, with a Feature Code of "HIPTC" and labeled as "HIPTC3, HIPTC1", etc. These HIPTC chains need not be in numerical sequence, but each HIPTC chain must have a description of 10, 20, 30, etc., in sequence, starting with 10 at the downstream end. Each HIPTC chain must also have a description that identifies the type of berm, such as "railroad berm" or "farm drive." The HIPTC chains are to have descriptions of 10, 20, 30, etc., sequenced separately from the HYDRO chains. Each individual shot in the HIPTC chain should have its own identifying Feature Code and alpha prefix such as CL, SW, or WALLT. Profile shots must be taken at the approximate reference lines of the structure, with an appropriate Feature Code and a description of "approximate reference line."

7. One **road profile** for a minimum of 600 feet along the **highpoints of the state trunkline**, as determined by the MDOT Hydraulics Engineer with a description or "**M-xx centerline**." The chain Feature Code must be HIPTC, with a description of "10", or as sequenced in #6 above if there are berms downstream in the survey area. Each individual shot in the HIPTC chain should have its own identifying Feature Code, such as CL, SW or WALLT. Shots must be taken at the approximate reference lines of a structure, with an appropriate Feature Code and/or point name, such as DECK or SW, and a description of "approx reference line." In the case of a culvert, a road profile shot must be taken at the highpoint at the approximate center of the culvert, with a description of "centerline culvert" that is shown on the Hydraulics MicroStation file.

8. A **point list in ASCII format** must be provided, containing columns for point number, North (or Y), East (or X), elevation, Feature Code, and description. The shots for each cross section must be grouped together in the same order that they are in the chain, and the cross section designation noted.

9. A MicroStation V8 drawing, **saved to .pdf format**, showing the relationship of the cross sections to the structure and the road, and noting the distance between cross sections. The stream footprint must be shown, as well as any first floor locations and elevations. A **MicroStation drawing, saved to .pdf format,** of the area at the stream crossing, showing a basic map of the bridge including abutments, the road(s), and cross section shots at the upstream and downstream faces of the structure (elevations in small text).

10. A **MicroStation drawing, saved to .pdf format,** of the area at the stream crossing, showing a basic map of the bridge including abutments, the road(s), and cross section shots at the upstream and downstream faces of the structure (elevations in small text).

11. **Benchmark list** with descriptions, elevations, and datum; and least squares analysis for benchmarks at the structure.

12. Two hydraulics cross sections, one at the upstream and one at the downstream face of the structure excluding roadway embankment.

13. **Upstream** of the structure, **hydraulics cross-sections must be defined by the MDOT Hydraulics Unit.**

14. **Downstream** of the structure, **hydraulics cross-sections must be defined by the MDOT Hydraulics Unit.**