

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

MDOT PROJECT MANAGER			JOB NUMBER (JN)	CONTROL SECTION (CS)
DESCRIPTION				
MDOT PROJECT MANAGER: Check all items to be included in RFP WHITE = REQUIRED GRAY SHADING = OPTIONAL			CONSULTANT: Provide only checked items below in proposal	
Check the appropriate Tier in the box below				
TIER I (\$25,000-\$99,999)	TIER II (\$100,000-\$250,000)	TIER III (>\$250,000)		
			Understanding of Service	
			<i>Innovations</i>	
			<i>Safety Program</i>	
N/A			Organizational Chart	
			Qualifications of Team	
			Past Performance	
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 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)	19 pages (MDOT Forms not counted)	Total maximum pages for RFP not including key personnel resumes	

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 Service Contracts" and "Guideline for Completing a Low Bid Sheet(s)", if a low bid is involved as part of the selection process. **Referenced Guidelines are available on MDOT's website under Doing Business > Vendor/Consultant Services > Vendor/Consultant Selections.**

RFP SPECIFIC INFORMATION

BUREAU OF HIGHWAYS

BUREAU OF TRANSPORTATION PLANNING **

OTHER

THE SERVICE WAS POSTED ON THE ANTICIPATED QUARTERLY REQUESTS FOR PROPOSALS

NO

YES

DATED _____ THROUGH _____

Prequalified Services – See page ___ of 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 section team will review the information submitted and will select the firm considered most qualified to perform the services based on the proposals. The selected vendor will be contacted to confirm capacity. Upon confirmation, that firm will be asked to prepare a priced proposal. Negotiations will be conducted with the firm selected.

****For RFP's that originate in Bureau of Transportation Planning only**, a priced proposal must be submitted at the same time as, but separate from, the proposal. Submit directly to the Contract Administrator/Selection Specialist, Bureau of Transportation Planning (see address list, page 2). The priced proposal must be submitted in a sealed envelope, clearly marked "**PRICE PROPOSAL.**" The vendor's name and return address MUST be on the front of the envelope. The priced proposal will only be opened for the highest scoring proposal. Unopened priced proposals will be returned to the unselected vendor(s). Failure to comply with this procedure may result in your priced proposal being opened erroneously by the mail room.

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.

Qualifications Review / 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 and post the date of the bid opening on the MDOT website. The notification will be posted at least two business days prior to the bid opening. Only bids from vendors that meet proposal requirements will be opened. The vendor with the lowest bid will be selected. The selected vendor may be contacted to confirm capacity.

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

A bid sheet(s) must be submitted in accordance with the "Guideline for Completing a Low Bid Sheet(s)" (available on MDOT's website). The Bid Sheet(s) is located at the end of the Scope of Services. Submit bid sheet(s) separate from the proposal, to the address indicated below. The bid sheet(s) must be submitted in a sealed manila envelope, clearly marked "**SEALED BID.**" The vendor's name and return address MUST be on the front of the envelope. Failure to comply with this procedure may result in your bid being opened erroneously by the mail room and the bid being rejected from consideration.

PROPOSAL SUBMITTAL INFORMATION

REQUIRED NUMBER OF COPIES FOR PROJECT MANAGER	PROPOSAL/BID DUE DATE	TIME DUE
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PROPOSAL AND BID SHEET MAILING ADDRESSES

Mail the multiple proposal bundle to the MDOT Project Manager or Other indicated below.

MDOT Project Manager

MDOT Other

Mail one additional stapled copy of the proposal to the Lansing Office indicated below.

Lansing Regular Mail

OR

Lansing Overnight Mail

Secretary, Contract Services Div - B470
 Michigan Department of Transportation
 PO Box 30050
 Lansing, MI 48909

Secretary, Contract Services Div - B470
 Michigan Department of Transportation
 425 W. Ottawa
 Lansing, MI 48933

Contract Administrator/Selection Specialist
 Bureau of Transportation Planning B470
 Michigan Department of Transportation
 PO Box 30050
 Lansing, MI 48909

Contract Administrator/Selection Specialist
 Bureau of Transportation Planning B470
 Michigan Department of Transportation
 425 W. Ottawa
 Lansing, MI 48933

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 four (4) 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.)

Michigan Department of Transportation

SCOPE OF SERVICE FOR DESIGN SERVICES

CONTROL SECTION(S): 80023

JOB NUMBER(S): 114292 C

PROJECT LOCATION:

The project is located on I-94 eastbound from County Line Road for 3 miles easterly to CR 687 and on both bounds of I-94 from one mile west CR 681 for two miles easterly to one mile east of CR 681. These limits are within the city of Hartford, Hartford Township, and Lawrence Township, in Van Buren County.

PROJECT DESCRIPTION:

Provide design services for concrete pavement repair, diamond grinding, hot mix asphalt overlay, widening of median shoulder, earthwork for slope blending and drainage, isolated culvert replacement, guardrail replacement, cable barrier replacement, clearing, and freeway sign upgrade.

ANTICIPATED SERVICE START DATE: April 13, 2012

ANTICIPATED SERVICE COMPLETION DATE: April 1, 2014

PRIMARY PREQUALIFICATION CLASSIFICATION(S):

Roadway Rehabilitation & Rural Freeways

SECONDARY PREQUALIFICATION CLASSIFICATION(S):

Hydraulic Surveys
Maintaining Traffic Plans and Provisions
Pavement Marking Plans
Permanent Freeway Traffic Signing Plans
Road Design Surveys
Structure Surveys

DBE REQUIREMENT: 7%

MDOT PROJECT ENGINEER MANAGER:

Kyle Rudlaff, Transportation Engineer 13 Licensed Specialist
Southwest Region/Coloma TSC
Coloma TSC, 3880 Red Arrow Highway, Benton Harbor, MI 49022
Phone No.: (269) 849-2347
Fax Number: (269) 849-1227
E-mail: rudlaffk@michigan.gov

CONSTRUCTION COST:

A. The estimated cost of construction is:

1.	Mainline Pavement	\$ 6,000,000
2.	Drainage	\$ 100,000
3.	Permanent Barrier	\$ 600,000
4.	Maintaining Traffic	\$ 1,000,000
5.	Permanent Pavement Markings/Signs	\$ 150,000
6.	Mobilization/Staking	\$ 600,000
7.	Restoration/Clearing	\$ 450,000
8.	Miscellaneous	\$ 100,000
9.	Contingency	\$ 500,000
	CONSTRUCTION TOTAL	\$ 9,600,000

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, Drainage Manual, Roadside Design Guide, A Policy on Geometric Design of Highways and Streets, Michigan Manual of Uniform Traffic Control Devices, etc.).

NOTE: A process change mandated by federal audit of MDOT’s design process puts the Omissions and Errors Check Meeting after the Plan Completion. Please keep this in mind when preparing your schedule. See MDOT Road Design Manual, Chapter 14 – Procedures – Section 14.54 for corroboration. See “For Your Information” contacts at the end of this document for more info or questions.

Consultant is required to use MDOT's current 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.

PROJECT INFORMATION AND CONSULTANT TASKS:

1. The project locations and treatment scheme are depicted in Attachment D.
2. The pavement treatment includes concrete repair and diamond grinding on I-94 eastbound from one mile west of CR 681 to 100 feet east of CR 681. The treatment at all other project locations is isolated full depth concrete pavement repairs, spall repair, and hot mix asphalt overlay.
3. The hot mix asphalt treatment includes:
 - a. Pavement: 220#/Syd Gap Graded Superpave top course over 330 #/Syd 3E30 level course over 80#/Syd 5E30 scratch course
 - b. Shoulder Widening & MOT Pavement: 220#/Syd 4E3 top course over 330#/Syd 3E3 Base course over 6 inch agg base, over 18 inches subbase.
 - c. Shoulder Overlay: 220#/Syd 4E3 top course over 410#/Syd level course over existing concrete or HMA.
4. The maintenance of traffic (MOT) concept involves widening the existing paved median shoulder by 4 feet to achieve a total paved width of 8 feet. The widened shoulder will be at a 5" depth. Prior to providing treatment on the traffic lanes, two lanes of traffic shall be shifted one half lane width towards the existing outside shoulder prior to this operation, so work can take place with two lanes open to traffic in compliance with daytime traffic restrictions. After the median shoulder is widened, one lane of traffic will be shifted on it while night work takes place on the outside lane. Subsequently, one lane of traffic is shifted on to the outside shoulder while night work takes place on the median lane. Two lanes of traffic shall be maintained during daytime hours, which are to be detailed at a later time. I-94 eastbound (EB) bridge over Pine Creek (B01 of 80023-3) will be widened to carry two lanes of I-94 EB traffic prior to a deck overlay being applied to the existing structure. The bridge design is an MDOT "in-house" design. The Consultant responsibilities include all road approach design and the maintaining traffic design leading into this bridge work.
5. The Consultant shall provide an independent geometric element report with the base plans in a format similar to the one provided in Attachment E titled "Level One Design Criteria Checklist – Existing and Proposed." An updated report shall be provided by the Consultant with the Preliminary Plans and the OEC Plans.
6. The Consultant shall provide removal, construction, and profile sheets for this project.
7. Pavement designs will be provided by MDOT.

8. The initial concept for maintaining vertical clearance for I-94 westbound under CR 681 is to transition the I-94 hot mix asphalt overlay thickness down to two inches under the bridge. The existing concrete pavement will be milled two inches under the bridge so vertical clearance is not reduced. This concept is being applied in the 2012 I-94 eastbound project at Park Road. Depending on the success of this treatment, the Consultant shall detail this or some other scheme to provide treatment on I-94, maintain traffic, and maintain vertical clearance for I-94 westbound.

9. Complete project drainage design. All culverts under I-94 project work shall be cleaned and video inspected. Based on a combination of each culvert's condition and flow capacity, the consultant shall suggest to MDOT which culverts to replace. Special staging design will be required to maintain the drainage flows, protect traffic from excavations, and complete the construction while maintaining two lanes of traffic during daytime hours. In the I-94 EB treatment segment from MP 43 to CR 381, culverts shall not be replaced under I-94 WB. Hydraulic calculations and design of new drainage pipes is to be done. The Consultant shall provide a hydraulic data table that shows watershed areas, design flows, existing pipe sizes, and existing pipe capacities, for all culverts that carry flow under both bounds of I-94. This shall also be done separately for culverts that drain the median. Drainage vicinity sheets shall be completed by the Consultant. The Consultant shall note the locations of standing water on the roadside and propose ditching or other measures to improve roadway drainage. Permit diagrams and permit information for MDEQ permit applications shall be provided by the Consultant at all required locations. The permit applications will be completed and submitted by MDOT. The Consultant survey shall collect additional watercourse topographical data for at least fifty feet upstream and downstream from cross culvert locations as necessary to properly model culvert capacities. This activity is not considered a hydraulic survey.

10. The Consultant shall evaluate roadside slopes for conformance with traversable slope criteria and shall collaborate with MDOT to identify the roadside slope safety improvements to be included in the project. The design plans shall show vegetation being cleared from the edge of the I-94 shoulder to the top of the ditch back slope, or 12 feet outside the ditch bottom, or to the existing MDOT ROW line, whichever is least. The consultant shall describe tree size and type within clearing areas so bidders understand the magnitude of work related to the pay item.

11. Design the maintenance of traffic for all project work. The Consultant shall complete a Mobility Analysis and Transportation Management Plan for this project as described in the MDOT Work Zone Safety and Mobility Manual. Traffic Restrictions for I-94 are as follows: Two lanes of I-94 traffic in each direction are to be maintained for all work where this is feasible. One lane of I-94 traffic may be maintained in each direction on Monday thru Thursday from 7:00 p.m. to 11:00 a.m. to complete road work in the traffic lanes. Design traffic staging for culvert replacements to be made with an open cut trench, temporary shoulder widening, and sheet pile support where necessary. The Consultant shall anticipate preparation of different staging alternatives, including cost estimates, for culvert replacement work. The Consultant provided MOT work zone signing plan will show the sign location and legend for each sign used in each sequence. The single lane closures shall be located such that lanes shall always be closed starting from the left. Traffic shifts will be utilized to transition traffic to the left or right as necessary.

12. The Consultant shall trace into the plans from aerial photography topographical landmarks that would fall on the plan sheet but outside the I-94 ROW to improve the pictorial references available on the plan sheets. Drives, billboards, towers, structures, and land use labels are examples of such items to be posted on the plans. Topographical features, including the roadway shall be depicted from ROW to ROW, even if only one bound of I-94 is receiving treatment.

13. All soil erosion control items must be shown on plan and profile sheets with associated key numbers and notes where applicable. The Consultant will provide the design for these measures. MDOT staff will review measures shown on preliminary plans and make comments. The Consultant shall adjust the plan according to the comments.

14. Cost estimates in *.csv format are to be developed at base plan, preliminary plan, and final plan process steps.

15. Plans are to show existing utilities. Existing utility information will be solicited by MDOT. Information is to be transferred to the plans by the Consultant. The MDOT Project Manager will perform the utility verification distribution. The Design Consultant is to coordinate any communication with utilities with the MDOT Utilities Engineer. The Consultant shall produce an orderly report that identifies all potential conflicts between project work and existing utilities. The Consultant shall participate in utility meetings and form design alternative to minimize utility conflicts. MDOT will coordinate utility relocations. The Coloma TSC Utility Engineer is Jarrett Burgess. He can be reached at phone number 269-849-1790.

16. Public involvement on this project is limited to supporting one public event by completing one flyer with graphics that describes the project, several displays depicting the project highlights, and attending one public meeting. The Consultant shall make allowance for one additional stakeholder meetings as may be scheduled to describe the project and discuss project impacts.

17. MDOT will reproduce and distribute all paper plan sets associated with project plan distributions. This includes but is not limited to Base Plans, utility distributions, Plan Review, and OEC Meetings.

18. The OEC and final design package will be assembled and completed by the Consultant in the E-Plan and E-Proposal formats provided by MDOT. The matching *.csv file will accompany these items.

19. A period of approximately two months is expected between Consultant Plan Turn-in and the MDOT letting. An allowance of 10 Consultant hours to refresh the final package with mandated MDOT Standard Plan and/or pay item updates just prior to letting shall be set up in the Consultant work plan.

20. Interim Consultant deliverables include CADD fence files of each sheet provided for base plans, preliminary plans, and final plans. No reference files are to be used and the display must replicate the plans submitted for the respective process step.

21. All project documents, including final deliverables and the survey are to be provided in 100% electronic format to the Project Manager. Paper documents may be submitted, but the electronic copy must also be provided. An additional paper portfolio of survey material is required to be sent to the Southwest Region Surveyor for review when complete.

22. The Design Consultant must obtain prior approval from the MDOT Project Manager before charging of hours on a task in excess of the amount estimated in the work plan. The MDOT Project Manager reserves the option to delay approval of invoices when the cumulative amount charged exceeds the cumulative design progress.

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.
- B. Prepare required plans, typical cross-sections, details, and specifications required for design and construction.
- C. Compute and verify all plan quantities.
- D. Prepare staging plans and special provisions for maintaining traffic during construction.
- E. Provide solutions to any unique problems that may arise during the design of this project.
- F. 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.
- G. 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.

- H. If excavation is required, submit the excavation locations which may contain contamination. Project Manager then can proceed in requesting a Preliminary Project Assessment (PPA).
- I. The Consultant shall be required to prepare and submit a CPM network for the construction of this project.
- J. 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.
- K. The Consultant will provide to MDOT at the scheduled submittal dates, copies of the required specifications and plan set materials for distribution by MDOT for all reviews for this project with the exception of The Plan Review. The Consultant shall contact the project manager prior to the submittal dates for the exact number of copies that will be required for submittal. The following is an estimate of the number of copies that will be needed; 30 sets – Pre-OEC, 30 sets - OEC Review.
- L. 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.
- M. Attend any project-related meetings as directed by the MDOT Project Manager.
- N. 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.
- O. 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.
- P. 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.

- Q. 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.

UTILITIES

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 Permits Engineer 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. The Consultant will be responsible for miscellaneous staking of utilities.

TRAFFIC CONTROL

The Consultant shall be responsible for all traffic control required to perform the tasks as outlined in this Scope of Design Services. The Consultant shall discuss the traffic control with the Coloma TSC Traffic and Safety Engineer prior to each work activity in the field. These operations are known to consist of survey operations and culvert cleaning and video operations. Field Work is restricted to be from 9:00 a.m to 3:00 p.m. Monday through Friday. A shoulder closure is required whenever a work vehicle is parked on the shoulder. The Traffic Control Typical is found in Attachment B. The Consultant shall E-mail the MDOT Project Manager, Utility and Permits Engineer, and TSC Traffic and Safety Engineer a work schedule and field contact information prior to any field work activity.

The TSC Traffic and Safety Engineer is Gary Loyola. His contact information is Ph. 269-849-2346, and E-mail: loyolag@michigan.gov.

GEOTECHNICAL SERVICES

There are no geotechnical services provided by the Consultant.

MDOT PERMITS

The Consultant shall be responsible for obtaining up to date access permits and pertinent information for tasks in MDOT Right of Way (ROW). This information can be obtained through Joe Rios, Utilities/Permits Section, Real Estate Division at (517) 241-2103.

MONTHLY PROGRESS REPORT

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

MDOT RESPONSIBILITIES:

- A. Schedule and/or conduct the following:
 - 1. Project related meetings.
 - 2. The Plan Review
 - 3. Utility Meetings.
 - 4. Quantity summary sheets and final item cost estimates.
 - 5. Packaging of plans and proposal.
- B. Furnish Special Details and pertinent reference materials.
- C. Furnish prints of an example of a similar project and old plans of the area, if available. Furnish the environmental classification document.
- D. Obtain all permits for the project as outlined in previous section.
- E. Coordinate any necessary utility relocation.
- F. Furnish FTP site for software download and instructions for the MDOT Stand Alone Proposal Estimator's Worksheet (SAPW).

DELIVERABLES:

The Consultant shall deliver all computer files associated with the project in their native format (spreadsheets, CADD files, GEOPAK files, 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 as shown in Appendix A of the Road Design Manual. 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 posted to the bulletin board system. When the use of GEOPAK road design software is necessary to develop plans all pay items shall be placed into the CADD file using GEOPAK's Design and Computation Manager so that Quantity Manager can be used to transfer pay item information to SAPW/Trns*port. 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 capturing a legally signed document or a hard copy version of a document is all that exists.

Plan files shall be submitted in their native dgn format with standard naming conventions as well as plotted into a combined Adobe PDF file. Plan sheets shall be plotted to Adobe PDF with full text search and level on/off capabilities in half size (11" x 17") formats. A full size title sheet shall be plotted stamped and signed then scanned for inclusion with the Adobe PDF set. The original title sheet will be sent to the MDOT Project Manager.

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 construction, removal and profile sheets will require a ratio (scale) of **1:40 (English Units)**.

Other plan sheets that are required for this project shall be completed by the Consultant. These include, but are not limited to the following plan sheets:

- A. The title sheet. MDOT will provide a map of the area on a disk in our workstation format. If the map is not available, MDOT will provide a map that could be used. The Consultant shall be responsible for any revisions to the title sheet and the title sheet and map shall meet MDOT format and layout guidelines.
- B. Note Sheet.
- C. Typical Cross-Sections.
- D. Project specific Special Details.
- E. Construction staging and traffic control plans.
- F. Detail grade sheets for critical areas.
- G. Pavement marking plan(s).
- H. Witness and benchmark sheet(s).
- I. Soil boring log sheet(s).

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

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.

PRELIMINARY ENGINEERING - DESIGN

DESIGN SCOPE VERIFICATION AND BASE PLAN

PREPARATION

<input checked="" type="checkbox"/>	<input type="checkbox"/>	3130	Verify Design Scope of Work and Cost	5/11/12
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3310	Prepare Aerial Topographic Mapping	/ /
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3320	Conduct Photogrammetric Control Survey	/ /
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3321	Set Aerial Photo Targets	/ /
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3330	Conduct Design Survey	9/14/12
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3340	Conduct Structure Survey	9/14/12
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3350	Conduct Hydraulics Survey	9/14/12
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3360	Prepare Base Plans	11/28/12
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<i><u>311M</u></i>	<i>Utility Notification</i>	/ /
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3361	Review and Submit Preliminary ROW Plans	/ /
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<i><u>331M</u></i>	<i>Preliminary ROW Plans Distributed</i>	/ /
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3365	Pre-Conceptual ITS Design and Meeting	/ /
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3370	Prepare Structure Study	/ /
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3375	Conduct Value Engineering Study	/ /
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3380	Review Base Plans	12/20/12
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<i><u>332M</u></i>	<i>Base Plan Review (Pre-GI Inspection)</i>	12/20/12
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3390	Develop the Maintaining Traffic Concepts	11/28/12

		P/PMS TASK NUMBER AND DESCRIPTION	DATE TO BE COMPLETED BY (mm/dd/yyyy)
YES	NO		
<u>PRELIMINARY PLANS PREPARATION</u>			
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3510 Perform Roadway Geotechnical Investigation	/ /
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3520 Conduct Hydraulic/Hydrologic and Scour Analysis	/ /
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3522 Conduct Drainage Study, Storm Sewer Design, and use Structural Best Management Practices	1/31/13
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3530 Conduct Structure Foundation Investigation	/ /
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3535 Conduct Structure Review for Architectural and Aesthetic Improvements	/ /
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3540 Develop the Maintaining Traffic Plan	3/11/13
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3551 Prepare/Review Preliminary Traffic Signal Design Plan	/ /
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3552 Develop Preliminary Pavement Marking Plan	3/11/13
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3553 Develop Preliminary Non-Freeway Signing Plan	/ /

MDOT PRECONSTRUCTION TASKS CONSULTANT CHECKLIST

YES	NO	PRELIMINARY ENGINEERING - DESIGN (cont'd)		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3554	Develop Preliminary Freeway Signing Plan	3/11/13
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3555	Prepare/Review Preliminary Traffic Signal Operations	/ /
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3570	Prepare Preliminary Structure Plans	/ /
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3580	Develop Preliminary Plans	3/11/13
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3581	Review and Submit Final ROW Plans	/ /
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<i>351M</i>	<i>Final ROW Plans Distributed</i>	/ /
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3585	Final ITS Concept Design and Meeting	/ /
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3590	Review Preliminary Plans (Hold Plan Review Meeting)	4/11/13
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<i>352M</i>	<i>THE Plan Review (Grade Inspection)</i>	4/11/13
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3595	Conduct ITS Structure Foundation Investigation	/ /
<u>UTILITIES</u>				
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3610	Compile Utility Information	11/28/12
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3615	Compile ITS Utility Information	/ /
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3650	Coordinate RR Involvement for Grade Separations	/ /
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3655	Coordinate RR Involvement for At-Grade Crossings	/ /
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3660	Resolve Utility Issues	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<i>360M</i>	<i>Utility Conflict Resolution Plan Distribution</i>	/ /
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<i>361M</i>	<i>Utility Meeting</i>	6/28/13
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3670	Develop Municipal Utility Plans	/ /
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3672	Develop Special Drainage Structures Plans	/ /
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3675	Develop Electrical Plans	/ /
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3680	Preliminary ITS Communication Analysis	/ /
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3690	Power Design (Power Drop in Field)	/ /
<u>MITIGATION/PERMITS</u>				
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3710	Develop Required Mitigation	/ /
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3720	Assemble Environmental Permit Applications	4/25/13
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3730	Obtain Environmental Permit	/ /

MDOT PRECONSTRUCTION TASKS CONSULTANT CHECKLIST

PRELIMINARY ENGINEERING - DESIGN (cont'd)

		P/PMS TASK NUMBER AND DESCRIPTION	DATE TO BE COMPLETED BY (mm/dd/yyyy)
YES	NO		
<u>FINAL PLAN PREPARATION</u>			
X		PRE-OEC Package Submission	7/3/13
X		PRE-OEC Meeting	7/18/13
<input type="checkbox"/>	X	3821 Prepare/Review Final Traffic Signal Design Plan	/ /
X	<input type="checkbox"/>	3822 Complete Permanent Pavement Marking Plan	8/1/13
<input type="checkbox"/>	X	3823 Complete Non-Freeway Signing Plan	/ /
X	<input type="checkbox"/>	3824 Complete Freeway Signing Plan	8/1/13
<input type="checkbox"/>	X	3825 Prepare/Review Final Traffic Signal Operations	/ /
X	<input type="checkbox"/>	3830 Complete the Maintaining Traffic Plan	8/1/13
X	<input type="checkbox"/>	3840 Develop Final Plans and Specifications	8/1/13
X	<input type="checkbox"/>	<u>380M Plan Completion</u>	8/1/13
<input type="checkbox"/>	X	3850 Develop Structure Final Plans and Specifications	/ /
X	<input type="checkbox"/>	3870 Hold Omissions/Errors Check (OEC) Meeting	8/28/13
X	<input type="checkbox"/>	<u>387M Omissions/Errors Checks Meeting</u>	8/28/13
X	<input type="checkbox"/>	<u>389M Plan Turn-In</u>	9/27/13

FOR YOUR INFORMATION

For questions on specific tasks, refer to the P/PMS Task Manual located on the MDOT Bulletin Board System.

For assistance in accessing this manual, please contact one of following:

Dennis Kelley: (517) 373-4614

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. The latest copy of the "Professional Engineering Service Reimbursement Guidelines for Bureau of Highways" is available on MDOT's website. This document contains instructions and forms that must be followed and used for billing. 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.

ATTACHMENT A
SURVEY SCOPE OF WORK
I-94 in Hartford Township, Van Buren County

A. SURVEY PREQUALIFICATIONS: Road Design Surveys, Hydraulic Surveys, and Bridge Design Surveys

B. MAPPING LIMITS: A PORTFOLIO as outlined in this section IS REQUIRED.

C. NOTES:

1. The Consultant shall discuss the scope of this survey with the MDOT Project Manager / Region Surveyor before submitting a Price Proposal:
 - MDOT Project Manager: Kyle Rudlaff
(269) 849-2347
Rudlaffk@michigan.gov
 - MDOT Region Surveyor: Erik J. Schnepf, PS
(269) 337-3922
SchnepfE@michigan.gov
2. The Consultant surveyor must contact the Region Traffic & Safety Engineer for work restrictions and traffic control in the project area prior to submitting a proposal.
3. A **detailed Survey Work Plan** showing timeframe with a **spreadsheet estimate** of hours by specific survey task such as DTM creation, traversing, leveling, mapping, etc., **must** be included in the project Price Proposal. This hour estimate will be scored by the selections team to aid in determining the consultant understanding of service expected for this project. This hour estimate will be included by the consultant for scoring by the selection team.
4. 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.
5. At the end of the project a submittal meeting will be set up between the Southwest Region Surveyor and other MDOT staff to review the survey

D. BI-WEEKLY PROGRESS REPORT

Every 4 weeks the Consultant shall submit a project progress report to the Region surveyor. The progress report shall address the following items:

1. Work accomplished during the previous weeks.
2. Anticipated work and goals for the coming weeks.
3. Real problems which occurred during the weeks, and anticipated problems for the coming weeks.
4. Any updates on the project schedule including explanations for any delays or changes in schedule, scope, or work plan.
5. Any early reviews or submittals such as adjustments, computations, or alignment. For this project the timeline is critical. It is important to meet the proposed schedule as listed above.
6. Copy of Verbal Contact Records for the period giving details for the item discussed and date.

E. 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.
3. Work in any of the following categories of survey: Road Design, Bridge, Hydraulic, Right-of-Way, Ground Control (Photogrammetric), and/or Geodetic control, must be completed by a survey firm which is pre-qualified by MDOT.
4. Surveys must meet all requirements of the Michigan Department of Transportation (MDOT) Design Surveys *Standards of Practice* dated March, 2011. Please contact the Design Survey office to clarify any specific questions regarding these standards.
5. The Consultant is responsible for using the latest MDOT CAiCE Feature Codes, files and tugboat (macro), available on the MDOT File Transfer Protocol (FTP) site. **The CAiCE software used must be Version 10.2 or newer. The Consultant must also use MicroStation Version 8 or newer.**

6. Consultants must obtain all necessary permits required to perform this survey on any public and/or private property. This includes an up-to-date permit from the MDOT Utilities Coordination and Permits Section
7. 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).
8. 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 proposal.
9. 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.
10. Consultants are responsible for a comprehensive and conscientious research of all records, including MDOT records, essential for the completion of this project.
11. Measurements, stationing, recorded data, and computations must be in International Feet.
12. Coordinate values must be based on the Michigan Coordinate System of 1983 (MCS 83), Appropriate Zone. All elevations must be based on the North American Vertical Datum of 1988 (NAVD88).
13. Specific requirements concerning the Control, Alignment, property, mapping, misc., of each survey portfolio is described below.
14. Current MDOT QA/QC CERTIFICATION CHECK LIST dated March 2009 will be used. This can be obtained on the MDOT FTP site.
15. Current MDOT symbology must be used exclusively as shown on the MDOT FTP site.

The FTP site for consultants is:

<ftp://ftp.michtrans.net>

username: survcons

password: \$urvcon\$

16. All data, whether electronic or paper, must be recorded on non-rewritable Compact Discs (CD's). All paper files, including MicroStation files, must be

scanned and/or converted to Adobe Acrobat (.pdf) format. 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 ASCII text, CAiCE and MicroStation must have separate access.

17. CD's must be labeled with the route, location, control section, job number, Consultant name, and data type.
18. Each category of survey must be packaged separately (i.e., Structure survey separate from Road survey). All sheets in a portfolio must be marked with the control section, job number, portfolio section name, and page number.
19. The Consultant representative shall record and submit typewritten minutes for all project related survey meetings to the MDOT Project Manager within two weeks of the meeting. The Consultant shall also distribute the minutes to all meeting attendees.
20. The MDOT Project Manager is the official contact for the Consultant. The Consultant must either address, or send a copy of all correspondence to the MDOT Project Manager. The MDOT Project Manager shall be made aware of all communications regarding this project. Any questions regarding this award or any subsequent project should be directed to the Region Surveyor.
21. 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:

MDOT Design Division
Erik J. Schnepf, PS
1501 E. Kilgore,
Kalamazoo, MI. 49001

Please use MDOT's Form 222(3/99) 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.

F. WORK RESTRICTIONS

The Consultant must call the MDOT Region or TSC Traffic & Safety Engineer before

submitting the Priced Proposal to inform him/her of surveying activity in the area. The Consultant must discuss a Traffic Control and Safety plan with the Traffic & Safety Engineer prior to submitting a proposal. A copy of the Traffic Control and Safety plan must be submitted with the Price Proposal and used as a basis of bid for traffic control devices by at least three sources.

Traffic shall be maintained by the Consultant throughout the project to the satisfaction of the Traffic & Safety Engineer at all times. Any deviation from the Traffic Control and Safety plan without the Traffic and Safety Engineer approval can result in project delays.

The Consultant must call the MDOT Region or TSC Traffic & 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.

The following are the time restrictions for I-94:

9a-3p M-F for any lane or shoulders closures on I-94 and cannot be left in place overnight. MOT typicals to use can be verified with the traffic and safety engineer prior to beginning work.

G. FIELD SURVEY

The purpose of the field survey is to obtain all information and data required by the project design engineer, to leave control in the field for future construction staking, and to provide a sufficient history of the area to enable the MDOT Design Survey Unit to perform dependable surveys in the future.

H. HORIZONTAL CONTROL

A three dimensional coordinate system must be established based on the North American Datum of 1983, NAD83 (CORS96), Michigan State Plane Grid Coordinates- South Zone (2113) in international feet units for this project. The horizontal least squares adjustment statistics must be reported at the 95% confidence level. There is existing intermediate project control from CR687 to M-51. The information will be given to the selected consultant. Additional control will need to be set in this area following current MDOT standards.

There will be two primary control monuments set for this project. These points do not need to be inter-visible. The horizontal project control for this project will be classified as intermediate project control according to the MDOT Standards of Practice dated April 1, 1998. For the placement of control the interstate project scenario shall apply. These control points are intended for mapping and should be located outside the proposed construction area to insure their availability for all phases of construction. Each control point must be accurately described and witnessed to at least four nearby features. Please

refer to MDOT Standards of Practice for the minimum requirements for these points. Prior to any mapping the horizontal and vertical control must be approved by the Southwest Region Surveyor

OPUS positioning may be used, as long as there are checks, redundancies and controls built into the Consultant's horizontal control system. For any and all OPUS solutions, a RINEX format file with a minimum of two hours of GPS data must be included, as well as the OPUS solution from NGS. All OPUS solutions must be verified within 0.10 foot, either by a separate OPUS position from an independent occupation, or by a NGS/CORS adjustment. OPUS-RS is not acceptable for establishing the control on the project.

A closed traverse must be run and adjusted between two or more known points on the project control traverse. Open traverses are NOT acceptable. Unadjusted traverse measurements must produce an error of closure of not greater than 1:20,000. Any permissible error of closure shall be distributed throughout the traverse by means of a suitable least squares adjustment software program.

All data collection traverse points and the plan centerline alignment must be tied to the control established for this project. All field observations, unadjusted traverse computations and final adjusted coordinates must be included in the notes. A list of all horizontal control points must be developed which includes datum, point designations, descriptions, horizontal coordinates with standard errors, station and offset, witnesses and appropriate scale factors (grid to ground). This list must be printed on 8.5" x 11" sheets and placed on CD in ASCII format. All data relating to the horizontal component of the system must be included in the control section of the portfolio.

Before any mapping begins the control will be reviewed by the Southwest Region Surveyor. Once the control is accepted mapping can start. There is already some existing control which can be used for this project. It is based on NAVD 88 and Michigan State Plane Grid Coordinates International feet. The data is attached. This control starts at CR687 and goes Easterly. This is for both vertical and horizontal control. This control point listing is attached. This control should be verified by the selected consultant.

I. VERTICAL CONTROL

The vertical component of this project must be based upon the North America Vertical Datum of 1988 (NAVD 88). The vertical least squares adjustment statistics must be reported at the 95% confidence level.

Upon request, the MDOT Design Survey Unit will supply descriptions of nearby published NGS control bench marks.

New bench marks must be set on massive structures outside the proposed construction area. Each bench mark must be accurately described and its horizontal position referenced by measurement (Northing Easting) and by station plus and offset from the

alignment stationing. In addition to the required benchmarks per MDOT guidelines, at 2 additional benchmarks must be set outside of the mapping limits. For this project the benchmarks should be set on a variety of items. For example all the benchmarks should not be on signs bases. For this project vertical control from a previous MDOT project along I-94 beginning at CR 687 and heading Easterly to M-51. This data will be given to the selected consultant.

Any error of closure must be distributed throughout the level runs by means of a suitable least squares adjustment software program. Open level loops are NOT acceptable.

The bench mark notes must include all field observations, the unadjusted loop closures and the final adjusted elevations. A bench mark list must be developed that includes datum, bench mark designations, descriptions, elevations, and station and offset (left or right) out from centerline. This bench mark list must be printed on 8.5"x 11 sheets and placed on CD, in ASCII format. All data relating to the vertical component of the system must be included in the control section of the portfolio.

The methods used to establish the horizontal and vertical components of the project coordinate control system must be fully discussed in the Surveyor's Project Report.

The consultant will prepare a Survey Information Sheet showing the witnesses and control point locations in relation to the legal alignment.

J. ALIGNMENTS

A legal alignment will be determined for this project. The legal alignment would start at station 1984+12.70 this is just west of the Berrien/Van Buren County line the alignment would then proceed Easterly into Van Buren county to station 544+40.59 A detailed write up will also be required in the Surveyor's Project Report on how the legal alignment was determined.

K. GOVERNMENT CORNERS

Any government corner used to establish the legal alignment / legal ROW lines must meet the MDOT's Design Survey Standards.

Any government corners/alignment points within the mapping limits will be located/witnessed following MDOT design survey standards.

L. MAPPING

1. Begin mapping along I-94 Eastbound at station 20+00 (Van Buren County line) and end mapping at station 192+00 with shots taken every 100 feet. Mapping

shall take place from the southerly ROW line to the southerly edge of paved shoulder for Eastbound I-94. Include elevations on the edge of paved shoulder for the southerly side of Eastbound I-94, the median side of Eastbound I-94 and the median edge of paved shoulder of Westbound I-94. The complete median will be mapped. Include both ends of culverts if the culvert crosses both Westbound I-94 and Eastbound I-94. Mapping will not include the pavement of I-94.

- The Eastbound I-94 exit and off ramps at exit 46 (Count Road 687) will be mapped. At each ramp the consultant will map 30 off the shoulder. The ramp pavement will also be mapped. The complete ramp will be mapped from the start by I-94 to the terminal location with CR687.
2. Begin mapping at 1320 feet westerly of 60th Street at station 268+00 and end at station 400+00. Mapping will begin at the southerly ROW line of I-94 and then proceed Northerly until the edge of paved shoulder. The pavement area will then not be mapped for both Eastbound I-94 and Westbound I-94. Mapping will then begin at the median edge of paved shoulder of Eastbound I-94 and end at the median edge of paved should of Westbound I-94. Therefore the complete median will be mapped. Mapping will then begin at the Northerly edge of paved should of Westbound I-94 and then proceed Northerly until the ROW line. Include any cross culverts.
 3. Every cable barrier foundation will be mapped for this project.
 4. Sample features for all mapping areas include the following items: any road features (edge of shoulder bit,) walkways, driveways, piers, all terrain points/lines, drainage features, all visible utilities (overhead electric lines, gas line markers, hydrants, etc), sanitary manholes, guardrail and every cable barrier foundation. This list is but a short sample of the possible features/codes located within the mapping limits.
 5. Key features outside of the ROW will be traced into the plans by the selected consultant.

M. Bridge Design Survey

1. At B01-80023 Pine Creek the following bridge survey data will need to be obtained by the consultant.
 - Bridge Seat Elevations at all 4 quadrants of the bridge
 - Reference point coordinates, stations, elevations, and describe how determined in surveyor's report.
 - Under clearance elevations at all 4 quadrants of the bridge
 - Water surface elevations at all 4 quadrants of the bridge
 - Reference point stationing
 - Angle of Crossing of existing substructure units
 - Bridge Schematic (Plan and Elevation Views)
 - Riparian Owners in the 4 quadrants with tax map
 - Cross section at each reference line with elevations at reference points, lane lines, toe of curb, back of curb, top of bank, etc.
 - Three cross sections perpendicular to the roadway CL. Cross sections 25 feet off the bridge end ref lines and a third cross section at mid-point of

the bridge between the two ref lines. All sections should be perpendicular to bridge center line.

- Set 4 benchmarks. Two benchmarks will be set on the bridge either side of I-94. The 2 remaining benchmarks shall be set outside downstream and upstream of I-94. Determine the difference between the existing bridge plan elevations and the current survey datum (NAVD 88).
- Create as constructed alignment of bridge based on existing plans.
- The bridge survey data can be included in the overall survey portfolio.
- The bridge survey data will need to be submitted no later than June 30, 2012 at 1"=40'.

N. DRAINAGE / SEWER

The following information is required for all surface and subsurface drainage and sewer structures:

1. **The station and offset, type, condition, location, size and invert elevation of each drainage structure and culvert.** End treatments must be noted for each culvert. This information must be printed on 8.5" x 11" sheets and submitted on a CD in **ASCII format or spreadsheet format**.
2. **The station and offset, type, condition, location, size and invert elevation of the pipes of each sanitary manhole.** This information must be printed on 8.5" x 11" sheets and submitted on a CD in **ASCII format or spreadsheet format**.
3. The **location and connectivity** of all catch basins, manholes, and culverts must be shown on the topographic map (PL.dgn). It may be necessary to prepare a separate plot to clearly show the surface drainage systems. Underground storm systems must be mapped to show the connectivity of the structures. Underground sewer lines must be mapped to show connectivity. This will be added to the CADD file and submitted on a separate topographic plot made specifically for this purpose.
4. **Photographs** must be submitted for each culvert, labeled by station and offset. Digital photographs are required.

O. DTM

The Consultant must submit a **CAiCE software file, named MDOTjob#.zip**, utilizing CAiCE's built-in archive feature, of all survey mapping points and data files for the mapping area. A properly edited Digital Terrain Model (DTM), named EXRD and created in CAiCE, must be included for the mapping area. The Consultant is responsible for using the latest MDOT CAiCE Feature Codes, files and tugboat, available on the MDOT File Transfer Protocol (FTP) site. The tugboat can be used to convert CAiCE files into Geopak and MicroStation formats. **The CAiCE software used must be Version 10.5 or newer.**

The Consultant must also submit **files created from CAiCE that are formatted for design in Geopak** software. This can be accomplished by using the MDOT Plans Production CAiCE Tugboat available on the MDOT Design Survey FTP site. The Consultant must submit a 3D MicroStation Triangle file, a Survey Chain (TIN Boundary) around the edited Triangle file with the name and Feature “CLIP”, a Job#.dat file, and a Job#.ALI file. Each alignment must be computed separately and uniquely named. These files must be submitted electronically **in a subdirectory outside of the CAiCE archive file** named “Geopak.”

P. FINAL REPORT

One complete portfolio and three complete sets of CD’s or DVD’s must be assembled and delivered in the format outlined in the *Standards of Practice* dated March, 2011. A copy of the MDOT Checklist dated March, 2009 must be included in the final report. This document shall be signed and certified by the Professional Surveyor responsible for the project. 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 shall result in the immediate return of the project portfolio for completion.**

The Consultant must provide an electronic **MicroStation Intergraph Version 8 format file** of the mapping area. This must be named MDOTjob#PL.dgn, for example **114292cpl.dgn**, and must be submitted **in a sub-directory outside of the CAiCE archive file** named “MicroStation.” The MicroStation file will be a 2-D file of the planimetric features including contours. This file must be sized appropriately, utilizing the appropriate seed file with working units of 1000, 1., and be compiled in standard MDOT format. The Consultant is responsible for using the latest MDOT Resource files, color table, and cell files, available on the MDOT File Library site under CAD_V8. Go to <http://mdotwas1.mdot.state.mi.us/public/bbs/> The scale of the map will be 1 inch to 100’.

For a comprehensive list of MicroStation level designations, contents and line attributes, refer to the “MDOTV8LEVEL.pdf” table located on the MDOT ftp site at <ftp://ftp.michtrans.net/>. The consultant Username is “survcons.” The consultant password is \$urvcon\$. This table replaces the former Attachments AA, C & D. Also in the ftp site, the Consultant should refer to the V8GROUP&ALPHA LIST.pdf file for Data Collection Codes.

Any information that would not be appropriately placed in the control, property or mapping sections should be included in this section. General photographs, local newspaper articles and project-related comments from residents are example of miscellaneous data.

The surveyor must describe, in the final report, the data included in this section.

The final report for this project shall meet the current guidelines outlined in the MDOT

Survey Standards of Practice dated March 2009.

Q. SURVEY INFORMATION SHEET

The Consultant shall prepare a MDOT Survey Information Sheet in Microsoft Word (.doc) named 114292_I194_SURVEY.doc. The Survey Information Sheet shall include the following, as applicable:

- Survey Notes (Coordinate system, Zone, Horizontal & Vertical Datum, etc.)
- Control Points (Primary & Intermediate)
- Control Point Witnesses
- Benchmarks
- Government Corners
- Alignment(s) Points

The MDOT Survey Information Sheet template can be found here:

http://www.michigan.gov/documents/mdot/MDOT_SURVEYINFOSHEET_302553_7.doc

**SCOPE FOR HYDRAULIC SURVEY
MDOT ANALYSIS
PPMS Task 3350**

**C.S. 80023 Job No. 114292D
B01 (I-94) over Pine Creek
Van Buren County**

The Consultant shall perform a hydraulic survey, which provides geometric data on the stream channel upstream and downstream of the structure. **Two weeks** prior to starting the hydraulic survey, the Consultant surveyor shall schedule a site visit with an MDOT Hydraulics engineer by contacting the Design Engineer-Hydraulics Chris Potvin at 517-335-1919 or Assistant Design Engineer-Hydraulics 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. The Consultant must take notes at the site visit and submit them promptly to the MDOT Survey Coordinator and MDOT Hydraulics engineer.

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 Hydraulics Engineer as shown in Hydraulic Survey, Appendix 1. 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 hydraulic analysis is to be performed by MDOT staff, the Consultant shall meet the following requirements for hydraulic cross-sections:

1. Cross-sections shall be submitted electronically in a CAiCE software file, or in a format acceptable to the Design Engineer-Hydraulics/Hydrology.
2. Each cross-section shall be a separate chain in CAiCE labeled “HYDRO9, HYDRO2”, etc. These **HYDRO** chain numbers need not be in sequence, but each HYDRO chain must have a description of 10, 20, 30, etc., in sequence, starting with 10 at the downstream end.
3. The centerline of all berms such as roads, railroads, or driveways that cross the stream must be included as a separate chain in CAiCE, with a Feature Code of “**CL**” and labeled as “CL3, CL1”, etc. These CL chain numbers need not be in sequence, but each CL chain must have a description of 10, 20, 30, etc., in sequence, starting with 10 at the downstream end. Each CL chain must also have a comment that identifies the type of centerline, such as “railroad berm” or “farm drive.” CL chains must be sequenced separately from the HYDRO Chains.
4. Each HYDRO and CL cross-section shall be submitted with the points in the chain running all left to right, looking downstream.
5. The cross-sections generally must extend a minimum of 100 feet into the flood plain from the stream top of bank.
6. For each cross-section, the vegetation break point (the “friction point” between the natural channel and the surrounding vegetation) shall be shot with a Feature Code of “**RBK**” or “**LBK**” on the right or left side of the waterway, looking downstream. It should have a comment or description of “break point.”
7. Subsequent vegetation break points, if applicable, shall be shot with a Feature Code of “**VEGE**” with a comment or description such as “friction point – grass to shrub,” or “friction point – shrub to trees” as appropriate.
8. The water surface elevations at each cross section shall have a Feature Code of “**LWS**”

and “RWS”, 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 LWS/RWS shots were unavailable. The note should be shown on the MicroStation drawing.

The project surveyor must ensure that all required information is legible and in a form which is easily accessible to Hydraulics/Hydrology Unit. A CAiCE software file (Version 10.6 or newer) or a HEC-RAS file in MDOT format is acceptable. Other formats must be discussed in advance with the MDOT Survey Project Manager or Region Surveyor. Only one CAiCE file per project is desired. The Consultant should not submit separate CAiCE files for Hydraulics and Road/Structure, unless the Hydraulics Survey is required to be delivered first, in which case the Road/Structure Survey CAiCE file would be continued/appended to the Hydraulics Survey CAiCE file.

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 NOTES FOR THE HYDRAULIC SURVEY MUST BE PACKAGED IN A SEPARATE PORTFOLIO. All field measurements, notes, sketches, and calculations must be included in the final transmission. Two separate, identical, and complete portfolios must be provided.

Hydraulic Survey, Appendix 1

C.S. 80023 Job No. 114292D

B01 (I-94) over Pine Creek: Section 21, T03S, R16W

Van Buren County

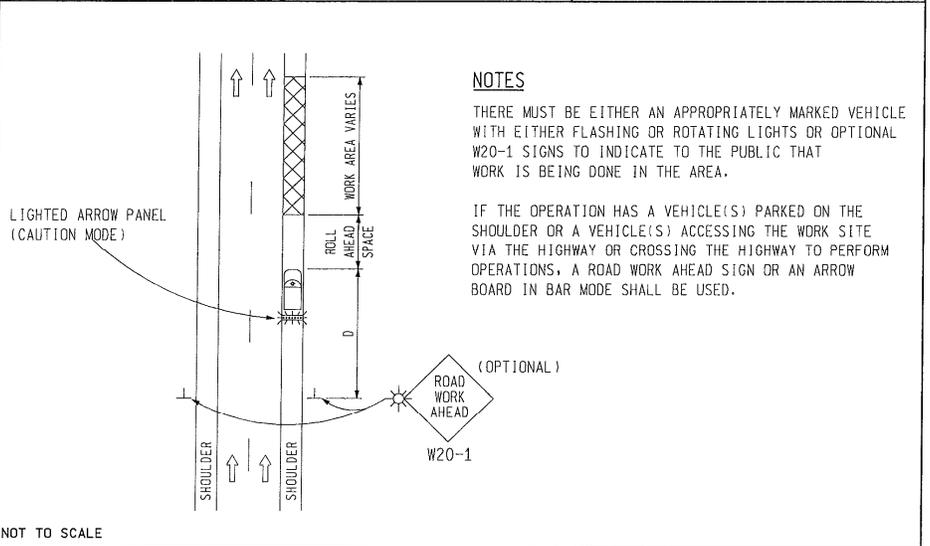
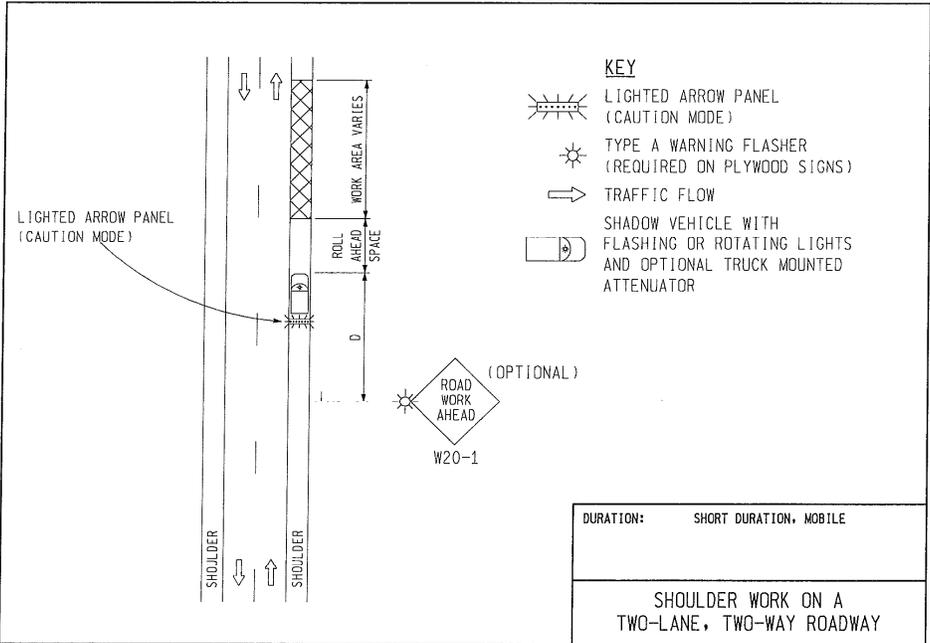
FINAL REPORT: Deliverables for Hydraulics Survey

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 floor elevations** of all buildings within the survey limits. These should use Feature Code **FF** in CAiCE for automated inclusion in MicroStation using the MDOT tugboat August 2008. A description or comment should be included noting whether or not there is a basement.
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.
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.
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. The **centerline of all berms** such as roads, railroads, or driveways that cross the stream must be included as a separate chain in CAiCE, with a Feature Code of “CL” and labeled as “CL3, CL1”, etc. These CL chains numbered by CAiCE need not be in sequence, but each CL chain must have a comment or description of 10, 20, 30, etc., in sequence, starting with 10 at the downstream end. Each CL chain must also have a description or comment that identifies the type of centerline, such as “railroad berm” or “farm drive.” The CL chains are to have descriptions of 10, 20, 30, etc., sequenced separately from the HYDRO chains.
7. One **road profile** for a minimum of 600 feet along the crown or highpoints of the state trunkline, as determined by the MDOT Hydraulics Engineer, with a comment or description or **“I-94 EB & WB highpoint.”** The chain Feature Code must be CL, with a description or comment of “10”, or as sequenced in #6 above. Shots must be taken at the approximate reference points of the structure, with a Feature Code of **RFPT** and an appropriate description or comment. In the case of a culvert, a shot must be taken on the crown at the approximate center of the culvert, with a comment or description of “centerline culvert.”
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 HYDRO and CL cross section must be grouped together in the same order that they are in the chain,

and the cross section designation (10, 20, 30, etc.) noted.

9. A **MicroStation** V8 drawing file of the Hydraulics Survey, utilizing MDOT Feature Codes and MDOT levels.
10. A paper plot of the MicroStation drawing showing the relationship of the cross sections to the structure and the road, and noting the distance between cross sections. The HYDRO chains must show the comment or description numbers of 10, 20, 30, etc. The RBK and LBK shots must be connected to show the stream footprint. First floor locations and elevations must be shown.
11. A paper plot of the MicroStation drawing 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).
12. **Benchmark list** with descriptions, elevations, and datum; and least squares analysis for benchmarks at the structure.
13. Two cross sections, one at the upstream and one at the downstream face of the structure excluding roadway embankment.
14. One cross section 30 feet upstream from the upstream face of the structure.
15. One cross section approximately 75 feet upstream from the upstream face of the structure and at the first bend to the east.
16. One cross section approximately 165 feet upstream from the upstream face of the structure at the second bend to the east.
17. One cross section 365 feet upstream from the upstream face of the structure.
18. One cross section 100 feet downstream from the downstream face of the structure.
19. One cross section 300 feet downstream from the downstream face of the structure.
20. One cross section 500 feet downstream from the downstream face of the structure.
21. One cross section 700 feet downstream from the downstream face of the structure.

ATTACHMENT B
CONSULTANT TRAFFIC CONTROL
I-94 in Vicinity of Hartford



	SHOULDER WORK ON A DIVIDED ROADWAY OR FREEWAY	DURATION: SHORT DURATION, MOBILE		
		01/01/07 REV. DATE:	MD - M12	PAGE A40

ATTACHMENT C – UTILITY LIST
JOB NUMBER(S): 114292 CONTROL SECTION(S): 80023

Comcast Cablevision

Cable
Attention: Joe Schopf Construction
Coordinator - SW Michigan 11921 East
M- 89 Richland, Michigan 49083

Plan Copies: 2

Consumers Energy

Gas
Attention: Mark Kleczynski
Kalamazoo Service Center
2500 East Cork Street
Kalamazoo, Michigan 49001

Plan Copies: 0

Consumers Energy

Electric
Attention: Mark Kleczynski
Kalamazoo Service Center
2500 East Cork Street
Kalamazoo, Michigan 49001

Plan Copies: 2

Frontier Communications

Telecom
Attention: Larry Speece 601
North US 131 Three Rivers,
Michigan 49093

Plan Copies: 1

Indiana Michigan Power Company (AEP)

Electric
Attention: Kurt Schneider 2425
Meadowbrook Road Benton
Harbor, Michigan 49022

Plan Copies: 1

Level (3) Global Network Services

Telecom
Attention: Eric Weis 450 W
Main Street Centerville,
Michigan 49032

Plan Copies: 1

Midwest Energy Cooperative

Electric
Attention: Terry Rubenthaler P
O Box 127 Cassolopis,
Michigan 49031

Plan Copies: 2

Van Buren County Drain Commissioner

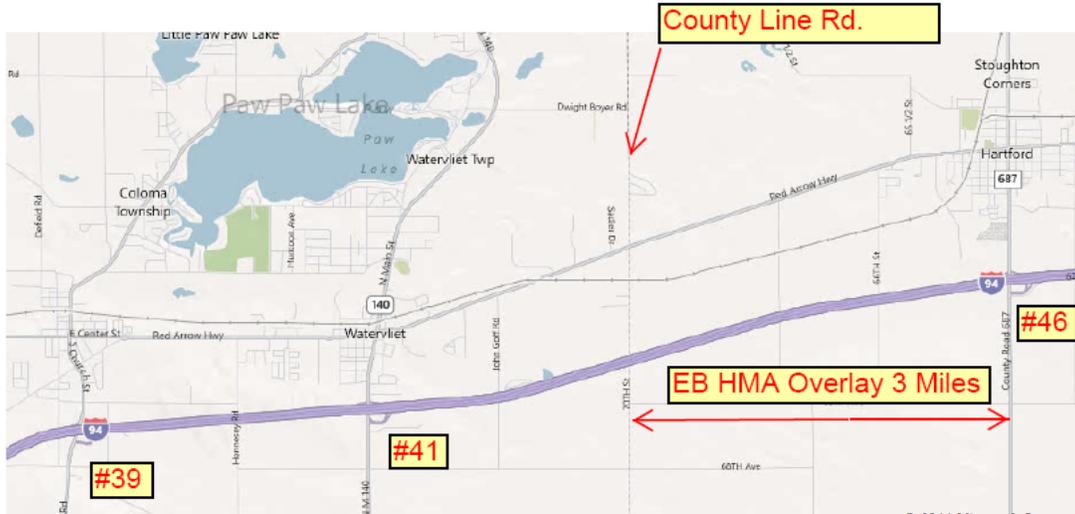
Attention: Joe Parman
County Drain Co.Drain Department
219 E Paw Paw Street Suite 301
Paw Paw, Michigan 49079

Plan Copies: 2

ATTACHMENT D

Location Map

I-94 in Hartford Township, Van Buren County Western Location



Eastern Location



ATTACHMENT E
Geometric Element Table
I-94 in Hartford Township, Van Buren County

Level One Design Criteria Checklist – Existing Conditions

Road			Design Unit	
Design Year			CS	
AADT				
Date			JN	
			Page	

Enter the lane width provided, etc. in the appropriate column.

Design Criteria (Provide numerical value for project, where indicated)	Reference	Do the existing conditions meet MDOT criteria?		
		Existing	Y/N	Proposed
1. Design Speed: Mainline: mph Ramps: mph				
2. Lane Width Mainline: ft Ramps: ft Auxiliary lanes: ft				
3a. Uncurbed Sections – Shoulder Width adjacent to: Mainline: ft Ramps: ft Auxiliary lanes: ft				
3b. Curbed Sections – Curb Offset: Mainline: ft				
4. Bridge Clear Roadway Widths				
5. Structural Capacity				
6. Horizontal Curvature (minimum Radius)				
7. Super Elevation Rate				
8a. Stopping Sight Distance – Horizontal Curves				
8b. Stopping Sight Distance – Vertical Curves				

9. Maximum Long. Grades				
10. Through Travel Lane Cross Slope				
11. Vertical Clearances				
12. Accessibility Criteria for Handicapped Individuals				
13. Ramp Accel/Decl				
14. Rollover				