

REQUEST FOR PROPOSAL

6585

BORDER TO BORDER TRAIL - HUDSON MILLS METROPARK TO WARRIOR CREEK PARK IN DEXTER, MICHIGAN

FOR

WASHTENAW COUNTY PARKS AND RECREATION COMMISSION
2230 Platt Rd., P.O. Box 8645 Ann Arbor, MI 48104

Prepared by:
Washtenaw County Purchasing
Administration Building
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**WASHTENAW COUNTY
FINANCE DEPARTMENT**

Purchasing Division

P.O. Box 8645, 220 N. Main,
Ann Arbor, MI 48107-8645
Phone (734) 222-6760
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REQUEST FOR PROPOSAL # 6585

November 19, 2010

Washtenaw County Purchasing Division on behalf of the Washtenaw County Parks and Recreation Commission is issuing a Request for Proposal (RFP) #6585 for construction of the **Border to Border Trail - Hudson Mills Metropark to Warrior Creek Park** at Warrior Creek Park, 8140 Main St., Dexter, MI 48130.

Sealed Proposals: Contractor will deliver **four copies (4)**, the **original and three (3) copies**, to the following address:

**Washtenaw County
Administration Building
Purchasing Division
220 N. Main St. Room B-35
P.O. Box 8645 Ann Arbor, MI 48107**

By 2:00 p.m. on *Wednesday December 15, 2010*

The bid opening will be held in the Purchasing Department Conference Room, B-19 of the Administration Building. Proposals received after the above cited time will be considered a late bid and are not acceptable unless waived by the Purchasing Manager. Bid envelopes and shipping packages should be clearly marked
"SEALED RFP # 6585"

A **mandatory pre-bid site meeting** will be held at **8:30 AM, Thursday, December 2, 2010** at the Warrior Creek Park (Adjacent to Project site work).

Project Work Includes:

Work to be executed includes the installation of a concrete prestressed box beam pedestrian bridge over Mill Creek, concrete flatwork, wooden boardwalk built atop helical piles, removal and replacement of a 12" diameter storm culvert, relocating an existing set of swings, placement of safety surfacing, landscaping, soil erosion control measures, removal of site debris, and various related site work activities.

Bidders Qualifications:

Any organization contemplating bidding on this project shall have been an established business entity for at least five consecutive year period prior to submission of the bid and shall have satisfactory evidence of at least three (3) successful projects of this scope.

Electronic copies of the Bid Documents may be obtained on-line at no charge, after 9:00AM, Monday, November 29, 2010 at the Washtenaw County Purchasing Department Website.

General project purchasing and procedural questions regarding this RFP should be directed to Robert G. Devault at **734-222-6760** or devaultb@ewashtenaw.org.

Please direct technical project questions regarding this RFP to Coy Vaughn, AICP, Washtenaw County Parks and Recreation, Superintendent of Park Planning at **734-971-6337 x320** or vaughnc@ewashtenaw.org.

A certified check payable to WCPRC or bid bond in the amount of five percent (5%) of the base bid must accompany each bid. The successful bidder will be required to furnish satisfactory insurance in the amounts specified in the Contract. Satisfactory Performance and Labor and Materials Payment Bonds in the amount of 100% of the contract price shall be provided as indicated on the forms included in the Contract Document.

Proposal Terms:

A. Washtenaw County reserves the right to reject any and all proposals received as a result of this RFP. If a proposal is selected it will be the most advantageous regarding price, quality of service, the Contractors qualifications and capabilities to provide the specified service, and other factors that the County may consider. The County does not intend to award a contract fully on the basis of any response made to the proposal; the County reserves the right to consider proposals for modification at any time before a contract would be awarded, and negotiations would be undertaken with that contractor whose proposal is deemed to best meet the County's needs, specifications, and interests.

B. A standard Washtenaw County Service Contract will be executed between Washtenaw County Parks and Recreation Commission (WCPARC) and the Contractor (see Sample provided within this document). The WCPARC reserves the right to reject any and all bids, to waive or not waive informalities or irregularities in bids or bidding procedures, and to accept or further negotiate cost, terms, or conditions of any bid determined by the County to be in the best interest of the County even though not the lowest bid.

C. Proposals must be signed by an official authorized to bind the contractor to its provision for at least a period of 90 days. Failure of the successful bidder to accept the obligation of the contract may result in the cancellation of any award.

D. In the event it becomes necessary to revise any part of the RFP, an addenda will be provided. Deadlines for submission of RFP's may be adjusted to allow for revisions. To be considered, Four copies (4) the original and three copies of proposals must be at the County offices as indicated on or before the date and time specified.

E. Bids must be submitted on the forms provided within the Contract Document, Proposal

section. Proposal figures may be handwritten or typed, however, no erasures are permitted. Mistakes must be crossed out, corrected, and initialed in ink by the person signing the proposal. No changes shall be permitted in the wording or quantity numbers on the Proposal Form(s).

F. In the event, the County receives two or more bids from responsive, responsible bidders, one or more of whom are Washtenaw County vendors and the bids are substantially equal in price, quality and service, the County shall award the contract to the most responsive, responsible Washtenaw County vendor. For purposes of this section, Washtenaw County vendor means a company which has maintained its principal office in Washtenaw County for at least six (6) months. Maintaining a Washtenaw County P.O. Box is not sufficient to establish a company as a Washtenaw County vendor. The County shall have sole discretion under this section to determine if two or more bids are substantially equal.

Thank you for your interest.

Robert Devault, CPM
Purchasing Manager

INSTRUCTIONS TO BIDDERS

GENERAL

Work to be executed includes the installation of a concrete prestressed box beam pedestrian bridge over Mill Creek, concrete flatwork, wooden boardwalk built atop helical piles, removal and replacement of a 12" diameter storm culvert, relocating an existing set of swings, placement of safety surfacing, landscaping, soil erosion control measures, removal of site debris, and various related site work activities.

Definitions: For the purpose of this contract, the word "OWNER" shall refer to the Washtenaw County Parks and Recreation Commission (WCPRC). It is noted that the owner of Warrior Creek Park and the future owner of the trail is the Village of Dexter.

The successful Bidder will be bound by a Standard Provisions for Service Contract held by Washtenaw County Purchasing. Additionally, the party to whom the OWNER intends to award the Contract will be required to execute the Standard Provisions for Service Contract and Construction Unity Board (CUB) Agreement.

SECURING DOCUMENTS

Copies of the proposed Bid Documents may be obtained from the Washtenaw County Purchasing Department website as described in the Request for Proposal.

FORMAT OF CONTRACT DOCUMENTS

The Contract Documents are divided into sections and divisions in keeping with accepted industry practice to separate categories of subject matter for convenient reference.

INTERPRETATION OF CONTRACT DOCUMENTS

The Contract Documents are intended to be compatible and to provide provisions and details reasonably required for the execution of the proposed work. Any person contemplating the submission of a Bid shall have thoroughly examined all parts of the said Contract Documents. Should there be any doubt as to the meaning or intent of the contract language, the Bidder should immediately request an interpretation sufficiently in advance of the Bid due date to allow for changes, if necessary, in the Contract Documents. Verbal statements and/or instructions issued regarding the meaning or intent of any aspect of the Contract Documents prior to the Bid due date will be considered unofficial, will not be binding of the OWNER and shall not be considered as modifying any provision of the Contract Documents.

Any change in the Contract Documents required as the result of an interpretation will be made only in the form of an addendum to the Contract Documents which shall be

furnished to all Bidders of record with Washtenaw County Purchasing that received a set of the Contract Documents. All addenda issued prior to the Bid due date will become a part of the Contract Documents and all Bids are to include the work described therein. Each Bid submitted shall list by number, all addenda which have been received prior to the time scheduled for Bid submittal. Failure to acknowledge receipt of addenda may result in rejection of a Bid as non-responsive.

BIDDER'S UNDERSTANDING

Examination of Contract Documents: Each Bidder must carefully inform themselves of the conditions relating to the performance of the work and assure they are thoroughly familiar with all of the Contract Documents. Failure to do so will not relieve the successful Bidder of their obligation to enter into a contract and complete the contemplated work in strict accordance with the Contract Documents.

Examination of Project Site: Each Bidder must visit the site during the pre-bid walk through to obtain first-hand knowledge of existing conditions, including the presence of structures, utilities, services and obstacles which may be encountered as well as any other conditions relative to the work to be performed.

Compliance with Laws and Regulations: Each Bidder shall also inform himself/herself of, and the Bidder(s) awarded a contract shall fully comply with all Federal, State, and local laws, statutes, and ordinances affecting the execution of the work. This requirement includes, but is not limited to, applicable regulations concerning minimum wage rates, non-discrimination in the employment of labor, protection of public and employee safety and health, environmental protection, the protection of natural resources, fire protection, funding programs, and permits, fees, and licensing.

Additional Compensation: Bidders shall not receive additional compensation for conditions which can be determined by examining the site, existing drawings, and the Contract Documents.

LICENSE REQUIREMENTS

The bidder shall provide a copy of his current state Business License and Specialty or General Contractor, as well as his Federal Tax Identification number, upon request from the OWNER.

PREPARATION OF BIDS

In order to receive consideration, make all Bids in strict accordance with the following:

Complete sets of Contract Documents shall be used in preparing Bids. The OWNER assumes no responsibility for errors or misinterpretations resulting from the use of incomplete sets of Contract Documents. The OWNER, in making available

copies of the Contract Documents, do so only for the purpose of obtaining Bids on the work contemplated and do not confer a license or grant permission for any other use.

All blank spaces on the Bid Form(s) must be filled in handwritten or typewritten, and when required, in both words and figures. No changes shall be permitted in the wording or numbers on the Proposal Form(s). No exceptions or special conditions that are not required by the Bid requirements shall be made. Written amounts shall govern where the amount stated in writing and amount stated in figures does not agree. In case of a discrepancy between unit prices and totals, unit prices will prevail.

All submitted Bids shall be signed. If the Bidder is a corporation, the legal name of the corporation shall be set forth in the Bid together with the signature of the individual authorized to sign contracts on behalf of the corporation. If the Bidder is a partnership, the true name of the firm shall be set forth in the Bid, together with the signature of the partner or partners authorized to sign contracts on behalf of the partnership. If the signature is by an agent, other than an officer of a corporation or a member of a partnership, a notarized power-of-attorney must be submitted with the Bid, otherwise the Bid may be rejected.

All Bids must be made out on the Proposal Form(s) without any modification whatsoever of the times, terms, quantities, conditions, and other requirements therein stated.

Telegraphic bids will not be considered. Bids received via facsimile machine or email are not regarded as sealed bids and will not be accepted.

SUBMISSION OF BIDS

Each Bidder shall furnish, as part of the Bid, the following documentation:

1. Bidder's Acknowledgment
2. Proposal Form(s)
3. Bid Bond

Only the original signed bid proposal and accompanying documents need be submitted.

Bids shall be delivered to Washtenaw County Purchasing on or before the time and date indicated in the Request for Proposal.

It is the sole responsibility of the Bidder to insure that his/her Bid is received on time at the location indicated in the Request for Proposal. Any Bid received after the time and date specified may not be considered and may be returned to the originator unopened if so decided by the OWNER.

WITHDRAWAL OF BIDS

Bids may not be modified after submittal. Bidders may withdraw Bids at any time before the time and date the Bid is due, but will not be permitted to resubmit them. A Bid may only be withdrawn by written request executed by an authorized representative of the Bidder prior to the due date and hour designated for delivery of Bids.

Bids may not be withdrawn for a period of 90 days after the bids are received and opened.

BASIS OF AWARD – See the Proposal Terms for the basis of award.

CONTRACT AWARD

The party to whom the OWNER intends to award the Contract **will be required to execute the Standard Provisions for Service Contract and Construction Unity Board (CUB) Agreement.**

IMPLEMENTATION OF THE WORK

Unless otherwise provided in the Contract Documents, the CONTRACTOR shall not begin or resume the work to be performed under the Contract before receiving written notification from the OWNER to do so, and shall thereupon begin or resume the work within the number of days indicated in such notice.

No work is to be performed without the express consent of the OWNER. In some instance, the CONTRACTOR may not be authorized to perform services prescribed in the Contract Documents without the OWNER or OWNER's designated representative being present on the job site. The CONTRACTOR shall be considered in default of the Contract should any work be performed in the absence of such authority.

The CONTRACTOR shall employ an ample work force and provide the equipment necessary and of sufficient capacity and efficiency to accomplish the work in a safe and workmanlike manner at an appropriate rate of progress.

In the event work is undertaken during adverse weather conditions, the CONTRACTOR will be required to exercise precautions necessary to produce satisfactory work and shall protect the finished work from the elements. It is agreed and understood that the cost of these precautions has been included in the Bid for the various items of work in the Agreement and that no extra compensation will be allowed.

WORK SCHEDULE

All work specified by the contract shall be undertaken in a manner that limits any adverse impact to the OWNER's operation. For the work described herein, the CONTRACTOR will be limited to performing the work in accordance with the Contract Documents.

Project Anticipated Start Date week of January 11, 2010
Project Anticipated Completion Date May 30, 2011

The final project schedule will be determined at the preconstruction meeting with the selected contractor. No work shall be allowed within Mill Creek until final permit approval is issued by the Michigan Department of Environmental Quality and Norfolk Southern Railroad.

WORK BY OTHERS

Work by others may be ongoing during the execution of work under this Contract. The CONTRACTOR shall afford other CONTRACTORS and the OWNER reasonable opportunity to properly execute their work and shall coordinate his/her work with theirs. The CONTRACTOR shall arrange his/her work so that at no time will it cause unnecessary interruption to the operation of other work.

The Bidder is cautioned to thoroughly familiarize himself/herself with the entire project to determine the portions of work which may be in conflict with other work and to understand the responsibilities associated with working around other work, if necessary, as no additional compensation due to scheduling problems with other work will be allowed after opening of the Bids.

INSURANCE COVERAGE

The CONTRACTOR is reminded to review and become familiar with the insurance coverage and limitations included in the General Conditions section of this document. The successful CONTRACTOR will be required to provide submit a Certificate(s) of Insurance at the time of Contract award naming OWNER Washtenaw County Parks and Recreation Commission, The Village Of Dexter, Huron-Clinton Metropolitan Authority, and the Westridge of Dexter Homeowner's Association as additional insured.

The Bidder is directed to Article VI of the Service Contract and Article 5 of the General Conditions for specific requirements as to each of the required policies.

END OF SECTION

BIDDER’S QUALIFICATIONS AND EXPERIENCE STATEMENT

The Owner requires supporting evidence regarding Bidder’s Qualifications and competency for the proposed project work elements. The Bidder is required to furnish all of the applicable information listed below, which must be submitted with the sealed bid at time of the Bid Opening. The Qualifications and Experience certificate must be type written and signed in ink.

QUALIFICATIONS AND EXPERIENCE CERTIFICATE

The Undersigned certifies under oath that the information provided herein is true and sufficiently complete so as not to be misleading.

Submitted To: Washtenaw County Parks and Recreation Commission

Address: 2230 Platt Road, P.O. Box 8645 Ann Arbor, Michigan 48107-8645

Submitted By: _____

Name: _____

Address: _____

Telephone: _____ Fax No. _____

Principal: _____

Corporation: _____ Joint Venture: _____

Partnership: _____ Other: _____

Individual: _____

Name of Project: BORDER TO BORDER TRAIL – HUDSON MILLS METROPARK TO WARRIOR CREEK PARK

ORGANIZATION

How many years has your organization been in business as a CONTRACTOR?

How many years has your organization been in business under its present business name?

Under what other or former name(s) has your organization operated?

If your organization is a corporation, answer the following:

Date of Incorporation: _____

State of Incorporation: _____

President's Name: _____

Vice President's name: _____

Secretary's Name: _____

Treasurer's Name: _____

If your organization is a partnership, answer the following:

Date of Organization: _____

Type of Partnership: _____

Name(s) of General Partner(s): _____

If your organization is individually owned, answer the following:

Date of Organization: _____

Name of Owner: _____

If the form of your organization is other than those listed above, describe it and name the principals:

LICENSING

List jurisdiction and trade categories in which your organization is legally qualified to do business, and indicate registration or license numbers, if applicable:

List jurisdiction in which your organization's partnership or trade name is filed:

EXPERIENCE

List the categories of work that your organization normally performs with its own forces:

On a separate sheet, list major construction projects your organization has completed in the past five (5) years, giving the name of project, OWNER, Architect/Engineer/Landscape Architect, Contract amount, date of completion and percentage of the cost of the work performed with your own forces.

On a separate sheet, list the construction experience and present commitments of any key individuals of your organization.

CLAIMS AND SUITS (if the answer to any of the questions below is yes, please attach details)

Has your organization ever failed to complete any work awarded to it? _____

Are there any judgments, claims, arbitration proceedings or suits pending or outstanding against your organization or officers? _____

Border to Border Trail - Hudson Mills Metropark to Warrior Creek Park in Dexter, Michigan
RFP #6585

REFERENCES

Trade References: _____

Bank References: _____

Surety: _____

Name of Bonding Company:

Name and Address of Agent:

Signature: _____

Dated at: _____ this _____ day of _____, 2009

Name of Organization: _____

By: _____

Title: _____

Mr/Mrs/Ms _____ being duly sworn deposes
and says that the information provide herein is true and sufficiently complete so as not to be misleading.

Subscribed and sworn before me this _____ day of _____, 2010

Notary Public: _____

My Commission Expires: _____

**IF THIS INFOMRATION IS NOT SUBMITTED WITH THE SEALED BID AT THE TIME OF BID, THE BID MAY
BE CONSIDERED INCOMPLETE.**

NOTE: PLEASE SUBMIT THE ORIGINAL AND THREE (3) COPIES OF THE PROPOSAL.

PROPOSAL FOR RFP #6585
BORDER TO BORDER TRAIL – HUDSON MILLS METROPARK TO WARRIOR CREEK PARK
TO THE WASHTENAW COUNTY PARKS AND RECREATION COMMISSION:

The undersigned as Bidder hereby declares that this Proposal is made in good faith without fraud or collusion with any person or persons bidding on the same Contract; that he has read and examined the Advertisement, Information for Bidders, Proposal, General Conditions, Agreement, Forms of Bonds, Specifications and Plans, as prepared by the ENGINEERS, and understands all of the same; that he or his representative has made personal investigation at the site and has informed himself fully with regard to the conditions to be met in the execution of this Contract, and the undersigned proposes to furnish all labor, materials, tools, power, transportation, and construction equipment necessary for the construction of the Project and performing related work in full accordance with the aforesaid Contract Documents, including any and all addenda officially issued, the receipt of which is hereby acknowledged:

Addendum No. /Dated	Date of Receipt	Signature
_____	_____	_____
_____	_____	_____

AWARD OF CONTRACT:

Washtenaw County reserves the right to reject any and all proposals received as a result of this RFP. If a proposal is selected it will be the most advantageous regarding price (See: "Low Bidder" following), quality of service, the Vendors' qualifications and capabilities to provide the specified service, and other factors which the County may consider. The County does not intend to award a Bid fully on the basis of any response made to the proposal; the County reserves the right to consider proposals for modifications at any time before a Bid would be awarded, and negotiations would be undertaken with that Vendor whose proposal is deemed to best meet the County's specifications and needs.

Low Bidder:

A low bidder will be determined by the price, qualifications, and capabilities to provide the specified services.

PROPOSAL PRICE: The Bidder agrees to complete the Project for the following unit prices:

BASE BID ITEMS:

Item No.	Item Description	Qty	Unit	Unit Price	Total Price
1.	Mobilization, Bonds, Insurance, Permits	1	LS	\$	\$
2.	Clearing	0.17	Acre	\$	\$
3.	Culv, Rem, Less than 24 inch	1	Ea	\$	\$
4.	Culv End, Rem, Less than 24 inch	1	Ea	\$	\$
5.	Pavt, Rem	12	Syd	\$	\$
6.	Embankment, CIP	11	Cyd	\$	\$
7.	Excavation, Earth	97	Cyd	\$	\$
8.	Backfill, Structure, CIP	115	Cyd	\$	\$
9.	Excavation, Fdn	182	Cyd	\$	\$
10.	Erosion Control, Filter Bag	1	Ea	\$	\$
11.	Erosion Control, Silt Fence	586	Ft	\$	\$
12.	Project Cleanup	1	LS	\$	\$
13.	Subbase, CIP	31	Cyd	\$	\$
14.	Aggregate Base, 4 inch	15.9	Syd	\$	\$
15.	Culv, CI E, Conc, 12 inch	31	Ft	\$	\$
16.	Culv End Sect, 12 inch	1	Ea	\$	\$
17.	Underdrain, Fdn, 6 inch	70	Ft	\$	\$
18.	Underdrain, Outlet Ending, 6 inch	1	Ea	\$	\$
19.	Conc Pavt, Misc, Reinf, 6 inch	11.1	Syd	\$	\$
20.	Pile, Steel, Furn and Driven, 14 inch, LRFD	445	Ft	\$	\$
21.	Helical Pile 10 Foot Lead Section	50	Ea	\$	\$
22.	Helical Pile Extension Section	300	Ft	\$	\$
23.	Test Pile, Steel, 14 inch, LRFD	2	Ea	\$	\$

Border to Border Trail - Hudson Mills Metropark to Warrior Creek Park in Dexter, Michigan
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Item No.	Item Description	Qty	Unit	Unit Price	Total Price
24.	Pile Driving Equipment, Furn, LRFD	1	LS	\$	\$
25.	Conc, Grade S2, Subfooting	5.4	Cyd	\$	\$
26.	Conc Quality Assurance, Structure	89.1	Cyd	\$	\$
27.	Substructure Conc	49	Cyd	\$	\$
28.	Superstructure Conc	9	Cyd	\$	\$
29.	Superstructure Conc, Night Casting	27	Cyd	\$	\$
30.	Superstructure Conc, Form, Finish, and Cure	1	LS	\$	\$
31.	Supstr Conc, Form, Fin, and Cure, Night Cast	1	LS	\$	\$
32.	Conc Surface Coating	1	LS	\$	\$
33.	Expansion Joint Device	13	Ft	\$	\$
34.	False Decking	1117.9	Sft	\$	\$
35.	Reinforcement, Steel	2159	Lb	\$	\$
36.	Reinforcement, Steel, Epoxy Coated	7113	Lb	\$	\$
37.	Elec Grounding System	1	Ea	\$	\$
38.	Bridge Ltg, Oper and Maintain	27	Cyd	\$	\$
39.	Bridge Ltg, Furn and Rem	1	LS	\$	\$
40.	Expansion Joint Device, Cover Plate	11	Ft	\$	\$
41.	Conc Surface Coating, Special	171.2	Syd	\$	\$
42.	Shear Developers	1	LS	\$	\$
43.	Bearing, Elastomeric, 1 5/8 inch	10	Sft	\$	\$
44.	Prest Conc Deck, 21 inch	1040	Sft	\$	\$
45.	Joint Waterproofing	15	Sft	\$	\$
46.	Joint Waterproofing, Expansion	25	Sft	\$	\$
47.	Railing, Boardwalk	439.3	Ft	\$	\$

Border to Border Trail - Hudson Mills Metropark to Warrior Creek Park in Dexter, Michigan
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Item No.	Item Description	Qty	Unit	Unit Price	Total Price
48.	Railing, Bridge	194.08	Ft	\$	\$
49.	Sidewalk, Conc, 4 inch	1645	Sft	\$	\$
50.	Riprap, Plain	107.2	Syd	\$	\$
51.	Slope Restoration	420	Syd	\$	\$
52.	Vegetated Fiber Roll	224.5	Ft	\$	\$
53.	Exploratory Trenching	200	Ft	\$	\$
54.	Boardwalk, Covered	82.1	Ft	\$	\$
55.	Boardwalk	206.9	Syd	\$	\$
56.	Safety Surfacing	170.7	Syd	\$	\$
57.	Play Equipment, Relocate	1	LS	\$	\$
Total Bid Amount (Items 1 through 57)					\$

_____ Dollars(\$_____)

(Amount shall be shown in both words and figures. In case of a discrepancy, the amount shown in words shall govern.)

ADD/ALTERNATE BID ITEMS:

Item No.	Item Description	Qty	Unit	Unit Price	Total Price
58.	Railing, Boardwalk	144.5	Ft	\$	\$
59.	Helical Pile 10 Foot Lead Section	90	Ea	\$	\$
60.	Boardwalk	582.4	Syd	\$	\$
61.	Erosion Control, Silt Fence	411	Ft	\$	\$
Total Bid Amount (Items 58 through 61)					\$

_____ Dollars(\$_____)

(Amount shall be shown in both words and figures. In case of a discrepancy, the amount shown in words shall govern.)

The undersigned has read the "Method of Measurement and Basis of Payment", and acknowledges that Page MP-1 is part of this proposal.

The undersigned agrees that if the foregoing Proposal shall be accepted by the OWNER, he will, within ten (10) days (Sundays and legal holidays excepted) after receiving notice of such

acceptance, enter into the attached form of Agreement and will complete the Project, ready for use, at the price and within the time stated in this Proposal, and that he will furnish the OWNER satisfactory Contract Bonds and certificates of insurance coverage.

The undersigned further agrees that if the foregoing Proposal shall be accepted, he will commence work immediately after the Contract has been awarded, the Agreement executed, and he has received a Notice to Proceed and he shall complete the entire work within **30** calendar days.

The undersigned attaches hereto his Bid Security, as required by the Advertisement and Information for Bidders, and the undersigned agrees that in case he shall fail to fulfill his obligations under the foregoing Proposal and/or shall fail to furnish bonds, as specified, the OWNER may, at its option determine that the undersigned has abandoned his rights and interests in such Contract and that his Bid Security accompanying his Proposal has been forfeited to the said OWNER, but otherwise the Bid Security shall be returned to the undersigned upon the execution of the Contract and the acceptance of the bonds.

The Bidder shall acknowledge that he/she is an equal opportunity employer and that they do not discriminate against other firms due to race, age, gender or physical conditions.

In submitting this bid, it is understood that the right is reserved by the OWNER to accept any bid, to reject any or all bids, and to waive irregularities in bidding in the interest of the OWNER.

The Bidder has completed the accompanying "Legal Status" form.

Dated and Signed at _____
this the _____ day of _____, 20_____.

OFFICIAL COMPANY ADDRESS	BIDDER'S NAME
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
Telephone	Title

By checking this box we hereby certify that we are a Washtenaw County company as defined in Section F of the Request for Proposal. If proven otherwise you may be subject to Disbarment and/or Suspension of doing business with Washtenaw County.

IF THIS INFORMATION IS NOT SUBMITTED WITH SEALED BID AT THE TIME OF BID, THE BID WILL BE CONSIDERED INCOMPLETE.

Border to Border Trail - Hudson Mills Metropark to Warrior Creek Park in Dexter, Michigan
RFP #6585

MEASUREMENT AND PAYMENT SCHEDULE
Border to Border Trail – Hudson Mills Metropark to Warrior Park

Refer to the 2003 MDOT Standard Specifications for Construction and all the included Special Provisions in Division 2.00 for Measurement and Payment Schedule Information.

END OF SECTION

NAME, ADDRESS, LEGAL STATUS, AND SIGNATURE OF BIDDER

This Proposal is submitted in the name of:

(Print) _____

The undersigned hereby designates below its business address and other information to which all notices, directions, or other communications may be mailed or served:

Street _____

City _____ State _____ Zip Code _____

Telephone _____ Fax _____

Email _____

The undersigned hereby declares that they have legal status to represent the business checked below:

- INDIVIDUAL
- INDIVIDUAL DOING BUSINESS UNDER AN ASSUMED NAME
- CO-PARTNERSHIP

The Assumed Name of the Co-Partnership is registered in the County of _____,
Michigan.

- CORPORATION INCORPORATED UNDER THE LAWS OF
THE STATE OF _____. The Corporation is:
- LICENSED TO DO BUSINESS IN MICHIGAN
- NOT NOW LICENSED TO DO BUSINESS IN MICHIGAN

The names, titles and home addresses of all persons who are officers or partners in the organization are as follows:

NAME AND TITLE	HOME ADDRESS
_____	_____
_____	_____
_____	_____

Signed and Sealed this _____ day of _____, 2009

By (Signature)

Printed name of signer Title

IF THIS INFORMATION IS NOT SUBMITTED WITH THE SEALED BID AT THE TIME OF BID, THE BID MAY BE CONSIDERED INCOMPLETE.

SERVICE CONTRACT

NAME OF CONTRACTOR

AGREEMENT is made this _____ day of _____, 2010, by the COUNTY OF WASHTENAW, a municipal corporation, with offices located in the County Administration Building, 220 North Main Street, Ann Arbor, Michigan 48107("County") and **CONTRACTOR** located at **XYZ STREET, ANYWHERE, USA 99999** ("Contractor").

In consideration of the promises below, the parties mutually agree as follows:

ARTICLE I - SCOPE OF SERVICES

The Contractor will provide construction services for per Washtenaw County Formal Bid #XXXX. The Contractor will furnish all labor, materials, tools, equipment, transportation or other facilities and services necessary to perform and complete the project in accordance with Contract Documents.

ARTICLE II - COMPENSATION

Upon completion of the above services and submission of invoices the County will pay the Contractor, for full performance of the work, the amount of **SPELL OUT DOLLAR AMOUNT (\$ XXX,XXX)**, subject to additions and deductions as documented through authorized change orders. The County shall make monthly progress payments to the Contractor on the basis of work performed and material suitably stored onsite during the preceding month of the Contract. To insure proper performance of the Contract, the County shall retain ten percent (10%) of the value of the work until final completion and acceptance of all work covered in the Contract.

ARTICLE III - REPORTING OF CONTRACTOR

Section 1 - The Contractor is to report to the Director of the Washtenaw County Parks and Recreation Commission and will cooperate and confer with him/her as necessary to insure satisfactory work progress.

Section 2 - All reports, estimates, memoranda and documents submitted by the Contractor must be dated and bear the Contractor's name.

Section 3 - All reports made in connection with these services are subject to review and final approval by the County Administrator.

Section 4 - The County may review and inspect the Contractor's activities during the term of this contract.

Section 5 - When applicable, the Contractor will submit a final, written report to the County Administrator.

Section 6 - After reasonable notice to the Contractor, the County may review any of the Contractor's internal records, reports, or insurance policies.

ARTICLE IV - TERM

This contract begins on **XX/XX/XX** and ends on **XX/XX/XX** according to the project essential completion schedule unless subsequently modified through authorized change orders.

ARTICLE V - PERSONNEL

Section 1 – The contractor will provide the required services and will not subcontract or assign the services without the County's written approval.

Section 2 - The Contractor will not hire any County employee for any of the required services without the County's written approval.

Section 3 - The parties agree that the Contractor is neither an employee nor an agent of the County for any purpose.

Section 4 - The parties agree that all work done under this contract shall be completed in the United States and that none of the work will be partially or fully completed by either an offshore subcontractor or offshore business interest either owned or affiliated with the contractor. For purposes of this contract, the term, "offshore" refers to any area outside the contiguous United States, Alaska or Hawaii.

ARTICLE VI - INDEMNIFICATION AGREEMENT

The contractor will protect, defend and indemnify Washtenaw County and the Village of Dexter, its officers, agents, servants, volunteers and employees from any and all liabilities, claims, liens, fines, demands and costs, including legal fees, of whatsoever kind and nature which may result in injury or death to any persons, including the Contractor's own employees, and for loss or damage to any property, including property owned or in the care, custody or control of Washtenaw County and/or Village of Dexter in connection with or in any way incident to or arising out of the occupancy, use, service, operations, performance or non-performance of work in connection with this contract resulting in whole or in part from negligent acts or omissions of contractor, any sub-contractor, or any employee, agent or representative of the contractor or any sub-contractor.

ARTICLE VII - INSURANCE REQUIREMENTS

The Contractor will maintain at its own expense during the term of this Contract, the following insurance:

1. Workers' Compensation Insurance with Michigan statutory limits and Employers Liability Insurance with a minimum limit of \$100,000 each accident for any employee.
2. Commercial General Liability Insurance with a combined single limit of \$1,000,000 each occurrence for bodily injury and property damage. The County and Village shall be added as "additional insured" on general liability policy with respect to the services provided under this contract.
3. Automobile Liability Insurance covering all owned, hired and nonowned vehicles with Personal Protection Insurance and Property Protection Insurance to comply with the provisions of the Michigan No Fault Insurance Law, including residual liability insurance with a minimum combined single limit of \$1,000,000 each accident for bodily injury and property damage.

Insurance companies, named insureds and policy forms may be subject to the approval of the Washtenaw County Administrator, if requested by the County Administrator. Such approval shall not be unreasonably withheld. Insurance policies shall not contain endorsements or policy conditions which reduce coverage provided to Washtenaw County. Contractor shall be responsible to Washtenaw County and the Village of Dexter or insurance companies insuring Washtenaw County and Village of Dexter for all costs resulting from both financially unsound insurance companies selected by Contractor and their inadequate insurance coverage. Contractor shall furnish the Washtenaw County Administrator with satisfactory certificates of insurance or a certified copy of the policy, if requested by the County Administrator.

No payments will be made to the Contractor until the current certificates of insurance have been received and approved by the Administrator. If the insurance as evidenced by the certificates furnished by the Contractor expires or is canceled during the term of the contract, services and related payments will be suspended. Contractor shall furnish the County Administrator's Office with certification of insurance evidencing such coverage and endorsements at least ten (10) working days prior to commencement of services under this contract. Certificates shall be addressed to Washtenaw County c/o: Washtenaw County Parks & Recreation Commission & CR#_____, P. O. Box 8645, Ann Arbor, MI, 48107, and shall provide for 30 day written notice to the Certificate holder of cancellation of coverage.

ARTICLE VIII - COMPLIANCE WITH LAWS AND REGULATIONS

The Contractor will comply with all federal, state and local regulations, including but not limited to all applicable OSHA/MIOSHA requirements and the Americans with Disabilities Act.

ARTICLE IX - INTEREST OF CONTRACTOR AND COUNTY

The Contractor promises that it has no interest which would conflict with the performance of services required by this contract. The Contractor also promises that, in the performance of this contract, no officer, agent, employee of the County of Washtenaw, or member of its governing bodies, may participate in any decision relating to this contract which affects his/her personal interest or the interest of any corporation, partnership or association in which he/she is directly or indirectly interested or has any personal or pecuniary interest. However, this paragraph does not apply if there has been compliance with the provisions of Section 3 of Act No. 317 of the Public Acts of 1968 and/or Section 30 of Act No. 156 of Public Acts of 1851, as amended by Act No. 51 of the Public Acts of 1978, whichever is applicable.

ARTICLE X - CONTINGENT FEES

The Contractor promises that it has not employed or retained any company or person, other than bona fide employees working solely for the Contractor, to solicit or secure this contract, and that it has not paid or agreed to pay any company or person, other than bona fide employees working solely for the Contractor, any fee, commission, percentage, brokerage fee, gifts or any other consideration contingent upon or resulting from the award or making of this contract. For breach of this promise, the County may cancel this contract without liability or, at its discretion, deduct the full amount of the fee, commission, percentage, brokerage fee, gift or contingent fee from the compensation due the Contractor.

ARTICLE XI - EQUAL EMPLOYMENT OPPORTUNITY

The Contractor will not discriminate against any employee or applicant for employment because of race, creed, color, sex, sexual orientation, national origin, physical handicap, age, height, weight, marital status, veteran status, religion and political belief (except as it relates to a bona fide occupational qualification reasonably necessary to the normal operation of the business).

The Contractor will take affirmative action to eliminate discrimination based on sex, race, or a handicap in the hiring of applicant and the treatment of employees. Affirmative action will include, but not be limited to: Employment; upgrading, demotion or transfer; recruitment advertisement; layoff or termination; rates of pay or other forms of compensation; selection for training, including apprenticeship.

The Contractor agrees to post notices containing this policy against discrimination in conspicuous places available to applicants for employment and employees. All solicitations or advertisements for employees, placed by or on the behalf of the Contractor, will state that all qualified applicants will receive consideration for employment without regard to race, creed, color, sex, sexual orientation, national origin, physical handicap, age, height, weight, marital status, veteran status, religion and political belief.

ARTICLE XII - PREVAILING WAGE RATES & CUB AGREEMENT

The Contractor agrees that all craftsmen, mechanics and laborers it employs to work on this project shall, at a minimum, receive the prevailing wages and fringe benefits of the Building Trade Department for corresponding classes of craftsmen, mechanics and laborers for the Washtenaw County area, as determined and published by the Davis-Bacon Division of the United States Department of Labor. Contractor agrees that all subcontracts entered into by the Contractor shall contain a similar provision covering any sub-contractor's employees who perform work on this project. Contractor further agrees to sign a project labor agreement as provided by the Construction Unity Board ("CUB Agreement"). A copy of the CUB Agreement is attached as an appendix to this Contract.

ARTICLE XIII - EQUAL ACCESS

The Contractor shall provide the services set forth in Article I without discrimination on the basis of race, color, religion, national origin, sex, sexual orientation, marital status, physical handicap, or age.

ARTICLE XIV - OWNERSHIP OF DOCUMENTS AND PUBLICATION

All documents developed as a result of this contract will be freely available to the public. None may be copyrighted by the Contractor. During the performance of the

services, the Contractor will be responsible for any loss of or damage to the documents while they are in its possession and must restore the loss or damage at its expense. Any use of the information and results of this contract by the Contractor must reference the project sponsorship by the County. Any publication of the information or results must be co-authored by the County.

ARTICLE XV - ASSIGNS AND SUCCESSORS

This contract is binding on the County and the Contractor, their successors and assigns. Neither the County nor the Contractor will assign or transfer its interest in this contract without the written consent of the other.

ARTICLE XVI - TERMINATION OF CONTRACT

Section 1 - Termination without cause. Either party may terminate the contract by giving thirty (30) days written notice to the other party.

ARTICLE XVII - PAYROLL TAXES

The Contractor is responsible for all applicable state and federal social security benefits and unemployment taxes and agrees to indemnify and protect the County against such liability.

ARTICLE XVIII - PRACTICE AND ETHICS

The parties will conform to the code of ethics of their respective national professional associations.

ARTICLE XIX- CHANGES IN SCOPE OR SCHEDULE OF SERVICES

Changes mutually agreed upon by the County and the Contractor, will be incorporated into this contract by written amendments signed by both parties.

ARTICLE XX - CHOICE OF LAW AND FORUM

This contract is to be interpreted by the laws of Michigan. The parties agree that the proper forum for litigation arising out of this contract is in Washtenaw County, Michigan.

PERFORMANCE BOND

_____ as Principal, hereinafter called the CONTRACTOR, and _____, a corporation duly authorized to do business in the State of Michigan (referred to as "Surety"), are firmly bound unto

WASHTENAW COUNTY PARKS AND RECREATION COMMISSION

As obligee, hereinafter referred to as "OWNER", in the amount of

_____ Dollars (\$ _____)

(Amount shall be shown in both words and figures. In case of discrepancy, amount shown in words shall govern).

for the payment whereof the CONTRACTOR and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

The CONTRACTOR has entered a written contract with the OWNER dated _____, for the construction of

BORDER TO BORDER TRAIL – HUDSON MILLS METROPARK TO WARRIOR CREEK PARK

This bond is given for that contract in compliance with Act No. 213 of the Michigan Public Acts of 1963, as amended, being MCL 129.201 et seq.

Whenever the CONTRACTOR is declared by the OWNER to be in default under the contract, the Surety may promptly remedy the default or shall promptly:

- (a) complete the contract in accordance with its terms and conditions; or
- (b) obtain a bid or bids for submission to the OWNER for completing the contract in accordance with its terms and conditions, and upon determination by Surety of the lowest responsible bidder, arrange for a contract between such bidder and the OWNER, and make available, as work progresses, sufficient funds to pay the cost of completion less the balance of the contract price; but not exceeding, including other costs and damages for which Surety may be liable hereunder, the amount set forth in paragraph 1.

Surety shall have no obligation to the OWNER if the CONTRACTOR fully and promptly performs under the contract.

Surety agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work to be performed thereunder, or the specifications accompanying it shall in any way affect its obligations on this bond, and waives notice of any such change, extension of time, alteration or addition to the terms of the contract or to the work, or to the specifications.

SIGNED AND SEALED this _____ day of _____, 20__.

In the Presence of:

WITNESS

(fill in contractor's name)

Principal

Title

WITNESS

Surety

Title

Address of Surety

City Zip Code

LABOR AND MATERIAL PAYMENT BOND

_____ as Principal, (hereinafter called the CONTRACTOR), and _____, a corporation duly authorized to do business in the State of Michigan (referred to as "Surety"), are firmly bound unto

WASHTENAW COUNTY PARKS AND RECREATION COMMISSION

As obligee, hereinafter referred to as "OWNER", in the amount of

_____ Dollars (\$_____)

(Amount shall be shown in both words and figures. In case of discrepancy, amount shown in words shall govern).

for the payment whereof the CONTRACTOR and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

The CONTRACTOR has entered a written contract with the OWNER dated _____, for the construction of

BORDER TO BORDER TRAIL – HUDSON MILLS METROPARK TO WARRIOR CREEK PARK

This bond is given for that contract in compliance with Act No. 213 of the Michigan Public Acts of 1963, as amended, being MCL 129.201 et seq.

If the CONTRACTOR fails to promptly and fully repay claimants for labor and material reasonably required under the contract, the Surety shall pay those claimants.

Border to Border Trail - Hudson Mills Metropark to Warrior Creek Park in Dexter, Michigan
RFP #6585

Surety's obligations shall not exceed the amount stated in the second paragraph above, and
Surety shall have no obligation if the Principal promptly and fully pays the claimants.

SIGNED AND SEALED this _____ day of _____, 20__.

In the Presence of:

WITNESS

(fill in contractor's name)

Principal

Title

WITNESS

Surety

Title

Address of Surety

City

Zip Code

MEMORANDUM OF UNDERSTANDING

1. WORK DISPUTES

In return for the promise made in paragraph (3) below, the parties agree that there will be no strike, work stoppage or lock-out for the duration of this Memorandum. Any jurisdictional dispute shall be resolved through normal procedures.

There will be a job conference with all contractors and sub-contractors prior to starting work.

2. COFFEE BREAKS

There shall be no organized coffee breaks.

3. PAYMENT OF FRINGES

Any Union having a claim against a contractor or subcontractor for unpaid wages and/or fringe benefits for work performed on the project shall give written notice of such claim to such contractor or subcontractor (with a copy of the notice to the Construction Manager or General Contractor) within three (3) business days after such claim has become known. Upon receipt of such written notice, the Construction Manager or General Contractor involved shall withhold an amount equal to the claim from the next disbursement payable to the contractor, pending resolution of the dispute satisfactory to the Construction Manager or General Contractor. In the event of any such dispute, the Union agrees to use its best efforts to pursue any legal remedies available, including litigation by Fund Trustees. It is understood that the intent to this section is to accomplish prompt and effective resolution of any disputes between the Union and any contractor or subcontractor over payment of wages and fringes.

4. UNION WORK

The parties understand and agree that each contractor and subcontractor at all tiers of this project shall, prior to beginning work on the project, become signatory parties to the respective current collective bargaining agreements of the appropriate Local Unions of the Washtenaw County Skilled Building Trades Council.

(Contractor, Owner or Construction Manager)

(Representative of Washtenaw County Skilled
Building Trades Council)

(Project Description)

(Date)

THIS MEMORANDUM APPLIES ONLY TO THE PROJECT AND/OR CONSTRUCTION ABOVE DESCRIBED.

WHITE – Union Copy
GREEN – Contractor or Construction Manager Copy
CANARY – Owner Copy
PINK – CUB Copy
GOLD – Project Copy

Printed On Site

DIVISION 1.0
GENERAL REQUIREMENTS

<u>TITLE</u>	<u>TOTAL PAGES</u>
Section 01010 General Requirements	3
Section 01020 Site General Provisions.....	4
Section 01400 Quality Control – Testing(Allowance).....	2

1.00 GENERAL**1.01 DESCRIPTION OF WORK**

- A. Work under this Contract includes the construction and installation of natural boulder retaining walls, bituminous asphalt and concrete pathways, limestone pathways, permeable concrete pavers, concrete retaining curbs, concrete seat walls, concrete flatwork, landscaping, soil erosion control measures, removal of designated vegetation, and various related site work.
- B. Work shall be in accordance with all applicable requirements of the Washtenaw County, Village of Dexter, and MDOT.

1.02 CONTRACTOR QUALIFICATIONS

- A. The CONTRACTOR and his subcontractors shall have a minimum of five (5) consecutive years of experience in projects related to the work of these Specifications and at least five (5) successful projects of this type.
- B. Submit qualifications with the bid on forms provided in this document.

1.03 EXISTING FACILITIES ACCESS

- A. The CONTRACTOR shall be responsible for maintaining access to the existing park area via existing or alternative trails as shown on the Drawings. Alternative trail routes shall be agreed upon by OWNER before implementation.
- B. Access to existing facilities shall not be temporarily disrupted without coordination and prior written approval of the OWNER.
- C. Fire/Sheriff – Emergency Response (ER) Services

1.04 CONSTRUCTION WATER

- A. Water for construction is available from the Village and may be obtained from a hydrant at the WWTP. The CONTRACTOR shall be responsible for providing an approved backflow prevention device to protect the water source and all necessary piping as required by local agency. A meter shall be installed by the CONTRACTOR for the purpose of establishing compensation for water use if the quantity of anticipated water consumption will be significant.

1.05 NOTIFICATION OF UTILITIES

- A. The CONTRACTOR shall notify all utilities prior to any excavation. The CONTRACTOR shall contact "MISS-DIG" not less than 72 hours before starting construction for assistance in locating utilities or for any work to be done on utilities. The toll free phone number is 800-482-7171 or 811.

1.06 WORK SCHEDULE

- A. Prior to commencing the work, the CONTRACTOR shall provide to the OWNER a detailed schedule of the proposed work. The schedule shall include a list of tasks required to complete the work; their relevancy to each other; expected duration; and completion dates. The schedule shall include contingency for optional work items.

- B. Submit revised progress schedules at monthly held progress meeting.
- C. Hours of work shall be restricted to Monday through Saturday, 7 a.m. to 7 p.m., or sunup to sundown, whichever is less.

1.07 CONSTRUCTION SEQUENCE

- A. Any temporary barricades, equipment, pathway routes, signs, and/or other work necessary to accomplish the proposed work shall be the responsibility and at the expense of the CONTRACTOR.
- B. The CONTRACTOR shall coordinate and schedule his work regularly with the OWNER.

1.08 PROJECT PROGRESS MEETING

- A. It shall be the responsibility of the CONTRACTOR to have a representative present at each progress meeting. The meetings shall be held at least once every two weeks or as directed by the OWNER.

1.09 PEDESTRIAN TRAFFIC AND SITE USE BY PUBLIC

- A. Warrior Creek Park shall be closed to the public during construction. CONTRACTOR shall coordinate closure dates with OWNER and with the Village of Dexter.
- B. The CONTRACTOR shall provide as many signs and barricades as required by the OWNER to protect and safely maintain pedestrian traffic flow around the construction area at all times. The CONTRACTOR shall add any additional devices required by the OWNER to provide a smooth and safe flow of traffic.
- C. The construction influence zone shall be properly signed warning of potential hazards of the construction work.
- D. All possible precautions shall be taken to protect the workmen from injury at no extra cost to the OWNER.
- E. Access to official parking behind the Fire Department and Sherriff's Office and water valves shall always be maintained. The CONTRACTOR's truck and equipment operations within the park shall be governed by the OWNER and State of Michigan regulations.

1.10 CONSTRUCTION PERMITS

- A. The CONTRACTOR will be required to follow the requirements established by all permits necessary for the construction of this project. The following is a list of all permits that must be obtained prior to the beginning of construction.
 - 1. Washtenaw County Soil Erosion Permit
 - 2. Michigan Department of Natural Resources (Environment)
 - 3. Norfolk Southern Railroad
 - 4. Village of Dexter ROW Permit (for delivery of bridge beams)

- B. The Soil Erosion Control Permit shall be applied for by the CONTRACTOR. The CONTRACTOR will be required to obtain the permit, pay all associated fees, and adhere to all requirements of the permit. The CONTRACTOR must submit a copy of the issued permit to the OWNER prior to construction.

1.11 REFERENCE TO SOIL BORINGS

- A. Soil boring logs are shown on the plans. The CONTRACTOR shall familiarize themselves with the results of the soil borings.

END OF SECTION

1.0 GENERAL**1.01 DESCRIPTION**

- A. The CONTRACTOR shall provide all labor, materials, tools and equipment necessary for the preparation and completion of the site project.
- B. The CONTRACTOR shall conduct his operations in a manner as to minimize disturbance of existing facilities.

1.02 TEMPORARY RELOCATION OF LANDSCAPING

- A. The CONTRACTOR shall temporarily relocate shrubs and perennial plants interfering with construction operations after consult with the OWNER. Cooperation with the OWNER's personnel will be required for temporary protective measures and relocations. Relocation and replacement is paid under the appropriate Site Protection and Restoration line item.
- B. Trees and shrubs are not to be removed unless required by the Plans and/or with the express permission of the OWNER. Where trees are to be removed or are permitted to be removed by the OWNER, the CONTRACTOR shall remove such trees and stumps to a depth of at least two feet below the proposed finish grade. All stumps, roots, logs, branches, brush, and debris shall be removed from the site and disposed of by the CONTRACTOR.

1.03 PROTECTION OF TREES

- A. All trees that are to be preserved and, in the opinion of the OWNER, might be subject to damage by the CONTRACTOR's operations, shall be adequately protected against damage by means of temporary fencing. A minimum of four (4) feet high, orange construction fencing shall be securely strapped to steel or wooden posts capable of maintaining the fence fabric in an erect upright manner throughout the construction operations. The CONTRACTOR shall also maintain this fencing without additional costs to the OWNER until project completion. Such protection is not be removed until authorized by the OWNER. The actual alignment and placement of the fence shall be as indicated on the Plans or as directed by OWNER.
- B. Machine excavation shall not occur within the drip zone area of any tree, the diameter of the area in feet being equal to the diameter of the tree in inches. If hand excavation within this area cuts across a large root of a tree, the cutting of which, in the opinion of the OWNER, would be injurious to the tree, the CONTRACTOR shall tunnel under such root and protect it from injury throughout the work.
- C. Existing trees that are determined to interfere with the work, and OWNER permits the removal, shall be removed by the CONTRACTOR at his expense and in a safe manner. No tree shall be removed without the expressed approval of the OWNER unless indicated on the Plans.

1.04 WORK AREA AND STORAGE OF MATERIALS

- A. The working area shall be organized in an orderly manner with storage and tool sheds, sanitary facility, parking areas for employees, and all other necessary facilities maintained by the CONTRACTOR. The CONTRACTOR shall keep the site access reasonably clean and dust free.

- B. All materials, supplies and equipment, whether furnished by the CONTRACTOR or by the OWNER, shall be delivered, stored and handled as to prevent overall damage including impacts of foreign materials and/or damage by water, freezing, breakage or other causes. The OWNER may require the CONTRACTOR to provide an enclosed storage shed for the storage of materials, supplies and equipment. Packaged materials shall be delivered in the original unopened containers and shall be properly stored until ready for use. All materials which have been stored shall meet the requirements of the Specifications at the time they are used in the project.
- C. Where the CONTRACTOR is required to do work within the rights-of-way under the jurisdiction of Washtenaw County and the Village of Dexter, and within any temporary or existing easements; he shall meet the requirements of Washtenaw County for the work and storage within their jurisdiction. Such requirements must be met as a minimum requirement, and if the specifications given herein impose further limitations on the work, they shall also be met as the required work standard.

1.05 EXISTING PUBLIC UTILITIES

- A. Existing public utilities and underground structures, such as pipe lines, electric or communication conduits, sewers and water lines are partially shown on the Plans. The information shown on the Plans is believed to be reasonably correct and complete; however, neither the correctness nor the completeness of such information is guaranteed.
- B. The CONTRACTOR shall conduct his operations so as not to damage any existing utility whether shown in the Plans or not. The CONTRACTOR shall correct, at his own expense, any injury caused during the operations of his subcontractors or suppliers.
- C. If the CONTRACTOR desires, or is required by the utility companies, to relocate or protect any power or telephone poles to facilitate his work, any expense encountered from such relocation shall be borne by the CONTRACTOR.

1.06 NOTIFICATION TO UTILITIES

- A. Prior to the start of any operations in the vicinity of any utilities, the CONTRACTOR shall notify the utility companies or MISS-DIG at 800-482-7171 or 811 and request that they stake out the locations of the utilities in question.

1.07 SANITARY REQUIREMENTS

- A. The CONTRACTOR shall provide adequate sanitary facilities for all persons employed on the project. The sanitary facilities shall conform in every way to the requirements of the "General Safety Rules and Regulations for the Construction Industry".

1.08 UTILITIES

- A. The CONTRACTOR shall make all necessary arrangements for the provisions of all utility services, temporary or permanent, required under this contract. The CONTRACTOR shall pay all costs for such connections and services.
- B. All utility services shall be inspected by and shall meet the requirements of the applicable codes and governmental bodies.
- C. Any damage to existing utilities shall be the responsibility of the CONTRACTOR.

1.09 PUMPING AND DRAINAGE

- A. Adequate pumping and drainage facilities shall be provided and water, from whatever source, entering the work during any stage of construction shall be removed promptly and disposed of in a manner satisfactory to the OWNER. All pumping and drainage shall be done with no damage to property or structures and without interference with the right of the public, OWNERS of private property, pedestrians, vehicular traffic, or the work of other CONTRACTORS. Dewatering shall be done in such a manner that the soil under or adjacent to existing structures shall not be disturbed, removed or displaced.
- B. The overloading or obstructing of existing drainage facilities shall not be permitted, and the CONTRACTOR shall be solely responsible for any damages caused to such existing drainage facilities during his operations.

1.10 WINTER CONSTRUCTION

- A. The OWNER shall have permissive authority over the work which is proposed to be done during the winter months. The CONTRACTOR shall provide adequate weather protection, temporary heating and take any other measures which are necessary to insure that the work performed during the winter months is properly installed and protected against damage from freezing or other weather conditions that would affect the work.
- B. Seasonal weight limits.

2.00 PRODUCTS

Not Applicable.

3.00 EXECUTION

3.01 CONTROL OF WATER POLLUTION AND SILTATION

- A. General Requirements
 - 1. The CONTRACTOR shall conduct his work in a manner to comply with the Soil Erosion and Sedimentation Control Act of 1972, (MICH P.A. 347) that will not cause damaging siltation or pollution of the water in streams, rivers, lakes and reservoirs.
 - 2. Construction operations shall be conducted in such manner as to reduce erosion to the practicable minimum and prevent damaging siltation to water body systems of the Huron River watershed. The area of erodible land exposed to the elements by grading operations, at any one time shall be subject to approval of the OWNER and the duration of such exposure prior to final trimming and finishing of the areas shall be as short as practical. The OWNER shall have full authority to order the suspension of grading and other operations pending adequate and proper performance of trimming, finishing and maintenance work or to restrict the area of erodible land exposed to the elements.
 - 4. Gravel or stone, consisting of durable particles of rock and containing only negligible quantities of fines, shall be used for construction pads and access drives.

5. The disturbance of lands and waters that are outside the limits of construction as staked is prohibited, except as found necessary and approved by the OWNER.
6. The CONTRACTOR shall conduct his work in such manner as to prevent the entry of fuels, oils, bituminous materials, chemicals, sewage, or other harmful materials into streams, rivers, lakes or reservoirs. The CONTRACTOR is solely responsible for all costs for satisfactory clean-up measures.

B. Temporary Control Requirements

1. The CONTRACTOR shall provide temporary soil erosion and sedimental controls according to the Washtenaw County Soil Erosion Control Officer, soil erosion and sedimentation control standards and specifications or revisions thereof.
2. Permanent soil erosion control measures for all slopes, channels, ditches or any disturbed land area shall be completed within 15 calendar days after final grading or the final earth change has been completed or where significant earth change activity ceases, temporary soil erosion control measures shall be implemented within 30 calendar days. All temporary soil erosion control measures shall be maintained until permanent soil erosion control measures are implemented.

3.02 FINISH GRADING, TOP SOIL

- A. After all backfilling and rough grading has been completed and thoroughly compacted, the entire disturbed area at the site shall be graded to smooth, even surfaces as shown by the proposed new contours shown on the Plans. The portion of the disturbed area where no new contours are shown shall be graded to smooth, even surfaces approximating the original surfaces.
- B. All debris and larger stones and sticks and the like shall be removed and disposed of and the entire disturbed area made ready for the addition of top soil and seeding.
- C. After all construction has been completed the CONTRACTOR shall spread 4 inches of approved top soil over all graded areas. The stockpiled material may be used for this purpose. If there is not sufficient top soil on the site, the CONTRACTOR shall secure and deliver to the site whatever amount is required at his own expense.

END OF SECTION

1.00 GENERAL**1.01 DESCRIPTION**

- A. The CONTRACTOR shall provide an Allowance in their base bid to cover the cost of soil compaction testing, concrete testing, and various other tests which may be requested by the OWNER. The use of this Allowance is for the express use of testing or inspections which are identified herein.
- B. The Allowance shall be utilized during construction at the discretion of the OWNER. Only the OWNER shall authorize the use of this allowance for testing and inspections. There must be a written authorization that is signed and dated by the OWNER which will allow use of the funds for this purpose. If the CONTRACTOR has testing or inspections executed without prior written authorization, the CONTRACTOR shall be responsible for all costs of these services from their own operating budget, exclusive of the allowance funds.
- C. If the OWNER does not use the entire \$15,000 Allowance, the OWNER shall be credited with the savings on the CONTRACTOR'S Final Application and Certificate for Payment. If the OWNER utilizes more than the Allowance, a Change Order for the overage amount shall be issued and the CONTRACTOR compensated accordingly.

1.02 ALLOWANCE AMOUNT

- A. The total allowance amount for this section shall be \$15,000.00 (three thousand dollars even). This amount shall be incorporated into the Contract Base Bid as indicated in the Proposal form.

1.03 MATERIAL TESTING

- A. The CONTRACTOR shall be responsible for providing a testing firm (acceptable to the OWNER) to perform soil compaction density tests, asphalt material analysis and compaction density tests, and concrete quality control including concrete compression tests.
- B. The CONTRACTOR shall provide the service of an independent materials testing laboratory to provide material and compaction testing. The type and minimum frequency of testing shall be as follows:
 - 1. Backfill
 - Sieve analysis per source
 - Proctor per source
 - One (1) compaction test per lift per 1000 square feet of excavation area or as directed by OWNER of material applied
 - 2. Aggregate
 - Sieve analysis per source
 - One (1) compaction test per 1000 square feet of base area and/or every 100 lineal feet on pathway alignments or as directed by OWNER
 - 3. Asphalt
 - MDOT Modified Marshall Test as needed
 - One (1) compaction test per 1000 square feet per lift of bituminous material applied and/or every 100 lineal feet of pathway per lift of bituminous material applied or as directed by OWNER

- C. The OWNER shall determine the exact location of all tests. The CONTRACTOR shall notify the OWNER of all testing needs at least 48 hours in advance of installing all materials requiring testing. Any area or material failing tests shall be corrected and retested at the CONTRACTOR's expense.
- D. Copies of test reports shall be furnished to the OWNER and distributed to parties designated by the OWNER, including the CONTRACTOR.

1.13 AUDIO VIDEO TAPE COVERAGE

- A. The CONTRACTOR shall furnish to the OWNER, a digital color audio-video recording of all existing conditions and features that may be impacted by their work for all areas of proposed improvements.
- B. The digital audio-video recording shall be of such quality to accurately describe and inventory the existing conditions. The recording shall be produced one (1) week prior to the placement of materials or equipment in the construction area.
- C. The recording work must be recorded while the visibility is clear and at no time will it be allowed during periods of ground fog.
- D. The recording shall be continuous running and shall include date, time, and location at appropriate intervals. The location shall be easily referenced to the Contract Drawings.
- E. Include tape of:
 - 1. Eastridge Drive
 - 2. Open Space in Westridge
 - 3. Warrior Creek Park

END OF SECTION

DIVISION 2.0
SPECIAL PROVISIONS

<u>TITLE</u>	<u>TOTAL PAGES</u>
Section 02010 Errata to the 2003 Standard Specifications.....	11
Section 02020 Non-Compliance with Soil Erosion and Sedimentation Control Requirements .	2
Section 02030 Slope Restoration, Non-Freeway	3
Section 02040 Vegetated Fiber Roll	1
Section 02050 Playground Protective Surfacing.....	5
Section 02060 Play Equipment, Relocate.....	1
Section 02070 Foundation Piling, LRFD.....	17
Section 02080 Foundation Piling Splices.....	1
Section 02090 Concrete Surface Coating, Special.....	3
Section 02100 Texturing and Hand Staining Concrete	4
Section 02110 Expansion Joint Device	1
Section 02120 Sealing Localized Cracks in Bridge Decks	1
Section 02130 Placing Additional Concrete on Bridge Decks	1
Section 02140 Helical Piles.....	1
Section 02150 Exploratory Trenching	1
Section 02160 Timber Boardwalk	1
Section 02170 Temporary Access Road/Bridge	1

MICHIGAN
DEPARTMENT OF TRANSPORTATION
SUPPLEMENTAL SPECIFICATION
FOR
ERRATA TO THE 2003 STANDARD SPECIFICATIONS

03SS001(2h)

1 of 11

02-07-07

Page	Subsection	Errata
iii		Add <i>Soil Erosion and Sedimentation Control Manual</i> to the list of MDOT publications included by reference.
vii		Change the title of Section 605 to read "Concrete Quality Assurance"
27	103.03.A.1	Reference should read 109.07.B and C.
27	103.03.C	Reference should read 109.07.E.
38	104.08.A.3	Change "right of way" to "right-of-way" in this subsection.
38	104.08.A.5	Change "right of way" to "right-of-way" in five instances in this subsection.
42	104.08.B.11	Change "the Engineerwill" to "the Engineer will" in the first sentence of this subsection.
43	104.08.B.15	The first sentence of this subsection should read "Final measurement for payment for all earthwork, undercuts, muck excavation, swamp backfill, sand subbase, and topsoil stripping will be the responsibility of the Contractor and must include detailed measurements, sketches and computations."
50	104.09.A.1	Delete the second instance of the word "or" in this subsection.
63	106.03.D	Formula 106-2 should read $S = \sqrt{\frac{\sum (x_i - \bar{x})^2}{n - 1}}$
67	107.02	Change "National Pollution Discharge Elimination System" to "National Pollutant Discharge Elimination System" in the second sentence of the third paragraph of this subsection.
71	107.10.D	Delete the first sentence of this subsection and replace with the following: "All insurance policies and binders must also include endorsements by which the insurer shall agree to provide the Department, in writing, items 1 and 2 below. All insurance policies and binders issued in the name of the contractor must also include the additional endorsement, to be provided in writing, in item 3 below."

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Page	Subsection	Errata
71	107.10.D.1	Change "initialed" to "initiated."
76	107.15.A.2	Delete the last paragraph of this subsection.
105	109.07	The first sentence of this subsection should read "...prices for extra work, the extra work..."
122	203.03.C.2	Reference in the first sentence of this subsection should read 402.03.E.
122	203.04	Delete the following Contract Items (Pay Items) Culv, Rem, More than 24 inch..... Each Culv, End, Rem, More than 24 inch Each Sewer, Rem, More than 24 inch..... Foot Add the following Contract Items (Pay Items) Culv, Rem, Over 48 inch Each Culv, End, Rem, Over 48 inch..... Each Sewer, Rem, Over 48 inch Foot
142	205.03.P	Change "solely" to "solely" in the last sentence of this subsection.
158	208.03.D.13	Change "22A" to "21AA" in the first sentence of this subsection.
162	209.01	Change "Removel" to "Remove" in the first sentence of this subsection.
171	304.03.B.5	This subsection should read as follows. 5. Loose joint materials and loose patching materials may be removed prior to rubblizing; do not fill the resulting voids prior to rubblizing.
174	305.03.A	Delete the second instance of "reduction" in the first sentence of the first paragraph in this subsection.
180 *	307.04	Change the last pay item in this list to read as follows: Approach, CI ____, __ inch.
192	401.04	Change the fourth pay item from the end of this list to read as follows: Steel Casing Pipe, __ inch, Tr Det ____.
197	402.03.C.1	Replace "CPE" with "CPE and CPV" in three instances in this subsection.
202 *	402.04	Change the first pay item in this list to read as follows: Sewer, CI ____, __ inch, Tr Det ____.
206	403.03.A.6	Delete the fourth sentence of this subsection beginning with

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Page	Subsection	Errata
206	403.03.A.8	“Wrap the connection...” Change the last sentence of this subsection to read as follows: “Place and compact the HMA according to Section 502.”
210	Table 403-1	Change “350” to “315” for the Weight, lbs for Cover B in this table.
210	Table 403-1	Change “350” to “318” for the Weight, lbs for Cover Q in this table.
240	502.03.I	Change “point” to “print” in the first sentence of this subsection.
240	502.03.I	Delete the word “a” in the last sentence of this subsection.
242	502.04.C	Change the first sentence of this subsection to read as follows: “...material, and cleaning the cold milled pavement.”
242	502.04.C	Change “placment” to “placement” in the second sentence of this subsection.
266	507.03.G.3	The time period for placing mixture in the Upper Peninsula should read: • June 1 - September 15
287	601.03.F	The first sentence of this subsection should read “Concrete must be between 45 °F and 90 °F, inclusive, at the time it is placed.”
288	601.03.G	This subsection should read as follows: “G. Concrete Mixture Requirements. The Contractor is responsible for quality control for concrete on all projects according to Section 604.”
289	601.03.G	Re-index subheadings in this subsection, beginning with the second instance of 601.03.G.3, as follows: 4. Air Content. 5. Water-Reducing Admixtures. 6. Slump. 7. Strength of Concrete.
290*	601.03.G.7.b	Delete the paragraph with the heading Non Concrete QA Projects , in its entirety, and replace with the following: b. Non Concrete QA Projects. The Engineer will perform strength testing for acceptance and payment, according to Department procedures, for all projects not covered by the Department’s concrete quality assurance program.
314	602.04.C.1	Change “faction” to “fraction” in the second sentence of this subsection.

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Page	Subsection	Errata
324*	603.03.B	Change "6 feet" to "4 feet" in the first sentence of the second paragraph of this subsection.
327	603.03.B.3	The last sentence in this subsection should read as follows: 4. Placing Reinforcement. Position and support reinforcement according to the standard plans.
328	603.03.B.8	The third sentence, in the third paragraph of this subsection should read "...correct all high or low spots exceeding 1/8 inch."
330	603.03.B.13	Change "3/4" to "5/8" in the third paragraph of this subsection.
333	603.03.D.3	Reference in the first sentence of this subsection should read 602.03.R.
333	603.03.D.4	The last sentence of this subsection should read "...flush to 1/8 inch (after cooling) below the surface..."
333	603.03.E.3	The last sentence of the first paragraph of this subsection should read "...flush to 1/8 inch below the surface..."
338	604.01	Delete the first sentence of the first paragraph of this subsection and replace with the following: 604.01 Description. Provide quality control for all concrete production and placement on the project adequate to produce work of acceptable quality.
339	604.03.C	Change "assurance" to "control" in the first sentence of the first paragraph of this subsection.
348	605.03.C.1	Change " <i>Materials Quality Assurance Manual</i> " to " <i>Materials Quality Assurance Procedures Manual</i> " in the first sentence of this subsection.
350	Table 605-2	Change "10" to "90" for the Rejection Limit (percent) for all grades of concrete shown in this table.
350	605.03.D.1.a	The first sentence of this subsection should read "...retest strength from Table 605-2 for the class..."
352	605.03.E.3.c	Delete the second instance of the word "a" in the first sentence of this subsection.
353	605.04	Change the lettering for the subheadings from "A., D. & E." to "A., B. & C."
360	701.03.D	The first sentence of this subsection should read "Concrete must be between 45 °F and 90 °F, inclusive, at the time it is placed."

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Page	Subsection	Errata
363	701.03.G.2	<p>Delete the first four paragraphs of this subsection and replace with the following:</p> <p>2. Non Quality Assurance. The Engineer will perform strength testing for acceptance and payment, according to Department procedures, for all concrete not covered by the Department's concrete quality assurance program.</p> <p>Test specimens will be made according to AASHTO T 23 and cured according to section 9.2 or 9.3 of T 23.</p>
382	705.03.F	Formula 705-1b should read $C = \frac{Wr + k^2 Wp}{Wr + Wp}$
407	706.03.M.3	Change "Grove" to "Groove" in the first sentence of the first paragraph of this subsection.
416	706.04.B	Move the entire paragraph beginning with "Concrete placed by the pumping method..." from subsection 706.04.C to the end of subsection 706.04.B.
416	706.04.C	Change the first sentence of this subsection to read as follows. "C. False Decking will be measured for the total area protected, including the width of the beams."
423	Table 707-1	Change the Minimum Size of Fillet Weld from "3/4" inch to "1/4" inch when Base Metal Thickness of Thicker Part Joined is less than or equal to 3/4 inch.
427	707.03.C.8	Change the first sentence of this subsection to read as follows: "...must be qualified according to AWS D1.5, <i>Bridge Welding Code</i> , ..."
435	707.03.D.3	Change the first sentence of this subsection to read as follows. "3. Falsework. Build and remove falsework according to subsections 706.03.C and 706.03.O."
449	708.03.A.13.e	Change reference to AASHTO M 111.
475	712.03.A.3	Change " Equipment for Constructing Latex Modified Concrete Surfaces. " to " Equipment for Constructing Concrete Overlay Surfaces. " in the heading of this subsection.
483	712.03.L.3	Change the fourth sentence of this subsection to read as follows: "...two test splices on the largest bar sizes that are to be spliced."
488*	712.03.Q	The first sentence of the last paragraph of this subsection should read "Maintain wet cure for no less than seven days

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Page	Subsection	Errata
		following concrete placement.”
489*	712.03.T	The last sentence of the fifth paragraph of this subsection should read “Allow heavy equipment on the deck overlay only after the overlay concrete has reached an age of at least seven days.”
491	712.03.W.1	The last sentence of this subsection should read “Clean and coat as required according to Section 715.”
497	713.02	Change “Grade 400” to “Grade 60” for the Steel Reinforcement.
500	713.03.C.2	Reference in the first paragraph of this subsection should read 204.03.A.5
535	804.02	Change Type H-2 to Type H-1 for Mortar and Grout material.
548	807.04	Change the Pay Unit for Guardrail, Type ___ to “Foot”.
558	809.04.A	Delete the first sentence of the first paragraph in this subsection and replace with the following: A. Field Office, CI ___ includes set up, providing access, grading, maintaining, plowing snow, utility hook up charges and monthly water and sanitary service fees.
562	810.03.J	Change “sigh” to “sign” in the last sentence of this subsection.
571	810.03.P	Delete the phrase “and the traffic signal contract typical construction plans” from the end of the first sentence of this subsection.
577	810.04.D	This subsection should read “...all work, including construction of the foundations, necessary for the installation of...”.
583	811.03.D.2	The last sentence of this subsection should read “Place regular dry paint between October 1 and May 1, inclusive.”
588	811.04	Change the third pay item in this list to read as follows “Pavt Mrkg, Waterborne, for Rest Areas, Parks, & Lots, ___ inch, (color)”.
588	811.04	Change the nineteenth pay item in this list to read as follows “Rem Curing Compound, for Longit Mrkg”.
602	812.03.G	Delete the word “of” in the second sentence of the second paragraph of this subsection.

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Page	Subsection	Errata
610*	812.03.K.6	Change "W8-11 (UNEVEN LANES)" to "W8-9b (UNEVEN LANES)" in two places.
616	812.04	Change the eighth pay item from the end of this list to read as follows "Pavt Mrkg, Longit, 6 inch or Less Width, Rem".
621	812.04.M.3	The second sentence of the first paragraph of this subsection should read "...applies for both existing longitudinal permanent markings and temporary Type NR markings...".
623	812.04.T.3	Delete this subsection and replace with the following: 3. Items measured as lump sum if they are used or required on the worksite during the authorized extension of time, except that Minor Traffic Control Devices will not be adjusted when conspicuity tape is the only minor traffic control device in service or required during the authorized extension of time.
639	816.01	Change "National Pollution Discharge Elimination System" to "National Pollutant Discharge Elimination System" in the last sentence of this subsection.
640	816.03.A	Delete the last sentence of this subsection beginning with "Supply compost from..."
643	Table 816-2	Under Mixture for Upland Areas, in the row for ES (Environmental Seeding), in the Seeding Rate column, change "110 lb/acre" to "Table 917-1".
646	816.03.H	Reference in the second paragraph of this subsection should read 917.15.D.2.
661	819.03E.3	The second sentence of the third paragraph of this subsection should read "...so that they are not displaced during concrete placement."
665	819.03.H	Add the following sentence at the beginning of this subsection: "Construct tower lighting unit foundations according to subsections 810.03.J and K."
667	819.04	Change the fifth pay item in this list to read as follows "Conduit, Fiberglass, ___ inch, Structure".
679	820.03.H	Delete the word "lineal" in the first sentence of the sixth paragraph of this subsection.
680	820.04	Change the first pay item of this list to read as follows "TS, <u>(number)</u> Way <u>(type)</u> Mtd".

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Page	Subsection	Errata
694	902.03.B	Change "...retained on the-inch sieve..." to "retained on the 3/8-inch sieve..." in the second paragraph of this subsection.
696	Table 902-1	Delete section reference "503" in three places in the Item of Work by Section Number column. Delete the reference to "502 Temporary Patching with HMA Mixture" in footnote (a).
705	903.06.A	Change the first sentence of the first paragraph of this subsection to read "...ASTM C 309, Type 2 compounds, except that the requirements for reflectance and drying time do not apply."
719	905.03	Change "A 616" to "A 616-96a" and change "A 617" to "A 617-96a" in the first paragraph of this subsection.
719	905.03	Change "A 617" to "A 617-96a" in the second paragraph of this subsection.
719	905.03	Delete the third paragraph of this subsection and replace with the following: Bar reinforcement for prestressed concrete beams must meet ASTM A 616-96a for Grade 60 steel bars, except that bar reinforcement meeting ASTM A 615 or A 617-96a for Grade 40 steel bars will be permitted for stirrups in prestressed concrete beams.
720	905.03.C	Change the first sentence of this subsection to read "... must be coated according to AASHTO M 284, with the following exceptions and additions:"
720	905.03.C.3	Change this subsection to read "...and tested according to AASHTO M 284."
720	905.03.C.4	Reference in the last sentence of this subsection should read subsection 706.03.E.8.
720	905.05	Change "A 616" to "A 616-96a" and change "A 617" to "A 617-96a" in the first paragraph of this subsection.
723	906.04.B	Change "40 °F" to "30 °F" in the last sentence of this subsection.
729	907.03.D.2.b	Change "1æ" to "1½" in the second sentence of the first paragraph of this subsection.
734	908.04	Change the second sentence of the first paragraph of this subsection to read "...requirements for carbon steel castings

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Page	Subsection	Errata
		of ASTM A 148 Grade 60/90, as specified on the plans.”
761	910.03.B	Change the last sentence of this subsection to read, “Furnish a non-woven geotextile meeting the strength requirements in Table 910-1 for Geotextile Liner Heavy when heavy riprap is specified.”
774	Table 912-2	Replace Table 912-2 with new Table 912-2 shown below.
789*	914.04.A	Change the first sentence of this subsection to read “Conform to ASTM D 6690, Type II with the following exceptions:”
795	914.08	Reference in the second paragraph of this subsection should read subsection 914.09.C.
795	914.08	Change “A 616” to “A 616-96a” and change “A 617” to “A 617-96a” in the first sentence of the third paragraph of this subsection.
795	914.09.A	Change “A 616” to “A 616-96a” and change “A 617” to “A 617-96a” in the first sentence of this subsection.
797	912.12	Change “A 570” to “A 1011” in the first sentence of the second paragraph in this subsection.
800	916.01.B	Change “ Coarse Gravel 3x1. ” to “ Coarse Aggregate 3x1. ” in the heading of this subsection.
801	916.01.D.1	The last sentence of this subsection should read “...3 to 12 inches for ditch grades 2 percent or greater.”
801	916.02	Delete the sixth sentence of this subsection beginning with “Silt fence fabric...”
805	917.08	Delete the first sentence of this subsection beginning with “Furnish compost from...”
839*	919.02.C	Delete the second and third paragraphs of this subsection and replace with the following. Bolts, nuts, washers, U-bolts and straps must be stainless steel. The stainless steel alloy for bolts, washers, U-bolts, and straps must conform to ASTM A 320, Class 1, Grade B8. Nuts must be self-locking nylon insert type conforming to ASTM A 320 and A 194 for Grade 8F. If U-bolts are formed from straight bar stock, forming must be by cold working.
846*	919.10.A	Delete the last two paragraphs of this subsection and replace with the following. Bolts, nuts, washers, U-bolts and straps must be stainless steel. The stainless steel alloy for bolts, washers, U-bolts,

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Page	Subsection	Errata
		and straps must conform to ASTM A 320, Class 1, Grade B8. Nuts must be self-locking nylon insert type conforming to ASTM A 320 and A 194 for Grade 8F. If U-bolts are formed from straight bar stock, forming must be by cold working.
847	919.11.A.1	This subsection should read as follows:
847	919.11.A.2	1. Wood Posts. Concrete for wood post foundations, when required, must be Grade P2 as specified in section 601. This subsection should read as follows:
		2. Breakaway Columns. Concrete for breakaway column foundations must be Grade P2 as specified in section 601.
868	922.02.D	Change "3200 square feet" to "32 square feet" in the last sentence of this subsection.
869	922.03.C	Delete this subsection and replace with the following. C. Drums with Lights. Drums with warning lights attached must meet NCHRP 350 crashworthy criteria. Provide certification, according to subsection 922.01, when requested.
869	922.03.D	Change "crash worthy" to "crashworthy" in the last sentence of this subsection.
871	922.03.E.2	Change "1/2 inch" to "1/2 -inch" in the second sentence of the third paragraph of this subsection.
883	Pay Item Index	Change the page number reference for Calcium Chloride to 322.
883	Pay Item Index	Delete the reference for Conc, Grade ___ and add the following references. Conc, Grade ___ (for pavements)..... 313 602 Conc, Grade ___ (for structures) 414 706
886	Pay Item Index	Change "Fertilizer, Chemical Nutrient, Class ___" to "Fertilizer, Chemical Nutrient, Cl ___".
899	General Index	Change the page number reference for Concrete: Barrier, Bridge to 469.
906	General Index	Change "Carrier Bills, Required for Partial Payments" to "Freight Carrier Bills, Required for Partial Payments".
920	General Index	Delete the material page reference, in boldface type, for Sleeves Placed in Structures.

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Table 912-2 Species and Grading Requirements for Posts

Species	Round Posts Grade	Sawn Posts Agency (a)
Hardwoods		
Red Oak (Northern Red, Black, Pin Laurel, Cherry-Bark, Scarlet, Water and Willow Oaks) (b) Hard Maple (Black and Sugar) and Red Maple White Ash White-Heartwood Beech Yellow Birch	ASTM D 245	MDOT
Softwoods		
Northern White Cedar, Red Pine and Eastern White Pine (Northern White Pine)	No. 1 or better	NHPMA
Douglas-Fir	No. 2 or better	WCLIB, WWPA
Southern Pine Species	No. 2 or better	SPIB
a. NHPMA (Northern Hardwood and Pine Manufacturers Assoc.); WWPA (Western Wood Products Assoc.); WCLIB (West Coast Lumber Inspection Bureau) and SPIB (Southern Pine Inspection Bureau). b. Southern Red Oak is not permitted.		

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
**NON-COMPLIANCE WITH SOIL EROSION AND SEDIMENTATION CONTROL
REQUIREMENTS**

C&T:DMG

1 of 2

C&T:APPR:JAR:TWK:08-02-06
FHWA:APPR:08-11-06

a. Description. This special provision establishes negative adjustments related to the failure to properly install and maintain soil erosion and sedimentation control (SESC) measures and the conditions under which these adjustments will be determined and applied. Nothing in this special provision modifies section 107 of the Standard Specifications for Construction,

Delays to the project as a result of the Contractor conducting corrective actions for SESC do not constitute a valid reason for an extension of time.

Deficiencies with SESC measures must be corrected in the time frame stated herein. For those deficiencies not corrected within the stated time frame, the Engineer will make a negative adjustment to the contract as stated herein.

b. Construction. The Contractor must install all temporary erosion control measures identified on the plans and as directed by the Engineer for an impacted area of the project prior to the start of any earth disturbance including, but not limited to, clearing, grading and excavation in that area. The Engineer will inspect these measures every seven days and within 24 hours of precipitation events which result in off-site runoff. Deficiencies will be documented on the National Pollutant Discharge Elimination System (NPDES) Inspection Report (Form 1126).

If at any time during the project, including the time during the seasonal suspension, the Engineer documents deficient SESC measures, the Engineer will provide written notification with instructions for corrective action to the Contractor. The time frame for completion of these corrective actions will be specified in the notification and will be discussed with the Contractor as necessary.

Deficiencies are defined as one or more of the following:

1. failure to install or construct SESC measures shown on the plans or as directed by the Engineer;
2. failure to maintain the measures;
3. failure to conduct earth change activities in a manner consistent with all applicable environmental permit requirements;
4. failure to comply with the time limitations or the area limitations stated in subsections 208.03.B and 208.03.C, respectively, of the Standard Specifications for Construction.

SESC deficiencies are either emergency or non-emergency and the time frame for corrective action is determined accordingly. Sedimentation of a drainage structure or waters of the state or loss of support of the roadbed impacting public safety constitutes an emergency and corrective

actions must be completed within 24 hours of notification. Non-emergency deficiencies must be corrected within five calendar days of notification.

For those emergency corrective actions not completed within 24 hours of notification, the Contractor will be assessed \$100.00 per hour for every hour the deficiency remains uncorrected after the initial 24 hours of notification. For those non-emergency corrective actions not completed within five calendar days, the Contractor will be assessed \$500.00 per day for every day the deficiency remains uncorrected after the initial five days of notification.

If it is not practicable to complete the non-emergency corrective actions within five calendar days, the Contractor must document the reasons and propose a corrective action plan to the Engineer within five days of notification. The corrective action plan must contain the Contractor's course of action and a time frame for completion. If the reasons and the corrective action plan are acceptable to the Engineer, the Contractor will be allowed to proceed with the plan as proposed without incurring a negative adjustment. If the approved corrective action plan is not completed as proposed, the Contractor will be assessed \$1000.00 per calendar day for every day the deficiency remains uncorrected after the time frame is exceeded in the approved corrective action plan.

The Contractor is required to correct, in the timeframe stated herein, all other emergency or non-emergency SESC deficiencies documented anywhere else on the project during completion of the approved corrective action plan.

c. Measurement and Payment. The Engineer will make the necessary monetary adjustment to the contract amount based on the length of time the Contractor allows the deficiencies to remain uncorrected after the time allowance stated herein and as described to cover any costs incurred by the department as a result of SESC violations.

All costs associated with corrective actions required due to the Contractor's failure to properly install or maintain soil erosion and sedimentation control measures on this project will be borne by the Contractor.

MICHIGAN
DEPARTMENT OF TRANSPORTATIONSPECIAL PROVISION
FOR
SLOPE RESTORATION, NON-FREEWAY

LAN:JBI

1 of 3

C&T:APPR:DMG:EMB:11-08-02
REVISED:10-05-05

a. Description. This work consists of preparing all manicured lawns and slopes on non-freeway projects designated for slope restoration on the plans or by the Engineer, and applying topsoil, fertilizer, seed, and mulch with mulch anchor, mulch blanket or high velocity mulch blanket to those areas. Turf establishment shall be in accordance with Section 816 of the Standard Specifications for Construction and Standard Plan R-100 Series, except as modified herein or otherwise directed by the Engineer.

b. Materials. The materials and application rates specified in Sections 816 and 917 of the Standard Specifications for Construction apply unless modified by this special provision or otherwise directed by the Engineer.

1. Seeding mixture as called for on the plans.
2. Fertilizer, Chemical Nutrient, Class A shall be used on this project.
3. Topsoil Surface, Furnished or Salvaged, 4 inch shall be used on this project. Topsoil shall be free of all stones one inch in diameter or greater.
4. Mulch and Mulch Anchoring, Mulch Blanket and High Velocity Mulch Blanket shall be used on this project.
5. Permanent Turf Reinforcement Mat shall consist of a dense web of three-dimensional, UV stable synthetic fibers, thickness $\frac{3}{4}$ inch minimum, porosity greater than 90 percent and weight .70 lbs per square yard. Sustained channel velocity shall be at a rate of 8 feet per second during a 48 hour period in a non-vegetated condition.

c. Construction. Construction methods shall be in accordance to subsection 816.03 of the Standard Specifications for Construction. Begin this work as soon as possible after final grading of the areas designated for slope restoration but no later than the maximum time frames stated in subsection 208.03 of the Standard Specifications for Construction. It may be necessary, as directed by the Engineer, to place materials by hand.

Prior to placing topsoil, shape, compact and assure all areas to be seeded are weed free. Place topsoil to the minimum depth indicated above, to meet proposed finished grade. Remove any stones greater than or equal to 1 inch in diameter. If the area being restored requires more than the minimum depth of topsoil to meet finished grade, this additional depth must be filled using topsoil or, at the Contractor's option, embankment. Furnishing and placing this additional material is included in this item of work.

Topsoil shall be weed and weed seed free and friable prior to placing seed. Remove all stones from the topsoil greater than 1 inch in diameter. Apply seed mixture and fertilizer to prepared soil surface. Seed shall be incorporated into top $\frac{1}{2}$ inch of topsoil.

Mulch shall be applied at a rate of 2 tons per acre. Place Mulch Anchoring over the mulch at a rate specified in subsection 816.03.F of the Standard Specifications for Construction. Mulch Blanket

and High Velocity Mulch Blanket shall be placed in accordance to subsection 816.03.H of the Standard Specifications for Construction and as shown on Standard Plan R-100 Series.

Areas constructed with the Permanent Turf Reinforcement Mat shall be filled with seed, topsoil and fertilizer mix. Additional mulching is not required.

If an area washes out after this work has been properly completed and approved by the Engineer, make the required corrections to prevent future washouts and replace the topsoil, fertilizer, seed and mulch. This replacement will be paid for as additional work using the applicable contract items.

If an area washes out for reasons attributable to the Contractor's activity or failure to take proper precautions, replacement shall be at the Contractor's expense.

The Engineer will inspect the seeded turf to ensure the end product is well established, weed free, in a vigorous growing condition, and contains the species called for in the seeding mixture.

If weeds are determined by the Engineer to cover more than ten percent of the total area of slope restoration, the Contractor shall provide weed control in accordance to subsection 816.03.J of the Standard Specifications for Construction. Weed control shall be at the Contractor's expense with no additional charges to the project for materials, labor or equipment.

d. Measurement and Payment. The completed work as described will be paid for at the contract unit price for the following contract item (pay item):

Contract Item (Pay Item)	Pay Unit
Slope Restoration, Type ____	Square Yard

Payment for **Slope Restoration, Type A** shall be placed in all other areas not described in the other types of Slope Restoration and will be measured by area in square yard in place. All materials, labor and equipment required to install **Slope Restoration, Type A** which includes Topsoil Surface, Furnished or Salvaged; Fertilizer, Chemical Nutrient, Class A; Seeding Mixture; Mulch and Mulch Anchoring will not be paid for separately but shall be included in the contract unit price bid for **Slope Restoration, Type A**.

Payment for **Slope Restoration, Type B** shall be placed parallel (6 feet) from the shoulders of the roadway, and in areas that have a 1-on-3 slope, and in any ditch with a grade of less than 1.5%, or as directed by the Engineer. **Slope Restoration, Type B** will be measured by area in square yard in place. All materials, labor and equipment required to install **Slope Restoration, Type B** which includes Topsoil Surface, Furnished or Salvaged; Fertilizer, Chemical Nutrient, Class A; Seeding Mixture; and Mulch Blanket will not be paid for separately but shall be considered included in the contract unit price bid for **Slope Restoration, Type B**.

Payment for **Slope Restoration, Type C** shall be placed in areas that have a 1-on-2 slope or steeper, any ditch with a grade of 1.5% to 3%, or as directed by the Engineer. **Slope Restoration, Type C** will be measured by area in square yards in place. All materials, labor and equipment required to install **Slope Restoration, Type C** which includes Topsoil, Furnished or Salvaged;

Fertilizer, Chemical Nutrient, Class A; Seeding mixture; and High Velocity Mulch Blanket will not be paid for separately but shall be considered as included in the contract unit price bid for **Slope Restoration, Type C**.

Payment for **Slope Restoration, Type D** shall be placed in areas with the reinforced slope that have a 1-on-2 slope or steeper, any ditch with a grade steeper than 3%, or as directed by the Engineer. All slopes shall be covered with the Permanent Turf Reinforcement Mat. **Slope Restoration, Type D** will be measured by area in square yards in place. All materials, labor and equipment required to install **Slope Restoration, Type D** which includes Permanent Reinforcement Mat, Topsoil, Furnished or Salvaged; Fertilizer, Chemical Nutrient, Class A; and Seeding, Mixture; will not be paid for separately, but shall be considered as included in the contract unit price bid for **Slope Restoration, Type D**.

VILLAGE OF DEXTER
SPECIAL PROVISION
FOR
VEGETATED FIBER ROLL

DEXTER:PJV

1 of 1

10/05/10

a. Description. Place vegetated fiber roll. Complete this work according to the MDOT Standard Specifications for Construction, details shown on the plans, and this special provision.

b. Materials. Vegetated Fiber Roll shall be Coir Log, 12 inch diameter, 9 lb/cft density as manufactured by D2 Coir Fiber Products, or approved equal. Vegetated Fiber Roll shall include commercially available live willow stake plantings (*Salix Spp*) spaced at 1 foot intervals on each side of the log.

c. Construction. All Soil Erosion and Sedimentation Control measures shall be installed in accordance with the Soil Erosion Permit to be obtained from the Village, the MDNRE Permit obtained for the project, and the MDOT Standard Specifications for Construction. All temporary and permanent soil erosion and sedimentation control measures shall be maintained during the life of the contract by the Contractor. Whenever corrective action is ordered by the Engineer or Village officer responsible for soil erosion enforcement, such corrective action shall be undertaken immediately. Vegetated Fiber Rolls shall be installed according to the detail included in the plans and the recommendations of the manufacturer. The live willow stakes shall be used to hold the Fiber Roll in place. Additional stakes may also be required, as determined by the Engineer, to ensure the Fiber Rolls are secure to the site. Vegetated Fiber Rolls shall be watered and fertilized, as required to ensure that the planting are well established. Plantings which, in the opinion of the Engineer, are unacceptable shall be removed and replaced prior to final acceptance.

d. Measurement and Payment. The completed work as described will be measured and paid for at the contract unit price for the following Contract Item (Pay Item):

Contract Item (Pay Item)	Pay Unit
Vegetated Fiber Roll	Foot

Vegetated Fiber Roll will be measured in feet. **Vegetated Fiber Roll** includes all materials, labor, and equipment necessary to complete the work as described.

VILLAGE OF DEXTER
SPECIAL PROVISION
FOR
PLAYGROUND PROTECTIVE SURFACING

URS:PJV

1 of 5

10-04-10

- a. Description.** Install organic loose-fill surface as shown on the plans.
- b. Materials.** Materials shall meet the following requirements:
1. Impact Attenuation. According to ASTM F 1292.
 2. Accessibility of Surface Systems. According to ASTM F 1951.
 3. Minimum Characteristics for Organic Loose-Fill Surfaces. According to ASTM F 2075.
 4. Submittals.
 - A. Product Data. For each type of product indicated.
 - B. Samples for Initial Selection. For each type of playground surface system indicated.
 - (1) Include similar Samples of playground surface system and accessories involving color selection.
 - C. Samples for Verification. For each type of playground surface system indicated.
 - (1) Minimum 1-quart (0.95-L) loose-fill surface sealed in a container.
 - (2) Minimum 12-by-12-inch (300-by-300-mm) Sample of geosynthetic fabric.
 - D. Qualification Data. For [Installer].
 - E. Material Test Reports. For the following, from a qualified testing agency, indicating compliance with requirements.
 - (1) Organic loose-fill surface.
 - F. Material Certificates. For each playground surface system product, signed by manufacturers.
 - G. Field quality-control test reports.
 - H. Maintenance Data. For playground surface system to include in maintenance manuals.

- I. Warranty. Special warranty specified in this Section.
5. Quality Assurance.
 - A. Installer Qualifications. An employer of workers trained and approved by manufacturer.
 - B. Testing Agency Qualifications. An independent agency qualified according to ANSI Z34.1 for testing indicated.
 - C. Source Limitations. Obtain playground surface system materials through one source from a single manufacturer.
 - (1) Provide secondary materials [geosynthetics] and repair materials of type and from source recommended by manufacturer of playground surface system materials.
 6. Project Conditions.
 - A. Weather Limitations. Proceed with installation only when existing and forecasted weather conditions permit playground surface system installation to be performed according to manufacturers' written instructions and warranty requirements.
 7. Coordination.
 - A. Coordinate installation of playground surface systems with installation of playground equipment.
 8. Warranty.
 - A. Special Warranty. Manufacturer's standard form in which manufacturer agrees to repair or replace components of playground surface system that fail in materials or workmanship within specified warranty period.
 - (1) Failures include, but are not limited to, the following:
 - (a) Reduction in impact attenuation.
 - (b) Deterioration of surface and other materials beyond normal weathering.
 9. Manufacturers.
 - A. In other articles where titles below introduce lists, the following requirements apply to product selection:
 - (1) Available Products. Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products specified.
 - (2) Products. Subject to compliance with requirements, provide one of the products specified.

(3) Basis-of-Design Product. The design for each product is based on the product named. Subject to compliance with requirements, provide either the named product of a comparable product by one of the other manufacturers specified.

10. Organic Loose-Fill Surface.

A. Engineered Wood Fibers. Random-sized wood fibers, in manufacturer's standard fiber size, approximately 10 times longer than wide; containing no bark, leaves, twigs, or foreign or toxic materials according to ASTM F 2075; graded according to manufacturer's standard specification for material consistency for playground surfaces [and for accessibility according to ASTM F 1951].

(1) Available Products:

(a) "Fibar" System as supplied by the Play Environments, phone 1-800-685-6291.

(b) "Cushion Wood" as supplied by Jennings, phone 1-800-632-4153.

(c) "Play Safe" as supplied by Compost Soil Technologies, Inc., phone 616-688-5575.

(d) "Playground Mulch" as supplied by Brink Wood Products, Inc., phone 616-878-9190.

(2) The playground surface shall come complete with the following components:

(a) Wood fiber mulch.

(b) Geotextile fabric (between wood mulch and subgrade).

(3) Critical Height set at 9 feet 2.7 m. Critical Height is the standard measure of shock attenuation. According to CPSC No. 325, this means "the fall height below which a life threatening head injury would not be expected to occur."

(4) Uncompressed Material Depth. Not less than 12 inches.

11. Geosynthetics.

A. Drainage/Separation Geotextile. Nonwoven, needle-punched geotextile, manufactured for subsurface drainage applications and made from polyolefins or polyesters; complying with the following minimum properties determined according to ASTM D 4759 and referenced standard test methods:

(1) Weight. 4 oz./sq. yd. according to ASTM D 5261.

(2) Water Flow Rate. 100 gpm/sq. ft. according to ASTM D 4491.

c. Construction.

1. Preparation.

A. General. Prepare substrates to receive surfacing products according to playground surface system manufacturer's written instructions. Verify that substrates are sound and without high spots, ridges, holes, and depressions.

2. Installation, General.

A. General. Comply with playground surface system manufacturer's written installation instructions. Install playground surface system over area and in thickness indicated.

3. Geosynthetic Installation.

A. General. Install geosynthetics according to playground surface system manufacturer's and geosynthetic manufacturer's written instructions.

(1) Geotextiles. Completely cover area indicated, overlapping sides and edges a minimum of 8 inches with manufacturer's standard treatment for overlapping loosely laid seams.

4. Installation of Loose-Fill Playground Surface Systems.

A. Loose-Fill Edgings. Place as indicated, and permanently secure in place and attach to each other according to edging manufacturer's written instructions.

B. Loose-Fill. Place playground surface system materials including manufacturer's standard amount of excess material for compacting mechanically to required depths after installation of playground equipment support posts and foundations.

C. Compacting and Grading. Uniformly compact and grade loose-fill according to manufacturer's written instructions to an even surface free from irregular surface changes as indicated.

D. Finish Grading. Hand rake to a smooth finished surface and to required elevations.

5. Field Quality Control.

A. Testing Agency. Engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.

B. Testing Services. Testing and inspecting of completed applications of playground surface system shall take place according to ASTM F 1292.

C. Remove and replace applications of playground surface system where test results indicate that it does not comply with requirements.

D. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with requirements.

d. Measurement and Payment. The completed work as described will be measured and paid for at the contract unit price using the following contract item (pay item).

Contract Item (Pay Item)	Pay Unit
Safety Surface System	Syd

Safety Surface System will be measured by square yard. Payment for **Safety Surface System** constitutes full compensation for completing the work as described herein. Testing and inspection by an independent testing agency is included in the cost.

VILLAGE OF DEXTER
SPECIAL PROVISION
FOR
PLAY EQUIPMENT, RELOCATE

DEXTER:PJV

1 of 1

10/05/10

a. Description. Relocate existing playground equipment. Complete this work according to the MDOT Standard Specifications for Construction, details shown on the plans, and this special provision.

b. Materials. All materials shall conform to Division 9 of the MDOT Standard Specifications for Construction

c. Construction. Remove the existing concrete anchor blocks and relocate the play equipment to the location shown on the plans, taking care not to damage the equipment. Install new concrete anchor blocks at the new location. Repair and repaint any damages incurred during relocation. Construction shall conform to the MDOT Standard Specifications for Construction.

d. Measurement and Payment. The completed work as described will be measured and paid for at the contract unit price for the following Contract Item (Pay Item):

Contract Item (Pay Item)	Pay Unit
Play Equipment, Relocate.....	Lump Sum

Play Equipment, Relocate will be measured in place as lump sum. **Play Equipment, Relocate** includes all materials, labor, and equipment necessary to complete the work as described.

MICHIGAN
DEPARTMENT OF TRANSPORTATIONSPECIAL PROVISION
FOR
FOUNDATION PILING, LRFD

C&T: SJW

1 of 17

C&T:APPR:RBE:EMB:03-25-08

a. Description. Delete section 705 of the Standard Specifications for Construction. Furnish and drive foundation piles of the type and dimensions designated in the contract documents, including cutting off or building up of foundation piles when required. Perform this work as specified herein; at the location; and to the elevation, penetration, and the required nominal pile driving resistance (R_{ndr}) shown in the contract documents or as directed by the Engineer.

The following definitions apply when used herein and on the plans:

1. **Absolute Refusal.** A nominal pile driving resistance value of 150 percent of the nominal pile driving resistance shown on the plans. However, when dynamic pile testing is specified the absolute refusal shall be determined by the Testing Firm subject to the Engineer's approval in accordance with section c.4.C. and Table 1 herein.
2. **CIP.** The abbreviation for cast-in-place.
3. **Design Pile Length.** The predetermined pile length specified on the plans for piles.
4. **Design Pile Tip Elevation.** The predetermined pile tip elevation when the design pile length is specified.
5. **Dynamic Formula.** Empirical formula used to estimate R_{ndr} during pile driving. The FHWA Gates formula is specified.
6. **Dynamic Testing.** High strain dynamic testing during pile driving to estimate R_{ndr} using appropriate instrumentation and signal matching computer software.
7. **Estimated Pile Length.** The length shown on the plans to be used as a guide for estimating the work and ordering test piles in cases where the nominal pile driving resistance is specified.
8. **Estimated Pile Tip Elevation.** The elevation shown on the plans at which the bottom of piles are estimated to develop the nominal pile driving resistance of the piles shown on the plans.
9. **Manufacturer.** The company that manufactures the pile driving equipment including, but not limited to the hammer and appurtenances.
10. **Minimum Pile Length.** The length between pile cutoff elevation and minimum pile penetration elevation shown on the plans.

11. **Minimum Pile Penetration Elevation.** The elevation shown on the plans at which the bottom of piles must be driven to or below.

12. **Nominal Pile Driving Resistance (R_{ndr}).** Nominal pile driving resistance measured during pile driving with either dynamic formula or dynamic testing methods in kips as specified in the plans.

13. **Ordered Pile Length.** The length determined from test pile results. For timber piles, the Engineer will determine the ordered length. For cast-in-place concrete piles and steel piles, the Contractor will determine the ordered length.

14. **Practical Refusal.** A nominal pile driving resistance value of 110 percent of the nominal pile driving resistance shown on the plans.

15. **Prebore Elevation.** The elevation at which preboring is to be stopped as shown on the plans.

16. **Production Piles.** Piles other than test piles.

17. **Test Pile.** A pile driven at a location shown on the plans to determine pile driving characteristics. Nominal Pile Resistance of a test pile shall be certified using a static load test, dynamic formula, or dynamic testing methods as defined in section c.4 and the contract documents.

18. **Testing Firm.** Consultant hired by the Contractor to provide dynamic testing and analysis services.

When test piles are required, the pile lengths shown in the contract documents are for estimating purposes only. Furnish actual pile lengths necessary to achieve the required nominal pile driving resistance and minimum pile length. When test piles are not required, furnish the piles in accordance with the design pile length as shown in the contract documents.

b. Materials. Use materials that conform to the following sections of the Standard Specifications for Construction:

Concrete, Grade S1	701
Granular Material, Class II	902
Steel Reinforcement.....	905
Foundation Piles	906
Water.....	911
Treated Timber Piles.....	912
Pile Points (including Shoes and End Plates)	906

Use either new or used steel piles in good condition consisting of the rolled structural steel shapes and yield strength provided on the plans or by authorization. Use new steel shells for CIP Concrete Piles.

Use steel reinforcement of the yield strength shown on the plans.

Use full length treated timber piles.

c. Construction.

1. Storage and Handling of Piles. Store piles off the ground with sufficient cribbing to prevent bending or distortion of the piles.

Store and handle piles to prevent dirt, water, or other foreign material from entering steel shells for CIP concrete piles.

Handle timber piles according to subsection 709.03 of the Standard Specifications for Construction.

2. Equipment. Size pile driving equipment in such a way that the production and test piles can be driven with reasonable effort without damage, refer to Formula 1 & 2 herein. Do not use driving equipment that damages the piling. Obtain advanced approval from the Engineer for all pile driving equipment, including the pile driving hammer, hammer cushion, helmet, pile cushion, and other appurtenances to be furnished by the Contractor. Pursuant to obtaining this approval, submit a description of pile driving equipment to the Engineer and the Testing Firm when dynamic testing is specified at least 30 calendar days before pile driving is to begin. The Engineer will evaluate the proposed driving system by dynamic formula and/or wave equation analysis unless dynamic testing is specified. If dynamic testing is specified, the Testing Firm shall perform the wave equation analysis and submit the results to the Engineer for approval as outlined in section c.4.C.

In addition to the other requirements contained herein, the criterion that the Engineer will use to evaluate the pile driving equipment will consist of both the required number of hammer blows per inch, and the pile driving stresses over the entire driving process.

Select pile driving equipment which installs the piles at a rate between 2 and 10 blows per inch at the required nominal pile driving resistance. For preliminary hammer selection purposes, the minimum and maximum hammer energy necessary may be estimated as follows:

$$E_d \geq 0.082(R_{ndr} + 100)^2 \quad \text{Formula 1}$$

$$E_d \leq 0.193(R_{ndr} + 100)^2 \quad \text{Formula 2}$$

Where:

- R_{ndr} = Nominal pile driving resistance measured during pile driving in kips.
- E_d = Energy developed by the hammer per blow in foot-pounds.

For pile stresses determined by wave equation analysis, do not exceed the maximum pile driving stresses given in Table 1 for the entire driving operation.

Table 1 Maximum Pile Driving Stress

Pile Material	Maximum Pile Driving Stress
Steel	90 percent of the yield strength
Timber	3.1 ksi ($F_{co} = 0.9$)

The Engineer will predict pile stresses for vertical piles by wave equation analysis using the hammer efficiencies given in Table 2. However, when dynamic testing is specified, the Testing Firm shall use the wave equation with the specified efficiencies given in Table 2 for preliminary analysis to estimate pile stresses. Refined analysis after dynamic testing shall use the actual hammer efficiency to conduct additional wave equation analyses as outlined in section c.4.C.

Table 2 Hammer Efficiencies

Hammer Type	Efficiency (percent)
Drop	25 to 40
Single Acting Air	67
Double Acting Air	50
Diesel	80
Hydraulic or Diesel with Built in Energy Measurement	95

The Engineer (or the Testing Firm when dynamic testing is specified) will adjust hammer efficiencies for driving battered piles.

The Contractor will be notified of the acceptance or rejection of the driving system within 14 calendar days of the Engineer's receipt of the Pile and Driving Equipment Data Form and required reports (when dynamic testing is specified). If rejected, modify or replace the proposed methods or equipment, at no cost to the Department.

Only use the approved system during pile driving operations. Any change in the driving system will only be considered after the Contractor has submitted revised pile driving equipment data and revised reports from the Testing Firm (if applicable) to the Engineer for review. The Contractor will be notified of the acceptance or rejection of the driving system changes within five working days of the Engineer's receipt of the requested change. The time required for submission, review, and approval of a revised driving system will not constitute the basis for a contract time extension for the Contractor.

Approval of pile driving equipment will not relieve the Contractor of responsibility to drive piles free of damage to the required nominal pile driving resistance and, if specified, to the minimum pile penetration elevation shown in the contract documents.

A. Hammers. Piles may be driven with air, diesel, or hydraulic hammers. Only use drop hammers to drive timber piles, if specifically permitted in the contract documents.

(1) Drop Impact Hammers. Do not use drop hammers for piles where the required nominal pile driving resistance exceeds 200 kips. When drop hammers are permitted, the ram shall have a weight not less than 2.0 kips and the height of drop shall not exceed 12 feet. Do not use a ram weight less than the combined weight of the helmet and the pile. Equip all drop hammers with hammer guides and a helmet to ensure concentric impact.

(2) Air Impact Hammers. Operate air hammers within the manufacturer's specified ranges. Provide the Engineer with the hammer specifications so that the energy developed by the hammer with each blow may be determined. Use striking parts with a weight of at least 2.75 kips and not less than one-third the combined weight of pile and helmet. Furnish the power plant and equipment for air hammers

with sufficient capacity to maintain, under working conditions, the volume and pressure at the hammer, specified by the manufacturer. Equip the power plant and equipment with accurate pressure gauges which are easily accessible to the Engineer. Connect the compressor to the hammer with a hose of at least the minimum size recommended by the manufacturer.

Hammer performance will be evaluated at the end of driving by measuring blows per minute and comparing with the manufacturer's recommendations. Measure the blow rate with a device that makes the measurement automatically.

(3) Diesel Impact Hammers.

(a) Open End (Single Acting). Provide the Engineer with a chart from the hammer manufacturer equating stroke and blows per minute. Average hammer stroke at the end of drive will be determined from the blow rate, using a device that makes the measurement automatically. In addition, equip open end diesel hammers with a device such as rings on the ram to permit the Engineer to visually determine hammer stroke at all times during pile driving operations.

(b) Closed End (Double Acting). Equip closed end hammers with a bounce chamber pressure gauge, in good working order, mounted near ground level so as to be easily read by the Engineer. Provide a correlation chart of bounce chamber pressure and potential energy. Average hammer stroke at the end of drive will be determined from bounce chamber pressure.

(4) Hydraulic Impact Hammers. Operate hydraulic hammers within the manufacturer's specified ranges. Furnish the power plant for hydraulic hammers of sufficient capacity to maintain the volume and pressure specified by the manufacturer. Equip the power plant with accurate pressure gauges which are easily accessible to the Engineer. Equip hydraulic hammers with an energy readout device. Furnish wave equation analysis to aid in the determination of the adequacy of the hammer, and indicate the nominal pile driving resistance of the pile. Do not use Formulas 1 through 5 for these calculations.

(5) Non-Impact Hammers. Do not use non-impact hammers such as vibratory hammers, or driving aids such as jets, followers and prebored holes unless either specifically permitted in writing by the Engineer or stated in the contract documents.

(6) Additional Equipments or Methods. If the minimum pile penetration elevation is not obtained by the use of a hammer complying with the minimum requirements described herein, the Contractor may be required to provide a hammer of greater energy or, when permitted, resort to supplemental methods such as preboring. Additional wave equation analyses for the new hammers shall be conducted by the Engineer (or Testing Firm when dynamic testing is specified) to assess predriving pile stresses as outlined in sections c.2 and c.4.C.

B. Driving Appurtenances.

(1) Hammer Cushion. Equip all impact pile driving equipment, except drop hammers, with a hammer cushion of suitable thickness to prevent damage to the

hammer or pile. Hammers designed such that a hammer cushion is not required, are excluded from this requirement.

Fabricate hammer cushions of durable manufactured materials that will retain uniform properties during driving. Do not use wood, wire rope, or asbestos hammer cushions. Place a striker plate on the hammer cushion to ensure uniform compression of the cushion material. Remove the hammer cushion from the helmet and inspect in the presence of the Engineer when beginning pile driving at each structure or after each 100 hours of pile driving, whichever is less. Replace the hammer cushion whenever there is a reduction of hammer cushion thickness exceeding 25 percent of the original thickness before driving is continued.

(2) Helmet. Fit piles with a helmet to distribute the hammer blow uniformly and concentrically to the pile top. Ensure that the helmet surface in contact with the pile is plane and smooth and align it parallel with the hammer base and the pile top. Guide the helmet with leads and do not allow it to be free-swinging. Fit the helmet to the pile top in such a manner as to maintain concentric alignment of hammer and pile.

For timber piles, do not exceed the pile top diameter by more than two inches of the least inside horizontal dimension of the helmet or hammer base. Trim the pile top to the fit the helmet if the timber pile diameter slightly exceeds the least helmet or hammer base horizontal dimension. Trimming of the pile top will only be allowed above the cutoff elevation.

(3) Pile Cushion. When CIP concrete piles must be redriven after concrete has been placed and cured inside the steel shells, protect pile tops with a pile cushion. Proportion the pile cushion to distribute the blow of the hammer throughout the cross-section of the pile.

(4) Leads. Use pile driving leads that align the pile and the hammer in proper positions throughout the driving operation. Use leads that are constructed in a manner that affords freedom of movement of the hammer while maintaining alignment of the hammer and the pile to ensure concentric impact for each blow. Use leads designed to permit proper alignment of battered piles when applicable. Do not allow the pile section being driven to extend above the leads. Leads may be either fixed or swinging type. Fit swinging leads, when used, with a pile gate at the bottom of the leads. Use leads that are adequately embedded in the ground or constrain the pile in a structural frame such as a template to maintain alignment. Use leads of sufficient length to make the use of a follower unnecessary.

(5) Followers. Only use followers when approved in writing by the Engineer or when specified in the contract documents. If a wave equation analysis is not performed, use a follower with impedance between 50 percent and 200 percent of the pile impedance. Maintain the follower and pile in proper alignment during driving. Drive the first pile in each bent, and every tenth pile driven thereafter, full length without a follower to determine that adequate pile penetration is being attained to develop the required nominal pile driving resistance. Use a follower of such material and dimensions to permit the piles to be driven to the penetration depth determined necessary from the driving of the full length piles. Verify that the final position and alignment of the first two piles installed with followers in each substructure unit are in

accordance with the location tolerances in subsection c.3.B(5) herein before additional piles are installed.

(6) Spud. A short strong driven member which is removed to make a hole for inserting a pile. The use of spuds will not be permitted in lieu of preboring.

3. Driving Methods.

A. Preparation for Driving. Prior to driving, cut pile tops square with the axis of the pile. Use collars, bands, or other devices to protect timber piles against splitting and brooming.

(1) Excavation and Fill. Do not drive piles (or redrive piles) until excavation and/or fill is complete unless otherwise specified in the contract documents. Where piles are to be driven (or redriven) through fills, compact the embankment to the bottom of the concrete substructure unit before driving piles. Remove any material forced up between the piles to the correct elevation before concrete for the foundation is placed.

(2) Pile Preboring to Facilitate Driving. When specified, prebore holes to the prebore elevation shown on the plans. Provide a finished hole with a diameter equal to or slightly greater than the diameter of the pile.

Maintain a stable open hole until the pile has been installed and advanced to the bottom of the bore. Do not begin final drive for bearing until the pile reaches the prebore elevation shown on the plans. Control caving or unstable soil layers by using temporary casing or non-toxic and non-hazardous drilling slurry. Handle and dispose of drilling slurry according to the Sedimentation and Erosion Control Act, Act 347 of 1972 as amended either on the site or at an off site location where existing or proposed structures will not be affected. Obtain approval from the Engineer for on site disposal.

Remove or clear boulders, cobbles, or other obstructions. Provide rock chisels, extractors, core barrels, or other equipment necessary to clear obstructions. The removal of obstructions that require this special equipment will be paid for as extra work.

To the extent possible, complete all preboring within a foundation unit and advance all piles to the prebore elevation, before beginning the final drive. When preboring occurs within 20 feet of a completed pile, recheck the pile capacity by restriking the pile. The Engineer will select the piles for restrike. Restrike with the same driving equipment used in the initial installation. If any reduction in capacity occurs, redrive all piles to R_{ndr} . Restrike due to preboring is included in the pay item **Pile, Furn and Driven, LRFD**.

Backfill all voids remaining after the final drive with granular material Class II or approved equal.

Prebore pile holes with a variation of not more than 1/4 inch per foot from the vertical or from the batter line shown on the plans. Upon completion, the center of the hole at cutoff elevation must be within six inches of the position shown on the plans.

The use of spuds will not be permitted in lieu of preboring.

Unless otherwise directed on the plans, when piles are to be driven through compacted fill of a depth greater than five feet, drive piles in holes prebored to natural ground in accordance with the above requirements.

B. Driving. During driving, maintain pile tops square with the axis of the pile.

(1) Obstructions. If an impenetrable obstruction is encountered when driving a pile, choose either of the following courses of action:

(a) Remove the pile, and if reusable according to the Engineer, adjust it laterally (side to side), and redrive. Redrive according to subsection c.3.B(5) herein except for this lateral adjustment. The total length of pile driven, including the length of pile embedded in the ground and removed, will be measured for payment.

(b) Cut off the pile at the lowest practical elevation and drive another pile adjusted laterally (side to side). Drive according to subsection c.3.B(5) herein except for this lateral adjustment. The total length of pile driven, including the length of pile that was cut off and left in the ground, will be measured for payment.

If unable to bypass the impenetrable obstruction using either course of action, remove or otherwise clear the obstruction. Provide rock chisels, extractors, core barrels, or other equipment necessary to clear obstructions. The removal of obstructions that require this special equipment will be paid for as extra work.

(2) Penetration.

(a) Design Pile Length. When the plans specify the design pile tip elevation, install piles to the design pile tip elevation unless the Maximum Pile Driving Stress in Table 1 is reached at a higher elevation.

(b) Estimate Pile Length. When the plans specify the estimated pile length, install piles to a penetration that satisfies all of the following:

(i) The nominal pile driving resistance is not less than the required nominal pile driving resistance shown on the plans.

(ii) The bottom of the pile is at or below the minimum pile penetration elevation shown on the plans. Piles shall not be driven past absolute refusal unless Dynamic Testing is specified. When Dynamic Testing is specified, the pile stresses shall not exceed those outlined in Table 1, as determined by the Dynamic Testing outlined in section c.4.C as applicable.

(3) Test Piles. Test piles are required when the plans show estimated pile lengths. Complete the excavation or embankment to within two feet of the proposed grade at the test pile locations. Install test piles at locations shown in the plans with approved impact hammer equipment. Drive the test piles to the minimum pile length

or to practical refusal, whichever penetration is greater. The Engineer may stop the driving of any test pile at tip penetrations exceeding 10 feet below the estimated pile tip elevation to check for pile setup according to subsection c.3.B(2)(b) herein. Payment for initial restrike is included in pay item **Test Pile, LRFD and Test Pile, Dynamic Analysis, LRFD**. Subsequent restrikes, if necessary, will be paid for as extra work.

When piles fail to achieve the required R_{ndr} after driving 10 feet below the estimated pile tip elevation, but are greater than 85 percent of the required R_{ndr} , leave piles in place for a minimum waiting period of 48 hours to allow for soil setup unless otherwise directed by the Engineer. After the waiting period has passed, restrike the pile to check the R_{ndr} . The R_{ndr} , after soil setup, will be based on the number of restrike blows necessary to drive the pile an additional three inches using a hammer that has been warmed up by applying at least 20 blows to another pile, which is at least 25 feet from the restrike pile, or as approved by the Engineer. The restrike piles will be accepted if they exhibit an actual R_{ndr} greater than the required R_{ndr} . Pile restrike required for production piles shall be paid for as extra work.

After any restriking, recommence test pile driving, providing piling, splices, and any restrikes until the nominal pile driving resistance measured during driving reaches practical refusal or until the Engineer stops the driving due to having sufficient data. A record of driving of the test pile will be prepared by the Engineer (or Testing Firm when dynamic testing is specified), including, but not limited to, the number of hammer blows per foot for the entire driven length, the as-driven length of the test pile, cutoff elevation, penetration in ground, and any other pertinent information.

When dynamic testing is specified, the Testing Firm shall be responsible for instrumenting the test piles, overseeing the test pile driving operations, analyzing and reporting the required information as outlined in section c.4.C.

Cut off test piles driven in production pile locations that are incorporated into the structure as permanent piles. Cut off or pull test piles not driven in a production pile location, as directed by the Engineer.

Determine the ordered pile lengths of steel H-piles and CIP concrete piles from the test pile results. Furnish CIP pile shells and steel piles of sufficient lengths to obtain the required nominal pile driving resistance and penetration.

The Engineer will evaluate test pile results and determine the ordered pile lengths for timber piles.

Test piles are not required when the plans show a design pile length.

(4) Splicing. Do not splice timber piles. Furnish steel piles in full length Sections or splice them according to the method shown on the plans or approved by the Engineer. Piling may be furnished in any length and field spliced as necessary to provide sufficient length to obtain required nominal pile driving resistance and penetration. Weld according to subsections 707.03.D.8.b, c, and d employing only welders certified by agencies approved by the Department with the following temperature exceptions. Do not perform field welding of piling when the ambient temperature is below 0 degrees F. When the pile metal temperature is below 32

degrees F, preheat the pile metal in the area of the weld to a minimum temperature of 70 degrees F and maintain at the temperature during the weld.

(5) Accuracy. Drive piles for foundation work with a variation of not more than 1/4 inch per foot from the vertical or from the batter line shown on the plans. After driving, the position of each pile at cutoff elevation must be within six inches of the position shown on the plans. However, the distance between the edge of all piles and the outline of the superimposed concrete should be not less than nine inches. Drive pile bents so that the piles can be adjusted to the positions and elevations shown on the plans without damaging or overstressing the piles. Pulling laterally on piles to correct misalignment, or splicing a properly aligned section on a misaligned section will not be permitted.

Drive timber piles so they can be adjusted to the true position shown on the plans at the elevation of cap or wale without damaging or overstressing the piles. Draw and hold piles to be capped in proper position before cutoff. When the pile cutoff diameter is greater than the width of the cap, trim the pile to eliminate all horizontal projections outside the cap. Do not drive timber piles to the exact grade but cut them off below the tapered head so that the bearing will be on the unfractured, full cross section of the pile.

Any increase in pile cap dimensions or reinforcing caused by out-of-position piles will be at the Contractor's expense.

(6) Redriving of Heaved Piles. Level readings to measure pile heave after driving shall be made by the Engineer at the start of pile driving operations and shall continue until the Engineer determines that such checking is no longer required. If piles are heaved up during driving of adjacent piles, redrive them to the required bearing capacity or penetration. Adjust upheaval or settlement of material between the piles to the correct elevation before placing concrete for the foundation.

If pile heave is detected for CIP concrete pile shells which have been filled with concrete, redrive the piles to original position after the concrete has obtained sufficient strength using a proper pile cushion system, satisfactory to the Engineer.

Redriving of heaved piles will be paid for as extra work.

4. Determination of Nominal Pile Resistance.

A. Static Load Test. Perform load tests when specified by the contract documents. Refer to contract documents for load testing details.

B. Dynamic Formula. For production piles with a required R_{ndr} , not more than 600 kips, install using the FHWA Gates Formula (Formula 3). Do not use the dynamic formula to install production piles with a specified R_{ndr} greater than 600 kips or if dynamic testing is specified by the contract documents. R_{ndr} for test piles will be determined by the same method specified for production piles.

$$R_{ndr} = 1.75\sqrt{E_d} \log_{10}(10N_b) - 100 \qquad \text{Formula 3}$$

Where:

- N_b = Number of hammer blows per inch of pile penetration.
- E_d = Energy developed by the hammer per blow in foot-pounds.
- R_{ndr} = Nominal pile driving resistance measured during pile driving in kips.

For piles driven on a batter, the value of "E_d" will be multiplied by the hammer energy reduction coefficient "U" as follows:

$$U = \text{Sin}(\alpha) * 0.975 \quad \text{Formula 4}$$

$$\alpha = \text{Tan}^{-1}(m) \quad \text{Formula 5}$$

Where:

- U = Hammer energy reduction coefficient, less than unity.
- α = Angle of batter from horizontal (always less than 90 degrees for battered piles)
- m = Vertical component of batter (i.e. m = 3 for a 1H:3V batter, horizontal kept at a value of 1)

The Engineer will determine the value of "E_d". For drop, single acting air hammers, and open type diesel hammers, the kinetic energy will be used by measuring ram velocity. When measuring ram velocity is not possible, it may be approximated by the potential energy calculated by multiplying the weight of hammer striking parts by the observed fall or stroke height. For double acting air hammers and closed type diesel hammers, the energy will be calculated by using ram weight and bounce chamber pressure. Submit hammer literature and correlation charts to the Engineer to aid in determining hammer energy of each blow. In either case, the calculated value of "E_d" for battered piles will be further reduced by the hammer energy reduction coefficient "U" prior to being used in the formula to calculate "R_{ndr}".

The preceding formulas (Formulas 3, 4 and 5) for piles driven with a drop hammer are applicable only when:

- (1) the hammer has an unrestricted free fall; and
- (2) the pile top is not broomed, crushed or splintered; and
- (3) there is no appreciable bounce of the hammer after striking the pile; and
- (4) the penetration is at a uniform or uniformly decreasing rate.

When specified in the contract or when a hydraulic hammer is used, the nominal pile driving resistance of the piles will be determined by the results of a wave equation analysis performed by the Engineer. The analysis will take into account the hammer driving system, site specific subsurface data, and project pile geometry to develop driving criteria which will not overstress the pile and correctly indicate its nominal pile driving resistance.

C. Dynamic Testing and Analysis. For production and test piles as directed by the design plans and/or with a required R_{ndr} greater than 600 kips or when specified by the contract documents, install instrumented piles monitored using dynamic testing with signal matching

Dynamic testing consists of instrumenting and monitoring piles during. The dynamic testing work shall be in accordance with the current version of the AASHTO LRFD bridge construction specification unless modified herein. The dynamic pile testing shall be performed on the initial driving and/or restrike of the test piles as directed by the Engineer. Signal matching analysis utilizing the case method is required to determine R_{ndr} and absolute refusal criteria for production piles.

The Contractor shall engage an independent dynamic pile testing consultant (Testing Firm) and qualified personnel in accordance with section (2) below. Prior to testing, the Engineer will review and approve the proposed independent Testing Firm's experience and qualifications of assigned personnel, details of the method of testing, a list of equipment, and the method of analysis of test results. The Contractor shall provide the Testing Firm all available details of the subsurface conditions, pile dimensions and properties, and pile driving systems.

(1) Equipment. The equipment shall conform to the requirements of ASTM D 4945, Standard Test Method for High Strain Dynamic Testing of Piles. All equipment necessary for the dynamic monitoring such as strain gages, accelerometers, cable, installation tools, etc., shall be furnished by the Testing Firm.

(2) Personnel. The Testing Firm shall perform dynamic pile testing and analysis utilizing qualified personnel. An engineer with a minimum of 2 years dynamic pile testing and analysis experience or who has achieved advanced or better certification under the High-Strain Dynamic Pile Testing Examination and Certification process of the Pile Driving Contractors Association and Foundation QA, shall be in charge of dynamic testing operation and of the signal matching analysis either onsite or by remote connection. The engineer in charge of dynamic testing operation and signal matching analysis shall be an engineer licensed in the State of Michigan. All analysis and submittals shall be sealed by the licensed engineer in charge.

(3) Pile Driving Modeling. The Testing Firm shall perform preconstruction pile driving modeling utilizing the GRL Wave Equation Analyses Program (GRLWEAP) and prepare a summary report of the results. The summary report shall be submitted to the Engineer a minimum of 14 days prior to driving the test piles for approval. The wave equation analyses shall be used to assess the ability of all proposed pile driving systems to install piles to R_{ndr} and the minimum penetration depth within allowable driving stresses. The report shall include a drivability graph relating R_{ndr} , blow count and driving stresses to depth. The report shall also include a bearing graph relating R_{ndr} with blow count versus capacity and stroke. An inspector's chart should also be included to assist the Engineer in determining the required driving resistance at other field observed hammer strokes. Acceptability of the wave equation report and the adequacy of analyses will be determined by the Engineer.

Approval by the Engineer of the proposed pile driving system will be based upon the wave equation analyses indicating that the proposed system can develop the

specified R_{ndr} outlined in section c.2, and within allowable driving stresses outlined in Table 1. The Testing Firm shall provide pile driving criteria based on wave equation analyses and any anticipated capacity changes after driving, setup or relaxation, subject to revision based upon dynamic pile testing field measurements.

If any changes or modifications are made to the approved pile driving system, additional wave equation analyses in accordance with this section shall be required at no additional cost to the Department.

(4) Dynamic Pile Testing. Dynamic pile testing involves monitoring the response of a pile subjected to heavy impact applied by the pile hammer at the pile head. The Testing Firm shall provide information on the driving stresses, R_{ndr} , structural integrity and hammer efficiency. All field testing and measurements shall be made in the presence of the Engineer and/or Engineer's representative.

The Testing Firm shall install two sets of strain transducers and accelerometers near the top of each pile to be tested, and shall use a compatible measuring and recording system to record the data during driving. The equipment required to be attached to the pile shall be appropriately positioned and fixed to the approval of the Engineer. If the level of the gages reaches one foot above ground surface, water surface, or a pile template, driving shall be halted to remove the gages from the pile. If additional driving is required, the pile shall be spliced and the gages shall be reattached to the head of the next pile segment prior to resuming pile driving.

The Testing Firm shall monitor pile stresses during driving to prevent pile damage and ensure pile integrity and capacity. If the testing equipment indicates overstressing (defined in Table 1) or damage to the pile, the Contractor and/or Testing Firm shall immediately discontinue driving and notify the Engineer.

If the testing equipment determines that pile stresses during driving exceed acceptable levels, a new pile driving system, modifications to existing system or new pile installation procedures shall be proposed by the Contractor. Approval by the Engineer of any proposed changes to the pile driving system or pile installation procedures will be based upon the results of additional wave equation analyses as previously outlined at no additional cost to the Department.

(5) Dynamic Measurement and Analysis. Monitoring of pile driving shall commence when pile driving begins and continues until the minimum pile length or practical refusal is reached, whichever penetration is greater unless the Testing Firm determines additional driving will damage the pile. The data shall be recorded and processed immediately in the field. For each pile tested, pile driving analysis using signal matching software shall be performed for a selected blow at the end of driving to determine the R_{ndr} and relative capacity from end bearing and skin friction along the pile.

If the R_{ndr} determined at the end of initial driving is less than required, a restrrike test shall be performed on the pile. The time interval between end of initial driving and beginning of restrrike shall be determined by the Engineer. During restrrike, the pile shall be instrumented and monitored similar to during initial driving. For each restrrike test, pile driving analysis using signal matching software shall be performed for a

selected blow from the beginning of restrike to determine the R_{ndr} and relative capacities from end bearing and skin friction along the pile.

The restrike test shall be performed with a warmed up pile hammer, as defined in section c.3.B.(2), and shall consist of striking the pile for a number of blows determined by the Testing Firm unless the dynamic testing indicates overstressing or damage to the pile. If such overstressing or damage to the pile is indicated, the Contractor shall immediately discontinue driving and notify the Engineer. In the event initial restrike testing indicates a pile resistance below the nominal specified value, additional driving may be required as directed by the Engineer.

The Engineer may request use of pile driving monitoring equipment and software on additional piles if inconclusive results are obtained or unusual driving conditions are encountered. Claims by the contractor for delays or costs associated with additional testing will not be allowed.

(6) Results. The Testing Firm shall prepare a preliminary and final report for each pile tested for review by the Engineer.

(a) The preliminary report shall include the following:

(i) GRLWEAP bearing graph and inspection chart showing blow count-versus-pile resistance and stroke-versus-blow count that will be used for determining the R_{ndr} of the production piles. The graph/chart shall be developed based on the results of the dynamic testing and signal matching data. Both the maximum force and maximum transferred energy calculated by GRLWEAP shall match within 10 percent of those calculated by the signal matching. The bearing graphs shall be delivered to the Engineer for approval within 2 working days after completion of driving the test piles at any single substructure unit. This information shall also be documented in the appropriate reports listed below.

(ii) A summary of the dynamic testing and signal matching results from the test piles. In addition, the Testing Firm shall supply a CD containing all data for the piles tested for that substructure. These reports shall be sent to the Engineer no later than 3 working days after dynamic pile tests have been completed at any given substructure unit.

(b) A final report shall be submitted within 2 weeks of completing the dynamic testing for the project. The report shall include the following at a minimum:

(i) A summary of the findings from the dynamic testing and the associated signal matching computer program and the developed GRLWEAP bearing graphs. The data shall consist of blow counts, stresses in the pile, R_{ndr} , hammer energies and hammer strokes for each one-foot depth increment. The Testing Firm shall supply a CD containing a copy of the final report and all associated documentation.

5. Defective Piles. Do not subject piles to excessive and undue abuse producing injurious splitting, splintering and brooming of the wood or excessive deformation of the steel. Manipulation of piles to force them into proper position, considered by the Engineer to

be excessive, will not be permitted. For any pile damaged by reason of internal defects, by improper driving, driven out of its proper location, or driven below the cutoff elevation specified in the contract documents or determined by the Engineer, correct by one of the following methods approved by the Engineer for the pile in question:

- A. Withdraw the pile and replace by a new and, if necessary, longer pile.
- B. Drive a second pile adjacent to the defective or low pile.
- C. Splice or build up the pile as otherwise provided herein or extend a sufficient portion of the footing to properly embed the pile.

All costs associated with the corrective actions will be borne by the Contractor.

6. Placing Concrete in Cast-in-Place Concrete Piles. Prior to the placing of concrete, inspect the pile to confirm the full pile length and dry bottom condition. Provide a mirror or suitable light for inspection. Do not place concrete in any pile until all pile shells within a radius of 20 feet have been driven, redriven (if necessary), cleaned of water or debris and accepted by the Engineer. Place the concrete in the pile shells to the cutoff elevation as soon after driving as permissible.

Place concrete according to subsection 706.03.H of the Standard Specifications for Construction, except the concrete may free fall more than five feet. Vibrate the concrete in the upper one third of the pile shell during placement, without causing segregation, but not to exceed 25 feet.

7. Protective Coating for Steel Piles and CIP Concrete Piles. When shown in the contract documents, galvanize steel H-piles and steel shells that will be exposed to air or water in the finished structure according to ASTM A 123. Do not use corrosive embankment material within 30 feet of piles. Repair damages to galvanization in accordance with subsection 716.03.E of the Standard Specifications for Construction. All costs associated with repairs will be borne by the Contractor.

8. Cleaning Steel Piles and Steel Pile Shells. Where steel piles or pile shells are to be embedded one foot or more in structural concrete, exclusive of tremie concrete, clean all dirt and loose scale from the portion to be embedded.

9. Pile Cutoff. Cut off piles in a true plane normal to the longitudinal axis of the pile and within one inch of the elevation specified and anchored to the structure as shown in the contract documents.

All cutoff lengths of piling will remain the property of the Contractor. Dispose of cutoff lengths in accordance with local, state and federal regulations.

The timber length of pile above the cutoff elevation shall be sufficient to permit the complete removal of all material injured by driving.

Treat field cuts in timber piles according to subsection 709.03.C.5 of the Standard Specifications for Construction.

d. Measurement and Payment. The completed work as described will be measured and paid for using the following contract items (pay items):

Contract Item (Pay Item)	Pay Unit
Pile, Treated Timber, Furn, LRFD	Foot
Pile, Treated Timber, Driven, LRFD	Foot
Pile, CIP Conc, Furn and Driven, __ inch, LRFD	Foot
Pile, Steel, Furn and Driven, __ inch, LRFD	Foot
Pile, Galv, LRFD (Structure No.)	Lump Sum
Test Pile, Treated Timber, LRFD	Each
Test Pile, CIP Conc, __ inch, LRFD	Each
Test Pile, Steel, __ inch, LRFD	Each
Pile Point, CIP Conc, LRFD	Each
Pile Point, Steel, LRFD	Each
Prebore, Fdn Piling, LRFD	Foot
Pile Driving Equipment, Furn, LRFD (Structure No.)	Lump Sum
Test Pile, Furnishing Dynamic Analysis Equipment, LRFD	Each
Test Pile, Dynamic Analysis, LRFD	Each

Pile, Treated Timber, Furn, LRFD will be paid for at the ordered pile length. **Pile, Treated Timber, Driven, LRFD** will be measured by length of piling left in place below cutoff. Cutoff of piles will not be paid for separately. Cutoff material will remain the property of the Contractor.

Pile, CIP Conc, Furn and Driven, LRFD, Pile, Steel, Furn and Driven, LRFD will be measured by length of all piling left in place below cutoff. This length will include the length of pile that was embedded in the ground, and then removed, in attempting to bypass an impenetrable obstruction. Cast-in-place concrete piles and steel piles will not include the length of the pile point extending beyond the pile. Piling may be furnished in any desired length and field spliced as necessary to provide sufficient length to obtain required bearing or penetration.

Pile, Galv, LRFD will include only the cost associated with galvanizing the required length of pile as detailed on the plans. The cost of furnishing the ungalvanized pile shells or steel piles, and the cost of driving the galvanized pile length will be included in the pay item **Pile, CIP Conc, Furn and Driven, LRFD** or **Pile, Steel, Furn and Driven, LRFD**.

Furnishing and removing equipment for driving piles will be included in the pay item **Pile Driving Equipment, Furn, LRFD**. Equipment operating costs for driving piles will be include in the bid item for length of pile driven. **Pile Driving Equipment, Furn, LRFD** will be measured as a unit for each structure.

The length of **Prebore, Fdn Piling, LRFD** will be measured from the bottom of the foundation to the prebore elevation shown on the plans. This item includes boring of pile holes, disposal of excavated material, backfill of any void space, installation and removal of temporary casings, furnishing and disposal of drilling slurry, restriking of completed piles within a radius of 25 feet and operating costs for equipment. When **Prebore, Fdn Piling, LRFD** is a bid item on the plans, furnishing equipment for prebore shall be included in the bid item **Pile Driving Equipment, Furn, LRFD**. Preboring not shown on the plans, but authorized by the Engineer in writing, will be paid for as extra work.

Splices will be included in payment for the pile furnished and driven.

Pile Points, LRFD will not be paid for separately unless they are a contract item. Payment for such work is included in the contract unit prices bid for other contract items.

The contract unit price for **Test Pile, LRFD** will be in addition to the contract unit price(s) for piles furnished and driven. Payment for initial restrike is included in pay item **Test Pile, LRFD**. Subsequent restrikes, if necessary, will be paid for as extra work.

Test Pile, Furnishing Dynamic Analysis Equipment, LRFD will be measured and paid for each mobilization of the Testing Firm's equipment and personnel from the Testing Firm's office to the project site. Approval from the Engineer is required prior to any mobilization.

Test Pile, Dynamic Analysis, LRFD will be measured and paid for each pile designated in the plans or by the Engineer as a test pile when dynamic testing is specified. Payment for **Test Pile, Dynamic Analysis, LRFD** includes all materials, tools, labor, engineering analysis and documentation necessary to determine the test pile bearing capacity and driving stress according to this specification. The contract unit price for **Test Pile, Dynamic Analysis, LRFD** will be in addition to the contract unit price(s) for piles furnished and driven.

Payment for initial restrike is included in pay item **Test Pile, Dynamic Analysis, LRFD**. Subsequent restrikes, if necessary, will be paid for as extra work.

No additional compensation will be granted for the following items due to the provisions of this specification: out-of-sequence moves of pile driving equipment; delays, down-time, idle equipment and labor, or additional splices for production piles.

No unit price adjustment will be made in the event of increased or decreased contract quantities for Dynamic Analysis.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
FOUNDATION PILING SPLICES

C&T:EMB

1 of 1

C&T:APPR:SJC:DBP:07-27-07
FHWA:APPR:08-07-07

Delete the first sentence of the last paragraph to subsection 705.03.E.4, on page 381 of the 2003 Standard Specifications for Construction and replace it with the following.

Weld according to subsections 707.03.D.8.b, c, and d employing only welders certified by agencies approved by the Department with the following temperature exceptions. Do not perform field welding of piling when the ambient temperature is below 0 degrees F. When the pile metal temperature is below 32 degrees F, preheat the pile metal in the area of the weld to a minimum temperature of 70 degrees F and maintain at the temperature during the weld.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
CONCRETE SURFACE COATINGS, SPECIAL

C&T:DEB

1 of 3

C&T:APPR:TES:DBP:12-18-07
Rev 09-29-2010

a. Description. Furnish and apply an acrylic based concrete surface coating to concrete structures, including but not limited to fascias, cheekwalls, and substructure locations as specified on the plans. Conform to the 2003 Standard Specifications for Construction except as modified herein.

b. Materials. On any single structure, use the same product for all areas to be coated with a specified color. Do not mix colors or products from more than one source. For this project, three separate colors shall be used as follows:

Areas shown to receive New England Drystack texturing shall receive one color of concrete surface sealer as the first layer of stain. Use Concrete Stain in accordance with the Special Provision for Texturing and Hand Staining concrete for these areas. The color for the stain in these areas will be a natural tone selected by the Engineer.

Portions of the deck fascia panels which will not receive the New England Drystack texture shall receive a separate color. The color for these areas will be a natural earth tone determined by the Engineer.

Submit color samples to the Engineer for review and approval after the colors have been selected.

For areas of the structure which are shown to not receive the New England Drystack texture, use products from the following list.

<u>Company</u>	<u>Product</u>
Carboline Company	Carbocrylic 600
ChemMasters	Colorcoat
ChemMasters	Colorlastic
Conspec	Permacoat
ICI Dulux Paints	Decra-Flex 300
Sika Corporation	Elastocolor
Sika Corporation	Sikagard 550W Elastic
Sonneborn	Super Color Coat
Tamms Industries	Tammolastic
Thoro	Thorocoat
Thoro	Thorolastic
O'Leary Paint Company	O'Leary 1375 Elastomeric

c. Construction.

1. **Surface Preparation.** All concrete to be coated must be tested for the presence of moisture after surface preparation has been completed and prior to application of the coating. Testing shall be in accordance with ASTM D4263. An 18 inch by 18 inch sheet (4mil) of transparent polyethylene shall be taped to the concrete surface to be coated. All edges will be sealed with tape that will stick to the concrete substrate and not allow the infiltration of air. Leave the plastic sheet in place a minimum of 16 hours to detect the presence of moisture in the concrete. There must be no moisture visible on the polyethylene sheet after the minimum period of time has elapsed. This will be verified by the Engineer before application of the coating begins. This test may not be reliable in cooler conditions. Alternate methods to detect moisture shall be approved by the Engineer. This test should be performed a minimum of once on each deck fascia panel, and a minimum of once on abutment and pier. Prepare the surface, including removing fins and projections and filling surface voids and cracks (if required), according to manufacturer's recommendations, except as modified by this specification.

The surface to be coated must be dry and free from all contamination including, but not limited to: dirt, form release agents, oil, grease, laitance, loose material and curing compounds. Clean surface by low-pressure water cleaning, steam cleaning, or abrasive blasting (followed by oil-free compressed air cleaning) or by combination to achieve an acceptable cleaned surface. When low-pressure water cleaning or steam cleaning is used, the concrete surface profile (CSP) shall be CSP 1 in accordance with the International Concrete Repair Institute Guideline for Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays (Guideline No. 03732). When abrasive blasting is used, the concrete surface profile shall be CSP 3. Low-pressure water or steam-cleaning primarily removes water soluble contaminants. Aged concrete with contaminants such as hardened curing compound may require light abrasive blasting to completely remove the curing compound. Since many curing compounds contain wax, even well adhered residue shall be removed prior to coating to ensure a good bond between the surface coating and the concrete.

When low pressure water cleaning or steam cleaning is used, the power washer must deliver 3000 - 4500 psi and utilize a 15 degree or smaller nozzle tip held perpendicular to the surface being cleaned. When using light abrasive blasting to remove contaminants on new construction, be careful not to remove excessive concrete material.

2. **Visual Inspection.** Check surface cleanliness by lightly rubbing with a dark cloth or by pressing translucent adhesive tape onto the concrete surface in the presence of the Engineer. An acceptable level of residual dust can be agreed upon by the Engineer and the contractor. Perform a water drop test in the presence of the Engineer prior to coating the concrete surface to detect for the presence of any hydrophobic contaminants. Hydrophobic contaminants include materials such as form release agents, curing compounds, oil, grease, wax, and resins. If contaminants are detected, as evidenced by a lack of rapid absorption of the water drop into the concrete, remove the contaminants and perform the tests again until no contaminants are detected.

3. **Application.** Apply two coats (do not dilute) of the acrylic based concrete surface coating. Apply each coat to provide the minimum wet film thickness as recommended by the manufacturer. A primer is not required unless stated as required in the product list under part B. Temperature limitations for application will follow manufacturer's recommendations without exceeding an ambient temperature of 45-90 degrees F and the temperature must be at least 5 degrees F above the dew point when relative humidity is below 90 percent.

d. Measurement and Payment. The completed work as measured for **Conc Surface Coating** will be paid for at the contract unit price for the following contract item (pay item):

Contract Item (Pay Item)	Pay Unit
Conc Surface Coating, Special.....	Square Yard

Payment for **Conc Surface Coating, Special** includes all labor, equipment, and materials to prepare the substrate concrete surface, conduct the visual inspection and apply the primer (if required) and two top coats of surface coating.

Additional coats of stain required for areas to receive New England Drystack texturing will be measured and paid for as specified in the Special Provision for Texturing and Hand Staining Concrete in addition to the payment made for Concrete Surface Coating for these areas.

A Test Section exhibiting a portion of the deck fascia panel with areas of both Concrete Surface Coating and New England Drystack Texturing shall be provided as outlined in the Special Provision for Texturing and Hand Staining Concrete. The test section will not be measured or paid for separately.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
TEXTURING AND HAND STAINING CONCRETE

Mill Creek:URS:BRI

1 of 4

C&T:APPR:JAR:JFS 11-15-99
Revised: 09-28-2010

a. Description. This work shall consist of the labor and materials required to texture and hand stain the surface of bridge deck fascia panels as detailed in the plans and as herein provided.

b. Materials.

1. Concrete Stain

The coating shall be a water-repellent, penetrating concrete stain system in natural earth tones according to this special provision.

2. Concrete

The concrete for the deck fascia panel shall be the same concrete used for concrete railing according to Section 711 of the Standard Specifications except that the coarse aggregate of the Grade D concrete shall not include slag and if natural gravel is used, the clay-ironstone particles shall not exceed 0.1 percent.

Use Grade S2 concrete as specified in section 701 of the Standard Specifications for Construction for retaining walls and abutments.

Unless authorized by the Engineer, only one brand and type of cement manufactured by one mill shall be used for the entire project. All coarse aggregate shall be produced from one source, and all fine aggregate shall be produced from one source.

3. Form Liners

The form liners required to provide the stone textured surface shown on the plans shall be elastomeric. Form liner relief shall not exceed 1.5 inches. The form liner shall be the following, or as approved by the Engineer:

Custom Rock Pattern No. 1203 New England Drystack (www.custom-rock.com).

Comparable products manufactured by Fitzgerald, Increte, Greenstreak, or Symons Corp. may be submitted for approval by the Engineer.

No horizontal splices will be permitted within the textured area. Horizontal and vertical splices shall be carefully matched. No visible seams or conspicuous form marks will be allowed. The configuration of the liner must be such that the contours do not cause the concrete to be locked into the liner.

Form liners shall be thoroughly cleaned in accordance with the manufacturer's recommendations to the satisfaction of the Engineer prior to each reuse. Damage or

wear that affects the finished appearance of the concrete will be cause for rejection and replacement of the liner.

Payment for replacement of liners will be the responsibility of the Contractor at no additional cost to the Department.

4. Form Release Agents

Form release agents shall be compatible with the liners used. A written certification shall be obtained from the manufacturer certifying that their product is compatible and is non-reacting and non-staining. One product shall be used for the entire project.

5. Curing Compound

Subsection 706.03.N.3 of the Standard Specifications prohibits the use of curing compound on structural concrete construction that is to receive a protective coating. The Engineer may waive this prohibition and allow use of a curing compound meeting the requirements of Subsection 903.05.B of the Standard Specifications and as recommended by the coloring agent manufacturer to ensure compatibility with the color/coating system to be used. Whichever method is chosen, it shall be used for the entire project including the non-textured portions.

6. Colored Stain/Coating.

The colored stain/coating material shall be produced by one of the following unless otherwise approved by the Engineer:

Custom Rock International
St. Paul, MN
(800) 637-2447

L.M. Scofield Company
Douglasville, GA
(800) 800-9900

Stain-Crete (Manufactured by Increte Systems, Inc.)
Tampa, FL
(800) 752-4626

The color system shall include a range of natural earth-tones, selected to match the color range of native Michigan river rock, as determined by the Engineer. The desired finish color effect will be achieved by applying one color over another or by mixing several colors. Color samples shall be submitted to the Engineer/Landscape Architect for approval prior to staining; finish color shall conform to approved sample. It is the intent of this specification to use multiple tones such that adjacent stones within the simulated stone masonry pattern are of different colors.

c. Construction. Forms and form liners shall be handled in accordance with the manufacturer's recommendations. This includes the storage of liners, fastening the liners to the forms, stripping the lined forms from the concrete, and cleaning and reconditioning liners.

The release agent shall be applied in accordance with the manufacturer's recommendations. Excess release agents shall be removed to prevent staining of the concrete surface.

Form ties shall be located at the high point of the rustication so they will be in the recess of the concrete. Form ties shall be designed so that all materials can be disengaged and removed without spalling or damaging the concrete. Form tie holes shall be finished in accordance with Subsection 706.03.R.1 of the Standard Specifications.

All surfaces to receive the concrete stain shall be dry and free from contamination such as oil, grease, laitance, and curing compounds. Water cleaning, steam cleaning, or abrasive blasting (followed by oil-free compressed air cleaning) is required. When water or steam cleaning is used, the power washer shall deliver 3000 to 4500 psi and utilize a 15 degree or smaller nozzle tip held perpendicular to the surface being cleaned.

The concrete stain material shall be applied in accordance with the manufacturer's recommendations. Stain shall be applied to the areas shown on the plans to receive the New England Drystack Texture. Adjacent areas of the deck fascia panels, abutment walls and wingwalls shall receive Conc Surface Coating in accordance with the Special Provision for Concrete Surface Coatings.

d. Test Section. Before constructing the textured and stained surfaces on the bridge, the Contractor shall construct a test section demonstrating the quality of textured concrete that shall be maintained throughout the project.

The test section shall be 10 foot long section of the deck fascia panel. The test section shall include the texturing, initial coating of Conc Surface Coating for the entire deck fascia panel, and hand staining of the portions of the panel designated to receive the new England Dry Stack texturing.

The location of this section may be selected by the Contractor and approved by the Engineer. The test section will be used to evaluate the construction procedures and finished appearance of the textured and stained concrete, including design mix, quality of forming, joint control, and consolidation techniques, and stain application. Finished rock appearance shall closely resemble New England Dry stack Masonry, as approved by the Engineer.

If the test section is not completely satisfactory, as determined by the Engineer, the Contractor will be required to cast an additional test section adjusting his techniques to achieve satisfactory results. Upon approval of a test section by the Engineer, the Contractor shall proceed with deck fascia panel construction using the same methods and materials to assure uniformity through the project.

e. Measurement and Payment. The work as described will be measured and paid for using the following contract items (pay items).

Contract Item (Pay Item)	Pay Unit
Texturing Concrete.....	Square Yard
Hand Staining.....	Square Yard

Texturing Concrete shall include all work to texture the concrete, as specified. The concrete to be textured will be paid for separately in accordance with the Standard Specifications and the Special Provision for Aesthetic Parapet.

Hand Staining shall include all work required to place the stain on the textured surfaces. The first layer of stain, which is a uniform coat that does not necessarily have to be placed by hand, will be paid for separately as Conc Surface Coating in accordance with the Special Provision for Concrete Surface Coatings.

All materials and work required to construct the test section of deck fascia panel, as specified, shall be considered as included in other pay items and will not be paid for separately.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
EXPANSION JOINT DEVICE

DES:SPB

1 of 1

C&T:APPR:EMB:JAR:06-24-04
FHWA:APPR:08-13-04

a. Description. Select expansion joint devices that will provide the minimum required total travel, as noted on the plans, when measured parallel to the centerline of bridge. Select the device from the list of approved devices shown on the plans. Table 1 provides model-specific total travel information to assist in selection of the expansion joint devices. Subsection 707.03.C.1 of the standard specifications regarding shop plans is waived if the expansion joint devices listed in Table 1 are selected. Provide the Engineer with a list of models selected for each location.

b. Shop Drawings. The Engineer will obtain the required number of prints of the standard installation details/shop drawings of the device through the Construction and Technology Support Area. These drawings are general, and do not include dimensions associated with the specific installation. All necessary dimensions must be determined by the Contractor and will not be reviewed by the Department.

c. Measurement and Payment. Device selection and determination of all project specific dimensions will be included in the associated contract item (pay item).

Table 1: Total Travel Measured Along Centerline of Bridge (in inches)

Expansion Joint Device	Angle of Crossing (in degrees)						
	90	80	70	60	50	40	30
Watson-Bowman & Acme SE-300 (Type E, A, & M extrusion)	3.0	3.0	3.1	3.5	3.7	3.3	2.8
D.S. Brown Steelflex SSA2-300A2R	3.0	3.0	3.0	3.3	3.5	3.5	4.5
D.S. Brown Steelflex SSE2-300A2R	3.0	3.0	3.1	3.5	3.0	2.1	2.0
Watson-Bowman & Acme SE-400 (Type E, A, & M extrusions)	4.0	4.1	4.3	4.3	3.7	2.7	2.6
D.S. Brown Steelflex SSA2-400A2R	4.0	4.1	3.7	3.5	2.4	2.0	1.2
D.S. Brown Steelflex SSCM2-400A2R	4.0	4.1	4.3	4.0	4.3	5.1	4.0
D.S. Brown Steelflex SSE2-400A2R	4.0	4.1	4.3	3.1	2.0	2.0	1.6
Structural Rubber Products Company Onflex 40SS	4.0	4.1	4.3	4.5	2.8	2.8	2.0

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
SEALING LOCALIZED CRACKS IN BRIDGE DECKS

C&T:TDM

1 of 1

C&T:APPR:EMB:DBP:07-13-07

FHWA:APPR:07-19-07

a. Description. This work consists of sealing visible surface cracks in newly constructed bridge decks or overlay surfaces with an epoxy based healer/sealer prior to opening to traffic. All work shall be according to the Standard Specifications for Construction, except as modified herein.

b. Materials. The epoxy based healer/sealer shall be one of the following:

<u>Product</u>	<u>Company</u>
Masterseal GP	Master Builders Inc.
ProSeal HS	Unitex
Sikadur 55 SLV	Sika Corp.
Dural 335	Tamms
E-Bond 120	E-Bond

c. Construction. The localized crack healer/sealer shall be applied at locations determined by the Engineer. Surface preparation and application shall be according to the manufacturer's recommendations, except as modified by this specification. The concrete substrate shall be thoroughly dry with no sign of moisture emissions from the cracks.

1. Surface Preparation. All areas to be treated with the localized crack healer/sealer shall be lightly sandblasted prior to the application to remove contamination such as dirt, grease, and oils, and to expose the surface of the cracked area to enhance penetration and visibility. All cracks shall then be blown clean with oil-free compressed air.
2. Application. Proportioning and mixing the localized crack healer/sealer materials shall be according to manufacturer's recommendations. Application of the localized crack healer/sealer shall be performed using a squeeze bottle with a tip opening configuration sufficient to continually apply the epoxy healer/sealer to the crack, thus resulting in no greater than a one inch overband onto the deck surface. The Contractor shall demonstrate, to the satisfaction of the Engineer, that the healer/sealer is being applied with sufficient quantity to ensure penetration of the material into the crack by gravity feed. Any spillage or application over the one inch overband width shall be immediately removed, prior to set, to the satisfaction of the Engineer.

d. Measurement and Payment. Payment for sealing localized cracks in bridge decks according to this special provision is considered included in the respective contract Items for either **Superstructure Conc, Form, Finish, and Cure; Superstructure Conc, Form, Finish, and Cure, Night Casting** or **Bridge Deck Surface Construction**, with no additional compensation permitted.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
PLACING ADDITIONAL CONCRETE ON BRIDGE DECKS

C&T:EMB

1 of 1

C&T:APPR:RDT:JFS:08-22-05
FHWA:APPR:08-24-05

Delete the second sentence of the sixth paragraph and add the following sentence in subsection 706.03.H.1, page 398 of the Standard Specifications for Construction.

Do not cast sidewalk, curb or barrier pours until deck concrete has attained at least its minimum 7-day flexural or compressive strength and after the seven day continuous wet cure.

VILLAGE OF DEXTER
SPECIAL PROVISION
FOR
HELICAL PILES

DEXTER:PJV

1 of 1

10/05/10

a. Description. Furnish and install steel helical piles. Complete this work according to the MDOT Standard Specifications for Construction, details shown on the plans, and this special provision.

b. Materials. All materials for helical piles shall conform to the manufacturer's requirements and the plans. Helical piles shall be MacLean-Dixie HFS RCS solid steel square shaft multi-helix anchors or approved equal.

c. Construction. Install and load test the helical piles to support the pile load specified on the plans according to the manufacturer's requirements and details shown on the plans.

d. Measurement and Payment. The completed work as described will be measured and paid for at the contract unit price for the following Contract Item (Pay Item):

Contract Item (Pay Item)	Pay Unit
Helical Pile 10 Foot Lead Section.....	Each
Helical Pile Extension Section	Foot

Helical Pile 10 Foot Lead Section will be measured by each, and includes all materials, labor, and equipment necessary to complete the work as described.

Helical Pile Extension Section and will be measured in place by the vertical foot of installed pile, and includes all materials, labor, and equipment necessary to complete the work as described.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
EXPLORATORY TRENCHING

DES:JBI

1 of 1

C&T:APPR:GEN:JAR 06-20-03

a. Description. Perform this work as directed by the Engineer. Excavate an exploratory trench to expose an existing culvert, sewer or utility in order to verifying the condition, size, material and alignment. Allow the Engineer to document the information; then backfill the trench. Any repair or replacement of the exposed culvert, sewer or utility will be in accordance with other contract pay items, as directed by the Engineer.

b. Materials. Excavated material from the trench may be used to backfill the trench, unless the Engineer directs otherwise.

c. Construction. Contact MISS DIG a minimum of three full working days prior to beginning this work. Repair exposed culverts and sewers damaged by exploratory trenching operations. Secure the Engineer's approval before backfilling the exploratory trench. Complete backfilling no later than 24 hours after approval has been given.

All costs associated with repair work necessitated by the Contractor's work will be borne by the Contractor.

d. Measurement and Payment. The completed work as will be measured along the centerline of the trench and will be paid for at the contract unit price for the following contract item (pay item):

Contract Item(Pay Item)	Pay Unit
Exploratory Trenching.....	Foot

If the Engineer determines that trench backfill material is required, furnishing and placing this material will be paid for separately.

VILLAGE OF DEXTER
 SPECIAL PROVISION
 FOR
TIMBER BOARDWALK

DEXTER:PJV

1 of 1

10/05/10

a. Description. Construct a timber boardwalk. Complete this work according to the MDOT Standard Specifications for Construction, details shown on the plans, and this special provision.

b. Materials. All materials for lumber and attachments shall conform to Section 709.02 of the MDOT Standard Specifications for Construction and the plans.

c. Construction. Erect the boardwalk according to the details shown on the plans. Construction shall conform to Section 709.03 of the MDOT Standard Specifications for Construction.

d. Measurement and Payment. The completed work as described will be measured and paid for at the contract unit price for the following Contract Item (Pay Item):

Contract Item (Pay Item)	Pay Unit
Boardwalk	Square Yard
Boardwalk, Covered.....	Foot
Railing, Boardwalk	Foot
Railing, Bridge.....	Foot

Boardwalk will be measured in place in square yards. **Boardwalk** includes all materials, labor, and equipment necessary to complete the work as described.

Boardwalk,Covered will be measured in place in feet. **Boardwalk, Covered** includes all materials, labor, and equipment necessary to complete the work as described.

Railing, Boardwalk and **Railing, Bridge** will be measured in place in feet. **Railing, Boardwalk** and **Railing, Bridge** includes all materials, labor, and equipment necessary to complete the work as described.

Pile supports are not included in the cost of **Boardwalk** and **Boardwalk,Covered** and shall be paid for separately.

SPECIAL PROVISION
FOR
TEMPORARY ACCESS ROAD/BRIDGE

CON:URS:CDP

1 of 1

07-28-03

a. Description.-This work shall consist designing, constructing and removing temporary access roads and bridges (elevated platforms) in order to aid the Contractor during construction.

b. Construction.-All operations needed to construct and remove the temporary access roads and bridges, as well as the temporary access roads and bridges themselves, shall be within temporary or permanent County rights of way.

Temporary access bridges shall be elevated above the water by support columns. No portion of the temporary access roads or bridge, except support columns, shall encroach on the existing waterway. In the event of high water, the Contractor shall remove all temporary access bridges within the limits of the river as directed by the Engineer.

Surplus construction material shall not be stored on the temporary access bridges.

The installation and removal of the temporary access bridges shall be in accordance with all applicable Michigan Department of Environmental Quality (MDEQ) permit requirements.

Earth areas disturbed by the construction and removal of temporary access roads and bridges shall be protected by the appropriate erosion control devices, the cost of which will not be paid for separately. Disturbed areas shall be restored to their original condition prior to completion of the project. The cost of restoration will not be paid for separately.

Details for the temporary access roads and bridges and their removal shall be submitted to the Engineer for review 21 calendar days prior to construction. Details for site restoration of disturbed areas shall also be included in this submittal.

c. Measurement and Payment.-

Contract Item (Pay Item)	Pay Unit
Temporary Access Road/Bridge.....	Lump Sum

All labor, materials and equipment required to construct and remove the access road and elevated platforms are included in the pay item **Temporary Access Road/Bridge**.