

DATE: October 6, 2008

TO: Region Engineers
Region Delivery Engineers
TSC Managers
Resident/Project Engineers
Region Construction Engineers
Region Materials Engineers

FROM: Larry E. Tibbits
Chief Operations Officer

John C. Friend
Engineer of Delivery

SUBJECT: Bureau of Highway Instructional Memorandum 2008-14
Hydrodemolition and Bridge Deck Overlay Construction Inspection

This document clarifies the procedures for hydrodemolition and bridge deck overlay construction inspection. It also provides requirements for sampling and testing of bridge deck overlay concrete, documenting bridge steel reinforcement, and documentation for bridge deck overlay construction inspection. This document must be coordinated with the *2003 Standard Specifications for Construction*, Divisions 6 and 7 of the *Construction Manual*, and the *Materials Quality Assurance Procedures Manual*.

Documentation for Hydrodemolition Inspection

The contractor shall submit a hydrodemolition pH control plan for review and acceptance prior to beginning any hydrodemolition work according to the Special Provision for Managing Hydrodemolition Runoff Water, as listed in the proposal. Attached is an “MDOT Hydrodemolition Projects pH Control Plan Checklist” and a “Sample Hydrodemolition Control Plan” for additional guidance. The Groundwater Discharge General Permit, 2215-05-7 is available on the Michigan Department of Environmental Quality’s Web site at www.michigan.gov/documents/deq/wb-groundwater-Rule2215Hydrodemolition_248217_7.pdf.

Calibrate the hydrodemolition equipment as listed in Section 712 of the Construction Manual. Record the settings (water pressure, cutting head speed, and forward advancement) on the Inspector’s Daily Report, Form 1122B.

Ensure the contractor is completing the hydrodemolition log per the special provision.

Documentation for Bridge Deck Overlay Construction Inspection

The resident/project/delivery engineer (hereinafter referred to as “engineer”) is responsible for performing all testing, inspection, and recording on the forms listed below. See Sections 706 and

712 of the *2003 Standard Specifications for Construction* and the contract documents for the contractor's responsibilities.

- Form 1138, Bridge Reinforcing Computations

Complete Form 1138, Bridge Reinforcing Computations, for all concrete overlay pours prior to the commencement of the pour. Verify and record bar type, size, number, length, total length, weight per foot, total weight and add any remarks with regards to location (top mat, bottom mat, transverse, longitudinal, vertical, barrier, etc.).

- Form 1125, Permit to Place

Complete Form 1125, Permit to Place, for all bridge deck concrete overlays. See the revised form. Mark "Conc, Bridge Deck Overlay" and select the concrete overlay mixture. Record the "Structure Number" and "Structure Location" concrete overlay material and any construction stages on the form. Issue permit to place only after approval of forms, reinforcing steel, and preparations for casting overlay concrete. This includes removing debris from the deck and forms, cleaning forms and steel reinforcement. The contractor must be able to provide a minimum 12-hour burlap soak for wet cure for bridge decks, have appropriate weather equipment to determine relative humidity temperature and wind speed for the determination of the evaporation rate, provide vibrators with rubber coated heads, provide ten foot straightedge for checking bridge deck trueness, and provide fogging equipment for the silica fume overlay.

- Form 1131, Bridge Decks Concrete Depth Measurements

Complete Form 1131, Bridge Decks Concrete Depth Measurements for all bridge deck overlay pours. See Division 706 of the *Construction Manual* for a sample form and instructions. Verify and record the dry and wet run depth checks. Note the locations of the dry run measurements, and measure the wet run at or near the same locations. Measurement of the depth to the top mat of steel is not required for shallow overlays.

- Form 1174A, Inspector's Report of Concrete Placed

Complete Form 1174A, Inspector's Report of Concrete Placed, for all bridge deck overlay concrete pours. See Division 6 of the *Construction Manual* for instructions. Note the form has been revised to include "Aggregate Correction Factor" and "Evaporation Rate" under "Structure Items Placed." Use contractor-supplied weather equipment to determine and record the evaporation rate for bridge deck overlay pours if it is less than 0.15 psf per hour per Figure 706-1 of the *2003 Standard Specifications for Construction*. Verify and record all concrete test results, tags, aggregate correction factor supplied from the concrete supplier, and overlay concrete quantities on the form.

- Form 1122B, Inspector's Daily Report

Complete Form 1122B, Inspector's Daily Report, for all bridge work. See the *Construction Manual* for instructions. The engineer must also verify that the contractor provided weather equipment to determine the evaporation rate. Verify the slope and elevation of the expansion joint. Note any placement delays, inclement weather during the pour or any other factors that

may have an adverse affect on the overall quality of the pour. Record hydrodemolition settings (water pressure, cutting head speed, and forward advancement).

- MDOT Bridge Deck Overlay Construction Inspection Checklist (attached)

This checklist is an aid for documenting the inspection of bridge deck overlay construction. The checklist identifies important documentation items for testing and inspection, and items to observe during the bridge deck overlay operations. Complete the MDOT Bridge Deck Overlay Construction Inspection Checklist for all bridge deck concrete overlays.

Bridge Deck Overlay Construction Inspection

Epoxy Coated Steel Reinforcement

Ensure the contractor is storing and covering the epoxy-coated steel reinforcement per the *2003 Standard Specifications for Construction* to protect it from the sun's ultraviolet rays. The engineer shall verify the contractor's repair of epoxy coating using a patching/repair material selected from Section 905.03.C, Bar Reinforcement (Epoxy Coating) of the Qualified Products List. Note the repair product on Form 1122B, Inspector's Daily Report and complete Form 1138, Bridge Reinforcing Computations. Ensure reinforcement is placed as shown on the plans and provide clear cover according to the plans and specifications. Verify the contractor is placing bar chairs as required in the *2003 Standard Specifications for Construction*.

Concrete Testing

Ensure the contractor is performing concrete yield tests as part of the contractor's concrete quality control. Subtract the aggregate correction factor from the field air content test results. Perform sampling of the concrete according to Michigan Test Method 207 at the pump discharge for silica fume modified concrete unless it is correlated to the concrete delivery truck. Note the correlation on Form 1122B, Inspector's Daily Report.

Placing Bridge Deck Overlay Concrete

Verify that the silica fume modified concrete is falling less than 6 inches from the discharge chute to the uppermost steel reinforcement or existing bridge deck surface. For latex-modified concrete, the fall height of the mix is dependent on the air content and will vary.

Finishing Bridge Deck Overlay Concrete

Ensure that the contractor verifies the bridge deck trueness with a 10-foot straightedge while the concrete is still plastic. The engineer will check the finished deck with a 10-foot straightedge and mark the areas found to be out of tolerance. Corrections are made by the contractor prior to acceptance.

Texturing and Curing Bridge Deck Overlays

Ensure that the contractor textures the deck as soon as the concrete has set sufficiently to maintain the texture, per the *2003 Standard Specifications for Construction*. For silica fume-modified concrete, ensure that the contractor applies a continuous fog to the screeded

concrete. The engineer shall ensure the contractor wet cures the bridge deck per the *2003 Standard Specifications for Construction*. Ensure that the contractor has soaked the burlap a minimum of 12 hours prior to beginning the deck pour, and the burlap is placed after the excess water is removed and as soon as the concrete will support it without deformation. Do not use Burlene directly on the bridge deck overlay concrete. Ensure that the contractor provides a network of soaker hoses and a system to apply cure water uniformly and continuously for at least 7 days for silica fume concrete and 2 days for latex modified concrete, and that the entire deck surface is covered with a minimum 4 mil polyethylene film.

Do not apply curing compound to latex-modified concrete or silica fume-modified concrete.

Concrete Delivery Tickets

Verify and record discharge time on the tickets and sign all of the concrete delivery tickets. Include any testing results (air, temperature, and slump) on the ticket.

For mobile mixer latex trucks, review the mix calibration and note the meter count on Form 1122B, Inspector's Daily Report.

Concrete Trucks and Heavy Equipment

For deep overlays, do not allow concrete trucks and other heavy equipment (including vacuum trucks) to drive across the thinned bridge deck section and the exposed steel reinforcement. This prevents damage to the steel reinforcement and the remaining bridge deck concrete.

Notification

Notify Eric Burns (517-322-6331) or Scott Hobner (517-322-5120) of the Construction and Technology Division's Bridge Operations Section, and Elias David (517-322-1222) of the Construction and Technology Division's Materials Section, one week prior to the commencement of the bridge deck concrete overlays.

Chief Operations Officer

Engineer of Delivery

Attachments

BOHD:C/T:EMB:kab

Index: Structures

cc: C & T Division staff
M. Van Port Fleet
B. O'Brien
P. Sebenick
T. Fudaly, FHWA
CRAM
MCPA

J. Polasek
J. Reincke
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G. Moore
ACEC
MAA
MITA

M. DeLong
J. Culp
C. Rademacher
K. Reincke
APAM
MCA
MML

MDOT BRIDGE DECK OVERLAY CONSTRUCTION INSPECTION CHECKLIST

Control Section	Project No.	Date
Structure No.	Structure Location:	
Contractor:		Concrete Supplier:
Inspector:		Engineer:

A. Prior to Hydrodemolition Initials

- Contractor submit Hydrodemolition pH Control Plan _____
- Contractor furnish engineer a copy of MDEQ Groundwater Discharge Permit _____
- Review Hydrodemolition pH Control Plan and Checklist _____
- Scarify bridge deck surface as shown on the plans _____
- Place environmental controls (deck drains covered, downspouts plugged) _____

B. During Hydrodemolition

- Calibrate Hydrodemolisher per Section 712 of the Construction Manual _____
- Ensure contractor following pH Control Plan _____
- Ensure contractor performing pH sampling, testing _____
- Ensure contractor neutralizing hydrodemolition runoff if necessary _____
- Ensure contractor submitting samples for laboratory testing _____
- Ensure contractor recording test results on the Hydrodemolition Log form _____
- No vacuum trucks running on deep hydro areas _____
- Contractor cleaning up debris _____
- Sound deck prior to second pass _____
- Contractor performing second pass _____

C. Silica Fume Modified Concrete (SFMC)

- Contractor submitted concrete QC plan per subsection 701.03.F.1 _____
- Concrete supplier and contractor concrete testing personnel identified _____
- Approved concrete mix design(s) submitted, including aggregate correction factor _____
- Approved 4 cyd for silica fume modified concrete trial batch _____

D. Latex Modified Concrete

- Calibrated mobile mixer for latex modified concrete _____
- Approved mix design for latex modified concrete overlay mixture _____
- Approved materials for latex modified concrete _____

MDOT BRIDGE DECK OVERLAY CONSTRUCTION INSPECTION CHECKLIST

E.	<u>Prior to Pour</u>	<u>Initials</u>
	<ul style="list-style-type: none">• Contractor to submit for approval of equipment to be used to determine relative humidity and wind velocity at site per subsection 706.03.H.2	_____
	<ul style="list-style-type: none">• Ensure the contractor furnishes adequate fogging equipment that is on site and working properly	_____
	<ul style="list-style-type: none">• Inspect forms and check for grade, straightness, tightness, and location	_____
	<ul style="list-style-type: none">• Ensure epoxy coated steel reinforcement is properly stored and covered prior to placement to prevent damage from sunlight	_____
	<ul style="list-style-type: none">• Inspect steel reinforcement, including bar chair location and spacing	_____
	<ul style="list-style-type: none">• Verify bar size, quantity, location, spacing, clear cover laps, and ties of transverse, longitudinal and vertical steel reinforcement. Record quantities on <i>Form 1138, Bridge Reinforcing Computations</i>	_____
	<ul style="list-style-type: none">• Repair epoxy coating resteel per subsection 706.03.E. 8. Verify product on the qualified product list per subsection 905.03. Record product on IDR	_____
	<ul style="list-style-type: none">• Ensure the bulkheads for construction joints are in place, secure, and at the correct elevation. Check contractor's grades and verify during the dry run.	_____
	<ul style="list-style-type: none">• Perform dry run per subsection 706.03.M.1 and record depth measurements on <i>Form 1131, Bridge Decks Concrete Depth Measurement</i>. Note locations.	_____
	<ul style="list-style-type: none">• Ensure vibrators have rubber-coated heads per subsection 706.03.H.1	_____
	<ul style="list-style-type: none">• Ensure contractor furnishes a 10 foot straightedge per subsection 706.03.M.1	_____
	<ul style="list-style-type: none">• Ensure the burlap has been soaking a minimum of 12 hours before the pour, per subsection 706.03. N.b., and excess water has been removed.	_____
	<ul style="list-style-type: none">• Ensure the equipment to determine relative humidity, temperature, and wind velocity is on site and working properly. Record evaporation rate on <i>Form 1174A, Inspector's Report of Concrete Placed</i>	_____
	<ul style="list-style-type: none">• Ensure the bridge deck is free from debris per subsection 706.03.H.1	_____
	<ul style="list-style-type: none">• Wet the deck surface one hour before placing the overlay mixture.	_____
	<ul style="list-style-type: none">• Ensure air temp and existing concrete deck are at least 40 degrees and rising	_____
	<ul style="list-style-type: none">• Issue <i>Form 1125, Permit to Place</i>	_____
F.	<u>During the Pour</u>	
	<ul style="list-style-type: none">• For latex modified concrete, brush the initial layer of mixture onto the wetted prepared surface	_____
	<ul style="list-style-type: none">• Complete <i>Form 1174A, Inspector's Report of Concrete Placed</i> including Aggregate Correction Factor	_____
	<ul style="list-style-type: none">• Ensure contractor is performing QC testing, including yield tests	_____
	<ul style="list-style-type: none">• For silica fume, verify concrete delivery tickets match the concrete mix design	_____
	<ul style="list-style-type: none">• Perform concrete QA testing	_____
	<ul style="list-style-type: none">• Test silica fume modified concrete at the pump discharge and correlate to testing at the concrete truck, according to MTM 207	_____
	<ul style="list-style-type: none">• Record elapsed time interval on every delivery ticket between charging the mixer and the placement of the concrete. Sign the concrete delivery tickets.	_____
	<ul style="list-style-type: none">• Vibrator with rubber coated heads being used within 15 minutes of placement.	_____
	<ul style="list-style-type: none">• Ensure contractor does not over vibrate or over finish the concrete.	_____
	<ul style="list-style-type: none">• Ensure the concrete does not freefall more than 6 inches above the resteel	_____

MDOT BRIDGE DECK OVERLAY CONSTRUCTION INSPECTION CHECKLIST

F. During the Pour (continued)

Initials

- Ensure contractor checks deck tolerance with a 10 foot straightedge both longitudinally and transversely _____
- Ensure the contractor is fogging during placement of silica fume modified concrete _____
- Inspect texturing per subsection 706.03.M. _____
- Verify the wet cure (burlap, soaker hoses, polyethylene) is being applied at the appropriate time _____
- Verify the low temperature protection was applied as necessary per 706.03.J2.b. _____

G. After the Deck Pour

- For silica fume modified concrete, verify the wet cure is maintained for seven days. Check deck to verify soaker hoses are working and covering the entire deck. _____
- For latex modified concrete, verify the wet cure is maintained for two days and two days dry. Check deck to verify soaker hoses are working. _____
- Ensure that contractor waits a minimum of 15 hours to strip bulkheads after completion of the pour. _____
- Inspect deck tolerance 1/8 inch in 10 foot with 10 foot straightedge prior to acceptance. _____

MDOT HYDRODEMOLITION PROJECTS pH CONTROL PLAN CHECKLIST

Control Section/Job Number: _____ Date: _____
 Project Description: _____
 Delivery Engineer: _____
 Location: _____
 Prime Contractor: _____
 Hydrodemolition Contractor: _____
 Site Identification Number for Generator: _____
 Liquid Industrial Waste Hauler: _____
 Site Identification Number for Transporter: _____

<u>Items/Activities</u>	<u>Yes</u>	<u>No</u>
<u>pH Control Plan – Submitted</u>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Personnel</u>		
pH control plan manager listed	<input type="checkbox"/>	<input type="checkbox"/>
Personnel identified who will be in charge of sampling	<input type="checkbox"/>	<input type="checkbox"/>
Personnel identified who will be in charge of testing	<input type="checkbox"/>	<input type="checkbox"/>
Personnel identified who will be in charge of neutralizing	<input type="checkbox"/>	<input type="checkbox"/>
Personnel identified who will be in charge of pH meter calibration	<input type="checkbox"/>	<input type="checkbox"/>
<u>Sampling and Testing</u>		
Is the method of field sampling identified?	<input type="checkbox"/>	<input type="checkbox"/>
Is the name and model number of the pH meter listed?	<input type="checkbox"/>	<input type="checkbox"/>
Is a written calibration method for pH meter submitted?	<input type="checkbox"/>	<input type="checkbox"/>
Is there a sampling strategy included based on volume of runoff, site conditions, pH levels, consistency of pH?	<input type="checkbox"/>	<input type="checkbox"/>
Is a MDEQ-certified laboratory listed to test split samples?	<input type="checkbox"/>	<input type="checkbox"/>
Is a MDEQ-certified laboratory contact person and phone number listed?	<input type="checkbox"/>	<input type="checkbox"/>
Is there a procedure listed for steps to be taken if field and lab results aren't compatible?	<input type="checkbox"/>	<input type="checkbox"/>
Are test results being recorded on the hydrodemolition log?	<input type="checkbox"/>	<input type="checkbox"/>
<u>Monitoring</u>		
Is there a procedure listed on how to meet the pH requirements?	<input type="checkbox"/>	<input type="checkbox"/>
Are the treatment products listed?	<input type="checkbox"/>	<input type="checkbox"/>
<u>pH Adjustment</u>		
Is there a procedure listed on how to meet the pH requirements?	<input type="checkbox"/>	<input type="checkbox"/>
Has the location of the neutralization been identified by the contractor?	<input type="checkbox"/>	<input type="checkbox"/>
Has the MSDS for the neutralizer been submitted?	<input type="checkbox"/>	<input type="checkbox"/>
Has a copy of the product data sheet for the neutralizer been submitted?	<input type="checkbox"/>	<input type="checkbox"/>

Items/Activities

Generation

- Does the hydrodemolition contractor have a site identification number?
- If not, does MDOT have a site ID for the project?
- Is the proposed transporter a liquid industrial waste hauler?
- Is the proposed transporter a hazardous waste hauler if necessary?
- Has the hydrodemolition contractor provided a copy of a MDEQ certificate of coverage?

Neutralization

- If the pH is higher than 12.5, will the contractor neutralize the slurry?
- Is the location of where the neutralization site is to occur identified in the control plan?
- Is the neutralization method listed in the plan?
- Will the slurry be pretreated (supply water)?
- Will the slurry be treated during generation?
- Will the slurry be post treated after generation?
- If the contractor elects to neutralize after generation, is the container tank- or transport-vehicle identified?

Collecting and Hauling Slurry

- Will the runoff be collected and hauled?
- Will the contractor be hauling the slurry?
- If the contractor is hauling the slurry, does the contractor have a site identification number either as the transporter or generator?
- Is the transporter a licensed liquid industrial waste hauler?
- If the slurry is hazardous and not neutralized, is a hazardous waste hauler identified to haul the slurry?

Discharging Runoff Water

- Are there 3 peastone filter dams constructed prior to hydrodemolition?
- Are the millings removed from the deck prior to hydrodemolition?
- Are the peastone filters being maintained during hydrodemolition?
- Is the discharge site within an MDOT right of way?
- Has the engineer approved the discharge location?
- Is the contractor recording the volume of runoff generated?
- Is the contractor recording the pH of the runoff?

Disposal of Runoff Water

- Is the runoff being collected and hauled?
- Is the disposal facility a solid waste facility?
- Is the disposal facility a licensed liquid waste disposal facility?
- Is the disposal facility a wastewater treatment facility?

SAMPLE HYDRODEMOLITION pH CONTROL PLAN

a. **Description** (*Insert company name*) staff shall sample, test, monitor, manage, and neutralize, if necessary, the hydrodemolition runoff water prior to discharge from the bridge deck. In areas with enclosed storm drainage systems or in areas where discharging is otherwise not permitted, (*Insert company name*) will collect, haul, and dispose of the hydrodemolition runoff water.

b. **Construction** - (*Insert company name*) will perform this work as specified in the Standard Specifications for Construction and the contract documents. Discharged hydrodemolition runoff water will be filtered with a minimum of three peastone filter dams. The peastone dams will be maintained during the entire hydrodemolition and rinsing operations. Dams will not be constructed from millings of the scarified concrete or removed latex concrete. Remove millings prior to beginning the hydrodemolition process.

(*Insert company name*) will obtain an MDEQ Certificate of Coverage form and conform to the Groundwater Discharge General Permit.

c. **pH Control Plan** - (*Insert company name*) staff shall sample, test, monitor, manage, and, if necessary, neutralize the hydrodemolition runoff water prior to discharge and/or disposal. The plan manager will be (*Insert name of plan manager*).

1. **Sampling and Testing** - The hydrodemolition runoff water produced by the hydrodemolition equipment will be sampled and tested immediately to determine whether it falls within the nonhazardous range (greater than 2 and less than 12.5) by (*Insert tester's name or names*). A daily calibrated (*Insert pH meter model and name*) will be utilized and calibrated by (*Insert tester's name or names*).

On this hydrodemolition project, a minimum of four independent hydrodemolition runoff water samples will be taken per day for each structure and recorded. Additional sampling may be taken depending on the volume of runoff generated, consistency of pH, and area of the bridge deck. Sampling will be spaced evenly throughout the work day although the frequency may be adjusted depending on change in the hours of operation. The samples will be tested and split into laboratory samples. Four hydrodemolition runoff samples will be tested by an MDEQ certified laboratory. The MDEQ certified laboratory will be (*Insert name of testing laboratory*) and the laboratory contact person is (*Insert contact name*) and can be reached at (*Insert testing laboratory phone number*). The laboratory will check and verify the pH and provide daily a written report to be forwarded to the resident/delivery engineer. If the laboratory tests are not consistent with the field results, (*Insert company name*) will (*Insert proposed action, options include recalibrating pH meter, changing meters, stoppage of work, neutralizing, etc*)

Test results will be recorded on the hydrodemolition log.

2. **Monitoring** - (*Insert company name*) will take action to ensure the pH is above 2 and below 12.5 prior to discharge and disposal by (*List proposed actions such as pre treatment, treatment during hydrodemolition, or post treatment options*)

(*Insert company name*) will treat the runoff water with (*Insert product name or names*) in order to keep the runoff water below a pH of 12.5. The (*Insert product name or names*) will be mixed (*Insert location of mixing*) prior to discharge and disposal.

3. pH Adjustment - (Insert company name) will treat the runoff water with **(Insert product name or names)** in order to keep the pH of the hydrodemolition runoff water above 2 and below a pH of 12.5. The **(Insert product name or names)** will be mixed **(Insert location of mixing such as tank, gondola, and tanker truck)** prior to discharge and disposal. A copy of the material safety and data sheet (MSDS) and a product data sheet will be furnished to the engineer prior to neutralizing.

4. Managing - (Insert company name) will manage the hydrodemolition waste runoff to prevent release of a hazardous waste and will adjust the pH when necessary as indicated in the pH adjustment

5. Collecting and Hauling - (Insert company name) will collect the hydrodemolition runoff water and the hauling will be based on the following:

i. Hazardous Waste - If the hydrodemolition runoff water is hazardous and isn't neutralized, then the runoff water will be transported by **(Insert licensed hazardous waste transport company name)** for disposal at **(Insert licensed hazardous waste disposal company name)**

ii. Non-Hazardous Waste - If the hydrodemolition runoff water is nonhazardous, then the runoff water will be transported by **(Insert licensed liquid industrial waste transport company name)** for disposal at **(Insert licensed liquid industrial disposal company name or public owned treatment works)**

Copies of waste manifests forms will be forwarded to the engineer.

d. Generator and/or Transport Site Identification Number - (Insert company name) will either obtain a generator or site identification number from the MDEQ Waste and Hazardous Materials Division or use a licensed liquid industrial waste hauler to transport the hydrodemolition runoff water.

List the site identification number for each structure: **(Insert Structure Location and Structure Name)** is **(Insert Site ID Number)**.

(Insert licensed liquid industrial waste transport company name) will transport the hydrodemolition runoff water.

(Insert company name) will contact the engineer to request a site identification number from MDEQ

e. Discharge - (Insert company name) will not discharge into any surface waters of the state, storm water drainage systems, or in areas where discharging is not permitted. **(Insert company name)** will coordinate the collecting, hauling, proper disposal of the hydrodemolition runoff water, and will obtain approval from the engineer for the discharge method and location prior to beginning the hydrodemolition operation. The discharge of the runoff water will only occur on MDOT right of way and will be distributed as evenly as possible. Discharge will be minimized via curb side culverts and downspouts. **(Insert company name)** will record hours of the hydrodemolition process and the volume of water discharged. Measures will be maintained for managing the runoff water by **(Insert company name)** in good working order.

f. Disposal of Hydrodemolition Runoff - (Insert company name)

1. Nonhazardous Runoff Water Disposal - (Insert company name) will collect the water. **(Insert liquid industrial waste company name)** will transport to **(Insert disposal location, either a solid waste facility or licensed liquid industrial waste disposal facility)**.

(Insert company name) will forward copies of the manifests to the engineer.

2. Hazardous Runoff Water Disposal - (Insert company name) will collect the water. **(Insert hazardous waste transport company name)** will transport to **(Insert hazardous waste disposal facility)**.

(Insert company name) will forward copies of the manifests to the engineer.

g. Contractor Responsibility for Method of Operations - (Insert company name) will comply with all environmental laws and regulations.

h. Records - (Insert company name) will maintain a copy of all manifests for three years and make them available to MDEQ upon request.