STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
CONSTRUCTION PRACTICES IN STREAMS
INHABITED BY THE TOPEKA SHINER

MAY 10, 2010

I. DESCRIPTION

This project crosses a stream inhabited by the Topeka Shiner, a federally endangered species. The following conditions shall be implemented to minimize the impact of stream crossing construction on the Topeka shiner. Failure to implement the following conditions may result in violation of the Endangered Species Act.

II. MATERIALS (None Required)

III. CONSTRUCTION REQUIREMENTS

A. GENERAL CONSTRUCTION

Construction activities within the stream, along the stream banks, and in areas that drain into the stream will not be allowed unless comprehensive and effective Best Management Practices (BMPs), that will prevent sediment, fuels, chemicals, concrete wash water, and other pollutants from entering into the stream, are in-place and functioning properly. Erosion and sediment controls shall be maintained in good working condition until vegetation is restored to 70% of the pre-disturbance condition. Erosion and sediment controls implemented shall be those appropriate for the specific site conditions. Fill material shall not be placed below the ordinary high water elevation except as directed by the plans or as allowed by the United States Army Corps of Engineers 404 permit.

B. MEASUREMENT OF STREAM TURBIDITY

Construction activities shall not produce sediment discharges that increase stream turbidity (i.e., water clarity) by more than 50 Nephelometric Turbidity Units (NTU) over the background turbidity level. Construction methods that produce sediment discharges exceeding this turbidity standard shall cease and may resume only after the Engineer has approved an acceptable plan. The Contractor shall immediately notify the Engineer if it is suspected that

stream turbidity has been increased. Turbidity will be monitored during all stages of the project. An emphasis will be placed on monitoring construction actives causing disturbance to the stream channel.

1. **Turbidity Meter and Maintenance:** Measurements shall be taken by the Engineer with a Global Water WQ 770 turbidity meter or equivalent, supplied by the Engineer. Turbidity meters shall be maintained and operated in accordance with manufacturer recommendations.

2. **Definition of Turbidity Sample:** A turbidity sample shall be defined as the average of five measurements taken at a sampling location.

3. **Obtaining a Turbidity Sample:** To obtain a turbidity sample, the sensor of the turbidity meter shall be submerged in the stream and allowed to run continuously for at least one minute before taking the first turbidity measurement. Subsequent turbidity measurements shall be taken at thirty second intervals until five measurements have been obtained. Turbidity measurements shall be taken by the Engineer or a designated representative. Turbidity samples shall be taken in accordance with manufacture recommended procedures.

4. **Location of Turbidity Samples:** Turbidity shall be measured at two sampling locations. A control sample will be taken from a point 100 feet upstream of the work area to determine the background turbidity level. Another sample will be taken from a point 100 feet downstream of the work area. The location of turbidity samples may be modified at the Engineers discretion depending on constraints such as easement limits. Turbidity shall be measured at the midpoint of stream flow. If the stream is not flowing turbidity shall be measured at the center of the stream.

5. **Documentation of Turbidity Sample Measurements:** Turbidity data shall be recorded on a Stream Turbidity Inspection Form (DOT-283) and be delivered to the SDDOT environmental office within 14 days of testing. Turbidity samples that indicate a 50 NTU increase over the background turbidity level shall be immediately reported to the Biologist.

6. **Frequency of Turbidity Measurements:** Turbidity measurements shall be taken in conjunction with normal storm water inspections. Turbidity measurements shall also be taken at the Engineers discretion during construction activities that may result in increased turbidity (e.g., placing rip rap or installing a coffer dam).

C. DE-WATERING, ISOLATED WORK AREAS, AND WATER EXTRACTION

If fish are present or suspected to be present within a work area isolated from the remaining water body, construction activities within that enclosed area will

not be allowed until the Biologist has confirmed that fish have been moved from the enclosed area to the greatest extent possible considering site conditions. The Biologist shall be notified prior to the installation of any temporary water barriers that may isolate stream segments or the dewatering of any stream segments. The Biologist shall be notified if stream discharge reenters any areas previously cleared of fish.

Fish screens shall be used on all pump intakes that may be exposed to fishes. Pump intake screens shall be sized to prevent fish from being entrained into the pump intake or from being impinged on the intake screen. Screen mesh shall not have openings that exceed 1/8" measured diagonally across the opening. The surface area of fish screens shall be at least 18 ft^2. The Biologist shall be contacted to determine the appropriate surface area for fish screens used on pumps extracting water at a rate exceeding 500 gpm.

The extraction of water for use during construction from free flowing streams will not be permitted unless approved by the Biologist. The Contractor shall provide the Biologist with the estimated volume of water to be extracted, the duration (timeframe) of the extraction, rate at which water will be extracted, and the location(s) where water will be extracted. Water will not be allowed to be extracted for use during construction from streams that are not flowing.

D. TEMPORARY WORKS (FALSEWORK AND WORK PLATFORMS)

Falsework or work platforms shall conform to Section 423 of the Standard Specifications and any applicable requirements of this provision.

Temporary piling shall be cutoff at or driven flush with the streambed, or extracted in a manner that minimizes sedimentation as much as possible, when no longer needed.

The Contractor shall consider how falsework or work platforms will be installed and removed when preparing the Construction Plan and include any special construction methods or sequencing that may be required to protect the Topeka Shiner.

Design of temporary works shall be as specified in Section 423 of the Standard Specifications.

E. REMOVAL OF STRUCTURES & OBSTRUCTIONS

Removal of structures and obstructions shall conform to Section 110 of the Standard Specifications and any applicable requirements of this provision.

Construction, demolition and/or removal operations conducted over or in the vicinity of the stream shall be controlled to prevent materials from falling in the

waterway. Any materials that do fall into the waterway or into areas below the ordinary high water elevation shall be removed promptly by hand or with equipment located above the stream bank at the discretion of the Engineer.

F. TEMPORARY DIVERSION CHANNELS

Temporary diversion channels constructed according to Standard Plate number 734.30 shall be constructed to approximately the existing channel slope, roughness, and width to allow upstream fish movement during normal stream discharges.

G. PRECONSTRUCTION MEETING AND CONTRACTOR WORK PLAN

A pre-construction meeting shall be held with the Contractor, all Sub-Contractors, Engineer and Biologist to ensure that the conditions of this provision and all environmental permits are clearly understood. The Contractor shall provide an estimated date at the pre-construction meeting when the Biologist will be needed on site to monitor any fish transfer. The Contractor shall notify the Engineer two days before the Biologist is needed on site.

The Contractor shall submit a detailed Construction Plan, prior to the preconstruction meeting, to the Engineer for approval. The plan shall include products, materials and methods of construction and removal for temporary water barriers, cofferdams, and diversion channels including de-watering, handling, storage, and disposal of excavated material and pumped effluent. The Construction Plan shall include all necessary information to provide assurance that the conditions of this provision are adequately addressed. Work shall not proceed without approval of the Construction Plan by the Engineer.

IV. METHOD OF MEASUREMENT

A. Temporary Water Barriers: Temporary water barriers will be measured to the nearest foot.

B. Cofferdams: Measurement for cofferdams will be as per Section 423.4 of the Standard Specifications.

C. Dewatering: Measurement for dewatering will not be made.

D. Temporary Works: Measurement for temporary works will be as per Section 423.4 of the Standard Specifications.

E. Removal of Structures and Obstructions: Measurement for removal of structures and obstructions shall be as per Section 110.4 of the Standard Specifications.

F. Temporary Diversion Channel for Box Culverts: Measurement for temporary diversion channel for box culverts shall be in accordance with Standard Plate number 734.30.

G. Temporary Stream Diversion for Box Culvert Extensions: Measurement for temporary stream diversions for box culvert extensions will be on a per each basis.

H. Temporary Stream Diversion for Pipe Culvert Extensions: Measurement for temporary stream diversions for pipe culvert extensions will be on a per each basis.

I. Erosion Control for Box Culvert Extension: Measurement for erosion and sediment control for box culvert extensions will not be made.

J. Erosion Control for Pipe Culvert Extension: Measurement for erosion and sediment control for pipe culvert extensions will not be made.

K. Erosion Control for Bridge: Measurement for erosion and sediment control for bridge will not be made.

V. BASIS OF PAYMENT

A. Temporary Water Barriers: Temporary water barriers will be paid for at the contract unit price per foot. Payment for this bid item shall be made only once at each location, regardless of the number of times the barrier is changed or moved at that location. Payment will be full compensation for labor, equipment, materials, and all incidentals necessary for constructing the temporary water barrier.

B. Cofferdams: Payment for cofferdams shall be as specified in Section 423.5 of the Standard Specifications.

C. Dewatering: Payment for Dewatering will not be made. All costs associated with dewatering shall be incidental to the other bid items.

D. Temporary Works: Payment for temporary works shall be as specified in Section 423.5 of the Standard Specifications.

E. Removal of Structures and Obstructions: Payment for removal of structures and obstructions shall be as specified in Section 110.5 of the Standard Specifications.

F. Temporary Diversion Channel for Box Culverts and Pipe: Payment for temporary diversion channels for box culverts shall be in accordance with Standard Plate number 734.30.

G. Temporary Stream Diversion for Box Culvert Extensions: Temporary stream diversion for box culvert extensions will be paid for at the contract unit price per each. Payment for this bid item will be made only once, regardless of the number of times the diversion is changed or moved at this site. Payment will be full compensation for labor, equipment, materials, and all incidentals necessary for constructing the temporary diversion.

H. Temporary Stream Diversion for Pipe Culvert Extensions: Temporary stream diversion for pipe culvert extensions will be paid for at the contract unit price per each. Payment for this bid item will be made only once, regardless of the number of times the diversion is changed or moved at this site. Payment will be full compensation for labor, equipment, materials, and all incidentals necessary for constructing the temporary diversion.

I. Erosion Control for Box Culvert Extension: Erosion control for box culvert extension will be paid for at the contract lump sum price. The contract lump sum price shall be full compensation for all labor, equipment, materials, and incidentals necessary to install and maintain erosion and sediment control measures for box culvert extensions. Payment for erosion control measures not shown on the approved Construction Plan will be measured and paid for under their respective bid items (i.e. silt fence, erosion bale, etc.).

J. Erosion Control for Pipe Culvert Extension: Erosion control for pipe culvert extension will be paid for at the contract lump sum price. The contract lump sum price shall be full compensation for all labor, equipment, materials, and incidentals necessary to install and maintain erosion and sediment control measures for pipe culvert extensions. Payment for erosion control measures not shown on the approved Construction Plan will be measured and paid for under their respective bid items (i.e. silt fence, erosion bale, etc.).

K. Erosion Control for Bridge: Erosion control for bridge will be paid at the contract lump sum price. The contract lump sum price will be full compensation for all labor, equipment, materials, and incidentals necessary to install and maintain erosion and sediment control measures for necessary for bridge construction. Payment for erosion control measures not shown on the approved Construction Plan will be measured and paid for under their respective bid items (i.e. silt fence, erosion bale, etc.).

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