

BRIDGE SCOUR COUNTERMEASURES FIELD NOTES

Structure No.: _____ Road: _____ Watercourse: _____ Site ID: _____

Location: _____ GPS Lat/Long: _____ Date: _____

Inspection Team: _____

DESCRIPTION OF FLOODPLAIN

Describe general topography of floodplain:

Floodplain conditions at bridge site:

Floodplain	Developed				Forest/Wetlands			Undergrowth/Shrubs			Planted/Cultivated		Other
	Open	Low	Medium	High	Thin	Moderate	Thick	Thin	Moderate	Thick	Pasture	Crops	
U/S left	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
U/S right	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D/S left	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D/S right	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Other floodplain comments:

COMMENTS

COUNTERMEASURES

IN THE UPSTREAM CHANNEL

IN THE DOWNSTREAM CHANNEL

UNDER THE BRIDGE

Is There Evidence of Road Overtopping? No ☐ / Yes ☐

Is There Evidence of Pressure Flow? No ☐ / Yes ☐

Angle at Which Bridge is Skewed to Channel (degrees): _____ (+ = Pushes RB | - = Pushes LB)

Bend in Channel at Bridge: ☐ None ☐ Mild ☐ Moderate ☐ Severe

Describe: _____

Debris Accumulation: No ☐ / Yes ☐

Debris Trapping Potential: _____
(Low, Medium, High)

U/S Debris Potential: _____
(Low, Medium, High)

Describe (type and location):

DESCRIPTION OF SUBSTRUCTURE

Description of piers/bents:

Location	No. of piers/bents	Material				Shape						No. of columns
		Concrete	Steel	Timber	Other	Pointed	Square	Round	Cylinder	H-pile	Other	
Left overbank		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Main channel		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Right overbank		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Description of abutments:

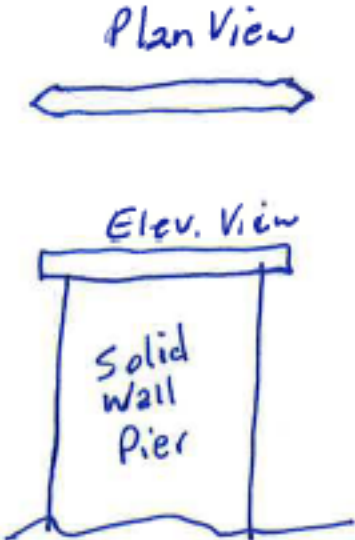
Abutment type	Vertical	Vertical w/ wingwalls	Spill-through	Other
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Other pier/bent and abutment comments:

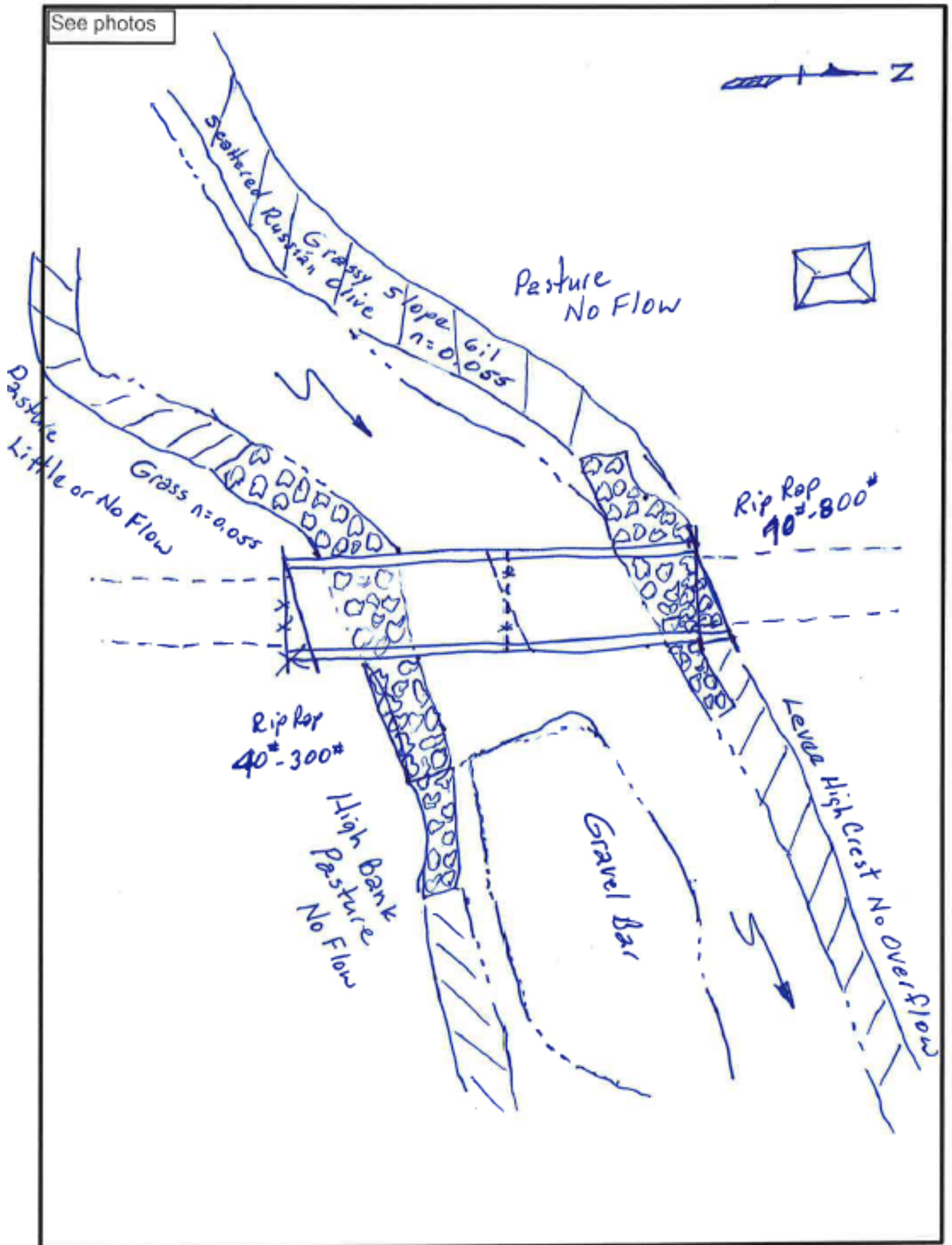
SKETCH OF REPRESENTATIVE PIER/BENT

See photos

Plan View



PLAN VIEW SKETCH AND DETAILED NOTES



PLAN VIEW SKETCH CHECKLIST

✓ = Done ✕ = Not Appropriate

- ___ North Arrow
- ___ Flow Direction
- ___ Streambanks
- ___ Bridge Deck
- ___ Angle of Approach
- ___ Piers & Columns
- ___ Footings or Encasements
- ___ Abutments
- ___ Wing Walls
- ___ Tributary Confluences
- ___ Meander Impacts/Cutbanks
- ___ Bank Erosion
- ___ Point Bars (extent, vegetation)
- ___ Mid-Channel Bars (extent, vegetation)
- ___ Downstream Blow Hole (banks impacted, dimensions)
- ___ Debris (accumulation, type, horizontal and vertical position, trapping potential)
- ___ Survey Extents
- ___ Location of Cross Sections
- ___ Water Surface Survey Points
- ___ Scour Holes
- ___ Max Water Depth at each Pier
- ___ Countermeasures (type, dimensions, location, condition)
- ___ Riprap (note quality and gradation)
- ___ Filter Fabric or Geotextile
- ___ Photo/Video Locations & Directions
- ___ Reference Mark Location(s)

BRIDGE OPENING SKETCH WITH TAPEDOWN MEASUREMENTS



Additional data collected (ADCP, multibeam, T-LIDAR, etc.) with description (filename, S/N, location, coverage, etc.)

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REQUIRED PHOTOS

Filename/number

Additional comments

1 channel-width U/S of bridge:

- Upstream left bank
- Upstream right bank
- Upstream looking D/S at bridge

Immediately U/S of bridge:

- Bridge opening from U/S side
- Upstream left bank
- Upstream right bank

On/Under bridge:

- On U/S side bridge looking 90° ⊥ to face
- On/Under bridge looking U/S
- On/Under bridge looking D/S

Substructure:

- Representative pier/bent
- Left abutment
- Right abutment

Immediately D/S of bridge:

- Downstream left bank
- Downstream right bank
- Bridge opening from D/S side

1 channel-width D/S of bridge:

- Downstream looking U/S at bridge
- Downstream left bank
- Downstream right bank

Soil material:

- Bed material
- Bank material

Other photos (if applicable):

- (e.g., piers, abutments, floodplain surface cover, tributary confluences, meander impacts/cutbanks, point bars, mid-channel bars, bank erosion, downstream blow hole, debris, countermeasures, riprap)

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OFFICE-BASED INFORMATION FROM DOT, USGS, AND FHWA:

Streamgage Information			
Agency	Site No.	Site Name	Lat/Long

Flood Frequency and Design Flows		
FHWA / State Transportation Information (typically from H&H report or design data)		
Design-flow probability (recurrence interval)	Method(s)	Flow
USGS Information		
USGS methods (Bull. 17B / PeakFQ, USGS NSS, PSU IV, FIS, etc.)	Recurrence interval(s)	Flow
Comments		

OFFICE DATA—CHECKLIST AND DISCLAIMER:

The following information should be collected and attached as part of this scour evaluation (place an X adjacent to the items obtained). The information should be reviewed prior to a site visit and field review.

DATA CHECKLIST	RECEIVED
Bridge general plan and elevation with foundations depicted.	
Scour countermeasure plans.	
Bridge inspection reports.	
Topographic maps of the watercourse and surrounding area.	
Aerial photographs (list years below).	
Soils/geologic maps.	
Streamgage data (peak flows, annual flows, monthly flows, rating, etc.).	
USGS WaterWatch flood tracking chart, flow duration curve, and rating curve.	
Hydraulic/hydrologic or other studies of the watercourse.	
Other appropriate data (describe below).	
Comments	

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