

Checklist for Stream Habitat Improvement Projects

Checklist Objectives and Intent:

This checklist is intended for work with cooperative partners using Lessard-Sams Outdoor Heritage Council (LSOHC) funds to do instream habitat improvements on MNDNR administered lands. Additionally, this checklist could assist with smaller projects with these cooperative partners using LSOHC funds such as fencing, riparian vegetation management, etc. If this checklist were used for those smaller projects, many or some of the permits and procedures would not be required. This checklist is simply a tool to assist MNDNR Fisheries staff and cooperative partner project leaders through the process and to make this process consistent throughout MNDNR Fisheries Regions.

The checklist contains the following:

Deliverables – Pre-project

Deliverables – Design

Deliverables – Installation

Deliverables – Completion

Minnesota Department of Natural Resources – Section of Fisheries

Checklist for Stream Habitat Improvement Projects

Version 19.4, April 30, 2015

(For MNDNR internal and external use)

Check as completed	Deliverables – Pre-project	Time Line (months)
✓	Cooperative project partner will... 1) Schedule an appointment with the MNDNR Area Fisheries Supervisor in respective management area to inform of purpose and intent. 2) Reach consensus with MNDNR Area Supervisor on locations for projects on MNDNR easements or on land owned by MNDNR prior to applying for funding. 3) Incorporate information from MNDNR Area Supervisor on management direction of project sites (i.e. full channel restoration vs. habitat enhancement) into proposal budgets to insure adequate resources for the project.	-24
	MNDNR Area Fisheries Supervisor will... 4) Advise cooperative project partner <ul style="list-style-type: none"> a) Provide the cooperative partner with suggestions for habitat improvement work based on management plans and current MNDNR Fisheries Area Office management goals and suggest management direction (i.e. full restoration vs. enhancement). b) Check that the project is within MNDNR Area Fisheries Aquatic Management Area Easement or other public property that guarantees public access as required by LSOHC. c) Check that cooperative partner has the appropriate information to continue (see Appendix A). The project will not move forward without this information. 	-24
	5) MNDNR Area Fisheries Supervisor must contact landowner (if applicable) to facilitate project with cooperative partner.	-24
		-12

Project stream: _____

Kittle number: _____

UTM's upstream boundary: _____

UTM's downstream boundary: _____

Cooperative Project Partner signature and date: _____

MNDNR Area Fisheries Supervisor signature and date: _____

Date Completed	Deliverables – Design	Time Line (months)
	Cooperative project partner will... 6) Provide pre-project survey documentation (see Appendix B) to MNDNR Area Fisheries Supervisor prior to initial site visit. Area supervisor may waive the survey requirement for maintenance projects.	-9
	7) Arrange initial site visit with Area Fisheries Supervisor, Area Hydrologist, US Army Corps, and other relevant parties to assess the site while considering survey data. Discuss project scope, issues, and approach.	-9

Date completed	Deliverables – Design (continued)	Time Line (months)
	8) If the Area Fisheries Supervisor and Area Hydrologist agree on a channel restoration project, provide a concept design based on agreed upon project objectives and approach. Design shall include basic plans for stream layout, channel and floodplain typical cross sections, location and type of structures, typical details of structures, and a basic vegetation plan. Include details that describe site constraints, and data and assumptions that guided the design, especially in relation to the pre-project survey.	-6
	9) If the Area Fisheries Supervisor and Area Hydrologist are in agreement that a localized enhancement project is appropriate, a plan may be created <u>with</u> the MNDNR Area Fisheries Supervisor (using Appendix C or something similar) <u>on site</u> to a level of detail that will ensure that the project can be properly constructed.	-6
	10) Determine if an Environmental Assessment Worksheet (EAW) is required. The MNDNR Area Fisheries Supervisor can assist the partner in this determination. This could require a change in design and therefore a change in the time table. (See Appendix D for details)	-6
	11) Successfully apply for any required local permits such as county shoreland zone grading permits, floodplain fill, city grading permits, etc.	-4
	<p>12) Successfully apply for State Historic Preservation Office review (SHPO) and Tribal Historic Preservation Office review (THPO) on projects that involve disturbing the soil. Contact: MNDNR Archaeologist – Mike Magner, 218-327-4449 Ext 243, mike.magner@state.mn.us</p> <p>a) Provide project information (GPS location in UTM’s of upstream and downstream boundaries, map (8.5” x 11”) showing project location, project description including enough detail of all excavation and stock pile areas) to above contact.</p> <p>b) The MNDNR Archaeologist comments back to the cooperative partner within 3 months that the SHPO either reported that there are no historic properties that may be affected by the undertaking (review process ends) <u>OR</u> request that an archaeological review of the project corridor be completed.</p> <p>c) If an archaeological review is necessary, the cooperative partner will be notified by the MNDNR Archaeologist and the cooperative partner must contract with a cultural resource consultant to complete the archaeological review.</p> <p>d) Partner provides the results from the archeological review to MNDNR Archaeologist.</p> <p>e) SHPO comments on the results of the review within 30 days. It is possible that these comments will include an expectation of additional archaeological investigations.</p>	-4
	13) Submit a Minnesota Natural Heritage Information System Data Request Form (available at http://files.dnr.state.mn.us/eco/nhnrp/nhis_data_request.pdf). If you have questions, contact Lisa Joyal, 651-259-5109 or lisa.joyal@state.mn.us	-4
	<p>14) Complete joint application for MNDNR Protected Waters (MNDNR Area Hydrologist) and US Army Corps of Engineers Sect. 404 Permit. Submit to MNDNR and USACE separately.</p> <p>a) Wetland Conservation Act review is included here. If potential wetland impacts are identified, a Technical Evaluation Panel must be convened to determine if mitigation or changes to project design are required.</p>	-4
	<p>MNDNR Area Fisheries Supervisor and Area Hydrologist will...</p> <p>15) Approve design with intent to continue project proposal <u>OR</u> deny authorization to continue and provide explanation with suggestions on how to proceed. Once permits are approved, Area Supervisor will write letter of permission to work on MNDNR easements.</p>	-2

Cooperative Project Partner initials and date: _____

MNDNR Area Fisheries Supervisor initials and date: _____

Date completed	Deliverables - Installation	Time Line (months)
	Cooperative partner will...	
	16) Apply for Minnesota Pollution Control Agency (MPCA) General Stormwater Permit for Construction Activity (NPDES). <ul style="list-style-type: none"> a. Specific training and certification is required by the permit. Contract with an environmental consulting firm if the conservation partner or construction contractor is unqualified to complete these requirements. Specify who will fill the following rolls: <ul style="list-style-type: none"> i. Write the stormwater pollution prevention plan (SWPPP). ii. Conduct construction site monitoring and direct ongoing erosion control needs at the site. iii. Supervise installation of erosion control practices. b. Provide payment to MPCA (\$400 application fee as of June 11, 2010). 	-1/4
	17) Verify to MNDNR Area Fisheries Supervisor regarding pre-construction conference with contractor and that the contractor has liability insurance.	-1/4
	18) Verify to MNDNR Area Fisheries Supervisor that cooperative partner has obtained the necessary permits.	-1/4
	19) Verify to MNDNR Area Fisheries Supervisor that on-site staking and layout was accomplished according to plans and specifications. Applicable layout notes will be provided to MNDNR Area Fisheries Supervisor.	-1/4
	20) Verify to MNDNR Area Fisheries Supervisor that the installation process and materials meet design and permit requirements (erosion control blanket containing monofilament mesh is not permitted).	-1/4
	21) Verify to Area Fisheries Supervisor that contractor has followed DNR Operational Order 113 (see appendix A) regarding cleaning of equipment prior to mobilizing to the project site.	0
	22) Begin habitat improvement project (no later than August 1 st , which will provide for the maximum vegetative cover on exposed soil before the first freeze and allow for any minor repairs before winter. Instream work on designated trout streams is not allowed after October 15 th in SE MN, Sept 15 in NE MN).	0
	23) Phase construction so that the amount of land disturbed and unstabilized at any one time is minimized. Finish one area before disturbing the next.	0
	24) Insure that on-site supervision during construction is adequate to insure the project is built according to plans. Any changes beyond minor deviations from the plan will require approval of the Area Hydrologist and Area Fisheries Supervisor. Supervision shall also include requiring that appropriate safety precautions and protective equipment are employed during construction. Supervisor: _____ Phone: _____	0

Cooperative Project Partner initials and date: _____
MNDNR Area Fisheries Supervisor initials and date: _____

<i>Date completed</i>	Deliverables - Completion	Time Line (months)
	Cooperative partner will...	
	25) Meet on site with MNDNR Area Fisheries Supervisor and show that the installation meets MNDNR Area Fisheries Supervisor approval and is in compliance with permits.	Prior to contractor removing equipment
	26) Terminate any required permits (Be aware of the constraints surrounding the NPDES permit).	+1/4
	27) Provide post-project survey data (Appendix D) to MNDNR Area Fisheries Supervisor for inclusion in MNDNR database.	+4
	28) Provide a completion report that describes what work was done, the amount of materials used, number and type of structures installed, and a list of volunteer names and volunteer hours, and total cost of the project. An example completion report form is included in Appendix F. Failure to provide completion reports may jeopardize timely approval of future projects. (Contact: MNDNR Fisheries Stream Habitat Program Consultant – Brian Nerbonne, 651-259-5205, brian.nerbonne@state.mn.us)	+4

Cooperative Project Partner signature and date: _____
MNDNR Area Fisheries Supervisor signature and date: _____

Literature Cited and References

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- Harrelson, C.C., C.L. Rawlins, and J.P. Potyondy. 1994. Stream channel reference sites: an illustrated guide to field techniques. Gen. Tech. Rep. RM-245. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station 61p.
- Minnesota Department of Natural Resources. 2007. Fisheries Stream Survey Manual. Version 2.1, Special Publication No. 165.
- Mossop, B., and M.J. Bradford. 2006. Using thalweg profiling to assess and monitor juvenile salmon (*Oncorhynchus* spp.) habitat in small streams. Can. J. Fish. Aquat. Sci. 63:1515-1525.
- Rosgen, D.L. 1996. Applied River Morphology. Wildland Hydrology, Pagosa Springs, Colorado.
- Steen, P.J., and K.Wehrly. 2005. History and Inventory of Stream Habitat Improvements for the State of Michigan. University of Michigan.
- Thorn, W.C., and C.S. Anderson. 2001. Evaluating habitat quality from stream survey variables. Minnesota Department of Natural Resources, Fish Management Report 35.
- USDA Forest Service. 2005. Guide to Identification of Bankfull Stage in the Northeastern United States. Gen. Tech. Rep. RMRS-GTR-133-CD. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fort Collins, Colorado. 4 CD-ROM set. Sandy Verry, Author and Principal Technical Presenter.
- Verry, E.S. 2005. The How and Why of Pebble Counts to Characterize Stream Channel Sediment. Ellen River Partners, Grand Rapids, Minnesota.
- Whiteway, S.L., P.M.Biron, A. Zimmermann, O.Venter, and J.W.A. Grant. 2010. Do in-stream restoration structures enhance salmonid abundance? A meta-analysis. Can. J. Fish. Aquat. Sci. 67:831-841.
- Wollman, M.G. 1954. A method of sampling coarse river-bed material. Transactions of the American Geophysical Union 35:951-956.

Appendix A – Information necessary to successfully begin a Stream Habitat Improvement Project

Understand and follow this document:

- 1) MNDNR Operational Order 113
http://files.dnr.state.mn.us/assistance/grants/habitat/heritage/oporder_113.pdf
- 2) MNDNR Operational Order 113 Division Fish & Wildlife Guidelines
http://files.dnr.state.mn.us/areas/fisheries/lanesboro/oporder113_guidelines.pdf
 - a. See specifically “III. Detailed Aquatic Activities, Category of Activity: Habitat Improvement and Shoreland Restoration” (pages 12-13). Other details within this document may apply.
- 3) MNDNR Operational Order 113 Division of Ecological Resources Guidelines
http://files.dnr.state.mn.us/assistance/grants/habitat/lessard_sams/oporder113_eco.pdf
 - a. This document is referenced in the Guidelines for MNDNR Division of Fish & Wildlife
 - b. See specifically “Detailed Aquatic Activities, Category of Activity: Stream Restoration” (pages 25-26)

Each project will have no more than one project supervisor/contact to facilitate communication with DNR Fisheries staff.

Appendix B – Pre-Project Survey Requirements for Habitat Improvement Projects

As stated in the MNDNR Fisheries Stream Survey Manual (2007), “Geomorphic data help us understand the processes and characteristics of stream systems, provide fish habitat information, facilitate stream comparisons within a watershed and between regions, and provide a common framework for communication.” More work is needed to understand what effects habitat improvements have on fish populations (Steen and Wehrly 2005) and collecting this information will aid in this objective. Other values to the completion of this survey are:

- To aid in drafting habitat improvement design (pre-survey)
- To add to MNDNR stream files as information for full survey write-up, management plan updates, and/or database of regional long-term or status and trend monitoring
- To illustrate relative change from pre- and post-project to justify cost to grantor and constituency
- To make clear any geomorphological characteristics that could jeopardize the project and/or design
- To evaluate project design
- To confirm project objectives
- To use in “as-built” justification (post-survey)

The following are standardized survey methodologies and should be considered a minimum for habitat improvement project designs. Contract with a qualified environmental consulting firm if needed to complete this requirement. If additional information is needed to address a specific management question or objective, then collection of that information is also required (discuss with MNDNR Area Fisheries Supervisor).

Longitudinal Profile Survey – Required

The longitudinal profile should include the entire project area and extend to the first riffle upstream and downstream outside of the project area. If the project begins or ends at the boundary of an aquatic management area (angling easement corridor), the longitudinal profile survey can begin at this boundary. Do not leave the easement corridor to complete this survey unless given permission by the landowner.

Collect elevations along the longitudinal profile at a sufficient number of points in the thalweg to accurately describe the shape, depth, and lengths of bed features along the profile (Figure 1). Bed features are those features that dictate the boundaries of mesohabitat types (e.g., pools, riffles, runs, and glides). At a minimum, take thalweg elevations at the top, middle, and bottom of each bed feature and be sure to include the deepest point in each pool. Collect water surface elevations at each thalweg elevation measurement. Bankfull elevations (described below) should also be included in the longitudinal profile.

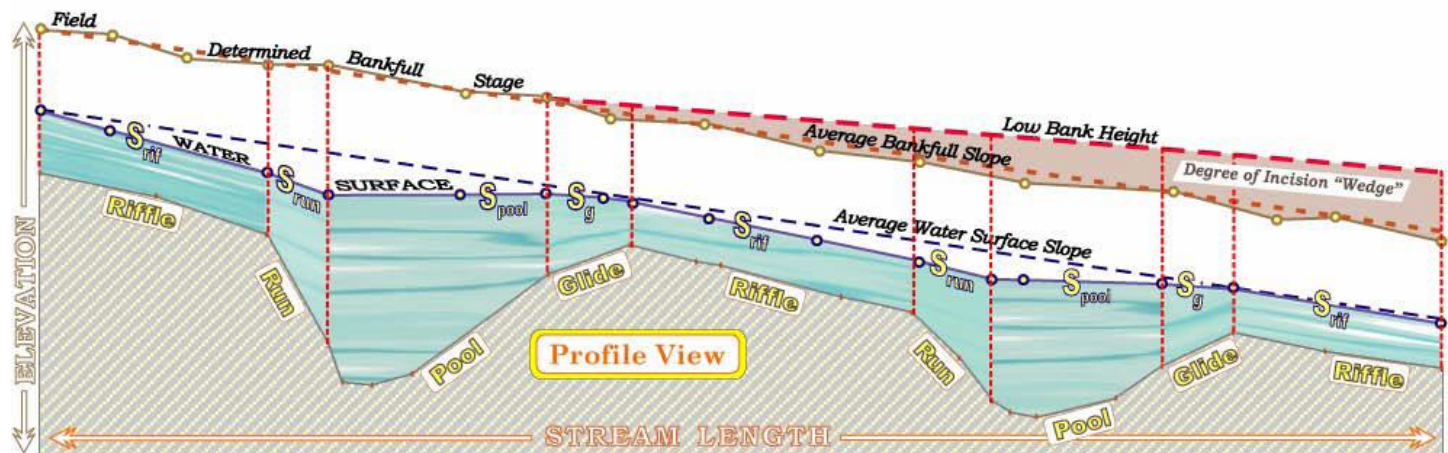


Figure 1. Longitudinal profile showing bed features and location of thalweg, water surface and bankfull elevations (© Wildland Hydrology, Rosgen 2006)

Channel Cross-Section Survey – Required

Channel cross-sections should be measured on a minimal of two or three riffles and two or three pools within the habitat improvement area. If riffles are not present in the area, position the cross section within a run.

Record the cross section location on the longitudinal profile. Lay the channel cross section perpendicular to the stream flow. Make sure that the cross sectional end points are far enough away from the stream bank to identify flood plain features. This is typically 40 to 50 feet from the wetted perimeter on either stream bank in southeast Minnesota streams but could be more than 1,000+ feet in some low gradient streams. If flood plain features are an excessive distance from the wetted stream perimeter it may be appropriate to identify these features via a topographical map. Measure elevations along the cross section to include any terraces on the stream banks, bankfull stage (see below), water edge, thalweg and water surface elevation.

Determining bankfull stage (bankfull height) is the water surface elevation at flows primarily responsible for channel formation (Dunne and Leopold 1978). It is typically the water height at which the stream channel begins to access its flood plain. Bankfull stage can only be determined in the field. Indicators of bankfull height or stage can be found in Harrelson et al. (1994) and are as follows:

- The height of depositional features (top of point bar),
- A change of vegetation (especially the lower limit of perennial species),
- A change in the size distribution of substrate or bank particles,
- A break in the slope of the stream bank,
- Stains on rocks,
- Root hairs exposed below an intact soil layer.

It is advised that the surveyors walk the project area prior to beginning the survey and mark indicators of bankfull with flagging so that they can be easily included in the longitudinal and cross sectional survey. Correct identification of bankfull is critical, as much of the analysis of stream stability and habitat quality is based on the analysis of this measurement. Most people tend to underestimate bankfull elevation as a lower terrace. These terraces are remnant bankfull features formed under different hydrologic conditions.

Pages 5-8 and 5-9 in Rosgen (1996) and USDA Forest Service (2005) reference CD provide additional direction for determining bankfull.

Because these cross sectional surveys will be conducted again post-project in the same locations, it would be wise to install temporary (or permanent) markers or stakes indicating there location.

Substrate Particle Composition at Channel Cross-Sections – Required

Stream channel substrate particle compositions are conducted using the Wolman pebble count procedure (1954). Methods are as follows:

- Begin at either side of the wetted perimeter of the stream
- Without looking, reach down to the substrate and pick up the first particle the tip of your finger touches
- Measure the width of the particle along the intermediate axis. The intermediate axis is not the widest axis nor the shortest axis, rather the axis which is intermediate (see Figure 46, page 95 in Stream Survey Manual if necessary)
- Tally each measurement in the appropriate category on the Pebble Count Recording Sheet (attached)
- Be sure to indicate whether this is a riffle or pool substrate particle count on the data sheet
- Proceed across the cross section, measuring a total of no less than 100 individual substrate particles
- Conclude the count at the opposite end of the cross section you began within the wetted perimeter

Channel Geometry Measurements (Pattern) – Recommended

Measurements to determine channel geometry should be taken directly in the field. On occasion a relatively new aerial photograph can be used and measurements can be taken directly from this. Geometry is used to describe reach wide characteristics, so measurements should reflect an area larger than the habitat improvement project area (Figure 2).

- **Sinuosity (K)** – Valley length (VL) measurements should be measured following the valley centerline, not simply following the stream meander centerline.
 - Sinuosity (K) = stream length (SL)/valley length (VL)
- **Meander length (L_m)** – Meander length is the longitudinal distance between the apexes of two sequential meanders.
- **Radius of Curvature (R_c)** - The radius of the circular arc portion of a meander, measured from a center point on the inside of the curve to the center of the channel. On compound bends there will be two R_c 's, one in each corner.
- **Belt Width (W_{blt})** – Belt width is a measure of lateral containment of the channel within its valley. Measure the longest distance perpendicular to the valley slope from outside bend to outside bend.

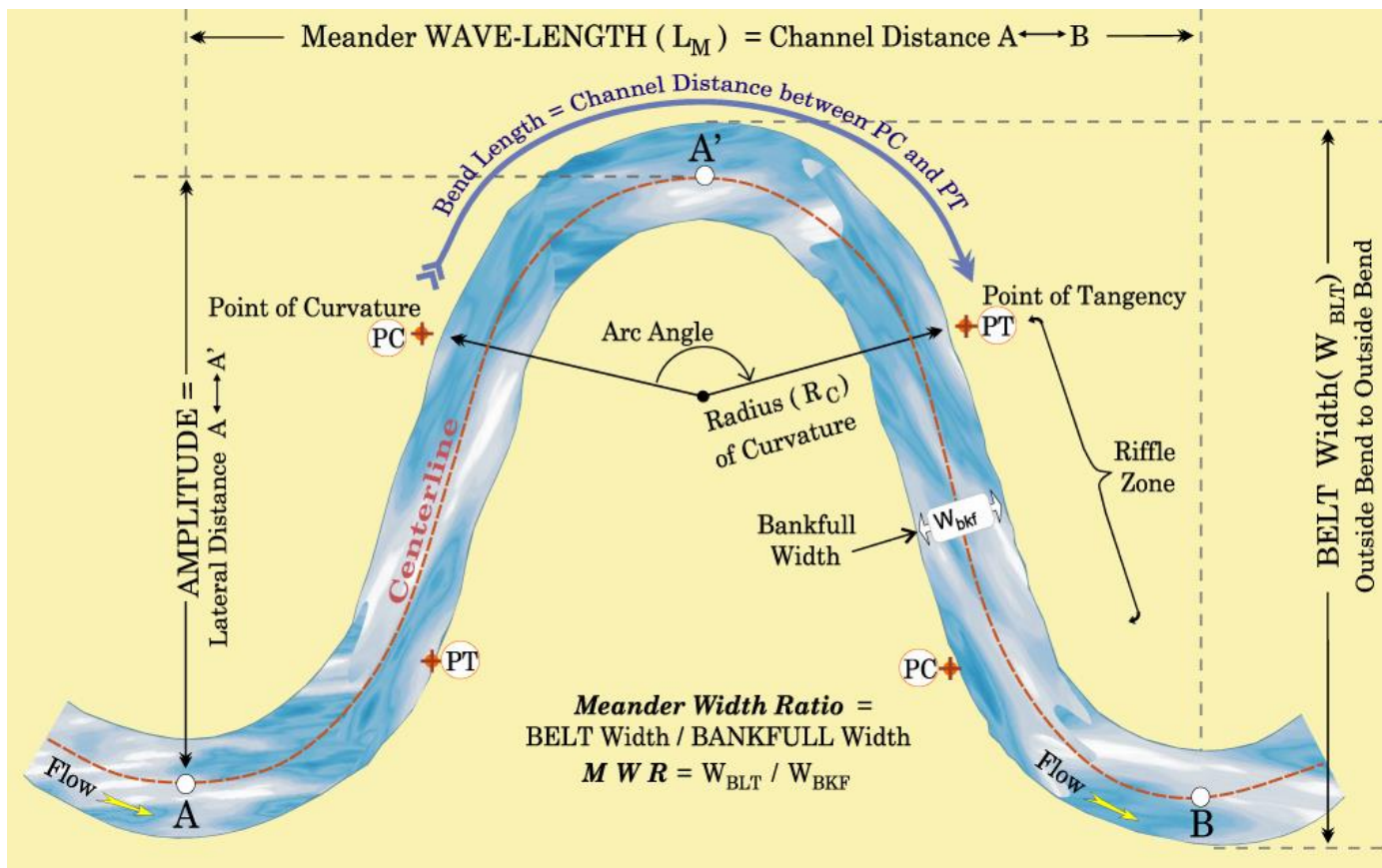


Figure 2. Channel geometry measurements (© Wildland Hydrology, Rosgen 2006).

Post-Project Survey Requirements for Habitat Improvement Projects

Repeat procedures for Pre-Project Survey above. Be sure to include cross-section surveys in the same locations as was completed in the Pre-Project Survey.

RB – Right Descending Bank	CR – Cover Rock	SH – Sky hook	SC – Stream crossing
Both – Both Banks	SRR – Small Road Rock	RW – Rock weir	CN – Channel narrowing
POR – Point of Reference	RR – Rip Rap	RV – Rock vein	RSH – Rock sky hook
SC – Stream crossing	FR – Flat Rock	RD – Rock deflector	RLS – Rock Lunger structure
		RWD – Root wad	WD – Woody Debris

Appendix D – Determining the need for an Environmental Assessment Worksheet (EAW)

Minnesota Administrative Rules – 4410.1000 Projects Requiring an EAW

<https://www.revisor.mn.gov/rules/?id=4410.1000>

Minnesota Administrative Rules – 4410.4300 Mandatory EAW categories

<https://www.revisor.mn.gov/rules/?id=4410.4300>

Subp. 26. Stream diversion.

Subp. 27. Wetlands and public waters.

Other sources of information may be available through the MNDNR Fisheries Supervisor or the MNDNR Hydrologist.

Survey Date:	
Stream Name and Kittle No:	River Mile:
Specific Reach Location:	UTM Easting:
Crew Name:	UTM Northing:



Setup laser tripod on a high spot to see a long river reach including Xsec & upstream start of longitudinal notes	cross section ID	bed feature	check 1		Benchmark Elevation			HI minus FS equal Elev.	FS bed	check 1		FS bankfull	user defined			azimuth AZ	
			incred't. distance	contin'us station	Turning Points					FS depth	FS FS		FS	FS	FS		
					BS	HI	FS										
			1 st set	100	BM elev												
2 nd record BS to BM >>>>	3 rd	calc. height instr: HI = BM+BS														4 th record FS unless water surface is recorded as depth	5 th rcd AZ from last pt

Pebble Count Recording Sheet



Survey Date:	
Stream Name and Kittle No.:	River mile:
Specific Reach Location:	UTM Easting:
Crew Name:	UTM Northing:

A reach is 2 meander wave lengths or 20 - 30 bkf widths	Bankfull elevation to bankfull elevation pebble counts						bed, bank, patch, etc.		
Pebble Count Options	Zigzag	Proportional transects Perpendicular to the bank 100 total				Classification	User defined		
dot-tally pattern, succession is 1 - 10 Material Size Range (mm)	at least 100	%	%	%	%	100%	Riffle		
	Total Reach Count	Riffle Count	Run Count	Pool Count	Glide Count	Total Reach Count	at least 100 Count	Count	Count
silt/clay 0 - 0.062									
very fine sand 0.062 - 0.125									
fine sand 0.125 - 0.25									
medium sand 0.25 - 0.5									
coarse sand 0.5 - 1									
very coarse sand 1 - 2									
very fine gravel 2 - 4									
fine gravel 4 - 6									
fine gravel 6 - 8									
medium gravel 8 - 11									
medium gravel 11 - 16									
coarse gravel 16 - 22									
coarse gravel 22 - 32									
very coarse gravel 32 - 45									
very coarse gravel 45 - 64									
small cobble 64 - 90									
medium cobble 90 - 128									
large cobble 128 - 180									
very large cobble 180 - 256									
small boulder 256 - 362									
small boulder 362 - 512									
medium boulder 512 - 1024									
large boulder 1024 - 2048									
very large boulder 2048 - 4096									
total particle count:									
<i>Note: Only particles are used in the pebble graph</i>									
bedrock -----									
clay hardpan -----									
detritus/wood -----									
artificial -----									
<i>Other material (above) are used</i> total count:									
<i>in the percentages(%sand, %gravel, %wood, etc.)</i>									
Notes:									

Appendix F. Example completion report.

Rev 04/09



Completion Report
(Habitat Development & Maintenance)

___ Development
___ Maintenance

Stream		Project		Project Number		Cooperative Partner	
Region	Area	County	Section	Township	Range		
Upstream UTM				Downstream UTM			
Date Work Started		Date Work Completed		Contact person & phone number			

Instructions:

- 1) The Project Coordinator in charge of the work is responsible for the preparation of Completion Reports and the submission of four (4) copies to the MNDNR Area Fisheries Office.
- 2) The Regional Fisheries Manager and Area Fisheries Supervisor are responsible for the review, approval, and distribution.
- 3) Distribution of copies: original plus one (1) copy to the St. Paul Office, one (1) copy to be retained at the Regional Office, and one (1) copy returned to the Area Office.

FINAL PROJECT COSTS (based on field records only)

Source of Funds

Aid (LSOHC, TUDARE, etc.)				Total
Salaries - Labor				
Salaried - Supervision				
Equipment Rental				
Travel & Subsistence				
Materials & Supplies				
Work Agreement				
Contract				
Totals				

Completion Report (Habitat Development & Maintenance)

DESCRIPTION OF WORK ACCOMPLISHED (additional space provided on following pages)

Work Item (key codes on following pages)	Description of Development or Maintenance	Cost

Report completed by:
Name: _____ Title: _____ Date: _____

Approved by:
Name: _____ Title: _____ Date: _____

Approved by:
Name: _____ Title: MNDNR Area Fisheries Supervisor Date: _____

Completion Report (Habitat Development & Maintenance)

DESCRIPTION OF WORK ACCOMPLISHED (Continued from previous page)

Work Item	Description of Development or Maintenance	Cost

Key Codes for Work Items

(See directive 3-202)

The following key codes require Minnesota Department of Natural Resources (MNDNR) approval and are required in any pre-project design planning. The work associated with many key codes are for MNDNR use only and this list should not be considered as acceptable for cooperative partner implementation without prior MNDNR approval.

- 1) Buildings
- 2) Dams, Dikes & Levees (permit required)
- 3) Canals, Channels or Ditches (permit required)
- 4) Bridges (permit required)
- 5) Roads & Trails
- 6) Telephone or Electric Lines
- 7) Fences
- 8) Public Use Facilities (MNDNR only)
- 9) Fishways, Screens & Barriers (MNDNR only)
- 10) A. Stream Improvements, B. Lake Improvements, C. Lake Rehabilitation
- 11) Signs & Boundary Markers (MNDNR only)
- 12) Planting Trees, Shrubs & Aquatics
- 13) Herbaceous Seeding
- 14) Thinning or Clearing
- 15) Noxious Vegetation Control
- 16) Population Control
- 17) Firebreaks (Method)
- 18) Fish or Wildlife Stocking
- 19) Crop Leasing
- 20) Rearing Ponds
- 21) Pothole Blasting & Dugouts
- 22) Fish Rescue Sites
- 23) Rough Fish Traps
- 24) Nesting Structures
- 25) Northern Pike Spawning Areas
- 26) Goose Management
- 27) Surveys & Inventories
- 28) Miscellaneous Cooperative Land Management Activities

Completion Report (Habitat Development & Maintenance)

DISCUSSION OF WORK ACCOMPLISHED (Objectives met, area of project benefits, etc.):