

July 2013 version

ENVIRONMENTAL ASSESSMENT WORKSHEET

This Environmental Assessment Worksheet (EAW) form and EAW Guidelines are available at the Environmental Quality Board's website at: The EQB webpage of Environmental Review Guidance Documents / <http://www.eqb.state.mn.us/EnvRevGuidanceDocuments.htm>. The EAW form provides information about a project that may have the potential for significant environmental effects. The EAW Guidelines provide additional detail and resources for completing the EAW form.

Cumulative potential effects can either be addressed under each applicable EAW Item, or can be addresses collectively under EAW Item 19.

Note to reviewers: Comments must be submitted to the RGU during the 30-day comment period following notice of the EAW in the *EQB Monitor*. Comments should address the accuracy and completeness of information, potential impacts that warrant further investigation and the need for an EIS.

1. Project title:

Solid Bottom Creek Restoration, Becker County

2. Proposer

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3. RGU

Contact person: Kate Frantz
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4. Reason for EAW Preparation: (check one)

Required:

- EIS Scoping
 Mandatory EAW

Discretionary:

- Citizen petition
 RGU discretion
 Proposer initiated

If EAW or EIS is mandatory give EQB rule category subpart number(s) and name(s): MN Rule 4410.4300 subpart 26, Stream Diversions

5. Project Location:

County: Becker
City/Township: Elbow Lake Village
PLS Location (¼, ¼, Section, Township, Range): NE, NE, Sec. 6, T. 142N, R. 38W
Watershed (81 major watershed scale): Ottertail River #56
GPS Coordinates: UTM 308021 5224644
Tax Parcel Number: 005-25055525

At a minimum attach each of the following to the EAW:

- County map showing the general location of the project; (See Figure 1)
- U.S. Geological Survey 7.5 minute, 1:24,000 scale map indicating project boundaries (photocopy acceptable); and (See Figures 2 and 3)
- Site plans showing all significant project and natural features. Pre-construction site plan and post-construction site plan. (See Figures 4, 5, 6 & 7)

6. Project Description:

- a. Provide the brief project summary to be published in the *EQB Monitor*, (approximately 50 words).

Solid Bottom Creek is a trout stream in Becker County that is eroding a steep hillside, contributing sediment to the stream and Elbow Lake. The DNR is proposing to move the stream away from the hillside, to reduce erosion and improve habitat conditions for brook trout and other species.

- b. Give a complete description of the proposed project and related new construction, including infrastructure needs. If the project is an expansion include a description of the existing facility. Emphasize: 1) construction, operation methods and features that will cause physical manipulation of the environment or will produce wastes, 2) modifications to existing equipment or industrial processes, 3) significant demolition, removal or remodeling of existing structures, and 4) timing and duration of construction activities.

Project Location and Overview. The Minnesota Department of Natural Resources (MDNR), Division of Fish and Wildlife proposes to relocate a 200 foot reach of Solid Bottom Creek in Round Lake North Township, Becker County. The project site is located between State Highway 113 and Elbow Lake (Figures 1, 2 & 3). The project site also has a MDNR angling easement which allows public access to the stream.

The proposed project involves excavating and realigning 200 ft. of Solid Bottom Creek that currently flows up against a steep erodible bank to reduce erosion, sedimentation and improve stream habitat (Figures 3, 4 & 5). The immediate watershed is forested and relatively undisturbed, however steep slopes and highly erodible soils have caused several steep banks to erode or partially collapse. Several of the steep banks farther upstream have revegetated and stabilized naturally. The steep bank that this project will address is continuing to erode and has not revegetated. A small bench will be created next to this eroded hillside and the old channel will be filled in. Over time it is anticipated that debris from the hillside will collect on this bench and stabilize naturally.

A 220 ft. temporary access road, utilizing an existing unimproved ATV trail, will be cleared to access the stream. Approximately 50 trees will be removed by an excavator and reused in the project to stabilize stream banks. The road will be widened an additional 10-15 ft. to allow excavator, front-end loader and dump truck access. Less than 10 cubic yards of gravel may be needed to fill in low spots or to firm up the road to support heavy equipment traffic. The access road is on private property and the MDNR will not be maintaining the road after the project is completed. Construction of 200 ft. of new stream channel of similar length, dimension and slope to the existing channel will require additional excavation and tree removal (Tables 1, 2, & 3). To reduce sedimentation, portions of the channel work will be constructed in the absence of flowing water by constructing channel blocks as necessary to maintain flows in the original channel. Channel blocks will be removed and flow will be restored to the new stream channel as the project

progresses. Materials excavated during construction may be stored on site in stockpile areas for later use during construction. Stockpiled material will be stored above bankfull elevation, but will be in close proximity to reduce equipment traffic and project footprint. Stockpiled material will be used or removed by the end of construction.

Excavated material will be used to fill the existing channel and reshape the floodplain. Existing floodplain elevation will be maintained to ensure floodplain connectivity during high flows. The project will also incorporate three toe-wood benches (Figure 6) utilizing trees removed during excavation to protect the outside bends of the new channel from erosion and provide habitat. The toe-wood benches improve fish habitat by providing overhead cover, shade, stream velocity gradient changes, and substrate for aquatic invertebrates. Four rock riffles (Figure 7) consisting of 80 cubic yards of a combination of class II and III riprap, 18 inch stone, small fill, and weir stones (Table 1) will be constructed to provide grade control against channel erosion and habitat diversity. Riffles are designed to mimic naturally occurring riffles upstream of the project site. No additional fill material will be used. It is expected that the area of excavation and disturbance will be approximately 0.4 acres, which includes 0.2 acres of open water in the original stream channel, and 0.2 acres of adjacent riparian wetland. The restoration project will create equivalent areas of open water by excavating a new stream channel and riparian wetland by filling the original stream channel with previously excavated material. Disturbed areas will be seeded with native wetland or upland seed mixes appropriate to northern Minnesota and covered with natural fiber erosion control fabric or mulched to prevent erosion. The project is expected to be constructed in October 2015 and take approximately three weeks to complete.

Angling access will not be restricted during construction, but angling opportunities in the 200 ft. construction site will be diminished during the three week construction timeframe. There will be no long-term impacts to the angling easement and angling opportunities should be improved once the project is completed.

c. Project magnitude:

Total Project Acreage	<0.4
Linear project length	Approx. 200 ft.
Number and type of residential units	N/A
Commercial building area (in square feet)	N/A
Industrial building area (in square feet)	N/A
Institutional building area (in square feet)	N/A
Other uses – specify (in square feet)	N/A
Structure height(s)	N/A

d. Explain the project purpose; if the project will be carried out by a governmental unit, explain the need for the project and identify its beneficiaries.

The primary purpose of the project is to improve habitat for trout and the cold-water stream community while reducing erosion and sedimentation within the proposed project area. The MDNR currently stocks brook trout in Solid Bottom Creek, and reducing sedimentation and improving habitat would improve brook trout survival and improve angling opportunities. In addition, the project is expected to reduce future erosion and sedimentation and improve downstream habitat and water quality. Improving habitat and water quality would also benefit other wildlife including reptiles, amphibians, birds and mammals that inhabit the riparian area. The proposed project can also serve as an example of stream restoration and trout habitat improvement techniques for future projects in northern Minnesota.

- e. Are future stages of this development including development on any other property planned or likely to happen?
Yes No
 If yes, briefly describe future stages, relationship to present project, timeline and plans for environmental review.
- f. Is this project a subsequent stage of an earlier project?
Yes No
 If yes, briefly describe the past development, timeline and any past environmental review.

7. Cover types: Estimate the acreage of the site with each of the following cover types before and after development:

	Before	After		Before	After
Wetlands	<0.2	<0.2	Lawn/landscaping	0	0
Deep water/streams	<0.2	<0.2	Impervious surface	0	0
Wooded/forest	0	0	Stormwater Pond	0	0
Brush/Grassland	0	0	Other (describe)		
Cropland	0	0			
			TOTAL	0.4	0.4

8. Permits and approvals required: List all known local, state and federal permits, approvals, certifications and financial assistance for the project. Include modifications of any existing permits, governmental review of plans and all direct and indirect forms of public financial assistance including bond guarantees, Tax Increment Financing and infrastructure. *All of these final decisions are prohibited until all appropriate environmental review has been completed. See Minnesota Rules, Chapter 4410.3100.*

<u>Unit of government</u>	<u>Type of application</u>	<u>Status</u>
Minnesota DNR	Work in Public Waters Permit	Application is submitted pending approval
U.S. Army Corps of Engineers	Clean Water Act, Section 404 Permit	Joint application with MDNR Public Waters Permit. Application submitted
MPCA	Clean Water Act, Section 401 Permit	Joint application with MDNR Public Waters Permit. Application submitted
Minnesota DNR	Wetlands Conservation Act	Application is submitted pending approval
State of MN	Lessard-Sams Outdoor Heritage Council	Approved - \$30,000

Cumulative potential effects may be considered and addressed in response to individual EAW Item Nos. 9-18, or the RGU can address all cumulative potential effects in response to EAW Item No. 19. If addressing cumulative effect under individual items, make sure to include information requested in EAW Item No. 19

9. Land use:

a. Describe:

- i. Existing land use of the site as well as areas adjacent to and near the site, including parks, trails, prime or unique farmlands.

The project site is unmaintained forest land and adjacent land is Elbow Lake recreational area or residential housing (Figure 1). The MDNR holds a permanent easement on the project site, which allows fisheries management in cooperation with the landowner; as well as access to the stream for construction, continued fisheries management and angler access. Stream bank erosion at the project location is a naturally occurring process where the channel runs along the steep valley wall comprised of erodible soils. The stream reach is heavily forested and the erosion does not appear to be the result of current land use practices. The restoration project will be compatible with existing land use.

- ii. Plans. Describe planned land use as identified in comprehensive plan (if available) and any other applicable plan for land use, water, or resources management by a local, regional, state, or federal agency.

The Becker County Comprehensive Plan does not address specific planned land use for the project area, however the plan does make reference to preserving and improving forest riparian areas, improving private conservation efforts and coordinating with state and federal natural resource agencies.

The Becker County Water Plan mentions maintaining habitat needs for fish and wildlife in lakes and streams and protecting these habitats as important resources for the County's tourism, recreation industry and local residents improved quality of life. The plan also mentions sediment entering streams from stream bank erosion as a potential threat to water quality.

This project would be consistent with the goals of the Becker County Comprehensive Plan and the Becker County Water Plan.

The MDNR Detroit Lakes Area Fisheries Office has fish management plans for Solid Bottom Creek and Elbow Lake as well as a statewide Fish Habitat Plan. The project would be consistent with the goals of these plans.

- iii. Zoning, including special districts or overlays such as shoreland, floodplain, wild and scenic rivers, critical area, agricultural preserves, etc.

The project location is zoned residential and is within the floodplain of Solid Bottom Creek. No special districts or overlays were known to apply to the project area using Becker County's Planning and Zoning website. MDNR trout stream habitat improvement projects, have been considered acceptable practices and consistent with uses in shoreland zoning districts and floodplains.

- b. Discuss the project's compatibility with nearby land uses, zoning, and plans listed in Item 9a above, concentrating on implications for environmental effects.

The property is forested and managed as a resort for guests visiting Elbow Lake. The stream restoration project is supported by the landowner and will improve habitat and recreational opportunities for resort guests and area anglers. One of the natural resource goals of the

Becker County Comprehensive Plan is to manage resources to, "... protect, enhance, and restore habitat to support fish and wildlife populations." This project is consistent with this goal. Restoring and enhancing stream habitat is also consistent with the MDNR's Solid Bottom Creek management plan and statewide Fish Habitat Plan.

- c. Identify measures incorporated into the proposed project to mitigate any potential incompatibility as discussed in Item 9b above.

Reducing or controlling sediment and erosion are mentioned in both Becker County Comprehensive and Water Plans. It is expected that during construction there will be some short-term erosion and sedimentation. To minimize these effects, the newly constructed channel will not be connected to stream flow until it is completed and stabilized, reducing sedimentation. Stream banks, access road and other disturbed soils will be kept to a minimum and be revegetated as soon as possible. Erosion control blankets will be used to stabilize steeper slopes. The project is compatible with existing land use, Becker County Comprehensive Plan, Becker County Water Plan and current zoning.

10. Geology, soils and topography/land forms:

- a. Geology - Describe the geology underlying the project area and identify and map any susceptible geologic features such as sinkholes, shallow limestone formations, unconfined/shallow aquifers, or karst conditions. Discuss any limitations of these features for the project and any effects the project could have on these features. Identify any project designs or mitigation measures to address effects to geologic features.

The project location is part of the Round Lake Sand Plain and was formerly part of glacial Lake Agassiz. There are no known sinkholes, shallow limestone formations, or shallow aquifers in the project site. In addition the project involves shallow excavation of less than 3 ft. The project should have no geologic environmental consequences.

- b. Soils and topography - Describe the soils on the site, giving NRCS (SCS) classifications and descriptions, including limitations of soils. Describe topography, any special site conditions relating to erosion potential, soil stability or other soils limitations, such as steep slopes, highly permeable soils. Provide estimated volume and acreage of soil excavation and/or grading. Discuss impacts from project activities (distinguish between construction and operational activities) related to soils and topography. Identify measures during and after project construction to address soil limitations including stabilization, soil corrections or other measures. Erosion/sedimentation control related to stormwater runoff should be addressed in response to Item 11.b.ii.

The NRCS soil classification is 1291 Sedgeville loam, frequently flooded, which is described as loamy over sandy alluvium found in floodplains. Soils are very poorly drained and at or near the water table, with flat topography from 0 to 2% slope. Excavation of the new stream channel is estimated at 450 cubic yards which will be used to fill the existing channel (Table 1 and Figure 4). Any remaining material will be spread adjacent to the project site and reseeded. Due to the poorly drained nature of the soil and potential for springtime flooding, the project is proposed to be constructed in the fall, when stream flows should be low and riparian soils should be dry. Short-term erosion is to be expected during stream channel construction. Disturbed soils and sites will be kept to a minimum and will be revegetated as soon as possible following construction. Erosion control blankets will be used to limit effects on exposed banks and steeper slopes. The erosion and sedimentation control practices identified are intended to be carefully followed to limit and minimize effects.

NOTE: For silica sand projects, the EAW must include a hydrogeologic investigation assessing the potential groundwater and surface water effects and geologic conditions that could create an increased risk of potentially significant effects on groundwater and surface water. Descriptions of water resources and potential effects from the project in EAW Item 11 must be consistent with the geology, soils and topography/land forms and potential effects described in EAW Item 10.

11. Water resources:

- a. Describe surface water and groundwater features on or near the site in a.i. and a.ii. below.
 - i. Surface water - lakes, streams, wetlands, intermittent channels, and county/judicial ditches. Include any special designations such as public waters, trout stream/lake, wildlife lakes, migratory waterfowl feeding/resting lake, and outstanding resource value water. Include water quality impairments or special designations listed on the current MPCA 303d Impaired Waters List that are within 1 mile of the project. Include DNR Public Waters Inventory number(s), if any.

Solid Bottom Creek is a designated trout stream and identified as Kittle Number H-26-081-042. Elbow Lake (ID # 3115900) is the downstream receiving water. According to Minnesota Rule 7050.0470 the water use classification for Solid Bottom Creek is 1B, 2A, 3B. This classification refers to streams that are suitable for domestic consumption, support aquatic life and recreation and may be considered as a supply for industrial processes. Elbow Lake is a 985-acre mesotrophic lake with moderate development. There are no MPCA 303d impaired waters within 1 mile of the project location. The site footprint is 0.4 acres, of which 0.2 acres are open water (stream channel) and 0.2 acres are floodplain forest.

- ii. Groundwater – aquifers, springs, seeps. Include: 1) depth to groundwater; 2) if project is within a MDH wellhead protection area; 3) identification of any onsite and/or nearby wells, including unique numbers and well logs if available. If there are no wells known on site or nearby, explain the methodology used to determine this.

Depth to groundwater is 0 inches based on NRCS soil classification; however onsite inspection indicates that groundwater is likely at or near stream water surface which is approximately 3 ft. below ground surface. An MDNR monitored well near Zerkel shows the water table is 34 ft. below the surface and describes the aquifer as a water table aquifer. The rolling nature of the topography likely explains the differences in onsite groundwater levels vs the MDNR monitored well. The area contains springs which are responsible for the cool stream temperatures that support trout. This project would not impact spring flow or groundwater levels. The project site is not within a Minnesota Department of Health (MDH) wellhead protection area. The MDH's County Well Index lists the nearest well (inventory number 733295) 700 ft. away. Well log information shows clay from 1 to 75 ft. and sand from 75 to 98 ft.

- b. Describe effects from project activities on water resources and measures to minimize or mitigate the effects in Item b.i. through Item b.iv. below.
 - i. Wastewater - For each of the following, describe the sources, quantities and composition of all sanitary, municipal/domestic and industrial wastewater produced or treated at the site.

There will be no wastewater produced during the project.

- 1) If the wastewater discharge is to a publicly owned treatment facility, identify any pretreatment measures and the ability of the facility to handle the added water and waste loadings, including any effects on, or required expansion of, municipal wastewater infrastructure.

N/A

- 2) If the wastewater discharge is to a subsurface sewage treatment systems (SSTS), describe the system used, the design flow, and suitability of site conditions for such a system.

N/A

- 3) If the wastewater discharge is to surface water, identify the wastewater treatment methods and identify discharge points and proposed effluent limitations to mitigate impacts. Discuss any effects to surface or groundwater from wastewater discharges.

N/A

- ii. Stormwater - Describe the quantity and quality of stormwater runoff at the site prior to and post construction. Include the routes and receiving water bodies for runoff from the site (major downstream water bodies as well as the immediate receiving waters). Discuss any environmental effects from stormwater discharges. Describe stormwater pollution prevention plans including temporary and permanent runoff controls and potential BMP site locations to manage or treat stormwater runoff. Identify specific erosion control, sedimentation control or stabilization measures to address soil limitations during and after project construction.

The area to be disturbed during construction is floodplain forest and is relatively flat. Existing overland stormwater runoff adjacent to the project site would be considered minimal and carry little sediment due to the undisturbed forested nature of the area. Stormwater runoff adjacent to the site will remain unchanged once the project is completed and revegetated. One of the primary goals of the project is to reduce streambank erosion which naturally increases as discharge increases from stormwater runoff in the upstream watershed. The project will move the stream channel away from a steep eroding bank which will reduce future streambank erosion.

The project is scheduled to be constructed in the fall during dry conditions to reduce potential runoff and erosion. It is anticipated that the project will take three weeks to construct thereby minimizing potential for stormwater discharge. After construction, disturbed soils will be seeded with a native wet sedge meadow seed mix and covered with natural fiber erosion control fabric adjacent to the stream and mulched in the upland areas to encourage quick revegetation. Some increase in runoff is expected until the site becomes revegetated. The disturbed area is < 1.0 acre and no construction stormwater permit is required. Solid Bottom Creek is the immediate receiving water and Elbow Lake (ID # 3115900) is the downstream receiving water.

- iii. Water appropriation - Describe if the project proposes to appropriate surface or groundwater (including dewatering). Describe the source, quantity, duration, use and purpose of the water use and if a DNR water appropriation permit is required. Describe any well abandonment. If connecting to an existing municipal water supply, identify the wells to be used as a water source and any effects on, or required expansion of, municipal water infrastructure. Discuss environmental effects from water appropriation, including an assessment of the water resources available for appropriation. Identify any measures to avoid, minimize, or mitigate environmental effects from the water appropriation.

No water will be appropriated with this project. The original stream channel will be dewatered when stream flow is connected to the new stream channel.

- iv. Surface Waters

- (1) Wetlands - Describe any anticipated physical effects or alterations to wetland features such as draining, filling, permanent inundation, dredging and vegetative removal. Discuss direct and indirect environmental effects from physical modification of wetlands, including the anticipated effects that any proposed wetland alterations may have to the host watershed. Identify measures to avoid (e.g., available alternatives that were considered), minimize, or mitigate environmental effects to wetlands. Discuss whether any required compensatory wetland mitigation for unavoidable wetland impacts will occur in the same minor or major watershed, and identify those probable locations.

The project will move the stream channel away from an eroding bank which will involve excavating in a wetland on the west side of the channel, but will also create an equal amount of wetland on the east side of the channel (Figure 4). Since an equivalent wetland (type and area) is created, no mitigation is necessary. The newly created wetland will be at the same elevation and will have the same hydraulic connection to ground and surface water as the excavated wetland. The newly created wetland will be planted with willow stakes and seeded with a native wet meadow mix to restore vegetation. It is not possible to avoid the wetland and move the stream channel away from the steep eroding bank. No other future wetland mitigation in the immediate watershed is currently known.

A Joint Application Form for Activities Affecting Water Resources in Minnesota was submitted to the MDNR Hydrologist and to the US Army Corps of Engineers. The MDNR is acting as the Local Government Unit and has issued a Notice of Decision determining that the project will result in no loss according to Minnesota Rule 8420.0415 subpart D.

- (2) Other surface waters- Describe any anticipated physical effects or alterations to surface water features (lakes, streams, ponds, intermittent channels, county/judicial ditches) such as draining, filling, permanent inundation, dredging, diking, stream diversion, impoundment, aquatic plant removal and riparian alteration. Discuss direct and indirect environmental effects from physical modification of water features. Identify measures to avoid, minimize, or mitigate environmental effects to surface water features, including in-water Best Management Practices that are proposed to avoid or minimize turbidity/sedimentation while physically altering the water features. Discuss how the project will change the number or type of watercraft on any water body, including current and projected watercraft usage.

The project proposes to move the stream channel away from a steep eroding bank which will involve filling in approximately 200 ft. of the existing stream channel and creating a

new stream channel of equal length and dimension away from the eroding bank (Figure 4). The new stream channel is designed to mimic a stable natural channel including meanders, pools and riffles which will reduce in-channel scour and erosion (Figures 4, 6 & 7 and Tables 2 & 3). The new channel will also incorporate woody debris at the outside bends (Figure 6) to reduce erosion and further collapsing of the steep erodible bank.

The new stream channel will be constructed first, maintaining a soil berm at the upper end to prevent water flowing in the channel as it is constructed to reduce scour and erosion. The downstream section of the channel will also include a soil berm parallel to the existing channel to separate construction of the new channel from existing stream flow. Some short-term turbidity is expected when the newly constructed channel is reconnected to the natural stream. Much of this turbidity is expected to settle out in the downstream reaches of Solid Bottom Creek before entering Elbow Lake. Turbidity due to construction activities is expected to be less than natural turbidity generated during spring runoff. In addition, the project is expected to take less than three weeks to construct, limiting the likelihood of exposure to rainstorms or flooding to cause erosion. Existing riparian area elevations will be maintained to allow connection to the floodplain and will not impact potential flooding downstream. The riparian area will be revegetated using native seed and willow stakes to restore native vegetation. The stream is too shallow to reasonably float canoes or kayaks, therefore watercraft usage will not be impacted.

12. Contamination/Hazardous Materials/Wastes:

- a. Pre-project site conditions - Describe existing contamination or potential environmental hazards on or in close proximity to the project site such as soil or ground water contamination, abandoned dumps, closed landfills, existing or abandoned storage tanks, and hazardous liquid or gas pipelines. Discuss any potential environmental effects from pre-project site conditions that would be caused or exacerbated by project construction and operation. Identify measures to avoid, minimize or mitigate adverse effects from existing contamination or potential environmental hazards. Include development of a Contingency Plan or Response Action Plan.

There are no known pre-project contamination or environmental hazards in the project location.

- b. Project related generation/storage of solid wastes - Describe solid wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from solid waste handling, storage and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of solid waste including source reduction and recycling.

No solid wastes will be generated.

- c. Project related use/storage of hazardous materials - Describe chemicals/hazardous materials used/stored during construction and/or operation of the project including method of storage. Indicate the number, location and size of any above or below ground tanks to store petroleum or other materials. Discuss potential environmental effects from accidental spill or release of hazardous materials. Identify measures to avoid, minimize or mitigate adverse effects from the use/storage of chemicals/hazardous materials including source reduction and recycling. Include development of a spill prevention plan.

During construction and installation activities, fuels, oils, lubricants, and other hazardous materials would be used during equipment operations. An accidental release or spill of any of these

substances could occur. A spill could result in potentially adverse effects to on-site soils. However, the amounts of fuel and other lubricants and oils would be limited, and the equipment needed to quickly limit any contamination would be located on site. To minimize the likelihood of potential spills and leaks of petroleum and hydraulic fluids during project construction, equipment will be inspected daily for leaks and petroleum contamination and equipment will operate away from open water as much as possible. Additionally, a Spill Prevention Control and Containment Plan designed to reduce effects from spills (fuel, hydraulic fluid, etc.) will be prepared and implemented prior to the start of construction.

- d. Project related generation/storage of hazardous wastes - Describe hazardous wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from hazardous waste handling, storage, and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of hazardous waste including source reduction and recycling.

The project will not generate any hazardous wastes.

13. Fish, wildlife, plant communities, and sensitive ecological resources (rare features):

- a. Describe fish and wildlife resources as well as habitats and vegetation on or in near the site.

The ecological land type is described as a Laurentian Mixed Forest. Project site vegetation consists of mixed hardwood forest with ash, oak and maple being the most common tree species. Riparian vegetation consists of grasses, sedges, willow and alder. Solid Bottom Creek is a designated trout stream, currently stocked and managed for brook trout. Several springs in the area contribute groundwater to the stream sufficiently to support brook trout. Several other fish species including bluegill, pumpkinseed sunfish, spotfin shiner, creek chub and blacknose dace also inhabit the stream. Streams with enough spring flow to support trout are unique, especially in western Minnesota. Deer, furbearers, reptiles and amphibians are also common along the stream corridor.

- b. Describe rare features such as state-listed (endangered, threatened or special concern) species, native plant communities, Minnesota County Biological Survey Sites of Biodiversity Significance, and other sensitive ecological resources on or within close proximity to the site. Provide the license agreement number (LA-___) and/or correspondence number (ERDB 201500216) from which the data were obtained and attach the Natural Heritage letter from the DNR. Indicate if any additional habitat or species survey work has been conducted within the site and describe the results.

A MDNR internal Natural Heritage Database review in 2011 determined that the native sedge meadow plant community was identified as a Site of Moderate Biodiversity Significance by the County Biological Survey (Table 4). A formal review of the Natural Heritage Database in 2015 (Attachment 1) listed two species, the least darter and the northern long-eared bat that may be affected by the project. No additional habitat or survey work has been completed within the site.

- c. Discuss how the identified fish, wildlife, plant communities, rare features and ecosystems may be affected by the project. Include a discussion on introduction and spread of invasive species from the project construction and operation. Separately discuss effects to known threatened and endangered species.

The plant community would be temporarily affected through heavy equipment traffic, vegetation clearing and excavation. The existing access road will need to be widened to permit access for a front-end loader and excavator. Some trees and vegetation will be removed. Additional

excavation and vegetation removal will occur to construct the new stream channel. The expected foot print for the project is expected to be approximately 0.4 acres.

The MDNR maintains a strict policy to prevent the spread of invasive species. All equipment used during construction is pressure washed to remove soil or other debris before being transported to the project site. In addition, the equipment will be thoroughly cleaned before being transported to the next construction project. Soils or rock used in the project are inspected or purchased from certified invasive species free sources. Materials will be purchased locally as much as possible. Native seed mixes will be used to ensure revegetation is compatible with existing vegetation. It is anticipated that much of the woody debris used for bank stabilization will be obtained on site, which reduces the likelihood of spreading invasive species.

Least darter (state species of special concern) was sampled in Elbow Lake downstream of the project in 2004, however they have not been sampled in Solid Bottom Creek in MDNR fishery assessments in 2006 or 2009. This species prefers crystal clear, low velocity streams and lakes with cool to warm waters. They are strongly associated with pools of water that have dense, submerged aquatic vegetation. They are vulnerable to pollution, pesticides, agricultural and urban runoff, eutrophication, and loss of habitat elements such as low velocity waters and aquatic vegetation. Other potential threats to this species include loss of forested habitats around streams, stream reclamation, and the introduction of non-native and predatory fish species. Maintenance of high quality water systems is recommended for this species.

The short-term effects to the least darter should be minimal. Long-term impacts should be positive due to reduced sedimentation and erosion. The project footprint is small and will only temporarily impact 200 ft. of stream. Fish and other aquatic species will experience increased stream turbidity for short periods while the project is being constructed. Long-term effects should include reduced turbidity and sedimentation as the stream will be moved away from a steep eroding bank.

The project is within the range of the northern long-eared bat (NLEB), which is a state species of special concern and federal threatened species, however NLEB has not been surveyed or known to specifically be present within the 0.4 acre project site. The project site is forested and approximately 50 small diameter trees will need to be removed for heavy equipment access. U.S. Fish and Wildlife Service (USFWS) guidelines refer to projects that remove trees from > 1 acre as having potential to impact NLEB. Tree removal with this project will be < 1 acre and meets the "Minimal tree removal" threshold in the interim USFWS guidelines. Although the number of trees to be removed is relatively small, if roosting bats are present, they may be disturbed during clearing and excavation.

- d. Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to fish, wildlife, plant communities, and sensitive ecological resources.

Impacts to plant communities should be limited due to the small footprint of the project area. An existing trail to the project area will be used to access the project site minimizing disturbance to the upland forest. The project is scheduled to be constructed in the fall when soils are dry to reduce rutting, compaction and soil disturbance. Soft soils or sensitive areas will be flagged to avoid disturbance. Impacts to fish and wildlife are expected to be temporary due to the short construction period. Any visible mussels or stranded fish will be manually relocated before the original channel is filled. Erosion control blanket, straw mulch and replanting with a native wet sedge meadow seed mix will be used to minimize soil erosion on exposed stream banks and upland areas. These practices closely follow the six recommendations in the Natural Heritage Review (Table 4) which focused on reducing disturbance to the plant community.

To minimize impacts to the least darter, all fish in the original channel will be collected using electrofishing equipment and relocated prior to draining and filling the original channel. The newly constructed channel will not be connected to flowing water until it is completed to minimize erosion and sedimentation impacts downstream. Construction is scheduled to take place in late summer or early fall which is outside of the spawning season for the least darter and during low water to minimize turbidity. Utilizing these practices, long-term impacts are expected to be minimal.

Impacts to the northern long-eared bat will be minimized by removing less than 50 trees and attempting to save or work around larger trees which may serve as roosting habitat. In addition, the project will only disturb approximately 0.4 acres. The project is scheduled to take place in late summer or early fall which follows U.S. Fish and Wildlife Service interim guidance is to avoid tree removal from April 1 to September 30th. The interim guidance is nonbinding and efforts will be made to avoid this time period, however scheduling conflicts with other projects may necessitate tree removal earlier than the September 30th guideline.

14. Historic properties:

Describe any historic structures, archeological sites, and/or traditional cultural properties on or in close proximity to the site. Include: 1) historic designations, 2) known artifact areas, and 3) architectural features. Attach letter received from the State Historic Preservation Office (SHPO). Discuss any anticipated effects to historic properties during project construction and operation. Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to historic properties.

A MDNR archaeologist review of the site concluded that no historical properties will be affected. The review was sent to SHPO for their review and they concluded that there were no properties listed in the National or State Registers of Historic Places or archaeological properties that will be affected by this project (Attachment 2).

15. Visual:

Describe any scenic views or vistas on or near the project site. Describe any project related visual effects such as vapor plumes or glare from intense lights. Discuss the potential visual effects from the project. Identify any measures to avoid, minimize, or mitigate visual effects.

The project site is in a stream bottom below a steep bluff and is not readily visible from a distance. Neighboring properties are screened by trees and the rolling topography. The project will incorporate natural channel design, use natural materials and once revegetated should be indistinguishable from the surrounding area. No additional measures are necessary to mitigate for visual impacts.

16. Air:

- a. Stationary source emissions - Describe the type, sources, quantities and compositions of any emissions from stationary sources such as boilers or exhaust stacks. Include any hazardous air pollutants, criteria pollutants, and any greenhouse gases. Discuss effects to air quality including any sensitive receptors, human health or applicable regulatory criteria. Include a discussion of any methods used assess the project's effect on air quality and the results of that assessment. Identify pollution control equipment and other measures that will be taken to avoid, minimize, or mitigate adverse effects from stationary source emissions.

The project will not involve construction of stationary equipment.

- b. Vehicle emissions - Describe the effect of the project's traffic generation on air emissions. Discuss the project's vehicle-related emissions effect on air quality. Identify measures (e.g. traffic operational improvements, diesel idling minimization plan) that will be taken to minimize or mitigate vehicle-related emissions.

Project construction activities will generate typical vehicle emissions that are associated with earth moving equipment. The project is expected to take approximately three weeks for construction so vehicle-related emission effects on air quality will be short term. Steps will be taken to minimize unnecessary idling and the number of trips heavy equipment will take to and from the project site. Approximately eight truck deliveries will be needed to the site to deliver the 80 cubic yards of fill material for the project. The project site is not heavily populated and there are no nearby sensitive areas such as schools or hospitals. The project should not impact air quality of neighboring properties. No additional steps are necessary to minimize vehicle related emissions.

- c. Dust and odors - Describe sources, characteristics, duration, quantities, and intensity of dust and odors generated during project construction and operation. (Fugitive dust may be discussed under item 16a). Discuss the effect of dust and odors in the vicinity of the project including nearby sensitive receptors and quality of life. Identify measures that will be taken to minimize or mitigate the effects of dust and odors.

The soil in the project area is relatively moist even in dry conditions, so minimal dust will be generated from excavation and site restoration activities. Odors will be limited to diesel exhaust emissions typical of earth moving equipment. The project is expected to be constructed in approximately three weeks and effects of dust and odors would be short term. The project site is not heavily populated; it is heavily forested and is at the base of a steep bluff. The nearest residence is approximately 500 ft. away (Figure 3) and should not be impacted by dust or odors. Truck traffic and idling will be minimized to avoid affecting neighboring properties.

17. Noise

Describe sources, characteristics, duration, quantities, and intensity of noise generated during project construction and operation. Discuss the effect of noise in the vicinity of the project including 1) existing noise levels/sources in the area, 2) nearby sensitive receptors, 3) conformance to state noise standards, and 4) quality of life. Identify measures that will be taken to minimize or mitigate the effects of noise.

The property is rural and managed as a resort and neighboring properties are residential or seasonally residential. The project is scheduled to be constructed in the fall when resort occupancy is lower. The project area would be considered quiet and although neighboring properties will be minimally affected; vegetation, rolling topography and distance to the construction site will dampen noise levels. The property owner is supportive of the project and is approximately 500 ft. from the project site. The next closest neighbor is approximately 800 ft. away. No sensitive sites such as schools or hospitals will be affected. Project construction noise will be typical of earth moving equipment consisting of motor noise, rock on metal, and safety backup alarms on construction vehicles. Noise levels would be similar to heavy truck traffic which measures 80 dba. Distance to neighboring properties and heavy vegetation will dampen noise levels to meet the state standard of not exceeding 60 dba 50% of the time. Quality of life of neighboring property owners will be minimally affected. Delivery of materials and equipment will be coordinated to minimize the number of trips to and from the construction site and equipment will only be operated from 7:00 am to 7:00 pm.

18. Transportation

- a. Describe traffic-related aspects of project construction and operation. Include: 1) existing and proposed additional parking spaces, 2) estimated total average daily traffic generated, 3) estimated maximum peak hour traffic generated and time of occurrence, 4) indicate source of trip generation rates used in the estimates, and 5) availability of transit and/or other alternative transportation modes.

Construction equipment parking and access to the project site will be through private property thus there is expected to be minimal traffic across public roads. The access trail to the project site is currently 220 ft. and is suitable for ATV or small truck access. The trail will need to be temporarily widened an additional 10-15 ft. to accommodate heavy equipment such as front end loaders and dump trucks. Limited tree removal and gravel fill may be needed to upgrade the existing access trail. There should be little to no additional traffic to the project site after completion since the road is on private property and an access trail previously existed. Additional information regarding trail development is in section 6b. Parking is adequate and no additional clearing will be needed. Rock and soil quantities used in the project are small (Table 1) and approximately eight deliveries are expected. Following construction, no maintenance to the access trail is proposed. Additional information can be found in section 16b.

- b. Discuss the effect on traffic congestion on affected roads and describe any traffic improvements necessary. The analysis must discuss the project's impact on the regional transportation system. *If the peak hour traffic generated exceeds 250 vehicles or the total daily trips exceeds 2,500, a traffic impact study must be prepared as part of the EAW.* Use the format and procedures described in the Minnesota Department of Transportation's Access Management Manual, Chapter 5 (*available at: <http://www.dot.state.mn.us/accessmanagement/resources.html>*) or a similar local guidance,

Existing traffic on adjacent state highways and county roads is light and traffic associated with this project would be less than 10 daily trips limited to the three-week construction period. There is no additional traffic congestion expected to be associated with this project.

- c. Identify measures that will be taken to minimize or mitigate project related transportation effects.

Heavy equipment will be parked on site to eliminate daily trips to and from the project site, and delivery of materials will be coordinated to reduce the number daily trips.

19. Cumulative potential effects: (Preparers can leave this item blank if cumulative potential effects are addressed under the applicable EAW Items)

- a. Describe the geographic scales and timeframes of the project related environmental effects that could combine with other environmental effects resulting in cumulative potential effects.

Potential environmental effects associated with the project that may combine to result in cumulative environmental effects include: temporary disturbance or displacement of fish, wildlife and habitats, tree and vegetation removal disrupting plant communities, sedimentation, turbidity and runoff affecting water resources during construction, air and noise impacts during construction. Based on the estimated construction timeframe of three weeks to complete the project, the majority of environmental effects which could contribute to cumulative potential environmental effects are anticipated to occur over the short term. The material removed from the excavated channel will contain rooted vegetation and require little additional restoration upon placement (mostly in and around the old channel location). Any remaining revegetation will be completed immediately following construction. It is anticipated that all disturbed areas

would be completely restored with perennial native vegetation within 1 year.

The environmentally relevant area for all of the listed environmental effects includes the small footprint of the project site and access to the site. In addition, the environmentally relevant area for effects on water resources includes some additional waters immediately downstream to the extent that stream flow may carry runoff and sedimentation towards Elbow Lake. Solid Bottom Creek including tributaries is roughly 9.5 miles long, however, the geographic scale of this project is largely within the 200 ft. of stream and 220 ft. of access road immediately adjacent to Solid Bottom Creek. The disturbed area is < 1.0 acre.

Fish and Wildlife:

Fish and other aquatic species will experience increased stream turbidity for short periods while the project is being constructed. While presence of the least darter (*Etheostoma microperca*) has not been documented within Solid Bottom Creek, it was found downstream in Elbow Lake in 2012. There is the potential for temporarily decreased water quality affecting it and its habitat during construction. Long term effects of the project would improve habitat for the least darter.

The northern long-eared bat has not been identified in the project area, although the project is within the range of the northern long-eared bat habitat. Tree removal associated with the project would total less than 1 acre and would meet the “minimal tree removal” threshold in USFWS guidelines. Potential effects include increased sedimentation and turbidity in the stream and loss of habitat for wildlife due to excavation and construction.

Plant Communities:

The proposed project would require temporarily widening an ATV access road for construction equipment to access the site which would impact surrounding plant communities. In addition, construction of a new channel requires excavation and tree removal. Uprooting plants and removing trees will also affect wildlife habitat in the immediate area.

Water resources:

The proposed project will affect surface water by placing channel blocks in the stream and re-directing the water into the new channel once it's built. These actions may contribute to higher sedimentation and turbidity following construction of the project. Stormwater runoff is expected to be higher than normal until revegetation surrounding the site occurs. While Solid Bottom Creek would be directly impacted during construction, impacts would be expected to lessen downstream. Elbow Lake, the downstream receiving water, is not expected to receive more than a negligible increase in sediment during construction, and no increased effects following construction.

The project will also involve excavation in a wetland on the west side of the channel, but will also create an equal amount of wetland on the east side of the channel at the same elevation hydraulic connection to ground and surface water as the excavated wetland. Short-term increase in turbidity is expected when the newly constructed channel is reconnected to the natural stream; however, many of the solids contributing to the turbidity are expected to settle in the downstream reaches of Solid Bottom Creek, limiting environmental effects in downstream Elbow Lake. Additional turbidity due to construction activities is expected to be less than natural turbidity generated during spring runoff. It is expected that the area of excavation and disturbance will be approximately 0.4 acres, which includes 0.2 acres of open water in the original stream channel, and 0.2 acres of adjacent riparian wetland.

Air/Noise:

Project construction activities will produce exhaust emissions, dust and noise typical of earth moving equipment. Air quality may be affected temporarily by exhaust emissions and dust from

this equipment. Project construction noise will consist of motor noise, rock on metal, and safety backup alarms on construction vehicles. Noise levels would be similar to heavy truck traffic which measures approximately 80 dba while construction is taking place. The project is expected to take approximately three weeks for construction and effects on air quality and noise will be limited to this short period.

- b. Describe any reasonably foreseeable future projects (for which a basis of expectation has been laid) that may interact with environmental effects of the proposed project within the geographic scales and timeframes identified above.

Becker County Highway Department and the Soil and Water Conservation District were contacted to identify any reasonably foreseeable future projects in the area. No reasonably foreseeable future projects were identified within the geographic scale and timeframe of the proposed project and associated environmental effects. Therefore, no other projects are known to be proposed in the nearby or surrounding areas during this timeframe that would contribute to cumulative potential effects.

- c. Discuss the nature of the cumulative potential effects and summarize any other available information relevant to determining whether there is potential for significant environmental effects due to these cumulative effects.

Cumulative potential effects are limited to those created by this project. Environmental effects resulting from the project would be expected to be temporary in nature and minor. Additionally, following project completion, the affected environment is expected to benefit from improved water quality and improved stream stability.

Mitigation measures and best management practices have been identified and will be utilized to minimize impacts. To reduce impacts to fish, all fish in the original channel will be collected using electrofishing equipment and relocated prior to draining and filling the original channel. Any visible mussels or stranded fish will be manually relocated before the original channel is filled.

Construction is scheduled to take place outside of the spawning season for the least darter and other aquatic species. To reduce impacts to wildlife, efforts will be made to save or work around larger trees which may serve as roosting habitat for potentially affected bat species.

To reduce impacts on water resources, the project is proposed to be constructed in the fall, when stream flows are lower and riparian soils are drier. This project construction timeframe will also help to reduce impacts to soil when soils are dry to reduce rutting, compaction and soil disturbance. Dry conditions will also help reduce potential runoff and erosion. Soft soils or sensitive areas will be flagged to avoid disturbance. Erosion control blankets, straw mulch and replanting the area with a native wet sedge meadow seed mix will be used to minimize soil erosion on exposed stream banks and upland areas to reduce disturbance to the plant community. Erosion control blankets will also be used to stabilize steeper slopes and portions of channel work will be constructed in the absence of flowing water by constructing channel blocks to decrease sedimentation as necessary to maintain flows in the original channel. The newly constructed channel will not be connected to stream flow until it is completed and stabilized.

Air and noise impacts will be mitigated by taking steps to minimize unnecessary idling and the number of trips heavy equipment will take to and from the project site. Overall potential environmental effects would be expected to be minimal and temporary and no reasonably foreseeable projects are expected to occur within the same geographic scale or timeframe to result in cumulative effects.

20. Other potential environmental effects: If the project may cause any additional environmental effects not addressed by items 1 to 19, describe the effects here, discuss the how the environment will be affected, and identify measures that will be taken to minimize and mitigate these effects.

There are no additional environmental effects that have not already been addressed.

RGU CERTIFICATION. *(The Environmental Quality Board will only accept **SIGNED** Environmental Assessment Worksheets for public notice in the EQB Monitor.)*

I hereby certify that:

- The information contained in this document is accurate and complete to the best of my knowledge.
- The EAW describes the complete project; there are no other projects, stages or components other than those described in this document, which are related to the project as connected actions or phased actions, as defined at Minnesota Rules, parts 4410.0200, subparts 9c and 60, respectively.
- Copies of this EAW are being sent to the entire EQB distribution list.

Signature Kate Prany

Date June 26, 2015

Title EAW Project Manager