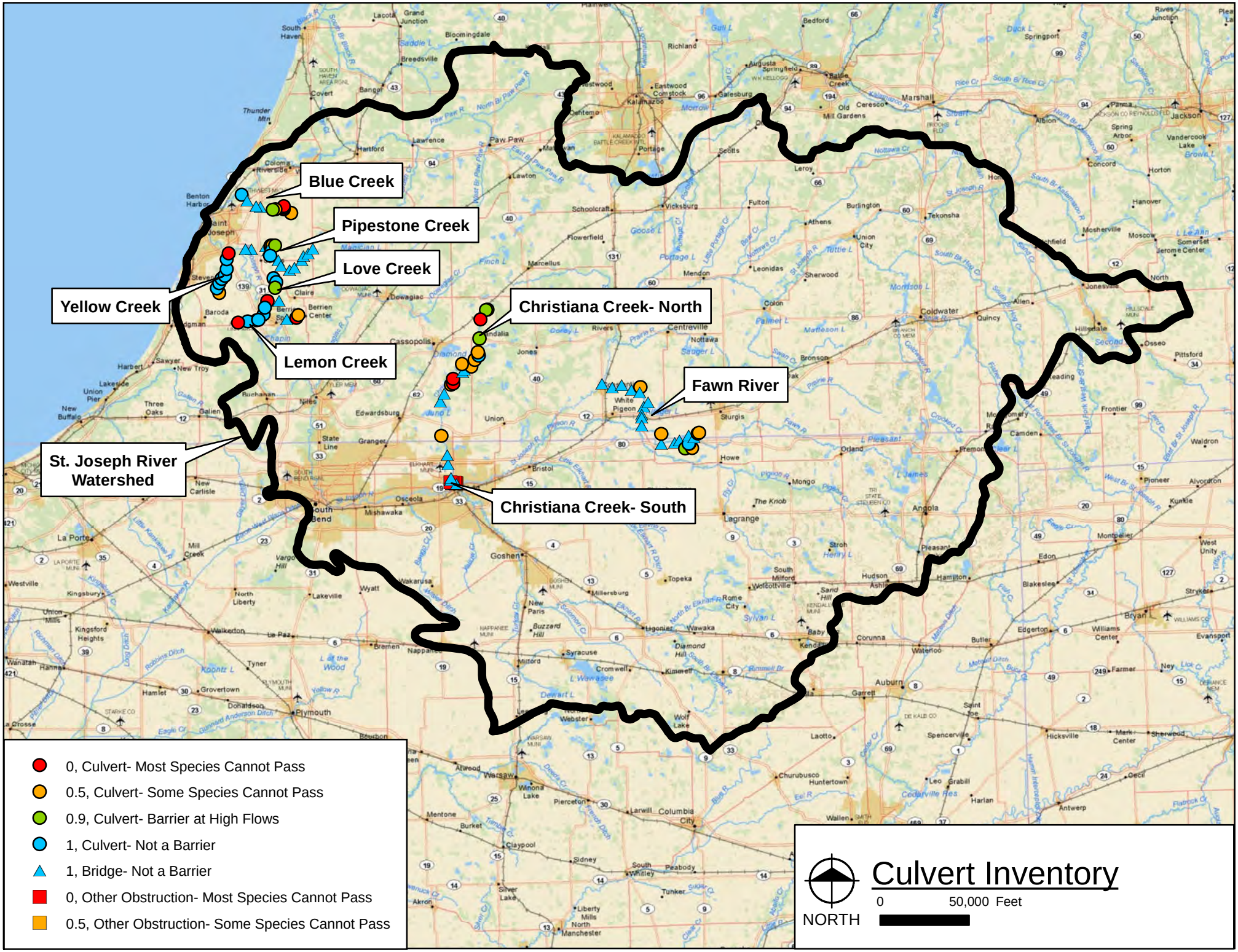
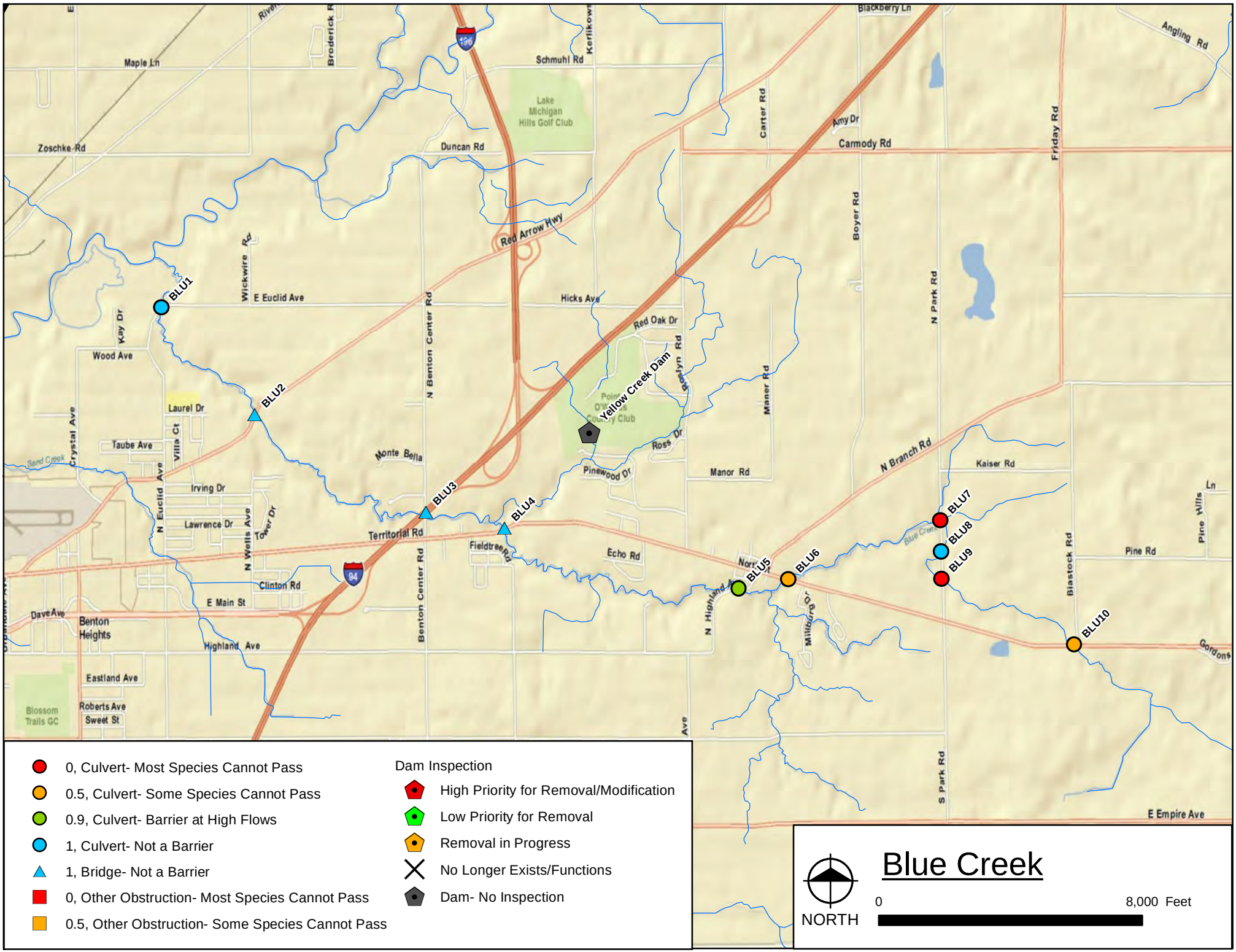
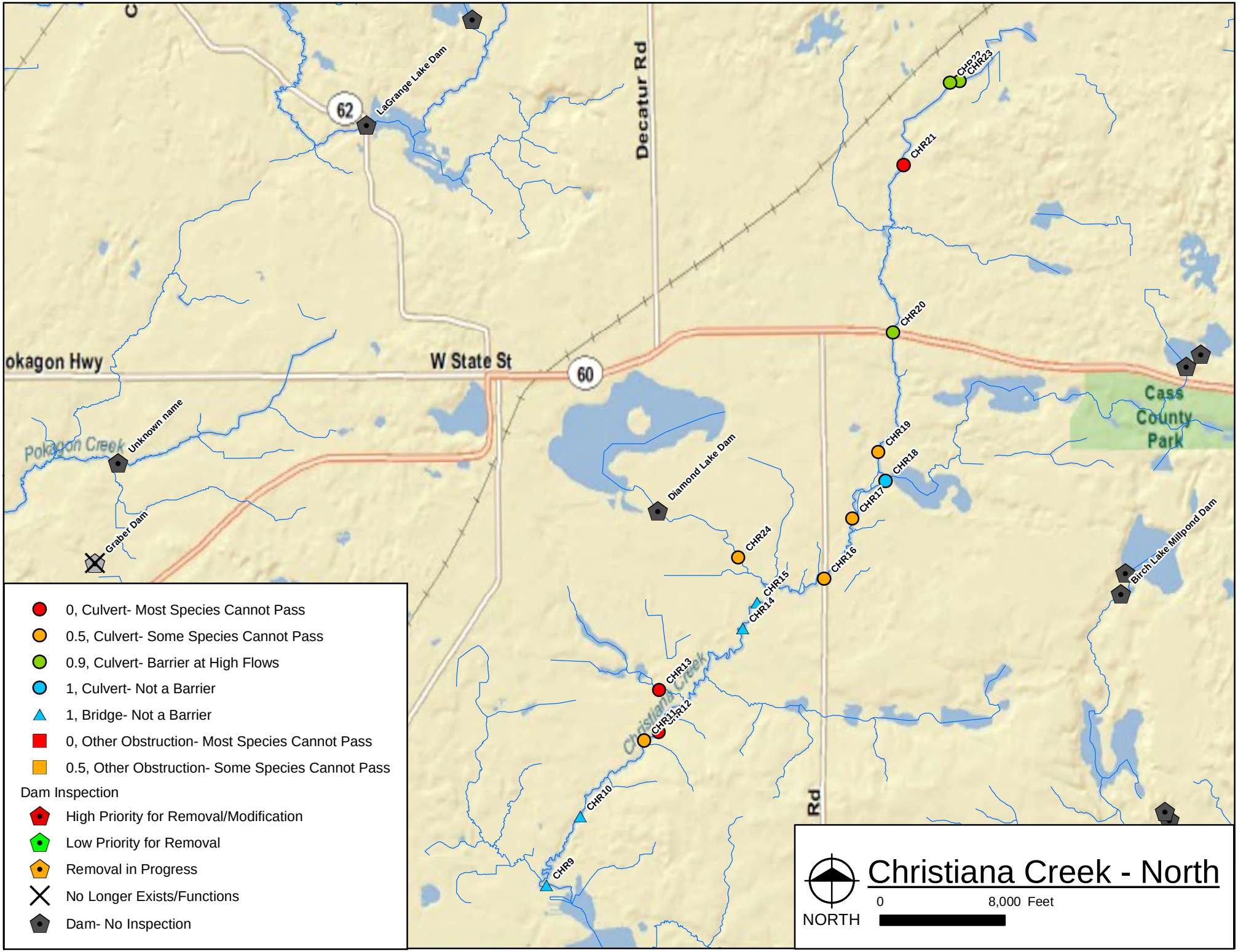
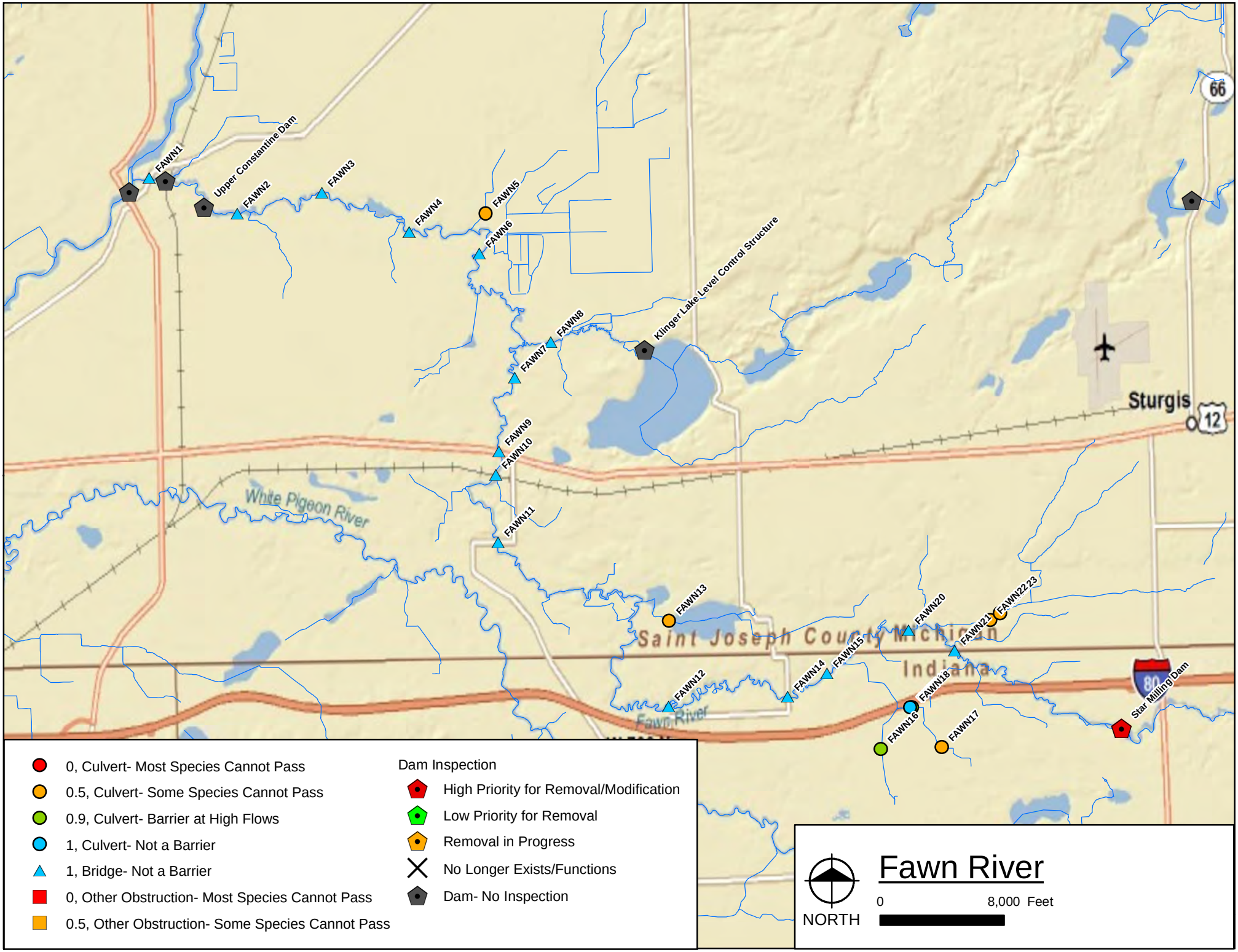
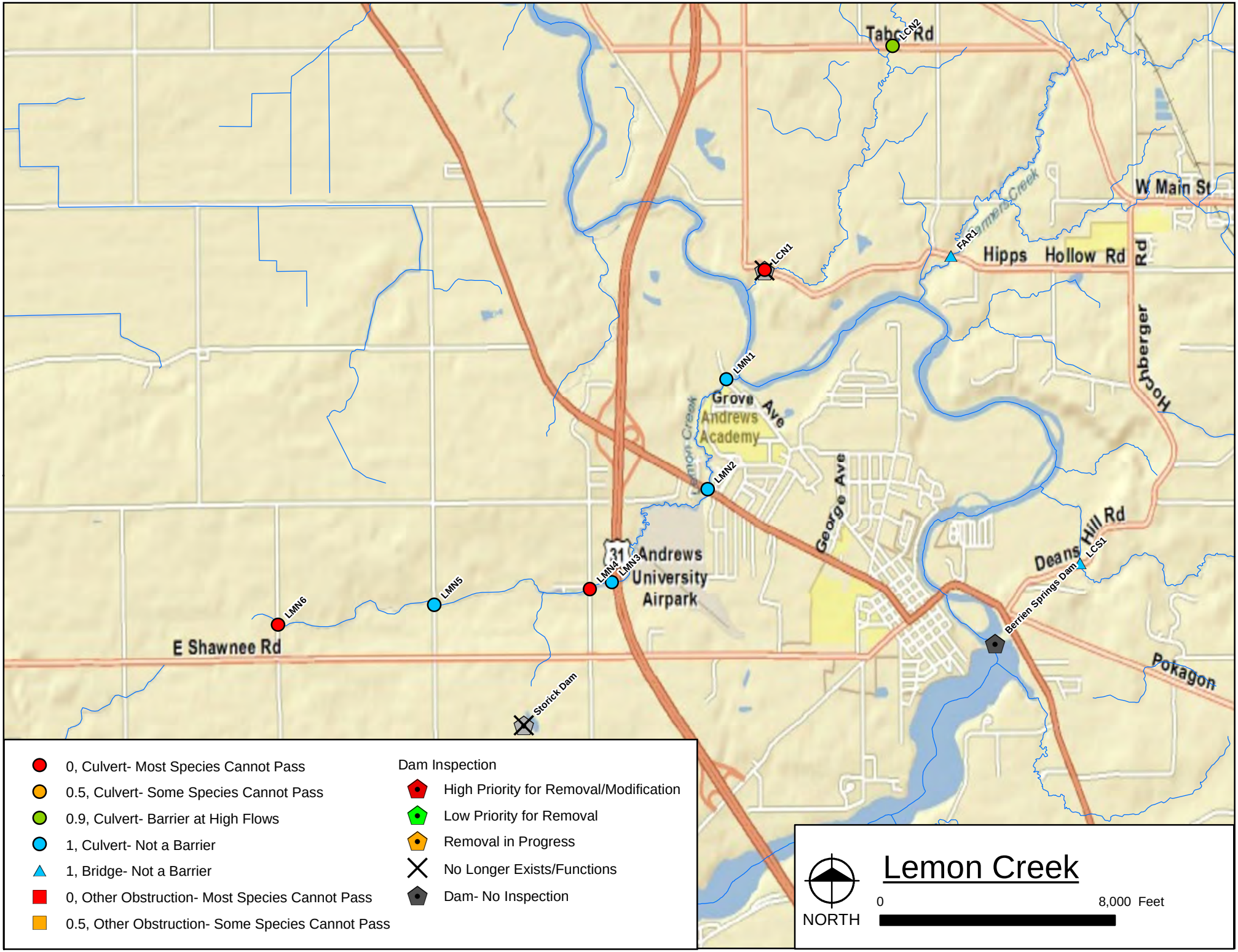

Blue Creek
Pipestone Creek
Love Creek
Yellow Creek
Christiana Creek- North
Lemon Creek
Fawn River
St. Joseph River Watershed
Christiana Creek- South
0, Culvert- Most Species Cannot Pass
0.5, Culvert- Some Species Cannot Pass
0.9, Culvert- Barrier at High Flows
1, Culvert- Not a Barrier
1, Bridge- Not a Barrier
0, Other Obstruction- Most Species Cannot Pass
0.5, Other Obstruction- Some Species Cannot Pass
NORTH
Culvert Inventory
0
50,000 Feet

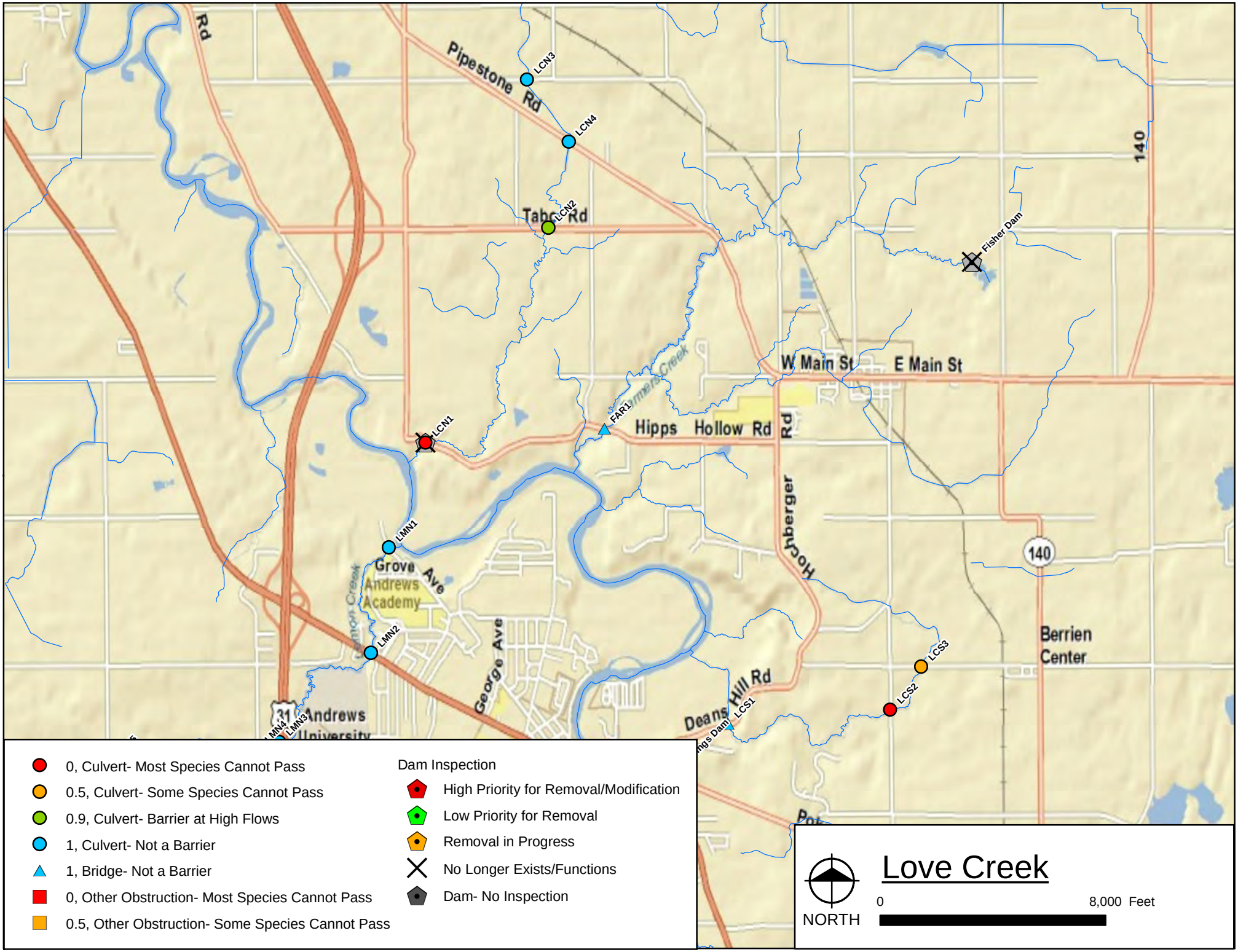

BLU1
BLU2
BLU3
BLU4
BLU5
BLU6
BLU7
BLU8
BLU9
BLU10
Yellow Creek Dam
Red Arrow Hwy
Territorial Rd
N Branch Rd
Duncan Rd
Carmody Rd
Schmuhl Rd
Maple Ln
Zoschke Rd
Lake Michigan Hills Golf Club
Wickwire Rd
E Euclid Ave
Hicks Ave
Red Oak Dr
Wood Ave
Laurel Dr
Taube Ave
Monte Bella
Pinewood Dr
Manor Rd
Kaiser Rd
Irving Dr
Lawrence Dr
Clinton Rd
E Main St
Echo Rd
Fieldtree Rd
Pine Rd
Blackberry Ln
Angling Rd
Amy Dr
Boyer Rd
N Park Rd
Friday Rd
Maner Rd
Ross Dr
Pine Wills Ln
Biastock Rd
Gordons
Dave Ave
Benton Heights
Highland Ave
Eastland Ave
Roberts Ave
Sweet St
Blossom Trails GC
Benton Center Rd
N Benton Center Rd
N Euclid Ave
N Wells Ave
Tower Dr
Crystal Ave
Villa Ct
Kay Dr
Sand Creek
Blue Creek
S Park Rd
E Empire Ave
0, Culvert- Most Species Cannot Pass
0.5, Culvert- Some Species Cannot Pass
0.9, Culvert- Barrier at High Flows
1, Culvert- Not a Barrier
1, Bridge- Not a Barrier
0, Other Obstruction- Most Species Cannot Pass
0.5, Other Obstruction- Some Species Cannot Pass
Dam Inspection
High Priority for Removal/Modification
Low Priority for Removal
Removal in Progress
No Longer Exists/Functions
Dam- No Inspection
NORTH
Blue Creek
0
8,000 Feet

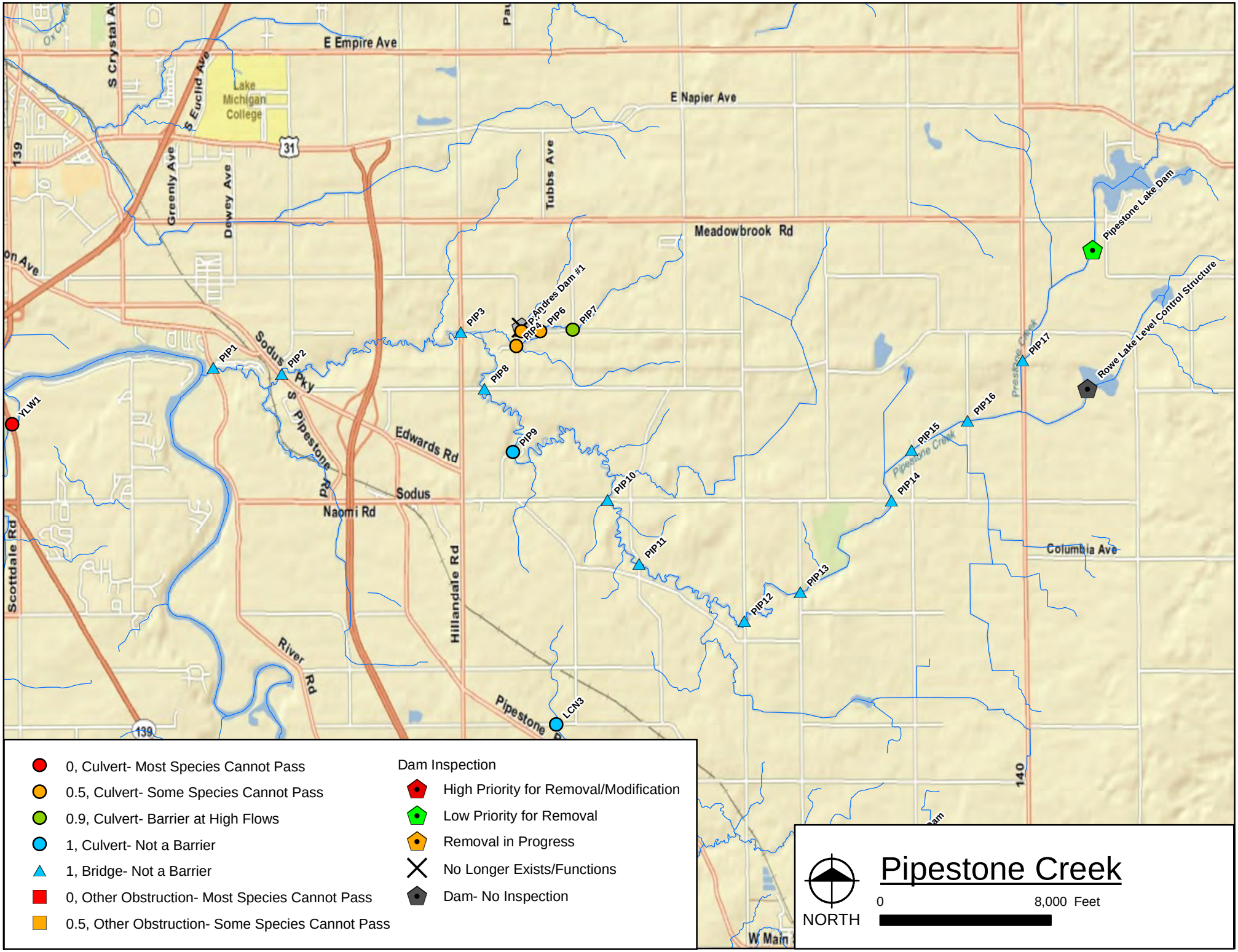

LaGrange Lake Dam
62
Decatur Rd
CHR22
CHR23
CHR21
CHR20
okagon Hwy
W State St
60
Cass
County
Park
Unknown name
Pokagon Creek
Graber Dam
Diamond Lake Dam
CHR19
CHR18
CHR17
CHR24
CHR16
CHR15
CHR14
Birch Lake Millpond Dam
CHR13
CHR11
CHR12
Christiana Creek
CHR10
CHR9
Rd
0, Culvert- Most Species Cannot Pass
0.5, Culvert- Some Species Cannot Pass
0.9, Culvert- Barrier at High Flows
1, Culvert- Not a Barrier
1, Bridge- Not a Barrier
0, Other Obstruction- Most Species Cannot Pass
0.5, Other Obstruction- Some Species Cannot Pass
Dam Inspection
High Priority for Removal/Modification
Low Priority for Removal
Removal in Progress
No Longer Exists/Functions
Dam- No Inspection
NORTH
Christiana Creek - North
0
8,000 Feet

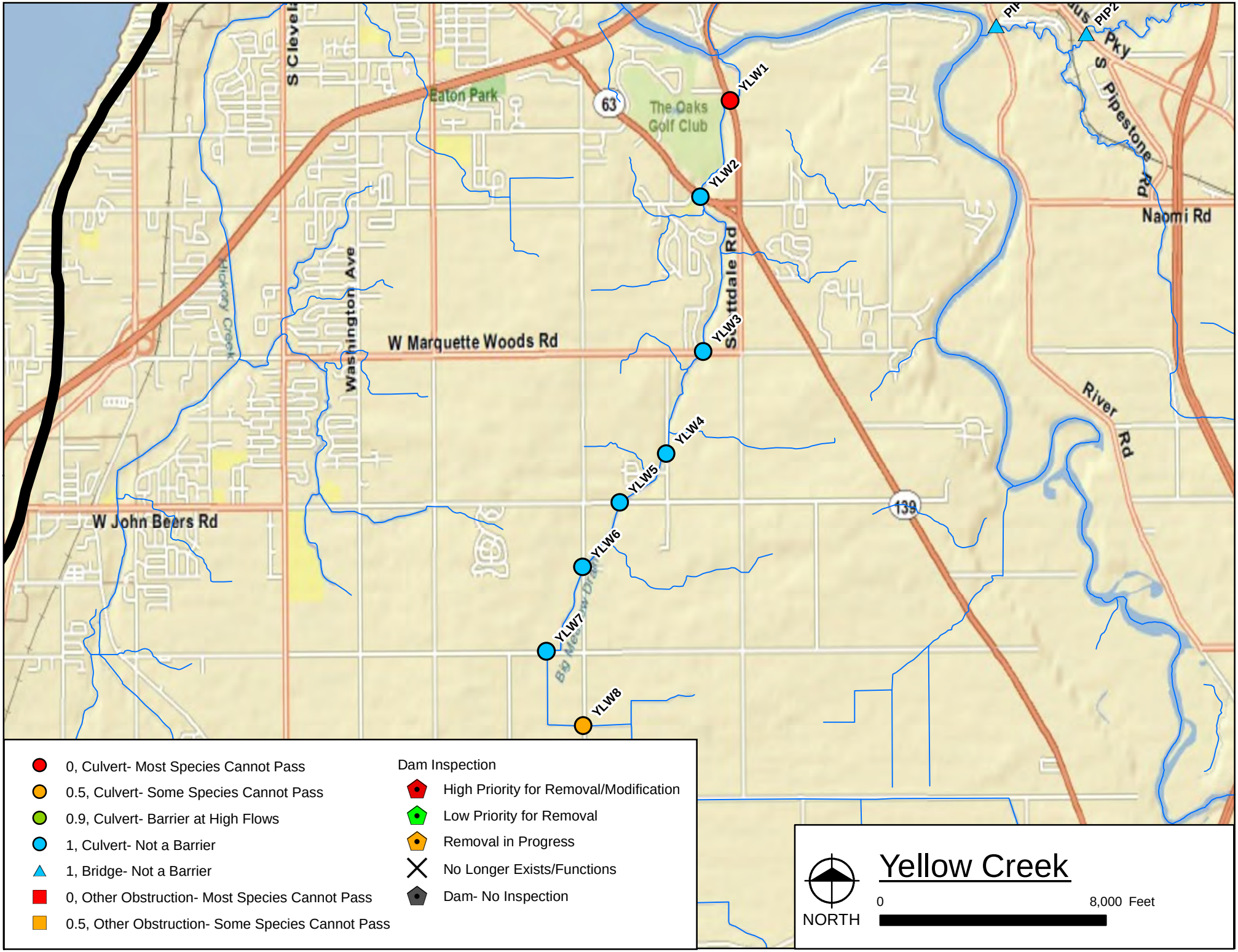

CHR29
205
12
MICHIGAN
INDIANA
Christiana Creek
Simonton
Lake
CR 5
CR 109
19
CHR28
Parkview Ave
CR 4
Northpointe Blvd
80
CR 101
CHR27
CR 6
Elkhart Muni
CR 106
Patterbaugh Creek
N Park Ave
Woodlawn Ave
Sunset Ave
CR 10
CHR26
CHR25
19
CHR8
CHR6
CHR5
CHR4
Elkhart River Dam
Ave
Greenleaf Blvd
120
W Beardsley Ave
trong Ave
0, Culvert- Most Species Cannot Pass
0.5, Culvert- Some Species Cannot Pass
0.9, Culvert- Barrier at High Flows
1, Culvert- Not a Barrier
1, Bridge- Not a Barrier
0, Other Obstruction- Most Species Cannot Pass
0.5, Other Obstruction- Some Species Cannot Pass
Dam Inspection
High Priority for Removal/Modification
Low Priority for Removal
Removal in Progress
No Longer Exists/Functions
Dam- No Inspection
NORTH
Christiana Creek - South
0
8,000 Feet


FAWN1
Upper Constantine Dam
FAWN2
FAWN3
FAWN4
FAWN5
FAWN6
Klinger Lake Level Control Structure
FAWN7
FAWN8
FAWN9
FAWN10
FAWN11
White Pigeon River
FAWN12
FAWN13
Fawn River
Saint Joseph County Michigan
Indiana
FAWN14
FAWN15
FAWN16
FAWN17
FAWN18
FAWN20
FAWN21
FAWN22 23
Star Milling Dam
Sturgis
66
12
80
0, Culvert- Most Species Cannot Pass
0.5, Culvert- Some Species Cannot Pass
0.9, Culvert- Barrier at High Flows
1, Culvert- Not a Barrier
1, Bridge- Not a Barrier
0, Other Obstruction- Most Species Cannot Pass
0.5, Other Obstruction- Some Species Cannot Pass
Dam Inspection
High Priority for Removal/Modification
Low Priority for Removal
Removal in Progress
No Longer Exists/Functions
Dam- No Inspection
NORTH
Fawn River
0
8,000 Feet


Tabor Rd
LCN2
W Main St
Hipps Hollow Rd
FAR1
LCN1
LMN1
Grove Ave
Andrews Academy
LMN2
George Ave
Deans Hill Rd
LCS1
Berrien Springs Dam
Pokagon
31
LMN4
LMN3
Andrews University Airpark
LMN5
LMN6
E Shawnee Rd
Storick Dam
0, Culvert- Most Species Cannot Pass
0.5, Culvert- Some Species Cannot Pass
0.9, Culvert- Barrier at High Flows
1, Culvert- Not a Barrier
1, Bridge- Not a Barrier
0, Other Obstruction- Most Species Cannot Pass
0.5, Other Obstruction- Some Species Cannot Pass
Dam Inspection
High Priority for Removal/Modification
Low Priority for Removal
Removal in Progress
No Longer Exists/Functions
Dam- No Inspection
NORTH
Lemon Creek
0
8,000 Feet


Pipestone Rd
LCN3
LCN4
LCN2
Fisher Dam
140
W Main St
E Main St
Hipps Hollow Rd
FAR1
LCN1
LMN1
Grove Ave
Andrews Academy
LMN2
George Ave
Berrien Center
LCS3
LCS2
LCS1
Deans Hill Rd
Andrews University
0, Culvert- Most Species Cannot Pass
0.5, Culvert- Some Species Cannot Pass
0.9, Culvert- Barrier at High Flows
1, Culvert- Not a Barrier
1, Bridge- Not a Barrier
0, Other Obstruction- Most Species Cannot Pass
0.5, Other Obstruction- Some Species Cannot Pass
Dam Inspection
High Priority for Removal/Modification
Low Priority for Removal
Removal in Progress
No Longer Exists/Functions
Dam- No Inspection
NORTH
Love Creek
0
8,000 Feet


E Empire Ave
E Napier Ave
Meadowbrook Rd
Edwards Rd
Naomi Rd
Columbia Ave
Sodus
Lake Michigan College
S Crystal Ave
S Euclid Ave
Greenly Ave
Dewey Ave
Tubbs Ave
Scottdale Rd
Hillandale Rd
River Rd
Pipestone Rd
Sodus Pky
Pipestone Creek
Pipestone Lake Dam
Rowe Lake Level Control Structure
St Andres Dam #1
YLW1
PIP1
PIP2
PIP3
PIP4
PIP6
PIP7
PIP8
PIP9
PIP10
PIP11
PIP12
PIP13
PIP14
PIP15
PIP16
PIP17
LCN3
31
139
140
0, Culvert- Most Species Cannot Pass
0.5, Culvert- Some Species Cannot Pass
0.9, Culvert- Barrier at High Flows
1, Culvert- Not a Barrier
1, Bridge- Not a Barrier
0, Other Obstruction- Most Species Cannot Pass
0.5, Other Obstruction- Some Species Cannot Pass
Dam Inspection
High Priority for Removal/Modification
Low Priority for Removal
Removal in Progress
No Longer Exists/Functions
Dam- No Inspection
NORTH
Pipestone Creek
0
8,000 Feet


YLW1
YLW2
YLW3
YLW4
YLW5
YLW6
YLW7
YLW8
Eaton Park
The Oaks Golf Club
63
S Cleveland
Washington Ave
Hickory Creek
W Marquette Woods Rd
Sittdale Rd
W John Beers Rd
Big Meadow Brook
S Pipestone Rd
Naomi Rd
River Rd
139
PIP1
PIP2
Pky
0, Culvert- Most Species Cannot Pass
0.5, Culvert- Some Species Cannot Pass
0.9, Culvert- Barrier at High Flows
1, Culvert- Not a Barrier
1, Bridge- Not a Barrier
0, Other Obstruction- Most Species Cannot Pass
0.5, Other Obstruction- Some Species Cannot Pass
Dam Inspection
High Priority for Removal/Modification
Low Priority for Removal
Removal in Progress
No Longer Exists/Functions
Dam- No Inspection
NORTH
Yellow Creek
0
8,000 Feet

Stream Crossing Data Sheet

Site ID: Blue Creek 1
BLU 1

General Information

Name of Observer(s): Snell & Marshall Date: 9/16/2010

GPS Waypoint: _____ GPS Lat/Long: _____

Additional Location Comments: High water volume through pipe due to recent heavy rain

Road Information

Road Name/Number: _____

Road Type: Federal State (County) Town Tribal Private Other: _____

Road Surface: (Paved) Gravel Sand Native Surface Other: _____

Road Width (ft): 21 ft. Fill Depth (ft): 0.5 ft

Crossing Information

Structure Type: Culvert(s) no.: 1 Bridge Ford Dam Other: _____ Structure ID: Blue Creek 1

Structure Shape	Structure Material	Substrate in Structure
Round	(Metal)	None
Square/Rectangle	Concrete	Gravel
Open Bottom Square/Rectangle	Plastic	Mixture
Pipe Arch	Wood	
Open Bottom Arch		
(Ellipse)		

Structure Interior	Structure Condition
Smooth or (Corrugated)	General Condition: New (Good) Fair Poor
	Plugged: 0 % Inlet Outlet In Pipe
	Crushed 0 % Inlet Outlet In Pipe
	Rusted Through? Yes (No)

Inlet Type	Outlet Type
(Projecting) Mitered	(At stream grade) ?
Headwall Apron	Cascade over riprap
Wingwall 10-30° or 30-70°	Freefall into pool.
Trashrack	Freefall onto riprap
Other	Outlet apron
	Other

Structure Water Velocity (ft/sec):[1] 1.2 ft/sec

Structure Water Depth (ft):[1] inlet 4.0 ft outlet 4.5 ft

Structure Length (ft):[1] 42 ft

Structure Width (ft):[1] 8 ft Structure Height (ft):[1] 6 ft

Perch Height (ft):[1,2] None Height of Head (ft):[1,2] none

Buried Depth of Structure (ft):[1] ? inlet — outlet —

Stream Information

Stream Name: Blue Creek Stream Water Velocity (in riffle) (ft/sec): _____

Stream Flow: None < ½ Bankfull (< Bankfull) = Bankfull > Bankfull

Water Depth (in riffle) (ft): — Bankfull Width (in riffle) (ft): 16 ft Stream Width (in riffle) ft: 16 ft

Scour Pool Length, Width & Depth (ft):[2] / / Upstream Pond Length & Width (ft):[2] _____

Fish Passage Information

Is the structure perched?	Yes	(No)	Is there ponding upstream?	Yes	(No)
Is there a scour pool at the outlet?	Yes	(No)	Is the structure fully backwatered?	Yes	(No)
Is there substrate through the structure's entire length?	(Yes)	No	Is there a change in head from the upstream side to downstream side?	Yes	(No)
Does the structure substrate match the stream substrate?	(Yes)	No	Is the structure narrower than the bankfull stream width?	(Yes)	No
Is water in the structure moving faster than in the stream?	Yes	(No)	Is there debris blocking the inlet?	Yes	(No)
Is water in the structure shallower than in the stream?	Yes	(No)	Is there evidence of overtopping or wash-outs?	Yes	(No)

BLu1

Multiple Culverts

Number multiple cells from left to right facing downstream. Include a diagram below indicating which culvert is culvert #1.

Culvert #	Width (ft)	Height (ft)	Length (ft)
2			
3			

Culvert #	Width (ft)	Height (ft)	Length (ft)
4			
5			

Photos

- ☑ Site ID
- ☑ Inlet
- ☑ Outlet
- ☐ Road Approach – Left
- ☑ Road Approach – Right
- ☐
- ☑ Upstream Conditions
- ☑ Downstream Conditions
- ☐

Fish Passage Determination

Follow these guidelines to determine "passability" for a range of fish species. Thresholds may need to be modified if the objective is to evaluate passage for a particular species. Answer all questions.

Passability = 0 **Most species and life stages cannot pass at most flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.

1. The outlet of the structure is perched. **Yes** **No**
2. The structure water velocity is greater than 3 feet/second during baseflow. **Yes** **No**
3. The ratio of the structure water depth to stream water depth is less than 0.1. **Yes** **No**

Structure water depth: _____ Stream water depth: _____ Depth Ratio: _____

Passability = 0.5 **Some species and/or life stages cannot pass at most flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.5.

1. The water depth in the structure is less than 0.2 feet. **Yes** **No**
2. The structure water velocity is 2-3 feet/second during baseflow. **Yes** **No**
3. The structure is longer than 30 feet and does not have natural substrate through its entire length. **Yes** **No**

Passability = 0.9 **Barrier at high flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.9.

1. There is a scour pool below the structure. **Yes** **No**
2. The ratio of the structure width to stream bankfull width is less than 0.5. $\frac{8}{16} = .5$ **Yes** **No**

Structure width: 8ft Stream bankfull width: 16 Constriction Ratio: _____

Passability = 1 **Not a barrier.**

If all of the following questions can be answered "yes", then the crossing barrier score = 1.

1. The outlet of the structure is not perched. **Yes** **No**
2. The structure water velocity is less than 2 feet/second during baseflow. **Yes** **No**
3. The ratio of the structure water depth to stream water depth is greater than 0.1. **Yes** **No**
4. The water depth in the structure is greater than 0.2 feet. **Yes** **No**
5. There is not a scour pool below the structure. **Yes** **No**
6. The ratio of the structure width to stream bankfull width is greater than 0.5. **Yes** **No**
7. ☑ The structure is longer than 30 feet and has natural substrate through its entire length, or
   - ☐ The structure is shorter than 30 feet and has natural substrate through its entire length, or **Yes** **No**
   - ☐ The structure is shorter than 30 feet and does not have natural substrate through its entire length.

Additional Comments

Culvert diagram, erosion, channel condition, evidence of wash-out, beaver, local testimony of frequency of overtopping...

[1] Fill out for primary culvert (culvert #1). If multiple culverts are used, see reverse.

[2] Fill out, if present.

BLU1- DOWNSTREAM

UPSTREAM

ROAD

Stream Crossing Data Sheet

Site ID: BLU 8

General Information

Name of Observer(s): Snell **Date:** 08/05/10

GPS Waypoint: _____ **GPS Lat/Long:** _____

Additional Location Comments: _____

Road Information

Road Name/Number: Territorial

Road Type: Federal State (County) Town Tribal Private Other: _____

Road Surface: (Paved) Gravel Sand Native Surface Other: _____

Road Width (ft): 26 **Fill Depth (ft):** ~20

Crossing Information

Structure Type: Culvert(s) no.: 1 Bridge Ford Dam Other: _____ **Structure ID:** _____

Structure Shape

(Round)
Square/Rectangle
Open Bottom Square/Rectangle
Pipe Arch
Open Bottom Arch
Ellipse

Structure Material

Metal
(Concrete)
Plastic
Wood

Substrate in Structure

None Sand
Gravel Rock
Mixture

Structure Condition

General Condition: New (Good) Fair Poor

Plugged: ___ % Inlet Outlet In Pipe

Crushed ___ % Inlet Outlet In Pipe

Rusted Through? Yes No

Structure Interior

(Smooth) or Corrugated

Structure Water Velocity (ft/sec):[1] 1

Structure Water Depth (ft):[1] **inlet** 0.4 **outlet** 0.4

Structure Length (ft):[1] 80+

Structure Width (ft):[1] 3' **Structure Height (ft):**[1] 3'

Perch Height (ft):[1,2] – **Height of Head (ft):**[1,2] –

Buried Depth of Structure (ft):[1] **inlet** _____ **outlet** _____

Inlet Type		Outlet Type
Projecting	Mitered	At stream grade
Headwall	Apron	Cascade over riprap
Wingwall 10-30° or 30-70°		Freefall into pool.
Trashrack		Freefall onto riprap
Other		Outlet apron
		Other

Stream Information

Stream Name: Blue Creek **Stream Water Velocity (in riffle) (ft/sec):** 0.8

Stream Flow: None (< ½ Bankfull) < Bankfull = Bankfull > Bankfull

Water Depth (in riffle) (ft): 0.4 **Bankfull Width (in riffle) (ft):** 12 **Stream Width (in riffle) ft:** 5

Scour Pool Length, Width & Depth (ft):[2] 1 1 **Upstream Pond Length & Width (ft):**[2] _____

Fish Passage Information

Is the structure perched?	Yes	(No)	Is there ponding upstream?	Yes	(No)
Is there a scour pool at the outlet?	Yes	(No)	Is the structure fully backwatered?	Yes	(No)
Is there substrate through the structure's entire length?	Yes	(No)	Is there a change in head from the upstream side to downstream side?	Yes	(No)
Does the structure substrate match the stream substrate?	Yes	No	Is the structure narrower than the bankfull stream width?	(Yes)	No
Is water in the structure moving faster than in the stream?	Yes	(No)	Is there debris blocking the inlet?	Yes	(No)
Is water in the structure shallower than in the stream?	Yes	(No)	Is there evidence of overtopping or wash-outs?	Yes	(No)

BL4 8

Multiple Culverts

Number multiple cells from left to right facing downstream. Include a diagram below indicating which culvert is culvert #1.

Culvert #	Width (ft)	Height (ft)	Length (ft)
2			
3			

Culvert #	Width (ft)	Height (ft)	Length (ft)
4			
5			

Photos

- ❑ Site ID
- ❑ Inlet
- ❑ Outlet
- ❑ Road Approach – Left
- ❑ Road Approach – Right
- ❑
- ❑ Upstream Conditions
- ❑ Downstream Conditions
- ❑

Fish Passage Determination

Follow these guidelines to determine "passability" for a range of fish species. Thresholds may need to be modified if the objective is to evaluate passage for a particular species. Answer all questions.

Passability = 0 **Most species and life stages cannot pass at most flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.

1. The outlet of the structure is perched.	**Yes**	**No**
2. The structure water velocity is greater than 3 feet/second during baseflow.	**Yes**	**No**
3. The ratio of the structure water depth to stream water depth is less than 0.1.	**Yes**	**No**

Structure water depth: _____ Stream water depth: _____ Depth Ratio: _____

Passability = 0.5 **Some species and/or life stages cannot pass at most flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.5.

1. The water depth in the structure is less than 0.2 feet.	**Yes**	**No**
2. The structure water velocity is 2-3 feet/second during baseflow.	**Yes**	**No**
3. The structure is longer than 30 feet and does not have natural substrate through its entire length.	**Yes**	**No**

Passability = 0.9 **Barrier at high flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.9.

1. There is a scour pool below the structure.	**Yes**	**No**
2. The ratio of the structure width to stream bankfull width is less than 0.5.	**Yes**	**No**

Structure width: _____ Stream bankfull width: _____ Constriction Ratio: _____

Passability = 1 **Not a barrier.**

If all of the following questions can be answered "yes", then the crossing barrier score = 1.

1. The outlet of the structure is not perched.	**Yes**	**No**
2. The structure water velocity is less than 2 feet/second during baseflow.	**Yes**	**No**
3. The ratio of the structure water depth to stream water depth is greater than 0.1.	**Yes**	**No**
4. The water depth in the structure is greater than 0.2 feet.	**Yes**	**No**
5. There is not a scour pool below the structure.	**Yes**	**No**
6. The ratio of the structure width to stream bankfull width is greater than 0.5.	**Yes**	**No**
7. ❑ The structure is longer than 30 feet and has natural substrate through its entire length, or ❑ The structure is shorter than 30 feet and has natural substrate through its entire length, or ❑ The structure is shorter than 30 feet and does not have natural substrate through its entire length.	**Yes**	**No**

Additional Comments

Culvert diagram, erosion, channel condition, evidence of wash-out, beaver, local testimony of frequency of overtopping...

[1] Fill out for primary culvert (culvert #1). If multiple culverts are used, see reverse.

[2] Fill out, if present.

BLU10- DOWNSTREAM

Stream Crossing Data Sheet

Site ID: BLU2_FISH1

General Information

Name of Observer(s): Snell & Marshall **Date:** 9/16/2013

GPS Waypoint: **GPS Lat/Long:**

Additional Location Comments: Concrete bridge - No Fish Passage Barriers; ~ old bridge abutment ~ 100 yrds down stream from bridge - no passage past here

Road Information

Road Name/Number: Red Arrow Hwy

Road Type: Federal State (County) Town Tribal Private Other:

Road Surface: (Paved) Gravel Sand Native Surface Other:

Road Width (ft): 45ft **Fill Depth (ft):**

Crossing Information

Structure Type: Culvert(s) no.: (Bridge) Ford Dam Other: **Structure ID:**

Structure Shape

Round
(Square/Rectangle)
Open Bottom Square/Rectangle
Pipe Arch
Open Bottom Arch
Ellipse

Structure Material

Metal
(Concrete)
Plastic
Wood

Substrate in Structure

None
(Sand)
(Gravel)
(Rock)
Mixture

Structure Condition

General Condition: New (Good) Fair Poor

Plugged: 0 % Inlet Outlet In Pipe

Crushed 0 % Inlet Outlet In Pipe

Rusted Through? Yes (No)

Structure Interior

Natural (Smooth) or Corrugated

Inlet Type	Outlet Type
Projecting Mitered	At stream grade
Headwall Apron	Cascade over riprap
Wingwall 10-30° or 30-70°	Freefall into pool.
Trashrack	Freefall onto riprap
Other	Outlet apron
	Other

Structure Water Velocity (ft/sec): [1]

Structure Water Depth (ft): [1] **inlet** **outlet**

Structure Length (ft): [1]

Structure Width (ft): [1] **Structure Height (ft):** [1]

Perch Height (ft): [1, 2] **Height of Head (ft):** [1, 2]

Buried Depth of Structure (ft): [1] **inlet** **outlet**

Stream Information

Stream Name: Blue Creek **Stream Water Velocity (in riffle) (ft/sec):**

Stream Flow: None < ½ Bankfull (< Bankfull) = Bankfull > Bankfull

Water Depth (in riffle) (ft): **Bankfull Width (in riffle) (ft):** **Stream Width (in riffle) ft:**

Scour Pool Length, Width & Depth (ft): [2] / / **Upstream Pond Length & Width (ft):** [2]

Fish Passage Information

Is the structure perched?	Yes	(No)	Is there ponding upstream?	Yes	(No)
Is there a scour pool at the outlet?	Yes	(No)	Is the structure fully backwatered?	Yes	(No)
Is there substrate through the structure's entire length?	(Yes)	No	Is there a change in head from the upstream side to downstream side?	Yes	(No)
Does the structure substrate match the stream substrate?	(Yes)	No	Is the structure narrower than the bankfull stream width?	Yes	(No)
Is water in the structure moving faster than in the stream?	Yes	(No)	Is there debris blocking the inlet?	Yes	(No)
Is water in the structure shallower than in the stream?	Yes	(No)	Is there evidence of overtopping or wash-outs?	Yes	(No)

BL13 + BL14 + BL19
BL12

Multiple Culverts

Number multiple cells from left to right facing downstream. Include a diagram below indicating which culvert is culvert #1.

Culvert #	Width (ft)	Height (ft)	Length (ft)
2			
3			

Culvert #	Width (ft)	Height (ft)	Length (ft)
4			
5			

Photos

- ☑ Site ID
- ☑ Inlet
- ☑ Outlet
- ☐ Road Approach – Left
- ☐ Road Approach – Right
- ☐
- ☑ Upstream Conditions
- ☐ Downstream Conditions
- ☐

Fish Passage Determination

Follow these guidelines to determine "passability" for a range of fish species. Thresholds may need to be modified if the objective is to evaluate passage for a particular species. Answer all questions.

Passability = 0 **Most species and life stages cannot pass at most flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.

1. The outlet of the structure is perched. **Yes** **No**
2. The structure water velocity is greater than 3 feet/second during baseflow. **Yes** **No**
3. The ratio of the structure water depth to stream water depth is less than 0.1. **Yes** **No**

Structure water depth: _____ Stream water depth: _____ Depth Ratio: _____

Passability = 0.5 **Some species and/or life stages cannot pass at most flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.5.

1. The water depth in the structure is less than 0.2 feet. **Yes** **No**
2. The structure water velocity is 2-3 feet/second during baseflow. **Yes** **No**
3. The structure is longer than 30 feet and does not have natural substrate through its entire length. **Yes** **No**

Passability = 0.9 **Barrier at high flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.9.

1. There is a scour pool below the structure. **Yes** **No**
2. The ratio of the structure width to stream bankfull width is less than 0.5. **Yes** **No**

Structure width: _____ Stream bankfull width: _____ Constriction Ratio: _____

Passability = 1 **Not a barrier.**

If all of the following questions can be answered "yes", then the crossing barrier score = 1.

1. The outlet of the structure is not perched. (Yes) **No**
2. The structure water velocity is less than 2 feet/second during baseflow. (Yes) **No**
3. The ratio of the structure water depth to stream water depth is greater than 0.1. (Yes) **No**
4. The water depth in the structure is greater than 0.2 feet. (Yes) **No**
5. There is not a scour pool below the structure. (Yes) **No**
6. The ratio of the structure width to stream bankfull width is greater than 0.5. (Yes) **No**
7. ☐ The structure is longer than 30 feet and has natural substrate through its entire length, or
   ☑ The structure is shorter than 30 feet and has natural substrate through its entire length, or (Yes) **No**
   ☐ The structure is shorter than 30 feet and does not have natural substrate through its entire length.

Additional Comments

Culvert diagram, erosion, channel condition, evidence of wash-out, beaver, local testimony of frequency of overtopping...

[1] Fill out for primary culvert (culvert #1). If multiple culverts are used, see reverse.

[2] Fill out, if present.

BLU2-DOWNSTREAM

LOOKING DOWNSTREAM

UPSTREAM

Stream Crossing Data Sheet

Site ID: BLU 3

General Information

Name of Observer(s): Snell **Date:** 08/05/10

GPS Waypoint: _____ **GPS Lat/Long:** _____

Additional Location Comments: _____

Road Information

Road Name/Number: Highland

Road Type: Federal State ~~County~~ Town Tribal Private Other: _____

Road Surface: (Paved) Gravel Sand Native Surface Other: _____

Road Width (ft): 21 **Fill Depth (ft):** ~20

Crossing Information

Structure Type: Culvert(s) no.: 1 Bridge Ford Dam Other: _____ **Structure ID:** _____

Structure Shape	Structure Material	Substrate in Structure
Round	Metal	None Sand
Square/Rectangle	(Concrete)	Gravel Rock
(Open Bottom Square/Rectangle)	Plastic	(Mixture)
Pipe Arch	Wood	
Open Bottom Arch	**Structure Interior**	
Ellipse	(Smooth) or Corrugated	

Structure Condition

General Condition: New Good (Fair) Poor

Plugged: ___ % Inlet Outlet In Pipe

Crushed ___ % Inlet Outlet In Pipe

Rusted Through? Yes No

Inlet Type	Outlet Type
Projecting Mitered	At stream grade
Headwall Apron	Cascade over riprap
Wingwall 10-30° or 30-70°	Freefall into pool.
Trashrack	Freefall onto riprap
Other	Outlet apron
	Other

Structure Water Velocity (ft/sec):[1] 0.8

Structure Water Depth (ft):[1] **inlet** 1.0 **outlet** 0.9

Structure Length (ft):[1] ~100

Structure Width (ft):[1] 16 **Structure Height (ft):**[1] 8

Perch Height (ft):[1,2] — **Height of Head (ft):**[1,2] —

Buried Depth of Structure (ft):[1] **inlet** _____ **outlet** _____

Stream Information

Stream Name: Blue Creek **Stream Water Velocity (in riffle) (ft/sec):** 0.7

Stream Flow: None (< ½ Bankfull) < Bankfull = Bankfull > Bankfull

Water Depth (in riffle) (ft): 0.9 **Bankfull Width (in riffle) (ft):** 28 **Stream Width (in riffle) ft:** 20

Scour Pool Length, Width & Depth (ft):[2] 80 / 40 / 5 **Upstream Pond Length & Width (ft):**[2] —

Fish Passage Information

Is the structure perched?	Yes	(No)	Is there ponding upstream?	Yes	(No)
Is there a scour pool at the outlet?	(Yes)	No	Is the structure fully backwatered?	Yes	(No)
Is there substrate through the structure's entire length?	(Yes)	No	Is there a change in head from the upstream side to downstream side?	Yes	(No)
Does the structure substrate match the stream substrate?	(Yes)	No	Is the structure narrower than the bankfull stream width?	(Yes)	No
Is water in the structure moving faster than in the stream?	Yes	(No)	Is there debris blocking the inlet?	Yes	(No)
Is water in the structure shallower than in the stream?	Yes	(No)	Is there evidence of overtopping or wash-outs?	Yes	(No)

BLW3

Multiple Culverts

Number multiple cells from left to right facing downstream. Include a diagram below indicating which culvert is culvert #1.

Culvert #	Width (ft)	Height (ft)	Length (ft)
2			
3			

Culvert #	Width (ft)	Height (ft)	Length (ft)
4			
5			

Photos

- ❑ Site ID
- ❑ Inlet
- ❑ Outlet
- ❑ Road Approach – Left
- ❑ Road Approach – Right
- ❑
- ❑ Upstream Conditions
- ❑ Downstream Conditions
- ❑

Fish Passage Determination

Follow these guidelines to determine "passability" for a range of fish species. Thresholds may need to be modified if the objective is to evaluate passage for a particular species. Answer all questions.

Passability = 0 **Most species and life stages cannot pass at most flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.

1. The outlet of the structure is perched. **Yes** **No**
2. The structure water velocity is greater than 3 feet/second during baseflow. **Yes** **No**
3. The ratio of the structure water depth to stream water depth is less than 0.1. **Yes** **No**

Structure water depth: _____ Stream water depth: _____ Depth Ratio: _____

Passability = 0.5 **Some species and/or life stages cannot pass at most flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.5.

1. The water depth in the structure is less than 0.2 feet. **Yes** **No**
2. The structure water velocity is 2-3 feet/second during baseflow. **Yes** **No**
3. The structure is longer than 30 feet and does not have natural substrate through its entire length. **Yes** **No**

Passability = 0.9 **Barrier at high flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.9.

1. There is a scour pool below the structure. **(Yes)** **No**
2. The ratio of the structure width to stream bankfull width is less than 0.5. **Yes** **No**

Structure width: _____ Stream bankfull width: _____ Constriction Ratio: _____

Passability = 1 **Not a barrier.**

If all of the following questions can be answered "yes", then the crossing barrier score = 1.

1. The outlet of the structure is not perched. **Yes** **No**
2. The structure water velocity is less than 2 feet/second during baseflow. **Yes** **No**
3. The ratio of the structure water depth to stream water depth is greater than 0.1. **Yes** **No**
4. The water depth in the structure is greater than 0.2 feet. **Yes** **No**
5. There is not a scour pool below the structure. **Yes** **No**
6. The ratio of the structure width to stream bankfull width is greater than 0.5. **Yes** **No**
7. ❑ The structure is longer than 30 feet and has natural substrate through its entire length, or
   ❑ The structure is shorter than 30 feet and has natural substrate through its entire length, or **Yes** **No**
   ❑ The structure is shorter than 30 feet and does not have natural substrate through its entire length.

Additional Comments

Culvert diagram, erosion, channel condition, evidence of wash-out, beaver, local testimony of frequency of overtopping...

Turbid!

[1] Fill out for primary culvert (culvert #1). If multiple culverts are used, see reverse.

[2] Fill out, if present.

BLU5-DOWNSTREAM

LOOKING AT CULVERT

Stream Crossing Data Sheet

Site ID: BLU 4

General Information

Name of Observer(s): Snell **Date:** 08/05/10

GPS Waypoint: _____ **GPS Lat/Long:** _____

Additional Location Comments: _____

Road Information

Road Name/Number: Territorial

Road Type: Federal State (County) Town Tribal Private Other: _____

Road Surface: Paved Gravel Sand Native Surface Other: _____

Road Width (ft): 21 **Fill Depth (ft):** ~30

Crossing Information

Structure Type: Culvert(s) no.: 1 Bridge Ford Dam Other: _____ **Structure ID:** _____

Structure Shape	Structure Material	Substrate in Structure
(Round)	(Metal)	None
Square/Rectangle	Concrete	Gravel
Open Bottom Square/Rectangle	Plastic	Mixture
Pipe Arch	Wood	
Open Bottom Arch		
Ellipse		

Structure Condition

General Condition: New Good (Fair) Poor

Plugged: ___ % Inlet Outlet In Pipe

Crushed ___ % Inlet Outlet In Pipe

Rusted Through? Yes No

Structure Interior

Smooth or (Corrugated)

Inlet Type		Outlet Type
Projecting	Mitered	(At stream grade)
(Headwall)	Apron	Cascade over riprap
Wingwall 10-30° or 30-70°		Freefall into pool.
Trashrack		Freefall onto riprap
Other		Outlet apron
		Other

Structure Water Velocity (ft/sec):[1] 1.0

Structure Water Depth (ft):[1] **inlet** 2.2 **outlet** 2.2

Structure Length (ft):[1] 90

Structure Width (ft):[1] 3 **Structure Height (ft):**[1] 3

Perch Height (ft):[1,2] _____ **Height of Head (ft):**[1,2] _____

Buried Depth of Structure (ft):[1] **inlet** _____ **outlet** _____

Stream Information

Stream Name: Blue Creek **Stream Water Velocity (in riffle) (ft/sec):** 1.2

Stream Flow: None (< ½ Bankfull) < Bankfull = Bankfull > Bankfull

Water Depth (in riffle) (ft): 0.5 **Bankfull Width (in riffle) (ft):** 19 **Stream Width (in riffle) ft:** 17

Scour Pool Length, Width & Depth (ft):[2] 15 / 12 / 2 **Upstream Pond Length & Width (ft):**[2] _____

Fish Passage Information

Is the structure perched?	Yes	(No)	Is there ponding upstream?	Yes	(No)
Is there a scour pool at the outlet?	(Yes)	No	Is the structure fully backwatered?	(Yes)	No
Is there substrate through the structure's entire length?	Yes	(No)	Is there a change in head from the upstream side to downstream side?	Yes	(No)
Does the structure substrate match the stream substrate?	Yes	(No)	Is the structure narrower than the bankfull stream width?	(Yes)	No
Is water in the structure moving faster than in the stream?	Yes	(No)	Is there debris blocking the inlet?	Yes	(No)
Is water in the structure shallower than in the stream?	Yes	(No)	Is there evidence of overtopping or wash-outs?	Yes	(No)

BLU 4

Multiple Culverts

Number multiple cells from left to right facing downstream. Include a diagram below indicating which culvert is culvert #1.

Culvert #	Width (ft)	Height (ft)	Length (ft)
2			
3			

Culvert #	Width (ft)	Height (ft)	Length (ft)
4			
5			

Photos

- ❑ Site ID
- ❑ Inlet
- ❑ Outlet
- ❑ Road Approach – Left
- ❑ Road Approach – Right
- ❑
- ❑ Upstream Conditions
- ❑ Downstream Conditions
- ❑

Fish Passage Determination

Follow these guidelines to determine "passability" for a range of fish species. Thresholds may need to be modified if the objective is to evaluate passage for a particular species. Answer all questions.

Passability = 0 **Most species and life stages cannot pass at most flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.

1. The outlet of the structure is perched. **Yes** **No**
2. The structure water velocity is greater than 3 feet/second during baseflow. **Yes** **No**
3. The ratio of the structure water depth to stream water depth is less than 0.1. **Yes** **No**

Structure water depth: _____ Stream water depth: _____ Depth Ratio: _____

Passability = 0.5 **Some species and/or life stages cannot pass at most flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.5.

1. The water depth in the structure is less than 0.2 feet. **Yes** **No**
2. The structure water velocity is 2-3 feet/second during baseflow. **Yes** **No**
3. The structure is longer than 30 feet and does not have natural substrate through its entire length. **Yes** **No**

Passability = 0.9 **Barrier at high flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.9.

1. There is a scour pool below the structure. **Yes** **No**
2. The ratio of the structure width to stream bankfull width is less than 0.5. **Yes** **No**

Structure width: _____ Stream bankfull width: _____ Constriction Ratio: _____

Passability = 1 **Not a barrier.**

If all of the following questions can be answered "yes", then the crossing barrier score = 1.

1. The outlet of the structure is not perched. **Yes** **No**
2. The structure water velocity is less than 2 feet/second during baseflow. **Yes** **No**
3. The ratio of the structure water depth to stream water depth is greater than 0.1. **Yes** **No**
4. The water depth in the structure is greater than 0.2 feet. **Yes** **No**
5. There is not a scour pool below the structure. **Yes** **No**
6. The ratio of the structure width to stream bankfull width is greater than 0.5. **Yes** **No**
7. ❑ The structure is longer than 30 feet and has natural substrate through its entire length, or
   ❑ The structure is shorter than 30 feet and has natural substrate through its entire length, or **Yes** **No**
   ❑ The structure is shorter than 30 feet and does not have natural substrate through its entire length.

Additional Comments

Culvert diagram, erosion, channel condition, evidence of wash-out, beaver, local testimony of frequency of overtopping...

[1] Fill out for primary culvert (culvert #1). If multiple culverts are used, see reverse.

[2] Fill out, if present.

BLU6-DOWNSTREAM

Stream Crossing Data Sheet

Site ID: Bl 4 5

General Information

Name of Observer(s): Snell **Date:** 08/05/10

GPS Waypoint: _____ **GPS Lat/Long:** _____

Additional Location Comments: _____

Road Information

Road Name/Number: Park

Road Type: Federal State (County) Town Tribal Private Other: _____

Road Surface: (Paved) Gravel Sand Native Surface Other: _____

Road Width (ft): 21 **Fill Depth (ft):** 5

Crossing Information

Structure Type: Culvert(s) no.: 1 Bridge Ford Dam Other: _____ **Structure ID:** _____

Structure Shape	Structure Material	Substrate in Structure
(Round)	(Metal)	None Sand
Square/Rectangle	Concrete	Gravel Rock
Open Bottom Square/Rectangle	Plastic	Mixture
Pipe Arch	Wood	
Open Bottom Arch		
Ellipse		

Structure Condition

General Condition: New (Good) Fair Poor

Plugged: ___ % Inlet Outlet In Pipe

Crushed ___ % Inlet Outlet In Pipe

Rusted Through? Yes No

Structure Interior

Smooth or (Corrugated)

Structure Water Velocity (ft/sec):[1] 2

Structure Water Depth (ft):[1] inlet 0.7 outlet 0.8

Structure Length (ft):[1] 60

Structure Width (ft):[1] 3 **Structure Height (ft):**[1] 3

Perch Height (ft):[1,2] — **Height of Head (ft):**[1,2] —

Buried Depth of Structure (ft):[1] inlet _____ outlet _____

Inlet Type		Outlet Type
(Projecting)	Mitered	(At stream grade)
Headwall	Apron	Cascade over riprap
Wingwall 10-30° or 30-70°		Freefall into pool.
Trashrack		Freefall onto riprap
Other		Outlet apron
		Other

Stream Information

Stream Name: Blue Ck **Stream Water Velocity (in riffle) (ft/sec):** 2.9

Stream Flow: None (< ½ Bankfull) < Bankfull = Bankfull > Bankfull

Water Depth (in riffle) (ft): 0.7 **Bankfull Width (in riffle) (ft):** 20 **Stream Width (in riffle) ft:** 15

Scour Pool Length, Width & Depth (ft):[2] / / **Upstream Pond Length & Width (ft):**[2] _____

Fish Passage Information

Is the structure perched?	Yes	(No)	Is there ponding upstream?	Yes	(No)
Is there a scour pool at the outlet?	Yes	(No)	Is the structure fully backwatered?	Yes	(No)
Is there substrate through the structure's entire length?	Yes	(No)	Is there a change in head from the upstream side to downstream side?	Yes	(No)
Does the structure substrate match the stream substrate?	Yes	No	Is the structure narrower than the bankfull stream width?	(Yes)	No
Is water in the structure moving faster than in the stream?	(Yes)	No	Is there debris blocking the inlet?	Yes	(No)
Is water in the structure shallower than in the stream?	Yes	(No)	Is there evidence of overtopping or wash-outs?	Yes	(No)

BLU 5

Multiple Culverts

Number multiple cells from left to right facing downstream. Include a diagram below indicating which culvert is culvert #1.

Culvert #	Width (ft)	Height (ft)	Length (ft)
2			
3			

Culvert #	Width (ft)	Height (ft)	Length (ft)
4			
5			

Photos

- ❑ Site ID
- ❑ Inlet
- ❑ Outlet
- ❑ Road Approach – Left
- ❑ Road Approach – Right
- ❑
- ❑ Upstream Conditions
- ❑ Downstream Conditions
- ❑

Fish Passage Determination

Follow these guidelines to determine "passability" for a range of fish species. Thresholds may need to be modified if the objective is to evaluate passage for a particular species. Answer all questions.

Passability = 0 **Most species and life stages cannot pass at most flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.

1. The outlet of the structure is perched.	Yes	No
2. The structure water velocity is greater than 3 feet/second during baseflow. @ inlet	Yes	No
3. The ratio of the structure water depth to stream water depth is less than 0.1.	Yes	No

Structure water depth: _____ Stream water depth: _____ Depth Ratio: _____

Passability = 0.5 **Some species and/or life stages cannot pass at most flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.5.

1. The water depth in the structure is less than 0.2 feet.	Yes	No
2. The structure water velocity is 2-3 feet/second during baseflow.	Yes	No
3. The structure is longer than 30 feet and does not have natural substrate through its entire length.	Yes	No

Passability = 0.9 **Barrier at high flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.9.

1. There is a scour pool below the structure.	Yes	No
2. The ratio of the structure width to stream bankfull width is less than 0.5.	Yes	No

Structure width: _____ Stream bankfull width: _____ Constriction Ratio: _____

Passability = 1 **Not a barrier.**

If all of the following questions can be answered "yes", then the crossing barrier score = 1.

1. The outlet of the structure is not perched.	Yes	No
2. The structure water velocity is less than 2 feet/second during baseflow.	Yes	No
3. The ratio of the structure water depth to stream water depth is greater than 0.1.	Yes	No
4. The water depth in the structure is greater than 0.2 feet.	Yes	No
5. There is not a scour pool below the structure.	Yes	No
6. The ratio of the structure width to stream bankfull width is greater than 0.5.	Yes	No
7. ❑ The structure is longer than 30 feet and has natural substrate through its entire length, or ❑ The structure is shorter than 30 feet and has natural substrate through its entire length, or ❑ The structure is shorter than 30 feet and does not have natural substrate through its entire length.	Yes	No

Additional Comments

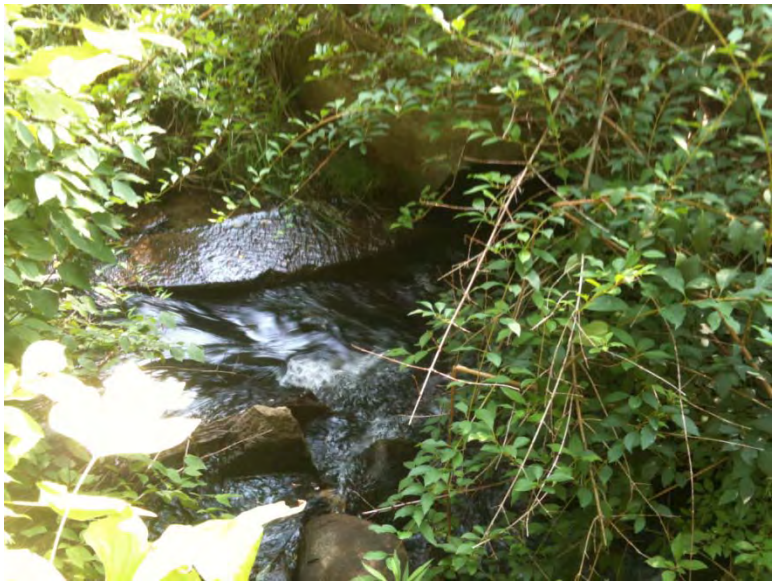
Culvert diagram, erosion, channel condition, evidence of wash-out, beaver, local testimony of frequency of overtopping...

cold water - beautiful! 7 3 ft/sec @ inlet + slight drop

[1] Fill out for primary culvert (culvert #1). If multiple culverts are used, see reverse.

[2] Fill out, if present.

BLU7-DOWNSTREAM



UPSTREAM

Stream Crossing Data Sheet

Site ID: BL4 6

General Information

Name of Observer(s): Snell **Date:** 08/05/16

GPS Waypoint: _____ **GPS Lat/Long:** _____

Additional Location Comments: _____

Road Information

Road Name/Number: Park

Road Type: Federal State (County) Town Tribal Private Other: _____

Road Surface: Paved (Gravel) Sand Native Surface Other: _____

Road Width (ft): 21 **Fill Depth (ft):** 5

Crossing Information

Structure Type: Culvert(s) no.: 1 Bridge Ford Dam Other: _____ **Structure ID:** _____

Structure Shape	Structure Material	Substrate in Structure
Round	Metal	None Sand
Square/Rectangle	~~Concrete~~	Gravel Rock
Open Bottom Square/Rectangle	Plastic	Mixture
Pipe Arch	Wood	
Open Bottom Arch		
Ellipse		

Structure Interior: (Smooth) or Corrugated

Structure Condition

General Condition: New (Good) Fair Poor

Plugged: ___ % Inlet Outlet In Pipe

Crushed ___ % Inlet Outlet In Pipe

Rusted Through? Yes No

Inlet Type		Outlet Type
Projecting	Mitered	At stream grade
Headwall	Apron	Cascade over riprap
Wingwall 10-30° or 30-70°		Freefall into pool.
Trashrack		Freefall onto riprap
Other		Outlet apron
		Other

Structure Water Velocity (ft/sec):[1] 0.8

Structure Water Depth (ft):[1] inlet 1.5 outlet 1.5

Structure Length (ft):[1] 40

Structure Width (ft):[1] 4 **Structure Height (ft):**[1] 3

Perch Height (ft):[1,2] _____ **Height of Head (ft):**[1,2] _____

Buried Depth of Structure (ft):[1] inlet _____ outlet _____

Stream Information

Stream Name: Blue Creek **Stream Water Velocity (in riffle) (ft/sec):** 0.8

Stream Flow: None (< ½ Bankfull) < Bankfull = Bankfull > Bankfull

Water Depth (in riffle) (ft): 0.8 **Bankfull Width (in riffle) (ft):** 8 **Stream Width (in riffle) ft:** 5

Scour Pool Length, Width & Depth (ft):[2] / / **Upstream Pond Length & Width (ft):**[2] _____

Fish Passage Information

Is the structure perched?	Yes	(No)	Is there ponding upstream?	Yes	(No)
Is there a scour pool at the outlet?	Yes	(No)	Is the structure fully backwatered?	Yes	(No)
Is there substrate through the structure's entire length?	(Yes)	No	Is there a change in head from the upstream side to downstream side?	Yes	(No)
Does the structure substrate match the stream substrate?	(Yes)	No	Is the structure narrower than the bankfull stream width?	(Yes)	No
Is water in the structure moving faster than in the stream?	Yes	(No)	Is there debris blocking the inlet?	Yes	(No)
Is water in the structure shallower than in the stream?	Yes	(No)	Is there evidence of overtopping or wash-outs?	Yes	(No)

BCU6

Multiple Culverts

Number multiple cells from left to right facing downstream. Include a diagram below indicating which culvert is culvert #1.

Culvert #	Width (ft)	Height (ft)	Length (ft)
2			
3			

Culvert #	Width (ft)	Height (ft)	Length (ft)
4			
5			

Photos

- ❑ Site ID
- ❑ Inlet
- ❑ Outlet
- ❑ Road Approach – Left
- ❑ Road Approach – Right
- ❑
- ❑ Upstream Conditions
- ❑ Downstream Conditions
- ❑

Fish Passage Determination

Follow these guidelines to determine "passability" for a range of fish species. Thresholds may need to be modified if the objective is to evaluate passage for a particular species. Answer all questions.

Passability = 0 **Most species and life stages cannot pass at most flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.

1. The outlet of the structure is perched.	**Yes**	**No**
2. The structure water velocity is greater than 3 feet/second during baseflow.	**Yes**	**No**
3. The ratio of the structure water depth to stream water depth is less than 0.1.	**Yes**	**No**

Structure water depth: _____ Stream water depth: _____ Depth Ratio: _____

Passability = 0.5 **Some species and/or life stages cannot pass at most flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.5.

1. The water depth in the structure is less than 0.2 feet.	**Yes**	**No**
2. The structure water velocity is 2-3 feet/second during baseflow.	**Yes**	**No**
3. The structure is longer than 30 feet and does not have natural substrate through its entire length.	**Yes**	**No**

Passability = 0.9 **Barrier at high flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.9.

1. There is a scour pool below the structure.	**Yes**	**No**
2. The ratio of the structure width to stream bankfull width is less than 0.5.	**Yes**	**No**

Structure width: _____ Stream bankfull width: _____ Constriction Ratio: _____

Passability = 1 **Not a barrier.**

If all of the following questions can be answered "yes", then the crossing barrier score = 1.

1. The outlet of the structure is not perched.	**Yes**	**No**
2. The structure water velocity is less than 2 feet/second during baseflow.	**Yes**	**No**
3. The ratio of the structure water depth to stream water depth is greater than 0.1.	**Yes**	**No**
4. The water depth in the structure is greater than 0.2 feet.	**Yes**	**No**
5. There is not a scour pool below the structure.	**Yes**	**No**
6. The ratio of the structure width to stream bankfull width is greater than 0.5.	**Yes**	**No**
7. ❑ The structure is longer than 30 feet and has natural substrate through its entire length, or ❑ The structure is shorter than 30 feet and has natural substrate through its entire length, or ❑ The structure is shorter than 30 feet and does not have natural substrate through its entire length.	**Yes**	**No**

Additional Comments

Culvert diagram, erosion, channel condition, evidence of wash-out, beaver, local testimony of frequency of overtopping...

[1] Fill out for primary culvert (culvert #1). If multiple culverts are used, see reverse.

[2] Fill out, if present.


BLU8- UPSTREAM

Stream Crossing Data Sheet

Site ID: BLU 7

General Information

Name of Observer(s): Small **Date:** 08/05/10

GPS Waypoint: _____ **GPS Lat/Long:** _____

Additional Location Comments: _____

Road Information

Road Name/Number: Park - 5

Road Type: Federal State (County) Town Tribal Private Other: _____

Road Surface: (Paved) Gravel Sand Native Surface Other: _____

Road Width (ft): 21 **Fill Depth (ft):** 3

Crossing Information

Structure Type: Culvert(s) no.: ___ Bridge Ford Dam Other: _____ **Structure ID:** _____

Structure Shape	Structure Material	Substrate in Structure
(Round)	(Metal)	None Sand
Square/Rectangle	Concrete	Gravel Rock
Open Bottom Square/Rectangle	Plastic	Mixture
Pipe Arch	Wood	
Open Bottom Arch		
Ellipse		

Structure Condition

General Condition: New (Good) Fair Poor

Plugged: ___ % Inlet Outlet In Pipe

Crushed ___ % Inlet Outlet In Pipe

Rusted Through? Yes No

Structure Interior

Smooth or (Corrugated)

Structure Water Velocity (ft/sec):[1] 2

Structure Water Depth (ft):[1] inlet 0.4 outlet 0.4

Structure Length (ft):[1] 30

Structure Width (ft):[1] 8 **Structure Height (ft):**[1] 8

Perch Height (ft):[1,2] 0.8 **Height of Head (ft):**[1,2] _____

Buried Depth of Structure (ft):[1] inlet _____ outlet _____

Inlet Type		Outlet Type
Projecting	Mitered	At stream grade
(Headwall)	Apron	Cascade over riprap
Wingwall 10-30° or 30-70°		Freefall into pool.
Trashrack		(Freefall onto riprap)
Other		Outlet apron
		Other

Stream Information

Stream Name: Blue Creek **Stream Water Velocity (in riffle) (ft/sec):** _____

Stream Flow: None (<½ Bankfull) < Bankfull = Bankfull > Bankfull

Water Depth (in riffle) (ft): 0.6 **Bankfull Width (in riffle) (ft):** 20 **Stream Width (in riffle) ft:** 15

Scour Pool Length, Width & Depth (ft):[2] / / **Upstream Pond Length & Width (ft):**[2] _____

Fish Passage Information

Is the structure perched?	(Yes)	No	Is there ponding upstream?	Yes	(No)
Is there a scour pool at the outlet?	Yes	(No)	Is the structure fully backwatered?	Yes	(No)
Is there substrate through the structure's entire length?	Yes	(No)	Is there a change in head from the upstream side to downstream side?	Yes	(No)
Does the structure substrate match the stream substrate?	Yes	(No)	Is the structure narrower than the bankfull stream width?	(Yes)	No
Is water in the structure moving faster than in the stream?	(Yes)	No	Is there debris blocking the inlet?	Yes	(No)
Is water in the structure shallower than in the stream?	Yes	(No)	Is there evidence of overtopping or wash-outs?	Yes	(No)

BLM 7

Multiple Culverts

Number multiple cells from left to right facing downstream. Include a diagram below indicating which culvert is culvert #1.

Culvert #	Width (ft)	Height (ft)	Length (ft)
2			
3			

Culvert #	Width (ft)	Height (ft)	Length (ft)
4			
5			

Photos

- ❑ Site ID
- ❑ Inlet
- ❑ Outlet
- ❑ Road Approach – Left
- ❑ Road Approach – Right
- ❑
- ❑ Upstream Conditions
- ❑ Downstream Conditions
- ❑

Fish Passage Determination

Follow these guidelines to determine "passability" for a range of fish species. Thresholds may need to be modified if the objective is to evaluate passage for a particular species. Answer all questions.

Passability = 0 **Most species and life stages cannot pass at most flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.

1. The outlet of the structure is perched. **(Yes)** **No**
2. The structure water velocity is greater than 3 feet/second during baseflow. **Yes** **No**
3. The ratio of the structure water depth to stream water depth is less than 0.1. **Yes** **No**

Structure water depth: _____ Stream water depth: _____ Depth Ratio: _____

Passability = 0.5 **Some species and/or life stages cannot pass at most flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.5.

1. The water depth in the structure is less than 0.2 feet. **Yes** **No**
2. The structure water velocity is 2-3 feet/second during baseflow. **Yes** **No**
3. The structure is longer than 30 feet and does not have natural substrate through its entire length. **Yes** **No**

Passability = 0.9 **Barrier at high flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.9.

1. There is a scour pool below the structure. **Yes** **No**
2. The ratio of the structure width to stream bankfull width is less than 0.5. **Yes** **No**

Structure width: _____ Stream bankfull width: _____ Constriction Ratio: _____

Passability = 1 **Not a barrier.**

If all of the following questions can be answered "yes", then the crossing barrier score = 1.

1. The outlet of the structure is not perched. **Yes** **No**
2. The structure water velocity is less than 2 feet/second during baseflow. **Yes** **No**
3. The ratio of the structure water depth to stream water depth is greater than 0.1. **Yes** **No**
4. The water depth in the structure is greater than 0.2 feet. **Yes** **No**
5. There is not a scour pool below the structure. **Yes** **No**
6. The ratio of the structure width to stream bankfull width is greater than 0.5. **Yes** **No**
7. ❑ The structure is longer than 30 feet and has natural substrate through its entire length, or
   ❑ The structure is shorter than 30 feet and has natural substrate through its entire length, or **Yes** **No**
   ❑ The structure is shorter than 30 feet and does not have natural substrate through its entire length.

Additional Comments

Culvert diagram, erosion, channel condition, evidence of wash-out, beaver, local testimony of frequency of overtopping...

perched at d/s - 2' nick pt at u/s

[1] Fill out for primary culvert (culvert #1). If multiple culverts are used, see reverse.

[2] Fill out, if present.

BLU9- DOWNSTREAM

LOOKING UPSTREAM THROUGH PIPE

Stream Crossing Data Sheet

Site ID: CHR 11

General Information

Name of Observer(s): Snell, Deegan **Date:** 12/29

GPS Waypoint: _____ **GPS Lat/Long:** _____

Additional Location Comments: _____

Road Information

Road Name/Number: Mt. Zion

Road Type: Federal State (County) Town Tribal Private Other: _____

Road Surface: (Paved) Gravel Sand Native Surface Other: _____

Road Width (ft): _____ **Fill Depth (ft):** _____

Crossing Information

Structure Type: Culvert(s) no.: 4 Bridge Ford Dam Other: _____ **Structure ID:** _____

Structure Shape

(Round)
Square/Rectangle
Open Bottom Square/Rectangle
Pipe Arch
Open Bottom Arch
Ellipse

Structure Material

(Metal)
Concrete
Plastic
Wood

Substrate in Structure

(None) Sand
Gravel Rock
Mixture

Structure Condition

General Condition: New (Good) Fair Poor

Plugged: ___ % Inlet Outlet In Pipe

Crushed ___ % Inlet Outlet In Pipe

Rusted Through? Yes No

Structure Interior

Smooth or (Corrugated)

Structure Water Velocity (ft/sec):[1] 2+

Structure Water Depth (ft):[1] inlet 1.5 outlet 1

Structure Length (ft):[1] 30

Structure Width (ft):[1] 4 **Structure Height (ft):**[1] 4

Perch Height (ft):[1,2] - **Height of Head (ft):**[1,2] _____

Buried Depth of Structure (ft):[1] inlet - outlet -

Inlet Type		Outlet Type	
(Projecting)	Mitered	(At stream grade)	
Headwall	Apron	Cascade over riprap	
Wingwall 10-30° or 30-70°		Freefall into pool.	
Trashrack		Freefall onto riprap	
Other		Outlet apron	
		Other	

Stream Information

Stream Name: Christmas **Stream Water Velocity (in riffle) (ft/sec):** _____

Stream Flow: None < ½ Bankfull (≈ Bankfull) = Bankfull > Bankfull

Water Depth (in riffle) (ft): _____ **Bankfull Width (in riffle) (ft):** 35 **Stream Width (in riffle) ft:** 35

Scour Pool Length, Width & Depth (ft):[2] / / **Upstream Pond Length & Width (ft):**[2] _____

Fish Passage Information

Is the structure perched?	Yes	(No)	Is there ponding upstream?	Yes	(No)
Is there a scour pool at the outlet?	(Yes)	No	Is the structure fully backwatered?	Yes	(No)
Is there substrate through the structure's entire length?	Yes	(No)	Is there a change in head from the upstream side to downstream side?	Yes	(No)
Does the structure substrate match the stream substrate?	Yes	No	Is the structure narrower than the bankfull stream width?	(Yes)	No
Is water in the structure moving faster than in the stream?	(Yes)	No	Is there debris blocking the inlet?	Yes	(No)
Is water in the structure shallower than in the stream?	Yes	(No)	Is there evidence of overtopping or wash-outs?	Yes	(No)

CHR 11

Multiple Culverts

Number multiple cells from left to right facing downstream. Include a diagram below indicating which culvert is culvert #1.

Culvert #	Width (ft)	Height (ft)	Length (ft)
2			
3			

Culvert #	Width (ft)	Height (ft)	Length (ft)
4			
5			

Photos

❑ Site ID ❑ Inlet ❑ Outlet

❑ Road Approach – Left ❑ Road Approach – Right ❑

❑ Upstream Conditions ❑ Downstream Conditions ❑

photo 11-13

Fish Passage Determination

Follow these guidelines to determine "passability" for a range of fish species. Thresholds may need to be modified if the objective is to evaluate passage for a particular species. Answer all questions.

Passability = 0 **Most species and life stages cannot pass at most flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.

1. The outlet of the structure is perched. Yes (No)
2. The structure water velocity is greater than 3 feet/second during baseflow. Yes (No)
3. The ratio of the structure water depth to stream water depth is less than 0.1. Yes (No)

Structure water depth: _____ Stream water depth: _____ Depth Ratio: _____

Passability = 0.5 **Some species and/or life stages cannot pass at most flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.5.

1. The water depth in the structure is less than 0.2 feet. Yes (No)
2. The structure water velocity is 2-3 feet/second during baseflow. (Yes) No
3. The structure is longer than 30 feet and does not have natural substrate through its entire length. (Yes) No

Passability = 0.9 **Barrier at high flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.9.

1. There is a scour pool below the structure. Yes No
2. The ratio of the structure width to stream bankfull width is less than 0.5. Yes No

Structure width: _____ Stream bankfull width: _____ Constriction Ratio: _____

Passability = 1 **Not a barrier.**

If all of the following questions can be answered "yes", then the crossing barrier score = 1.

1. The outlet of the structure is not perched. Yes No
2. The structure water velocity is less than 2 feet/second during baseflow. Yes No
3. The ratio of the structure water depth to stream water depth is greater than 0.1. Yes No
4. The water depth in the structure is greater than 0.2 feet. Yes No
5. There is not a scour pool below the structure. Yes No
6. The ratio of the structure width to stream bankfull width is greater than 0.5. Yes No
7. ❑ The structure is longer than 30 feet and has natural substrate through its entire length, or
   ❑ The structure is shorter than 30 feet and has natural substrate through its entire length, or Yes No
   ❑ The structure is shorter than 30 feet and does not have natural substrate through its entire length.

Additional Comments

Culvert diagram, erosion, channel condition, evidence of wash-out, beaver, local testimony of frequency of overtopping...

[1] Fill out for primary culvert (culvert #1). If multiple culverts are used, see reverse.

[2] Fill out, if present.

CHR11-DOWNSTREAM

LOOKING DOWNSTREAM

Stream Crossing Data Sheet

Site ID: CHR 12

General Information

Name of Observer(s): Snell, Deegan **Date:** 12/29

GPS Waypoint: **GPS Lat/Long:**

Additional Location Comments:

Road Information

Road Name/Number: Cassopolis (South)

Road Type: Federal State County Town Tribal Private Other:

Road Surface: Paved Gravel Sand Native Surface Other:

Road Width (ft): **Fill Depth (ft):**

Crossing Information

Structure Type: Culvert(s) no.: 3 Bridge Ford Dam Other: **Structure ID:**

Structure Shape	Structure Material	Substrate in Structure
(Round)	(Metal)	None Sand
Square/Rectangle	Concrete	Gravel Rock
Open Bottom Square/Rectangle	Plastic	Mixture
Pipe Arch	Wood	
Open Bottom Arch	**Structure Interior**	
Ellipse	Smooth or Corrugated	

Structure Condition

General Condition: New (Good) Fair Poor

Plugged: ___ % Inlet Outlet In Pipe

Crushed ___ % Inlet Outlet In Pipe

Rusted Through? Yes No

Inlet Type	Outlet Type
Projecting Mitered	At stream grade
Headwall Apron	Cascade over riprap
Wingwall 10-30° or 30-70°	Freefall into pool.
Trashrack	Freefall onto riprap
Other	Outlet apron
	Other

Structure Water Velocity (ft/sec):[1] 3

Structure Water Depth (ft):[1] **inlet** 2 **outlet** 1.5

Structure Length (ft):[1] 48ft

Structure Width (ft):[1] 6ft **Structure Height (ft):**[1] 6ft

Perch Height (ft):[1,2] **Height of Head (ft):**[1,2]

Buried Depth of Structure (ft):[1] **inlet** **outlet**

Stream Information

Stream Name: Chashqua **Stream Water Velocity (in riffle) (ft/sec):** 1.5

Stream Flow: None (< ½ Bankfull) < Bankfull = Bankfull > Bankfull

Water Depth (in riffle) (ft): 0.2 **Bankfull Width (in riffle) (ft):** 40 **Stream Width (in riffle) ft:** 45

Scour Pool Length, Width & Depth (ft):[2] 30 / 40 / 5 **Upstream Pond Length & Width (ft):**[2] 200 x 50

Fish Passage Information

Is the structure perched?	Yes	(No)	Is there ponding upstream?	(Yes)	No
Is there a scour pool at the outlet?	(Yes)	No	Is the structure fully backwatered?	Yes	(No)
Is there substrate through the structure's entire length?	Yes	(No)	Is there a change in head from the upstream side to downstream side?	Yes	(No)
Does the structure substrate match the stream substrate?	Yes	No	Is the structure narrower than the bankfull stream width?	(Yes)	No
Is water in the structure moving faster than in the stream?	(Yes)	No	Is there debris blocking the inlet?	Yes	(No)
Is water in the structure shallower than in the stream?	(Yes)	No	Is there evidence of overtopping or wash-outs?	Yes	(No)

CHR 12

Multiple Culverts

Number multiple cells from left to right facing downstream. Include a diagram below indicating which culvert is culvert #1.

Culvert #	Width (ft)	Height (ft)	Length (ft)
2	5	5	48
3	5	5	48

Culvert #	Width (ft)	Height (ft)	Length (ft)
4			
5			

Photos

- ❑ Site ID
- ❑ Inlet
- ❑ Outlet
- ❑ Road Approach – Left
- ❑ Road Approach – Right
- ❑
- ❑ Upstream Conditions
- ❑ Downstream Conditions
- ❑

Fish Passage Determination

Follow these guidelines to determine "passability" for a range of fish species. Thresholds may need to be modified if the objective is to evaluate passage for a particular species. Answer all questions.

Passability = 0 **Most species and life stages cannot pass at most flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.

1. The outlet of the structure is perched. — Yes (No)
2. The structure water velocity is greater than 3 feet/second during baseflow. — (Yes) No
3. The ratio of the structure water depth to stream water depth is less than 0.1. — Yes No

Structure water depth: _____ Stream water depth: _____ Depth Ratio: _____

Passability = 0.5 **Some species and/or life stages cannot pass at most flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.5.

1. The water depth in the structure is less than 0.2 feet. — Yes No
2. The structure water velocity is 2-3 feet/second during baseflow. — Yes No
3. The structure is longer than 30 feet and does not have natural substrate through its entire length. — Yes No

Passability = 0.9 **Barrier at high flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.9.

1. There is a scour pool below the structure. — Yes No
2. The ratio of the structure width to stream bankfull width is less than 0.5. — Yes No

Structure width: _____ Stream bankfull width: _____ Constriction Ratio: _____

Passability = 1 **Not a barrier.**

If all of the following questions can be answered "yes", then the crossing barrier score = 1.

1. The outlet of the structure is not perched. — Yes No
2. The structure water velocity is less than 2 feet/second during baseflow. — Yes No
3. The ratio of the structure water depth to stream water depth is greater than 0.1. — Yes No
4. The water depth in the structure is greater than 0.2 feet. — Yes No
5. There is not a scour pool below the structure. — Yes No
6. The ratio of the structure width to stream bankfull width is greater than 0.5. — Yes No
7. ❑ The structure is longer than 30 feet and has natural substrate through its entire length, or
   ❑ The structure is shorter than 30 feet and has natural substrate through its entire length, or — Yes No
   ❑ The structure is shorter than 30 feet and does not have natural substrate through its entire length.

Additional Comments

Culvert diagram, erosion, channel condition, evidence of wash-out, beaver, local testimony of frequency of overtopping...

[1] Fill out for primary culvert (culvert #1). If multiple culverts are used, see reverse.

[2] Fill out, if present.

CHR12-DOWNSTREAM

UPSTREAM

Stream Crossing Data Sheet

Site ID: CHR 13

General Information

Name of Observer(s): Snell, Deegan **Date:** 12/29/10

GPS Waypoint: **GPS Lat/Long:**

Additional Location Comments:

Road Information

Road Name/Number: Cassopolis

Road Type: Federal State (County) Town Tribal Private Other:

Road Surface: Paved Gravel Sand Native Surface Other:

Road Width (ft): 25 **Fill Depth (ft):** 1

Crossing Information

Structure Type: Culvert(s) no.: 2 Bridge Ford Dam Other: **Structure ID:**

Structure Shape

(Round)
Square/Rectangle
Open Bottom Square/Rectangle
Pipe Arch
Open Bottom Arch
Ellipse

Structure Material

(Metal)
Concrete
Plastic
Wood

Substrate in Structure

None Sand
Gravel Rock
Mixture

Structure Condition

General Condition: New (Good) Fair Poor

Plugged: ___ % Inlet Outlet In Pipe

Crushed ___ % Inlet Outlet In Pipe

Rusted Through? Yes No

Structure Interior

Smooth or Corrugated

Structure Water Velocity (ft/sec):[1] >3

Structure Water Depth (ft):[1] inlet 0.8 outlet 0.8

Structure Length (ft):[1] 33

Structure Width (ft):[1] 2 **Structure Height (ft):**[1] 2

Perch Height (ft):[1,2] **Height of Head (ft):**[1,2]

Buried Depth of Structure (ft):[1] inlet outlet

Inlet Type	Outlet Type
(Projecting) Mitered	At stream grade
Headwall Apron	Cascade over riprap
Wingwall 10-30° or 30-70°	Freefall into pool.
Trashrack	Freefall onto riprap
Other	Outlet apron
	Other

Stream Information

Stream Name: Leininger **Stream Water Velocity (in riffle) (ft/sec):**

Stream Flow: None < ½ Bankfull < Bankfull = Bankfull > Bankfull

Water Depth (in riffle) (ft): 0.3 **Bankfull Width (in riffle) (ft):** 10 **Stream Width (in riffle) ft:** 10

Scour Pool Length, Width & Depth (ft):[2] 15 / 10 / 3 **Upstream Pond Length & Width (ft):**[2] Lake upstream

Fish Passage Information

Is the structure perched?	Yes	(No)	Is there ponding upstream?	(Yes)	No
Is there a scour pool at the outlet?	(Yes)	No	Is the structure fully backwatered?	Yes	(No)
Is there substrate through the structure's entire length?	Yes	(No)	Is there a change in head from the upstream side to downstream side?	(Yes)	No
Does the structure substrate match the stream substrate?	Yes	No	Is the structure narrower than the bankfull stream width?	(Yes)	No
Is water in the structure moving faster than in the stream?	(Yes)	No	Is there debris blocking the inlet?	Yes	(No)
Is water in the structure shallower than in the stream?	(Yes)	No	Is there evidence of overtopping or wash-outs?	Yes	(No)

CHR 13

Multiple Culverts

Number multiple cells from left to right facing downstream. Include a diagram below indicating which culvert is culvert #1.

Culvert #	Width (ft)	Height (ft)	Length (ft)
2	2	2	33
3			

Culvert #	Width (ft)	Height (ft)	Length (ft)
4			
5			

Photos

- ❑ Site ID #16
- ❑ Inlet
- ❑ Outlet
- ❑ Road Approach – Left
- ❑ Road Approach – Right
- ❑
- ❑ Upstream Conditions
- ❑ Downstream Conditions
- ❑

Fish Passage Determination

Follow these guidelines to determine "passability" for a range of fish species. Thresholds may need to be modified if the objective is to evaluate passage for a particular species. Answer all questions.

Passability = 0 **Most species and life stages cannot pass at most flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.

1. The outlet of the structure is perched.	Yes	**No**
2. The structure water velocity is greater than 3 feet/second during baseflow.	**Yes**	No
3. The ratio of the structure water depth to stream water depth is less than 0.1.	Yes	No

Structure water depth: _____ Stream water depth: _____ Depth Ratio: _____

Passability = 0.5 **Some species and/or life stages cannot pass at most flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.5.

1. The water depth in the structure is less than 0.2 feet.	Yes	No
2. The structure water velocity is 2-3 feet/second during baseflow.	Yes	No
3. The structure is longer than 30 feet and does not have natural substrate through its entire length.	Yes	No

Passability = 0.9 **Barrier at high flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.9.

1. There is a scour pool below the structure.	Yes	No
2. The ratio of the structure width to stream bankfull width is less than 0.5.	Yes	No

Structure width: _____ Stream bankfull width: _____ Constriction Ratio: _____

Passability = 1 **Not a barrier.**

If all of the following questions can be answered "yes", then the crossing barrier score = 1.

1. The outlet of the structure is not perched.	Yes	No
2. The structure water velocity is less than 2 feet/second during baseflow.	Yes	No
3. The ratio of the structure water depth to stream water depth is greater than 0.1.	Yes	No
4. The water depth in the structure is greater than 0.2 feet.	Yes	No
5. There is not a scour pool below the structure.	Yes	No
6. The ratio of the structure width to stream bankfull width is greater than 0.5.	Yes	No
7. ❑ The structure is longer than 30 feet and has natural substrate through its entire length, or ❑ The structure is shorter than 30 feet and has natural substrate through its entire length, or ❑ The structure is shorter than 30 feet and does not have natural substrate through its entire length.	Yes	No

Additional Comments

Culvert diagram, erosion, channel condition, evidence of wash-out, beaver, local testimony of frequency of overtopping...

[1] Fill out for primary culvert (culvert #1). If multiple culverts are used, see reverse.

[2] Fill out, if present.

CHR13-LENINGER OUTLET

Stream Crossing Data Sheet

Site ID: CHR 16

General Information

Name of Observer(s): Snell, Deegan **Date:** 12/29/16

GPS Waypoint: **GPS Lat/Long:**

Additional Location Comments:

Road Information

Road Name/Number: Calvin Center

Road Type: Federal State (County) Town Tribal Private Other:

Road Surface: Paved Gravel Sand Native Surface Other:

Road Width (ft): 27 **Fill Depth (ft):** 2

Crossing Information

Structure Type: Culvert(s) no.: 3 Bridge Ford Dam Other: **Structure ID:**

Structure Shape	Structure Material	Substrate in Structure
Round	(Metal)	None Sand
Square/Rectangle	Concrete	Gravel Rock
Open Bottom Square/Rectangle	Plastic	Mixture
Pipe Arch	Wood	
Open Bottom Arch		
(Ellipse)		

Structure Condition

General Condition: New Good Fair Poor

Plugged: ___ % Inlet Outlet In Pipe

Crushed ___ % Inlet Outlet In Pipe

Rusted Through? Yes No

Structure Interior

Smooth or Corrugated

Structure Water Velocity (ft/sec):[1] 1 - 2

Structure Water Depth (ft):[1] **inlet** 1 **outlet** 1

Structure Length (ft):[1] 60

Structure Width (ft):[1] 6 **Structure Height (ft):**[1] 5

Perch Height (ft):[1,2] **Height of Head (ft):**[1,2]

Buried Depth of Structure (ft):[1] **inlet** **outlet**

Inlet Type		Outlet Type
Projecting	Mitered	At stream grade
Headwall	Apron	Cascade over riprap
Wingwall 10-30° or 30-70°		Freefall into pool.
Trashrack		Freefall onto riprap
Other		Outlet apron
		Other

Stream Information

Stream Name: Chisholm Creek **Stream Water Velocity (in riffle) (ft/sec):** 1

Stream Flow: None < ½ Bankfull < Bankfull = Bankfull > Bankfull

Water Depth (in riffle) (ft): 1 **Bankfull Width (in riffle) (ft):** 25 **Stream Width (in riffle) ft:** 20

Scour Pool Length, Width & Depth (ft):[2] 15 / 25 / 3 **Upstream Pond Length & Width (ft):**[2] NA

Fish Passage Information

Is the structure perched?	Yes	(No)	Is there ponding upstream?	Yes	(No)
Is there a scour pool at the outlet?	(Yes)	No	Is the structure fully backwatered?	Yes	(No)
Is there substrate through the structure's entire length? — New Structure - might be reason	Yes	(No)	Is there a change in head from the upstream side to downstream side?	Yes	(No)
Does the structure substrate match the stream substrate?	Yes	No	Is the structure narrower than the bankfull stream width?	(Yes)	No
Is water in the structure moving faster than in the stream? 1 culvert - yes / 2 - no	(Yes)	(No)	Is there debris blocking the inlet?	Yes	(No)
Is water in the structure shallower than in the stream?	Yes	(No)	Is there evidence of overtopping or wash-outs?	Yes	(No)

CHR 16

Multiple Culverts

Number multiple cells from left to right facing downstream. Include a diagram below indicating which culvert is culvert #1.

Culvert #	Width (ft)	Height (ft)	Length (ft)
2	6	5	60
3	6	5	60

Culvert #	Width (ft)	Height (ft)	Length (ft)
4			
5			

Photos

- ❑ Site ID
- ❑ Inlet
- ❑ Outlet
- ❑ Road Approach – Left
- ❑ Road Approach – Right
- ❑
- ❑ Upstream Conditions
- ❑ Downstream Conditions
- ❑

Fish Passage Determination

Follow these guidelines to determine "passability" for a range of fish species. Thresholds may need to be modified if the objective is to evaluate passage for a particular species. Answer all questions.

Passability = 0 **Most species and life stages cannot pass at most flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.

1. The outlet of the structure is perched. Yes (No)
2. The structure water velocity is greater than 3 feet/second during baseflow. Yes (No)
3. The ratio of the structure water depth to stream water depth is less than 0.1. Yes (No)

Structure water depth: _____ Stream water depth: _____ Depth Ratio: _____

Passability = 0.5 **Some species and/or life stages cannot pass at most flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.5.

1. The water depth in the structure is less than 0.2 feet. Yes (No)
2. The structure water velocity is 2-3 feet/second during baseflow. Yes (No)
3. The structure is longer than 30 feet and does not have natural substrate through its entire length. (Yes) No

New culvert - may fill in w/ substrate over time

Passability = 0.9 **Barrier at high flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.9.

1. There is a scour pool below the structure. Yes No
2. The ratio of the structure width to stream bankfull width is less than 0.5. Yes No

Structure width: _____ Stream bankfull width: _____ Constriction Ratio: _____

Passability = 1 **Not a barrier.**

If all of the following questions can be answered "yes", then the crossing barrier score = 1.

1. The outlet of the structure is not perched. Yes No
2. The structure water velocity is less than 2 feet/second during baseflow. Yes No
3. The ratio of the structure water depth to stream water depth is greater than 0.1. Yes No
4. The water depth in the structure is greater than 0.2 feet. Yes No
5. There is not a scour pool below the structure. Yes No
6. The ratio of the structure width to stream bankfull width is greater than 0.5. Yes No
7. ❑ The structure is longer than 30 feet and has natural substrate through its entire length, or
   ❑ The structure is shorter than 30 feet and has natural substrate through its entire length, or Yes No
   ❑ The structure is shorter than 30 feet and does not have natural substrate through its entire length.

Additional Comments

Culvert diagram, erosion, channel condition, evidence of wash-out, beaver, local testimony of frequency of overtopping...

[1] Fill out for primary culvert (culvert #1). If multiple culverts are used, see reverse.

[2] Fill out, if present.

CHR16-DOWNSTREAM

UPSTREAM

Stream Crossing Data Sheet

Site ID: CHR 17

General Information

Name of Observer(s): Snell, Deegan **Date:** 12/29

GPS Waypoint: **GPS Lat/Long:**

Additional Location Comments:

Road Information

Road Name/Number: Brownsville

Road Type: Federal State (County) Town Tribal Private Other:

Road Surface: (Paved) Gravel Sand Native Surface Other:

Road Width (ft): 21 **Fill Depth (ft):** 2

Crossing Information

Structure Type: Culvert(s) no.: 3 Bridge Ford Dam Other: **Structure ID:**

Structure Shape	Structure Material	Substrate in Structure
(Round)	Metal	None Sand
Square/Rectangle	(Concrete)	Gravel Rock
Open Bottom Square/Rectangle	Plastic	Mixture
Pipe Arch	Wood	
Open Bottom Arch		
Ellipse		

Structure Interior: (Smooth) or Corrugated

Structure Condition

General Condition: New Good Fair (Poor)

Plugged: ___ % Inlet Outlet In Pipe

Crushed ___ % Inlet Outlet In Pipe

Rusted Through? Yes No

Inlet Type	Outlet Type
Projecting Mitered	(At stream grade)
(Headwall) Apron	Cascade over riprap
Wingwall 10-30° or 30-70°	Freefall into pool.
Trashrack	Freefall onto riprap
Other	Outlet apron
	Other

Structure Water Velocity (ft/sec):[1] 1.5

Structure Water Depth (ft):[1] inlet 1.5 outlet 2

Structure Length (ft):[1] 30

Structure Width (ft):[1] 4 **Structure Height (ft):**[1] 4

Perch Height (ft):[1,2] – **Height of Head (ft):**[1,2] –

Buried Depth of Structure (ft):[1] inlet outlet

Stream Information

Stream Name: Christman **Stream Water Velocity (in riffle) (ft/sec):** 1

Stream Flow: None < ½ Bankfull (< Bankfull) = Bankfull > Bankfull

Water Depth (in riffle) (ft): 1.0 **Bankfull Width (in riffle) (ft):** 25 **Stream Width (in riffle) ft:** 22

Scour Pool Length, Width & Depth (ft):[2] 30 / 45 / 1.4 **Upstream Pond Length & Width (ft):**[2] –

Fish Passage Information

Is the structure perched?	Yes	(No)	Is there ponding upstream?	Yes	(No)
Is there a scour pool at the outlet?	(Yes)	No	Is the structure fully backwatered?	Yes	(No)
Is there substrate through the structure's entire length?	Yes	(No)	Is there a change in head from the upstream side to downstream side?	Yes	(No)
Does the structure substrate match the stream substrate?	Yes	No	Is the structure narrower than the bankfull stream width?	(Yes)	No
Is water in the structure moving faster than in the stream?	(Yes)	No	Is there debris blocking the inlet?	Yes	(No)
Is water in the structure shallower than in the stream?	Yes	(No)	Is there evidence of overtopping or wash-outs?	Yes	(No)

CHR 17

Multiple Culverts

Number multiple cells from left to right facing downstream. Include a diagram below indicating which culvert is culvert #1.

Culvert #	Width (ft)	Height (ft)	Length (ft)
2	4	4	30
3	4	4	35

Culvert #	Width (ft)	Height (ft)	Length (ft)
4			
5			

Photos

- ❑ Site ID
- ❑ Inlet
- ❑ Outlet
- ❑ Road Approach – Left
- ❑ Road Approach – Right
- ❑
- ❑ Upstream Conditions
- ❑ Downstream Conditions
- ❑

Fish Passage Determination

Follow these guidelines to determine "passability" for a range of fish species. Thresholds may need to be modified if the objective is to evaluate passage for a particular species. Answer all questions.

Passability = 0 **Most species and life stages cannot pass at most flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.

1. The outlet of the structure is perched. Yes (No)
2. The structure water velocity is greater than 3 feet/second during baseflow. Yes (No)
3. The ratio of the structure water depth to stream water depth is less than 0.1. Yes (No)

Structure water depth: _____ Stream water depth: _____ Depth Ratio: _____

Passability = 0.5 **Some species and/or life stages cannot pass at most flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.5.

1. The water depth in the structure is less than 0.2 feet. Yes No
2. The structure water velocity is 2-3 feet/second during baseflow. Yes (No)
3. The structure is longer than 30 feet and does not have natural substrate through its entire length. (Yes) No

Passability = 0.9 **Barrier at high flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.9.

1. There is a scour pool below the structure. (Yes) No
2. The ratio of the structure width to stream bankfull width is less than 0.5. (Yes) No

Structure width: _____ Stream bankfull width: _____ Constriction Ratio: _____

Passability = 1 **Not a barrier.**

If all of the following questions can be answered "yes", then the crossing barrier score = 1.

1. The outlet of the structure is not perched. **Yes** **No**
2. The structure water velocity is less than 2 feet/second during baseflow. **Yes** **No**
3. The ratio of the structure water depth to stream water depth is greater than 0.1. **Yes** **No**
4. The water depth in the structure is greater than 0.2 feet. **Yes** **No**
5. There is not a scour pool below the structure. **Yes** **No**
6. The ratio of the structure width to stream bankfull width is greater than 0.5. **Yes** **No**
7. ❑ The structure is longer than 30 feet and has natural substrate through its entire length, or
   ❑ The structure is shorter than 30 feet and has natural substrate through its entire length, or **Yes** **No**
   ❑ The structure is shorter than 30 feet and does not have natural substrate through its entire length.

Additional Comments

Culvert diagram, erosion, channel condition, evidence of wash-out, beaver, local testimony of frequency of overtopping...

[1] Fill out for primary culvert (culvert #1). If multiple culverts are used, see reverse.

[2] Fill out, if present.

CHR17-DOWNSTREAM

UPSTREAM

Stream Crossing Data Sheet

Site ID: CHR 18

General Information

Name of Observer(s): Snell, Deegan **Date:**

GPS Waypoint: **GPS Lat/Long:**

Additional Location Comments:

Road Information

Road Name/Number: Day Lake Rd

Road Type: Federal State (County) Town Tribal Private Other:

Road Surface: (Paved) Gravel Sand Native Surface Other:

Road Width (ft): 21 **Fill Depth (ft):** 1-2

Crossing Information

Structure Type: Culvert(s) no.: 2 Bridge Ford Dam Other: **Structure ID:**

Structure Shape	Structure Material	Substrate in Structure
Round	(Metal)	None Sand
Square/Rectangle	Concrete	(Gravel) Rock
Open Bottom Square/Rectangle	Plastic	(Mixture)
Pipe Arch	Wood	
Open Bottom Arch		
(Ellipse)		

Structure Condition

General Condition: New Good Fair (Poor)

Plugged: ___ % Inlet Outlet In Pipe

Crushed 20 % (Inlet) Outlet In Pipe

Rusted Through? Yes No

Structure Interior

Smooth or (Corrugated)

Inlet Type	Outlet Type
(Projecting) Mitered	(At stream grade)
Headwall Apron	Cascade over riprap
Wingwall 10-30° or 30-70°	Freefall into pool.
Trashrack	Freefall onto riprap
Other	Outlet apron
	Other

Structure Water Velocity (ft/sec):[1] #1 - 1 #2 - 3

Structure Water Depth (ft):[1] **inlet** 1 **outlet** 1

Structure Length (ft):[1] 54

Structure Width (ft):[1] 5 **Structure Height (ft):**[1] 3

Perch Height (ft):[1,2] **Height of Head (ft):**[1,2] -

Buried Depth of Structure (ft):[1] **inlet** - **outlet** -

Stream Information

Stream Name: Paradise outlet **Stream Water Velocity (in riffle) (ft/sec):**

Stream Flow: None < ½ Bankfull < Bankfull = Bankfull > Bankfull

Water Depth (in riffle) (ft): **Bankfull Width (in riffle) (ft):** **Stream Width (in riffle) ft:**

Scour Pool Length, Width & Depth (ft):[2] 1 1 **Upstream Pond Length & Width (ft):**[2]

Fish Passage Information

Is the structure perched?	Yes	(No)	Is there ponding upstream? (Lake)	Yes	No
Is there a scour pool at the outlet?	Yes	(No)	Is the structure fully backwatered?	Yes	No
Is there substrate through the structure's entire length?	(Yes)	No	Is there a change in head from the upstream side to downstream side?	Yes	(No)
Does the structure substrate match the stream substrate?	(Yes)	No	Is the structure narrower than the bankfull stream width?	(Yes)	No
Is water in the structure moving faster than in the stream?	(Yes)	No	Is there debris blocking the inlet?	Yes	(No)
Is water in the structure shallower than in the stream?	Yes	(No)	Is there evidence of overtopping or wash-outs?	(Yes)	No

CHR 12

Multiple Culverts

Number multiple cells from left to right facing downstream. Include a diagram below indicating which culvert is culvert #1.

Culvert #	Width (ft)	Height (ft)	Length (ft)
2	5	3	
3			

Culvert #	Width (ft)	Height (ft)	Length (ft)
4			
5			

Photos

- ❑ Site ID
- ❑ Inlet
- ❑ Outlet
- ❑ Road Approach – Left
- ❑ Road Approach – Right
- ❑
- ❑ Upstream Conditions
- ❑ Downstream Conditions
- ❑

Fish Passage Determination

Follow these guidelines to determine "passability" for a range of fish species. Thresholds may need to be modified if the objective is to evaluate passage for a particular species. Answer all questions.

Passability = 0 **Most species and life stages cannot pass at most flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.

1. The outlet of the structure is perched. **Yes** **No**
2. The structure water velocity is greater than 3 feet/second during baseflow. **Yes** **No**
3. The ratio of the structure water depth to stream water depth is less than 0.1. **Yes** **No**

Structure water depth: _____ Stream water depth: _____ Depth Ratio: _____

Passability = 0.5 **Some species and/or life stages cannot pass at most flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.5.

1. The water depth in the structure is less than 0.2 feet. **Yes** **No**
2. The structure water velocity is 2-3 feet/second during baseflow. **Yes** **No**
3. The structure is longer than 30 feet and does not have natural substrate through its entire length. **Yes** **No**

Passability = 0.9 **Barrier at high flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.9.

1. There is a scour pool below the structure. **Yes** **No**
2. The ratio of the structure width to stream bankfull width is less than 0.5. **Yes** **No**

Structure width: 10 Stream bankfull width: 20 Constriction Ratio: _____

Passability = 1 **Not a barrier.**

If all of the following questions can be answered "yes", then the crossing barrier score = 1.

1. The outlet of the structure is not perched. **Yes** **No**
2. The structure water velocity is less than 2 feet/second during baseflow. **Yes** **No**
3. The ratio of the structure water depth to stream water depth is greater than 0.1. **Yes** **No**
4. The water depth in the structure is greater than 0.2 feet. **Yes** **No**
5. There is not a scour pool below the structure. **Yes** **No**
6. The ratio of the structure width to stream bankfull width is greater than 0.5. **Yes** **No**
7. ❑ The structure is longer than 30 feet and has natural substrate through its entire length, or
   ❑ The structure is shorter than 30 feet and has natural substrate through its entire length, or **Yes** **No**
   ❑ The structure is shorter than 30 feet and does not have natural substrate through its entire length.

Additional Comments

Culvert diagram, erosion, channel condition, evidence of wash-out, beaver, local testimony of frequency of overtopping...

[1] Fill out for primary culvert (culvert #1). If multiple culverts are used, see reverse.

[2] Fill out, if present.

CHR18-PARADISE OUTLET

Stream Crossing Data Sheet

Site ID: CHR 19

General Information

Name of Observer(s): Snell Deegan **Date:** 12/29

GPS Waypoint: **GPS Lat/Long:**

Additional Location Comments:

Road Information

Road Name/Number: Jeffries

Road Type: Federal State (County) Town Tribal Private Other:

Road Surface: (Paved) Gravel Sand Native Surface Other:

Road Width (ft): 21 **Fill Depth (ft):** 3

Crossing Information

Structure Type: Culvert(s) no.: 2 Bridge Ford Dam Other: **Structure ID:**

Structure Shape	Structure Material	Substrate in Structure
(Round)	(Metal)	(None) Sand
Square/Rectangle	Concrete	Gravel Rock
Open Bottom Square/Rectangle	Plastic	Mixture
Pipe Arch	Wood	
Open Bottom Arch		
Ellipse		

Structure Condition

General Condition: New Good Fair (Poor)

Plugged: ___ % Inlet Outlet In Pipe

Crushed ___ % Inlet Outlet In Pipe

Rusted Through? Yes No

Structure Interior

Smooth or (Corrugated)

Structure Water Velocity (ft/sec):[1] 1

Structure Water Depth (ft):[1] **inlet** 1 **outlet**

Structure Length (ft):[1]

Structure Width (ft):[1] 4 **Structure Height (ft):**[1] 4

Perch Height (ft):[1,2] – **Height of Head (ft):**[1,2] –

Buried Depth of Structure (ft):[1] **inlet** – **outlet** –

Inlet Type	Outlet Type
(Projecting) Mitered	(At stream grade)
Headwall Apron	Cascade over riprap
Wingwall 10-30° or 30-70°	Freefall into pool.
Trashrack	Freefall onto riprap
Other	Outlet apron
	Other

Stream Information

Stream Name: Christiana **Stream Water Velocity (in riffle) (ft/sec):**

Stream Flow: None < ½ Bankfull < Bankfull = Bankfull > Bankfull

Water Depth (in riffle) (ft): 1 **Bankfull Width (in riffle) (ft):** 15 **Stream Width (in riffle) ft:** 12

Scour Pool Length, Width & Depth (ft):[2] 1 / 1 **Upstream Pond Length & Width (ft):**[2]

Fish Passage Information

Is the structure perched?	Yes	(No)	Is there ponding upstream?	Yes	(No)
Is there a scour pool at the outlet?	Yes	(No)	Is the structure fully backwatered?	Yes	(No)
Is there substrate through the structure's entire length?	Yes	(No)	Is there a change in head from the upstream side to downstream side?	Yes	(No)
Does the structure substrate match the stream substrate?	Yes	(No)	Is the structure narrower than the bankfull stream width?	(Yes)	No
Is water in the structure moving faster than in the stream?	Yes	(No)	Is there debris blocking the inlet?	Yes	(No)
Is water in the structure shallower than in the stream?	Yes	(No)	Is there evidence of overtopping or wash-outs?	Yes	(No)

CHR 19

Multiple Culverts

Number multiple cells from left to right facing downstream. Include a diagram below indicating which culvert is culvert #1.

Culvert #	Width (ft)	Height (ft)	Length (ft)
2	4	4	
3			

Culvert #	Width (ft)	Height (ft)	Length (ft)
4			
5			

Photos

- ❑ Site ID
- ❑ Inlet
- ❑ Outlet
- ❑ Road Approach – Left
- ❑ Road Approach – Right
- ❑
- ❑ Upstream Conditions
- ❑ Downstream Conditions
- ❑

Fish Passage Determination

Follow these guidelines to determine "passability" for a range of fish species. Thresholds may need to be modified if the objective is to evaluate passage for a particular species. Answer all questions.

Passability = 0 **Most species and life stages cannot pass at most flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.

1. The outlet of the structure is perched. **Yes** **No**
2. The structure water velocity is greater than 3 feet/second during baseflow. **Yes** **No**
3. The ratio of the structure water depth to stream water depth is less than 0.1. **Yes** **No**

Structure water depth: _____ Stream water depth: _____ Depth Ratio: _____

Passability = 0.5 **Some species and/or life stages cannot pass at most flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.5.

1. The water depth in the structure is less than 0.2 feet. **Yes** **No**
2. The structure water velocity is 2-3 feet/second during baseflow. **Yes** **No**
3. The structure is longer than 30 feet and does not have natural substrate through its entire length. **Yes** **No**

Passability = 0.9 **Barrier at high flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.9.

1. There is a scour pool below the structure. **Yes** **No**
2. The ratio of the structure width to stream bankfull width is less than 0.5. **Yes** **No**

Structure width: _____ Stream bankfull width: _____ Constriction Ratio: _____

Passability = 1 **Not a barrier.**

If all of the following questions can be answered "yes", then the crossing barrier score = 1.

1. The outlet of the structure is not perched. **Yes** **No**
2. The structure water velocity is less than 2 feet/second during baseflow. **Yes** **No**
3. The ratio of the structure water depth to stream water depth is greater than 0.1. **Yes** **No**
4. The water depth in the structure is greater than 0.2 feet. **Yes** **No**
5. There is not a scour pool below the structure. **Yes** **No**
6. The ratio of the structure width to stream bankfull width is greater than 0.5. **Yes** **No**
7. ❑ The structure is longer than 30 feet and has natural substrate through its entire length, or
   ❑ The structure is shorter than 30 feet and has natural substrate through its entire length, or **Yes** **No**
   ❑ The structure is shorter than 30 feet and does not have natural substrate through its entire length.

Additional Comments

Culvert diagram, erosion, channel condition, evidence of wash-out, beaver, local testimony of frequency of overtopping...

[1] Fill out for primary culvert (culvert #1). If multiple culverts are used, see reverse.

[2] Fill out, if present.

CHR19

Stream Crossing Data Sheet

Site ID: CHR20

General Information

Name of Observer(s): Snell, Deegan **Date:** 12/29/10

GPS Waypoint: **GPS Lat/Long:**

Additional Location Comments:

Road Information

Road Name/Number: M60

Road Type: Federal (State) County Town Tribal Private Other:

Road Surface: (Paved) Gravel Sand Native Surface Other:

Road Width (ft): 42 **Fill Depth (ft):** 6

Crossing Information

Structure Type: Culvert(s) no.: ____ (Bridge) Ford Dam Other: ____ **Structure ID:** ____

Structure Shape

Round
(Square/Rectangle)
Open Bottom Square/Rectangle
Pipe Arch
Open Bottom Arch
Ellipse

Structure Material

Metal
(Concrete)
Plastic
Wood

Substrate in Structure

None Sand
Gravel Rock
Mixture

Structure Condition

General Condition: New Good Fair Poor

Plugged: ___ % Inlet Outlet In Pipe

Crushed ___ % Inlet Outlet In Pipe

Rusted Through? Yes No

Structure Interior

Smooth or Corrugated

Structure Water Velocity (ft/sec):[1] 2

Structure Water Depth (ft):[1] **inlet** 1.2 **outlet** 1.2

Structure Length (ft):[1] 105

Structure Width (ft):[1] 7 **Structure Height (ft):**[1] 4

Perch Height (ft):[1,2] **Height of Head (ft):**[1,2]

Buried Depth of Structure (ft):[1] **inlet** **outlet**

Inlet Type		Outlet Type
Projecting	Mitered	At stream grade
Headwall	Apron	Cascade over riprap
Wingwall 10-30° or 30-70°		Freefall into pool.
Trashrack		Freefall onto riprap
Other		Outlet apron
		Other

Stream Information

Stream Name: Christiana **Stream Water Velocity (in riffle) (ft/sec):**

Stream Flow: None < ½ Bankfull < Bankfull = Bankfull > Bankfull

Water Depth (in riffle) (ft): 0.5 **Bankfull Width (in riffle) (ft):** 20 **Stream Width (in riffle) ft:** 18

Scour Pool Length, Width & Depth (ft):[2] 0 / 0 / 0 **Upstream Pond Length & Width (ft):**[2] 0

Fish Passage Information

Is the structure perched?	Yes	(No)	Is there ponding upstream?	Yes	(No)
Is there a scour pool at the outlet?	Yes	(No)	Is the structure fully backwatered?	Yes	(No)
Is there substrate through the structure's entire length?	(Yes)	No	Is there a change in head from the upstream side to downstream side?	Yes	(No)
Does the structure substrate match the stream substrate?	(Yes)	No	Is the structure narrower than the bankfull stream width?	(Yes)	No
Is water in the structure moving faster than in the stream?	Yes	(No)	Is there debris blocking the inlet?	Yes	(No)
Is water in the structure shallower than in the stream?	Yes	(No)	Is there evidence of overtopping or wash-outs?	Yes	(No)

CHR 20

Multiple Culverts

Number multiple cells from left to right facing downstream. Include a diagram below indicating which culvert is culvert #1.

Culvert #	Width (ft)	Height (ft)	Length (ft)
2			
3			

Culvert #	Width (ft)	Height (ft)	Length (ft)
4			
5			

Photos

- ❑ Site ID
- ❑ Inlet
- ❑ Outlet
- ❑ Road Approach – Left
- ❑ Road Approach – Right
- ❑
- ❑ Upstream Conditions
- ❑ Downstream Conditions
- ❑

Fish Passage Determination

Follow these guidelines to determine "passability" for a range of fish species. Thresholds may need to be modified if the objective is to evaluate passage for a particular species. Answer all questions.

Passability = 0 **Most species and life stages cannot pass at most flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.

1. The outlet of the structure is perched. Yes (No)
2. The structure water velocity is greater than 3 feet/second during baseflow. Yes (No)
3. The ratio of the structure water depth to stream water depth is less than 0.1. Yes (No)

Structure water depth: _____ Stream water depth: _____ Depth Ratio: _____

Passability = 0.5 **Some species and/or life stages cannot pass at most flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.5.

1. The water depth in the structure is less than 0.2 feet. Yes (No)
2. The structure water velocity is 2-3 feet/second during baseflow. Yes (No)
3. The structure is longer than 30 feet and does not have natural substrate through its entire length. Yes (No)

Passability = 0.9 **Barrier at high flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.9.

1. There is a scour pool below the structure. Yes No
2. The ratio of the structure width to stream bankfull width is less than 0.5. (Yes) No

Structure width: _____ Stream bankfull width: _____ Constriction Ratio: _____

Passability = 1 **Not a barrier.**

If all of the following questions can be answered "yes", then the crossing barrier score = 1.

1. The outlet of the structure is not perched. Yes No
2. The structure water velocity is less than 2 feet/second during baseflow. Yes No
3. The ratio of the structure water depth to stream water depth is greater than 0.1. Yes No
4. The water depth in the structure is greater than 0.2 feet. Yes No
5. There is not a scour pool below the structure. Yes No
6. The ratio of the structure width to stream bankfull width is greater than 0.5. Yes No
7. ❑ The structure is longer than 30 feet and has natural substrate through its entire length, or
   ❑ The structure is shorter than 30 feet and has natural substrate through its entire length, or Yes No
   ❑ The structure is shorter than 30 feet and does not have natural substrate through its entire length.

Additional Comments

Culvert diagram, erosion, channel condition, evidence of wash-out, beaver, local testimony of frequency of overtopping...

[1] Fill out for primary culvert (culvert #1). If multiple culverts are used, see reverse.

[2] Fill out, if present.

CHR20

Stream Crossing Data Sheet

Site ID: CHR 21

General Information

Name of Observer(s): Snell Dugan **Date:** _____

GPS Waypoint: _____ **GPS Lat/Long:** _____

Additional Location Comments: _____

Road Information

Road Name/Number: Quaker

Road Type: Federal State (County) Town Tribal Private Other: _____

Road Surface: (Paved) Gravel Sand Native Surface Other: _____

Road Width (ft): 21 **Fill Depth (ft):** 6

Crossing Information

Structure Type: Culvert(s) no.: ____ Bridge Ford Dam Other: _____ **Structure ID:** _____

Structure Shape

Round
Square/Rectangle
Open Bottom Square/Rectangle
Pipe Arch
Open Bottom Arch
Ellipse

Structure Material

Metal
Concrete
Plastic
Wood

Substrate in Structure

None Sand
Gravel Rock
Mixture

No Picture Value

Structure Interior

Smooth or Corrugated

Structure Condition

General Condition: New Good Fair Poor

Plugged: ___ % Inlet Outlet In Pipe

Crushed ___ % Inlet Outlet In Pipe

Rusted Through? Yes No

Inlet Type	Outlet Type
Projecting Mitered	At stream grade
Headwall Apron	Cascade over riprap
Wingwall 10-30° or 30-70°	Freefall into pool.
Trashrack	Freefall onto riprap
Other	Outlet apron
	Other

Structure Water Velocity (ft/sec):[1] _____

Structure Water Depth (ft):[1] **inlet** _____ **outlet** _____

Structure Length (ft):[1] 36

Structure Width (ft):[1] _____ **Structure Height (ft):**[1] _____

Perch Height (ft):[1,2] _____ **Height of Head (ft):**[1,2] _____

Buried Depth of Structure (ft):[1] **inlet** _____ **outlet** _____

Stream Information

Stream Name: _____ **Stream Water Velocity (in riffle) (ft/sec):** _____

Stream Flow: None < ½ Bankfull < Bankfull = Bankfull > Bankfull

Water Depth (in riffle) (ft): _____ **Bankfull Width (in riffle) (ft):** _____ **Stream Width (in riffle) ft:** _____

Scour Pool Length, Width & Depth (ft):[2] ___ / ___ / ___ **Upstream Pond Length & Width (ft):**[2] _____

Fish Passage Information

Is the structure perched?	Yes	No	Is there ponding upstream?	Yes	No
Is there a scour pool at the outlet?	Yes	No	Is the structure fully backwatered?	Yes	No
Is there substrate through the structure's entire length?	Yes	No	Is there a change in head from the upstream side to downstream side?	Yes	No
Does the structure substrate match the stream substrate?	Yes	No	Is the structure narrower than the bankfull stream width?	Yes	No
Is water in the structure moving faster than in the stream?	Yes	No	Is there debris blocking the inlet?	Yes	No
Is water in the structure shallower than in the stream?	Yes	No	Is there evidence of overtopping or wash-outs?	Yes	No

CHR21

Multiple Culverts

Number multiple cells from left to right facing downstream. Include a diagram below indicating which culvert is culvert #1.

Culvert #	Width (ft)	Height (ft)	Length (ft)
2			
3			

Culvert #	Width (ft)	Height (ft)	Length (ft)
4			
5			

Photos

- ❑ Site ID
- ❑ Inlet
- ❑ Outlet
- ❑ Road Approach – Left
- ❑ Road Approach – Right
- ❑
- ❑ Upstream Conditions
- ❑ Downstream Conditions
- ❑

Fish Passage Determination

Follow these guidelines to determine "passability" for a range of fish species. Thresholds may need to be modified if the objective is to evaluate passage for a particular species. Answer all questions.

Passability = 0 **Most species and life stages cannot pass at most flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.

1. The outlet of the structure is perched. **Yes No**
2. The structure water velocity is greater than 3 feet/second during baseflow. **Yes No**
3. The ratio of the structure water depth to stream water depth is less than 0.1. **Yes No**

Structure water depth: _____ Stream water depth: _____ Depth Ratio: _____

Passability = 0.5 **Some species and/or life stages cannot pass at most flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.5.

1. The water depth in the structure is less than 0.2 feet. **Yes No**
2. The structure water velocity is 2-3 feet/second during baseflow. **Yes No**
3. The structure is longer than 30 feet and does not have natural substrate through its entire length. **Yes No**

Passability = 0.9 **Barrier at high flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.9.

1. There is a scour pool below the structure. **Yes No**
2. The ratio of the structure width to stream bankfull width is less than 0.5. **Yes No**

Structure width: _____ Stream bankfull width: _____ Constriction Ratio: _____

Passability = 1 **Not a barrier.**

If all of the following questions can be answered "yes", then the crossing barrier score = 1.

1. The outlet of the structure is not perched. **Yes No**
2. The structure water velocity is less than 2 feet/second during baseflow. **Yes No**
3. The ratio of the structure water depth to stream water depth is greater than 0.1. **Yes No**
4. The water depth in the structure is greater than 0.2 feet. **Yes No**
5. There is not a scour pool below the structure. **Yes No**
6. The ratio of the structure width to stream bankfull width is greater than 0.5. **Yes No**
7. ❑ The structure is longer than 30 feet and has natural substrate through its entire length, or
   ❑ The structure is shorter than 30 feet and has natural substrate through its entire length, or **Yes No**
   ❑ The structure is shorter than 30 feet and does not have natural substrate through its entire length.

Additional Comments

Culvert diagram, erosion, channel condition, evidence of wash-out, beaver, local testimony of frequency of overtopping...

Can't find culvert -

[1] Fill out for primary culvert (culvert #1). If multiple culverts are used, see reverse.

[2] Fill out, if present.

CHR21

Stream Crossing Data Sheet

Site ID: CHR 22

General Information

Name of Observer(s): Snell, Deegan **Date:**

GPS Waypoint: **GPS Lat/Long:**

Additional Location Comments:

Road Information

Road Name/Number: Hoffman

Road Type: Federal State County Town Tribal Private Other:

Road Surface: Paved Gravel Sand Native Surface Other:

Road Width (ft): 21 **Fill Depth (ft):** 1

Crossing Information

Structure Type: Culvert(s) no.: ____ Bridge Ford Dam Other: ____ **Structure ID:** ____

Structure Shape	Structure Material	Substrate in Structure
Round	Metal	None Sand
Square/Rectangle	Concrete	Gravel Rock
Open Bottom Square/Rectangle	Plastic	Mixture
Pipe Arch	Wood	
Open Bottom Arch		
Ellipse		

Structure Interior: Smooth or Corrugated

Structure Condition

General Condition: New Good Fair Poor

Plugged: ___ % Inlet Outlet In Pipe

Crushed ___ % Inlet Outlet In Pipe

Rusted Through? Yes No

Inlet Type	Outlet Type
Projecting Mitered	At stream grade
Headwall Apron	Cascade over riprap
Wingwall 10-30° or 30-70°	Freefall into pool.
Trashrack	Freefall onto riprap
Other	Outlet apron
	Other

Structure Water Velocity (ft/sec):[1]

Structure Water Depth (ft):[1] **inlet** **outlet**

Structure Length (ft):[1] 45

Structure Width (ft):[1] 7 **Structure Height (ft):**[1] 3

Perch Height (ft):[1,2] **Height of Head (ft):**[1,2]

Buried Depth of Structure (ft):[1] **inlet** **outlet**

Stream Information

Stream Name: **Stream Water Velocity (in riffle) (ft/sec):**

Stream Flow: None < ½ Bankfull < Bankfull = Bankfull > Bankfull

Water Depth (in riffle) (ft): **Bankfull Width (in riffle) (ft):** 8 **Stream Width (in riffle) ft:** 6

Scour Pool Length, Width & Depth (ft):[2] / / **Upstream Pond Length & Width (ft):**[2]

Fish Passage Information

Is the structure perched?	Yes	No	Is there ponding upstream?	Yes	No
Is there a scour pool at the outlet?	Yes	No	Is the structure fully backwatered?	Yes	No
Is there substrate through the structure's entire length?	Yes	No	Is there a change in head from the upstream side to downstream side?	Yes	No
Does the structure substrate match the stream substrate?	Yes	No	Is the structure narrower than the bankfull stream width?	Yes	No
Is water in the structure moving faster than in the stream?	Yes	No	Is there debris blocking the inlet?	Yes	No
Is water in the structure shallower than in the stream?	Yes	No	Is there evidence of overtopping or wash-outs?	Yes	No

CHR 22

Multiple Culverts

Number multiple cells from left to right facing downstream. Include a diagram below indicating which culvert is culvert #1.

Culvert #	Width (ft)	Height (ft)	Length (ft)
2			
3			

Culvert #	Width (ft)	Height (ft)	Length (ft)
4			
5			

Photos

- ❑ Site ID
- ❑ Inlet
- ❑ Outlet
- ❑ Road Approach – Left
- ❑ Road Approach – Right
- ❑
- ❑ Upstream Conditions
- ❑ Downstream Conditions
- ❑

Fish Passage Determination

Follow these guidelines to determine "passability" for a range of fish species. Thresholds may need to be modified if the objective is to evaluate passage for a particular species. Answer all questions.

Passability = 0 **Most species and life stages cannot pass at most flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.

1. The outlet of the structure is perched. **Yes** **No**
2. The structure water velocity is greater than 3 feet/second during baseflow. **Yes** **No**
3. The ratio of the structure water depth to stream water depth is less than 0.1. **Yes** **No**

Structure water depth: _____ Stream water depth: _____ Depth Ratio: _____

Passability = 0.5 **Some species and/or life stages cannot pass at most flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.5.

1. The water depth in the structure is less than 0.2 feet. **Yes** **No**
2. The structure water velocity is 2-3 feet/second during baseflow. **Yes** **No**
3. The structure is longer than 30 feet and does not have natural substrate through its entire length. **Yes** **No**

Passability = 0.9 **Barrier at high flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.9.

1. There is a scour pool below the structure. **Yes** **No**
2. The ratio of the structure width to stream bankfull width is less than 0.5. **Yes** **No**

Structure width: _____ Stream bankfull width: _____ Constriction Ratio: _____

Passability = 1 **Not a barrier.**

If all of the following questions can be answered "yes", then the crossing barrier score = 1.

1. The outlet of the structure is not perched. **Yes** **No**
2. The structure water velocity is less than 2 feet/second during baseflow. **Yes** **No**
3. The ratio of the structure water depth to stream water depth is greater than 0.1. **Yes** **No**
4. The water depth in the structure is greater than 0.2 feet. **Yes** **No**
5. There is not a scour pool below the structure. **Yes** **No**
6. The ratio of the structure width to stream bankfull width is greater than 0.5. **Yes** **No**
7. ❑ The structure is longer than 30 feet and has natural substrate through its entire length, or
   ❑ The structure is shorter than 30 feet and has natural substrate through its entire length, or **Yes** **No**
   ❑ The structure is shorter than 30 feet and does not have natural substrate through its entire length.

Additional Comments

Culvert diagram, erosion, channel condition, evidence of wash-out, beaver, local testimony of frequency of overtopping...

No Resource Value

[1] Fill out for primary culvert (culvert #1). If multiple culverts are used, see reverse.

[2] Fill out, if present.

CHR22

Stream Crossing Data Sheet

Site ID: CHR 23

General Information

Name of Observer(s): Snell, Deagan **Date:**

GPS Waypoint: **GPS Lat/Long:**

Additional Location Comments:

Road Information

Road Name/Number: White Temple

Road Type: Federal State (County) Town Tribal Private Other:

Road Surface: (Paved) Gravel Sand Native Surface Other:

Road Width (ft): 24 **Fill Depth (ft):** 6

Crossing Information

Structure Type: Culvert(s) no.: 1 Bridge Ford Dam Other: **Structure ID:**

Structure Shape	Structure Material	Substrate in Structure
(Round)	(Metal)	None Sand
Square/Rectangle	Concrete	Gravel Rock
Open Bottom Square/Rectangle	Plastic	Mixture
Pipe Arch	Wood	
Open Bottom Arch	**Structure Interior**	
Ellipse	Smooth or (Corrugated)	

Structure Condition

General Condition: New Good (Fair) Poor

Plugged: ___ % Inlet Outlet In Pipe

Crushed ___ % Inlet Outlet In Pipe

Rusted Through? Yes No

Inlet Type	Outlet Type
(Projecting) Mitered	(At stream grade)
Headwall Apron	Cascade over riprap
Wingwall 10-30° or 30-70°	Freefall into pool.
Trashrack	Freefall onto riprap
Other	Outlet apron
	Other

Structure Water Velocity (ft/sec):[1] -

Structure Water Depth (ft):[1] **inlet** 0.5 **outlet** 0.5

Structure Length (ft):[1] 75

Structure Width (ft):[1] 3 **Structure Height (ft):**[1] 3

Perch Height (ft):[1,2] - **Height of Head (ft):**[1,2] -

Buried Depth of Structure (ft):[1] **inlet** - **outlet**

Stream Information

Stream Name: **Stream Water Velocity (in riffle) (ft/sec):**

Stream Flow: None (<½ Bankfull) < Bankfull = Bankfull > Bankfull

Water Depth (in riffle) (ft): 0.5 **Bankfull Width (in riffle) (ft):** 16 **Stream Width (in riffle) ft:** 12

Scour Pool Length, Width & Depth (ft):[2] / / **Upstream Pond Length & Width (ft):**[2]

Fish Passage Information

Is the structure perched?	Yes	(No)	Is there ponding upstream?	Yes	(No)
Is there a scour pool at the outlet?	Yes	(No)	Is the structure fully backwatered?	Yes	(No)
Is there substrate through the structure's entire length?	(Yes)	No	Is there a change in head from the upstream side to downstream side?	Yes	(No)
Does the structure substrate match the stream substrate?	(Yes)	No	Is the structure narrower than the bankfull stream width?	(Yes)	No
Is water in the structure moving faster than in the stream?	Yes	(No)	Is there debris blocking the inlet?	Yes	(No)
Is water in the structure shallower than in the stream?	Yes	(No)	Is there evidence of overtopping or wash-outs?	Yes	(No)

CHZ 23

Multiple Culverts

Number multiple cells from left to right facing downstream. Include a diagram below indicating which culvert is culvert #1.

Culvert #	Width (ft)	Height (ft)	Length (ft)
2			
3			

Culvert #	Width (ft)	Height (ft)	Length (ft)
4			
5			

Photos

- ❑ Site ID
- ❑ Inlet
- ❑ Outlet
- ❑ Road Approach – Left
- ❑ Road Approach – Right
- ❑
- ❑ Upstream Conditions
- ❑ Downstream Conditions
- ❑

Fish Passage Determination

Follow these guidelines to determine "passability" for a range of fish species. Thresholds may need to be modified if the objective is to evaluate passage for a particular species. Answer all questions.

Passability = 0 **Most species and life stages cannot pass at most flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.

1. The outlet of the structure is perched. Yes (No)
2. The structure water velocity is greater than 3 feet/second during baseflow. Yes (No)
3. The ratio of the structure water depth to stream water depth is less than 0.1. Yes (No)

Structure water depth: _____ Stream water depth: _____ Depth Ratio: _____

Passability = 0.5 **Some species and/or life stages cannot pass at most flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.5.

1. The water depth in the structure is less than 0.2 feet. Yes (No)
2. The structure water velocity is 2-3 feet/second during baseflow. Yes (No)
3. The structure is longer than 30 feet and does not have natural substrate through its entire length. Yes (No)

Passability = 0.9 **Barrier at high flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.9.

1. There is a scour pool below the structure. (Yes) No
2. The ratio of the structure width to stream bankfull width is less than 0.5. (Yes) No

Structure width: _____ Stream bankfull width: _____ Constriction Ratio: _____

Passability = 1 **Not a barrier.**

If all of the following questions can be answered "yes", then the crossing barrier score = 1.

1. The outlet of the structure is not perched. Yes No
2. The structure water velocity is less than 2 feet/second during baseflow. Yes No
3. The ratio of the structure water depth to stream water depth is greater than 0.1. Yes No
4. The water depth in the structure is greater than 0.2 feet. Yes No
5. There is not a scour pool below the structure. Yes No
6. The ratio of the structure width to stream bankfull width is greater than 0.5. Yes No
7. ❑ The structure is longer than 30 feet and has natural substrate through its entire length, or
   ❑ The structure is shorter than 30 feet and has natural substrate through its entire length, or Yes No
   ❑ The structure is shorter than 30 feet and does not have natural substrate through its entire length.

Additional Comments

Culvert diagram, erosion, channel condition, evidence of wash-out, beaver, local testimony of frequency of overtopping...

[1] Fill out for primary culvert (culvert #1). If multiple culverts are used, see reverse.

[2] Fill out, if present.

CHR23-LAKE OUTLET

Stream Crossing Data Sheet

Site ID: CHR 24

General Information

Name of Observer(s): Snell, Deegan **Date:**

GPS Waypoint: **GPS Lat/Long:**

Additional Location Comments:

Road Information

Road Name/Number: Crooked Creek

Road Type: Federal State (County) Town Tribal Private Other:

Road Surface: (Paved) Gravel Sand Native Surface Other:

Road Width (ft): 21 **Fill Depth (ft):** 2

Crossing Information

Structure Type: Culvert(s) no.: 1 Bridge Ford Dam Other: **Structure ID:**

Structure Shape

Round
Square/Rectangle
Open Bottom Square/Rectangle
Pipe Arch
Open Bottom Arch
(Ellipse)

Structure Material

(Metal)
Concrete
Plastic
Wood

Substrate in Structure

(None) Sand
Gravel Rock
Mixture

Structure Condition

General Condition: New (Good) Fair Poor

Plugged: ___ % Inlet Outlet In Pipe

Crushed ___ % Inlet Outlet In Pipe

Rusted Through? Yes No

Structure Interior

Smooth or (Corrugated)

Structure Water Velocity (ft/sec):[1] 2.3

Structure Water Depth (ft):[1] **inlet** 1 **outlet** 1

Structure Length (ft):[1] 50

Structure Width (ft):[1] 5 **Structure Height (ft):**[1] 4

Perch Height (ft):[1,2] - **Height of Head (ft):**[1,2] -

Buried Depth of Structure (ft):[1] **inlet** - **outlet** -

Inlet Type	Outlet Type
(Projecting) Mitered	(At stream grade)
Headwall Apron	Cascade over riprap
Wingwall 10-30° or 30-70°	Freefall into pool.
Trashrack	Freefall onto riprap
Other	Outlet apron
	Other

Stream Information

Stream Name: Diamond Outlet **Stream Water Velocity (in riffle) (ft/sec):**

Stream Flow: None < ½ Bankfull (< Bankfull) = Bankfull > Bankfull

Water Depth (in riffle) (ft): 0.3 **Bankfull Width (in riffle) (ft):** 8 **Stream Width (in riffle) ft:** 6

Scour Pool Length, Width & Depth (ft):[2] 1 1 **Upstream Pond Length & Width (ft):**[2] -

Fish Passage Information

Is the structure perched?	Yes	(No)	Is there ponding upstream?	Yes	(No)
Is there a scour pool at the outlet?	Yes	(No)	Is the structure fully backwatered?	Yes	(No)
Is there substrate through the structure's entire length?	Yes	(No)	Is there a change in head from the upstream side to downstream side?	Yes	(No)
Does the structure substrate match the stream substrate?	Yes	(No)	Is the structure narrower than the bankfull stream width?	(Yes)	No
Is water in the structure moving faster than in the stream?	(Yes)	No	Is there debris blocking the inlet?	Yes	(No)
Is water in the structure shallower than in the stream?	Yes	(No)	Is there evidence of overtopping or wash-outs?	Yes	(No)

CHR 24

Multiple Culverts

Number multiple cells from left to right facing downstream. Include a diagram below indicating which culvert is culvert #1.

Culvert #	Width (ft)	Height (ft)	Length (ft)
2			
3			

Culvert #	Width (ft)	Height (ft)	Length (ft)
4			
5			

Photos

❑ Site ID
❑ Inlet
❑ Outlet
❑ Road Approach – Left
❑ Road Approach – Right
❑
❑ Upstream Conditions
❑ Downstream Conditions
❑

Fish Passage Determination

Follow these guidelines to determine "passability" for a range of fish species. Thresholds may need to be modified if the objective is to evaluate passage for a particular species. Answer all questions.

Passability = 0 **Most species and life stages cannot pass at most flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.

1. The outlet of the structure is perched. **Yes** **No**
2. The structure water velocity is greater than 3 feet/second during baseflow. **Yes** **No**
3. The ratio of the structure water depth to stream water depth is less than 0.1. **Yes** **No**

Structure water depth: _____ Stream water depth: _____ Depth Ratio: _____

Passability = 0.5 **Some species and/or life stages cannot pass at most flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.5.

1. The water depth in the structure is less than 0.2 feet. **Yes** **No**
2. The structure water velocity is 2-3 feet/second during baseflow. **Yes** **No**
3. The structure is longer than 30 feet and does not have natural substrate through its entire length. **Yes** **No**

Passability = 0.9 **Barrier at high flows.**

If any of the following questions can be answered "yes", then the crossing barrier score = 0.9.

1. There is a scour pool below the structure. **Yes** **No**
2. The ratio of the structure width to stream bankfull width is less than 0.5. **Yes** **No**

Structure width: _____ Stream bankfull width: _____ Constriction Ratio: _____

Passability = 1 **Not a barrier.**

If all of the following questions can be answered "yes", then the crossing barrier score = 1.

1. The outlet of the structure is not perched. **Yes** **No**
2. The structure water velocity is less than 2 feet/second during baseflow. **Yes** **No**
3. The ratio of the structure water depth to stream water depth is greater than 0.1. **Yes** **No**
4. The water depth in the structure is greater than 0.2 feet. **Yes** **No**
5. There is not a scour pool below the structure. **Yes** **No**
6. The ratio of the structure width to stream bankfull width is greater than 0.5. **Yes** **No**
7. ❑ The structure is longer than 30 feet and has natural substrate through its entire length, or
   ❑ The structure is shorter than 30 feet and has natural substrate through its entire length, or **Yes** **No**
   ❑ The structure is shorter than 30 feet and does not have natural substrate through its entire length.

Additional Comments

Culvert diagram, erosion, channel condition, evidence of wash-out, beaver, local testimony of frequency of overtopping...

[1] Fill out for primary culvert (culvert #1). If multiple culverts are used, see reverse.

[2] Fill out, if present.

CHR24-Diamond Outlet

CHR25-Simonton Road

A Stream Crossing Data Sheet was not provided
for this site during the 2011 field inspection.
- Streamside Ecological Services

CHR26-Bristol Street

A Stream Crossing Data Sheet was not provided
for this site during the 2011 field inspection.
- Streamside Ecological Services

CHR27-County Road 6

A Stream Crossing Data Sheet was not provided
for this site during the 2011 field inspection.
- Streamside Ecological Services

CHR28-County Road 4

A Stream Crossing Data Sheet was not provided
for this site during the 2011 field inspection.
- Streamside Ecological Services

Site ID: CHR 3 Inventoried by: Snell, Deegan Date: 12/29

St. Joseph Watershed Dam Inventory Data Form

Site Location Information:

GPS Waypoint __ Latitude:_____ Longitude:_____

County:_____ T/R/Sec.:_____

Access Road _____ Dam or Impoundment name (if any): High Dive Park

Dam/Property Owner(s): ☐Federal ☐State ☐Local Gov. ☐Private ☐Abandoned ☐Unknown

Stream Name: Christiana Tributary to: St. Joe

Recent Precipitation (web source such as wunderground.com): Past 24 hours:_____in Past Week:_____in

Land Use Information

(Check any that apply)

Upstream:	Downstream:
☐Forest	☐Forest
☐Wetland	☐Wetland
☐Residential	☐Residential
☐Urban	☐Urban
☐Agriculture	☐Agriculture
☒Park	☐ Park
☐Industrial	☐Industrial
☐Other: _____	☐Other: _____

Impoundment or Dam Use Information

(Check all that apply)

- ☒Recreation
- ☐Wildlife pond
- ☐Waterfront development
- ☐Hydropower
- ☐Water supply
- ☐Flood control
- ☐Other:_____

Structural Information (check all appropriate):

Barrier Type	Construction Materials	Other Site Features
☐Earthen Berm	☒Concrete	☐ Emergency Spillway
☐Dam Wall(no overflow)	☐Earth	☐Stream Diversion or Canal
☒Open Crest spanning stream	☐Wood	☐Retaining Walls
☐Open crest channelizing flow	☐Rock (Broken concrete)	☐Low level outlet
☐Debris Jam	☐Metal	☐Gates
☐ Stoplogs or Flashboards	☐Screen	☐Rip-Rap
☐Beaver dam	☐Other:_____	☐Fish passage Structure
☐Undersized culvert		☐Vehicle access
☐Natural Falls		☐Attached or Adjacent Buildings
☐Other:_____		☐Other:_____

Upstream Conditions:

(Mark evident changes to the stream caused by the barrier)

- ☒Widening
- ☐Deepening
- ☐Loss of channel/Partially Lake
- ☐Change to lake/pond
- ☐Wetland/Flooding
- ☐None

Is there evidence of erosion?

(Check all that apply)

Upstream:	At Structure:	Downstream:
☐Overtopping	☐Overflow/Breach	☒Plunge Pool
☐Gullies	☐Access Paths/Trails	☒Scour
☐Bare Soil	☐Gullies	☐Gullies
☐Bank Failure	☐Bare Soil	☐Bare Soil
☐Undercut Banks	☐Bank Failure	☐Bank Failure
	☐Undercut Banks	☐Undercut Banks

Direct Stream Measurements:

Stream:	Spillway:	Vertical Characteristics:
Widest Impoundment Width: 35 ft	Width:____ft	Height of Head: 2 ft
Impoundment Length:____ft	Length:____ft	Freeboard Available: — ft
Estimated Area of Impoundment:	Number of Interruptions or Steps: 1	
	Water Velocity: 3 fps	
Width After Plunge Pool:____ft		

Site ID : CHR 3 Inventoried by : Date:

Other Pertinent Information:

- Physical Condition Ranking: (Please Rank - 5 being best condition, 1 being worst): 5, 4, 3, (2), 1
  Reasoning/Justification:
- Does the dam have the ability to regulate water level? ☐Y ☒N
- Is it being actively managed? ☐Y ☒N
- Based on MDNRE contamination flowchart (included in instructions), should sediments be tested?
- Is another barrier (dam or road crossing) visible up or downstream? ☒Y ☐N
- Are there any invasive species present? ☐Y ☐N If so, which?_____

Photo Documentation: Please number the photos in the order you take them.

Downstream Face:_____ Upstream Face:_X_____ Downstream View:_____ Upstream View:_____ Others:_____

Site Sketch (Please Mark Photo Numbers on Site Sketch)

Overhead view

Side view

CHR3

Site ID : CHR4 Inventoried by : Snell, Deegan Date: 12/29

St. Joseph Watershed Dam Inventory Data Form

Site Location Information:

GPS Waypoint __ Latitude:_____ Longitude:_____

County:_____ T/R/Sec.:_____

Access Road _____ Dam or Impoundment name (if any): High Dive Park

Dam/Property Owner(s): ☐Federal ☐State ☐Local Gov. ☐Private ☐Abandoned ☐Unknown

Stream Name: Christiana Tributary to:_____

Recent Precipitation (web source such as wunderground.com): Past 24 hours:_____ in Past Week:_____ in

Land Use Information

(Check any that apply)

Upstream:	Downstream:
☐Forest	☐Forest
☐Wetland	☐Wetland
☐Residential	☐Residential
☐Urban	☐Urban
☐Agriculture	☐Agriculture
☒Park	☒Park
☐Industrial	☐Industrial
☐Other: _____	☐Other: _____

Impoundment or Dam Use Information

(Check all that apply)

☒Recreation
☐Wildlife pond
☐Waterfront development
☐Hydropower
☐Water supply
☐Flood control
☐Other:_____

Structural Information (check all appropriate):

Barrier Type	Construction Materials	Other Site Features
☐Earthen Berm	☒Concrete	☐Emergency Spillway
☐Dam Wall(no overflow)	☐Earth	☒Stream Diversion or Canal
☒Open Crest spanning stream	☐Wood	☒Retaining Walls
☐Open crest channelizing flow	☐Rock	☐Low level outlet
☐Debris Jam	☒Metal	☐Gates
☐Stoplogs or Flashboards	☐Screen	☐Rip-Rap
☐Beaver dam	☐Other:_____	☐Fish passage Structure
☐Undersized culvert		☐Vehicle access
☐Natural Falls		☐Attached or Adjacent Buildings
☐Other:_____		☐Other:_____

Upstream Conditions:

(Mark evident changes to the stream caused by the barrier)

☐Widening
☐Deepening
☐Loss of channel/Partially Lake
☐Change to lake/pond
☐Wetland/Flooding
☒None

Is there evidence of erosion?

(Check all that apply)

Upstream:	At Structure:	Downstream:
☐Overtopping	☐Overflow/Breach	☒Plunge Pool
☐Gullies	☐Access Paths/Trails	☐Scour
☐Bare Soil	☐Gullies	☐Gullies
☐Bank Failure	☐Bare Soil	☐Bare Soil
☐Undercut Banks	☐Bank Failure	☐Bank Failure
	☐Undercut Banks	☐Undercut Banks

Direct Stream Measurements:

Stream:	Spillway:	Vertical Characteristics:
Widest Impoundment Width: ~ ft	Width: 40 ft	Height of Head: 1 ft
Impoundment Length:_____ ft	Length:_____ ft	Freeboard Available ~ ft
Estimated Area of Impoundment:	Number of Interruptions or Steps: 1	
	Water Velocity: 3	
Width After Plunge Pool:_____ ft		

Site ID : CHR 4 Inventoried by : Date:

Other Pertinent Information:

- Physical Condition Ranking: (Please Rank - 5 being best condition, 1 being worst): 5, (4) 3, 2, 1
  Reasoning/Justification:
- Does the dam have the ability to regulate water level? ☐Y ☒N
- Is it being actively managed? ☐Y ☒N
- Based on MDNRE contamination flowchart (included in instructions), should sediments be tested?
- Is another barrier (dam or road crossing) visible up or downstream? ☒Y ☐N
- Are there any invasive species present? ☐Y ☐N If so, which?_____

Photo Documentation: Please number the photos in the order you take them.

Downstream Face:_____ Upstream Face:_____ Downstream View:_____ Upstream View:_____ Others:_____

PHOTO 3

Site Sketch (Please Mark Photo Numbers on Site Sketch)

Overhead view

Side view

CHR4

Site ID : CHR5 Inventoried by : Snell, Deegan Date: 12/29/10

St. Joseph Watershed Dam Inventory Data Form

Site Location Information:

GPS Waypoint __ Latitude:_____ Longitude:_____
County: Elkhart T/R/Sec.:_____
Access Road Cassopolis Dam or Impoundment name (if any): NA
Dam/Property Owner(s): ☐Federal ☐State ☐Local Gov. ☐Private ☐Abandoned ☐Unknown
Stream Name: Christiana Tributary to: St Joe
Recent Precipitation (web source such as wunderground.com): Past 24 hours: 0 in Past Week: 0 in

Land Use Information
(Check any that apply)

Upstream:	Downstream:
☐Forest	☐Forest
☐Wetland	☐Wetland
☐Residential	☐Residential
☑Urban	☑Urban
☐Agriculture	☐Agriculture
☐ Park	☐ Park
☐Industrial	☐Industrial
☐Other: _____	☐Other: _____

Impoundment or Dam Use Information
(Check all that apply)
☐Recreation
☐Wildlife pond
☐Waterfront development
☐Hydropower
☐Water supply
☐Flood control
☐Other: water main crossing spillway

Structural Information (check all appropriate):

Barrier Type	Construction Materials	Other Site Features
☐Earthen Berm	☑Concrete	☐ Emergency Spillway
☐Dam Wall(no overflow)	☐Earth	☐Stream Diversion or Canal
☐Open Crest spanning stream	☐Wood	☐Retaining Walls
☐Open crest channelizing flow	☐Rock	☐Low level outlet
☐Debris Jam	☑Metal	☐Gates
☐ Stoplogs or Flashboards	☐Screen	☐Rip-Rap
☐Beaver dam	☐Other:_____	☐Fish passage Structure
☐Undersized culvert		☐Vehicle access
☐Natural Falls		☐Attached or Adjacent Buildings
☐Other: water main		☐Other:_____

Upstream Conditions:
(Mark evident changes to the stream caused by the barrier)
☐Widening
☐Deepening
☐Loss of channel/Partially Lake
☐Change to lake/pond
☐Wetland/Flooding
☑None

Is there evidence of erosion?
(Check all that apply)

Upstream:	At Structure:	Downstream:
☐Overtopping	☐Overflow/Breach	☑Plunge Pool
☐Gullies	☐Access Paths/Trails	☐Scour
☐Bare Soil	☐Gullies	☐Gullies
☐Bank Failure	☐Bare Soil	☐Bare Soil
☐Undercut Banks	☐Bank Failure	☐Bank Failure
	☐Undercut Banks	☐Undercut Banks

Direct Stream Measurements:

Stream:	Spillway:	Vertical Characteristics:
Widest Impoundment Width: 25 ft	Width: 25 ft	Height of Head: 1 ft
Impoundment Length:_____ ft	Length:_____ ft	Freeboard Available_____ ft
Estimated Area of Impoundment: 0	Number of Interruptions or Steps:	
	Water Velocity:	
Width After Plunge Pool: 25 ft		

Site ID : CHR5 Inventoried by : Date:

Other Pertinent Information:

- Physical Condition Ranking: (Please Rank - 5 being best condition, 1 being worst): 5 4, 3, 2, 1
  Reasoning/Justification:
- Does the dam have the ability to regulate water level? ☐Y ☒N
- Is it being actively managed? ☒Y ☐N
- Based on MDNRE contamination flowchart (included in instructions), should sediments be tested? No
- Is another barrier (dam or road crossing) visible up or downstream? ☐Y ☒N
- Are there any invasive species present? ☒Y ☐N If so, which?_____

Photo Documentation: Please number the photos in the order you take them.

Downstream Face:_____ Upstream Face:_____ Downstream View:_____ Upstream View:_____ Others:_____
photo #4

Site Sketch (Please Mark Photo Numbers on Site Sketch)

Overhead view

Side view

CHR5

Site ID : CHR 6 Inventoried by : Snell, Deegan Date: 12/29

St. Joseph Watershed Dam Inventory Data Form

Site Location Information:

GPS Waypoint __ Latitude:_____ Longitude:_____

County:_____ T/R/Sec.:_____

Access Road _____ Dam or Impoundment name (if any): Main St

Dam/Property Owner(s): ☐Federal ☐State ☒Local Gov. ☐Private ☐Abandoned ☐Unknown

Stream Name: Christiana Tributary to: St Joe

Recent Precipitation (web source such as wunderground.com): Past 24 hours:_____in Past Week:_____in

Land Use Information

(Check any that apply)

Upstream:	Downstream:
☐Forest	☐Forest
☐Wetland	☐Wetland
☒Residential	☒Residential
☒Urban	☒Urban
☐Agriculture	☐Agriculture
☐ Park	☐ Park
☐Industrial	☒Industrial
☐Other: _____	☐Other: _____

Impoundment or Dam Use Information

(Check all that apply)

☐Recreation
☐Wildlife pond Water Mains
☐Waterfront development
☐Hydropower
☐Water supply
☐Flood control
☐Other:_____

Structural Information (check all appropriate):

Barrier Type	Construction Materials	Other Site Features
☐Earthen Berm	☐ Concrete	☐ Emergency Spillway
☐Dam Wall(no overflow)	☐Earth	☐Stream Diversion or Canal
☒Open Crest spanning stream	☐Wood	☐Retaining Walls
☐Open crest channelizing flow	☐Rock	☐Low level outlet
☐Debris Jam	☒Metal	☐Gates
☐ Stoplogs or Flashboards	☐Screen	☒Rip-Rap
☐Beaver dam	☐Other:_____	☐Fish passage Structure
☐Undersized culvert		☐Vehicle access
☐Natural Falls		☐Attached or Adjacent Buildings
☐Other:_____		☐Other:_____

Upstream Conditions:

(Mark evident changes to the stream caused by the barrier)

☐Widening
☐Deepening
☐Loss of channel/Partially Lake
☐Change to lake/pond
☐Wetland/Flooding
☒None

Is there evidence of erosion?

(Check all that apply)

Upstream:	At Structure:	Downstream:
☐Overtopping	☐Overflow/Breach	☒Plunge Pool
☐Gullies	☐Access Paths/Trails	☒Scour
☐Bare Soil	☐Gullies	☐Gullies
☐Bank Failure	☐Bare Soil	☐Bare Soil
☐Undercut Banks	☐Bank Failure	☐Bank Failure
	☐Undercut Banks	☐Undercut Banks

Direct Stream Measurements:

Stream:	Spillway:	Vertical Characteristics:
Widest Impoundment Width:_____ft	Width: 30 ft	Height of Head: 4 ft
Impoundment Length:_____ft	Length:_____ft	Freeboard Available – ft
Estimated Area of Impoundment:	Number of Interruptions or Steps: 4	
	Water Velocity: 3+	
Width After Plunge Pool:_____ft		

Site ID : CHR6 Inventoried by : Date:

Other Pertinent Information:

- Physical Condition Ranking: (Please Rank - 5 being best condition, 1 being worst): 5, (4) 3, 2, 1
  Reasoning/Justification:
- Does the dam have the ability to regulate water level? □Y ☒N
- Is it being actively managed? ☒Y □N Water main
- Based on MDNRE contamination flowchart (included in instructions), should sediments be tested?
- Is another barrier (dam or road crossing) visible up or downstream? □Y □N
- Are there any invasive species present? □Y □N If so, which?_____

Photo Documentation: Please number the photos in the order you take them.

Downstream Face:_____ Upstream Face:_____ Downstream View:_____ Upstream View:_____ Others:_____

Photo 5-6

Site Sketch (Please Mark Photo Numbers on Site Sketch)

Overhead view

Side view

CHR6-DOWNSTREAM

UPSTREAM

Site ID : CHR 7 Inventoried by : Snell, Deegan Date: 12/29

St. Joseph Watershed Dam Inventory Data Form

Site Location Information:

GPS Waypoint __ Latitude:_____ Longitude:_____

County:_____ T/R/Sec.:_____

Access Road _____ Dam or Impoundment name (if any):_____

Dam/Property Owner(s): ☐Federal ☐State ☒Local Gov. ☐Private ☐Abandoned ☐Unknown

Stream Name: Christiana Tributary to: St Joe

Recent Precipitation (web source such as wunderground.com): Past 24 hours:_____in Past Week:_____in

Land Use Information

(Check any that apply)

Upstream:	Downstream:
☒Forest	☐Forest
☐Wetland	☐Wetland
☐Residential	☒Residential
☐Urban	☒Urban
☐Agriculture	☐Agriculture
☒Park	☐ Park
☐Industrial	☐Industrial
☐Other: _____	☐Other: _____

Impoundment or Dam Use Information

(Check all that apply)

☐Recreation
☐Wildlife pond Rock dam
☐Waterfront development
☐Hydropower
☐Water supply
☐Flood control
☐Other:_____

Structural Information (check all appropriate):

Barrier Type	Construction Materials	Other Site Features
☐Earthen Berm	☒Concrete	☐ Emergency Spillway
☐Dam Wall(no overflow)	☐Earth	☐Stream Diversion or Canal
☐Open Crest spanning stream	☐Wood broken concrete	☐Retaining Walls
☒Open crest channelizing flow	☐Rock	☐Low level outlet
☐Debris Jam	☐Metal	☐Gates
☐ Stoplogs or Flashboards	☐Screen	☒Rip-Rap
☐Beaver dam	☐Other:_____	☐Fish passage Structure
☐Undersized culvert		☐Vehicle access
☐Natural Falls		☐Attached or Adjacent Buildings
☐Other:_____		☐Other:_____

Upstream Conditions:

(Mark evident changes to the stream caused by the barrier)

☒Widening
☐Deepening
☐Loss of channel/Partially Lake
☐Change to lake/pond
☐Wetland/Flooding
☐None

Is there evidence of erosion?

(Check all that apply)

Upstream:	At Structure:	Downstream:
☐Overtopping	☐Overflow/Breach	☒Plunge Pool
☐Gullies	☐Access Paths/Trails	☐Scour
☐Bare Soil	☐Gullies	☐Gullies
☐Bank Failure	☐Bare Soil	☐Bare Soil
☐Undercut Banks	☐Bank Failure	☐Bank Failure
	☐Undercut Banks	☐Undercut Banks

Direct Stream Measurements:

Stream:	Spillway:	Vertical Characteristics:
Widest Impoundment Width:_____ft	Width: 20 ft	Height of Head: 3 ft
Impoundment Length:_____ft	Length:_____ft	Freeboard Available: – ft
Estimated Area of Impoundment:	Number of Interruptions or Steps: 1	
	Water Velocity: 4+	
Width After Plunge Pool:_____ft		

Site ID : CHR 7 Inventoried by : Date:

Other Pertinent Information:

- Physical Condition Ranking: (Please Rank - 5 being best condition, 1 being worst): 5, 4, 3, 2, 1
  Reasoning/Justification:
- Does the dam have the ability to regulate water level? ☐Y ☒N
- Is it being actively managed? ☐Y ☒N
- Based on MDNRE contamination flowchart (included in instructions), should sediments be tested?
- Is another barrier (dam or road crossing) visible up or downstream? ☒Y ☐N
- Are there any invasive species present? ☐Y ☐N If so, which?_____

Photo Documentation: Please number the photos in the order you take them.

Downstream Face:_____ Upstream Face:_____ Downstream View:_____ Upstream View:_____ Others:_____

Photo 7

Site Sketch (Please Mark Photo Numbers on Site Sketch)

Overhead view

Side view

CHR7

Site ID : CHR 8 Inventoried by : Date:

St. Joseph Watershed Dam Inventory Data Form

Site Location Information:

GPS Waypoint __ Latitude:_____ Longitude:_____

County:_____ T/R/Sec.:_____

Access Road _____ Dam or Impoundment name (if any): Botanical

Dam/Property Owner(s): ☐Federal ☐State ☒Local Gov. ☐Private ☐Abandoned ☐Unknown

Stream Name: Christmas Tributary to: St Joe

Recent Precipitation (web source such as wunderground.com): Past 24 hours:_____in Past Week:_____in

Land Use Information

(Check any that apply)

Upstream:	Downstream:
☐Forest	☐Forest
☒Wetland	☐Wetland
☐Residential	☐Residential
☐Urban	☐Urban
☐Agriculture	☐Agriculture
☑ Park	☒ Park
☐Industrial	☐Industrial
☐Other: _____	☐Other: _____

Impoundment or Dam Use Information

(Check all that apply)

☑Recreation
☐Wildlife pond
☐Waterfront development
☐Hydropower
☒Water supply- For ponds @ city water plant
☐Flood control
☐Other:_____

Structural Information (check all appropriate):

Barrier Type	Construction Materials	Other Site Features
☐Earthen Berm	☒ Concrete	☐ Emergency Spillway
☐Dam Wall(no overflow)	☐Earth	☐Stream Diversion or Canal
☒Open Crest spanning stream	☐Wood	☐Retaining Walls
☐Open crest channelizing flow	☒Rock	☐Low level outlet
☐Debris Jam	☐Metal	☐Gates
☐ Stoplogs or Flashboards	☐Screen	☐Rip-Rap
☐Beaver dam	☐Other:_____	☐Fish passage Structure
☐Undersized culvert		☐Vehicle access
☐Natural Falls		☐Attached or Adjacent Buildings
☐Other:_____		☐Other:_____

Upstream Conditions:

(Mark evident changes to the stream caused by the barrier)

☒Widening
☐Deepening
☐Loss of channel/Partially Lake
☐Change to lake/pond
☐Wetland/Flooding
☐None

Is there evidence of erosion?

(Check all that apply)

Upstream:	At Structure:	Downstream:
☐Overtopping	☐Overflow/Breach	☒Plunge Pool
☐Gullies	☑Access Paths/Trails	☒Scour
☐Bare Soil	☐Gullies	☐Gullies
☐Bank Failure	☒Bare Soil	☒Bare Soil
☐Undercut Banks	☐Bank Failure	☐Bank Failure
	☐Undercut Banks	☐Undercut Banks

Direct Stream Measurements:

Stream:	Spillway:	Vertical Characteristics:
Widest Impoundment Width: 60 ft	Width: 30 ft	Height of Head: 4 ft
Impoundment Length: 200 ft	Length:____ft	Freeboard Available — ft
Estimated Area of Impoundment:	Number of Interruptions or Steps:	
	Water Velocity:	
Width After Plunge Pool:_____ft		

Site ID : CHR 8 Inventoried by : Date:

Other Pertinent Information:

- Physical Condition Ranking: (Please Rank - 5 being best condition, 1 being worst): 5, 4, 3, 2, 1
  Reasoning/Justification:
- Does the dam have the ability to regulate water level? ☐Y ☒N - City adds/removes rock
- Is it being actively managed? ☒Y ☐N
- Based on MDNRE contamination flowchart (included in instructions), should sediments be tested?
- Is another barrier (dam or road crossing) visible up or downstream? ☐Y ☐N
- Are there any invasive species present? ☐Y ☐N If so, which?_____

Photo Documentation: Please number the photos in the order you take them.

Downstream Face:_____ Upstream Face:_____ Downstream View:_____ Upstream View:_____ Others:_____

PHOTO 8

Site Sketch (Please Mark Photo Numbers on Site Sketch)

Overhead view

Side view

CHR8

CHR29-Redfield Road

A Stream Crossing Data Sheet was not provided
for this site during the 2011 field inspection.
- Streamside Ecological Services