

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

RECEIVED**JUN 12 2017**DEPARTMENT OF
WATER RESOURCES

A Beneficial Use Field Report is prepared by a water right examiner as the result of an examination to clearly confirm and establish the extent of the beneficial use of water established in connection with a permit during the development period authorized by the permit and any extensions of time previously approved.

A. GENERAL INFORMATIONPermit No. 61-7731

1. Owner Elmore County, Board of County Commissioners Phone No. (208) 587-2129
Current address Elmore County Courthouse, 150 South 4th East Suite #3, Mountain Home, ID 83647
2. Examiner's name Scott N. King, P.E. EXAM DATE March 17, 2017
3. Accompanied by Bud Corbus, Wes Wootan, Al Hofer Email _____
Address 150 South 4th East, Mountain Home, ID 83647
Relationship to permit holder County Commissioners Phone No. (208) 587-2129
4. Source Canyon Creek tributary to Snake River

B. OVERLAP REVIEW

1. Other water rights with the same place of use Mountain Home Irrigation District (numerous rights)
2. Other water rights with the same source and point of diversion 61-2117

C. DIVERSION AND DELIVERY SYSTEM

1. Point(s) of Diversion:

Ident. No.	Gov't Lot	¼	¼	¼	Sec	Twp	Rge	County	Method of Determination/Remarks
1			NE	NE	10	3S	6E	Elmore	GPS. "Upper" Diversion
2			SE	NW	10	3S	6E	Elmore	GPS. "Lower" Diversion

2. Place(s) of Use: Method of determination GPS, aerial imagery, site inspection

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
3S	6E	10	X			X						X							

3. **Delivery System Diagram:** Indicate all major components and distances between components. Indicate weir size/ditch size/pipe diameter (inside), as applicable. Use the space provided or ☒ see attached.

Scale: 1" = _____

- ☒ Copy of USGS Quadrangle attached showing location(s) of point(s) of diversion and place(s) of use (**required**)
☒ Aerial photo attached (required for irrigation of 10+ acres)
☒ Photo of diversion and system attached

4.

Well or Diversion Identification No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size

*Code to correspond with no. on map and aerial photo

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
Current Meter & AquaCalc		Price	AA			

2. **Measurements:** _____

Measured discharge in ditches below diversion structures. Upper diversion discharge was 20.3 cfs and calculated discharge based on culvert conditions is 19.2 cfs. Lower diversion discharge was 13.5 cfs and calculated discharge based on culvert conditions is 11.4 cfs.

F. FLOW CALCULATIONS☒ Additional computation sheets attached

Measured Method:

Upper diversion: Measured discharge of 20.3 cfs on March 20, 2017. Calculated discharge with one-foot greater inlet depth is 30.6 cfs.

Lower diversion: Measured discharge of 13.5 cfs on March 20, 2017. Calculated discharge with one-foot greater inlet depth is 18.6 cfs.

G. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

 $V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) =$ _____ $V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation Season}) \times 1.9835 =$ _____ $V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} =$ _____

2. Volume Calculations for Other Uses:

Recharge volume is highly variable and dependent on available Canyon Creek flows. During 2017, the upper diversion ran from approximately February 7 to April 28 with an expected average flow of 19 cfs. The lower diversion ran from approximately February 21 to April 28 with an expected average flow of 11 cfs.

Volume = (19 cfs x 1.9835 cfs/day x 80 days) + (11 cfs x 1.9835 cfs/day x 66 days) = 4,455 acre-feet

H. RECOMMENDATIONS

1. Recommended Amounts

Beneficial Use	Period of Use From	To	Rate of Diversion Q (cfs)	Annual Volume V (afa)
Groundwater Recharge	1/1	12/31	49.2	4,455
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
Totals:			49.2	4,455

2. Recommended Amendments

☒ Change P.D. as reflected on page 1☐ Add P.D. as reflected on page 1☐ None☒ Change P.U. as reflected on page 1☐ Add P.U. as reflected on page 1☐ Other**I. AUTHENTICATION**

Field Examiner's Signature

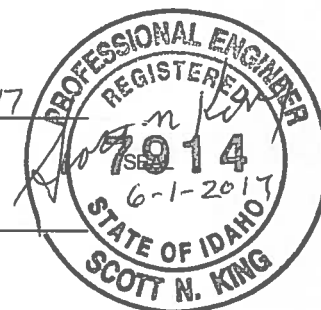
Scott N. King

Date

June 1, 2017

Reviewer _____

Date _____



ATTACHMENT A

**PERMIT RECORD, PROOF OF BENEFICIAL USE, AND REQUEST TO
REINSTATE LAPSED PERMIT**

State of Idaho
Department of Water Resources
Permit To Appropriate Water
NO. 61-07731

Proposed Priority: March 26, 1997

Maximum Diversion Rate:

200.00 CFS

This is to certify, that **MOUNTAIN HOME GROUNDWATER ADVISORY**
RON HIDDLESTON CHAIRMAN
RT 3 BOX 610W
MOUNTAIN HOME ID 83647

has applied for a permit to appropriate water from:

CANYON CREEK

tributary of **SNAKE RIVER**

and a permit is **APPROVED** for development of water as follows:

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>RATE OF DIVERSION</u>	<u>ANNUAL VOLUME</u>
GROUNDWATER RECHARGE	01/01 to 12/31	200.00 CFS	
GW RECHARGE STORAGE	01/01 to 12/31		1000.0 AF
	Totals	200.00 CFS	

LOCATION OF POINT(S) OF DIVERSION:

SWNE , Sec. 14, Township 03S, Range 05E
NWNW , Sec. 29, Township 03S, Range 05E
NESW , Sec. 7, Township 03S, Range 06E
NENE , Sec. 9, Township 03S, Range 06E
NENE , Sec. 10, Township 03S, Range 06E
ELMORE County

PLACE OF USE: GROUNDWATER RECHARGE

TWN RGE SEC

03S 05E 14	SWNE		
15	NWSW	SWSW	
16	NENE	SWNE	SENE
	NESW	NWSW	SWSW
	SESW	NESE	NWSE
	SWSE	SESE	
20	SWSW	NESE	SWSE
	SESE		
21	NWNE	SWNE	NENW
	NWNW	SWNW	SENW
	NESW	NWSW	SWSW
	NESE	NWSE	SWSE
29	NENW	NWNW	
06E 7	NESW		
9	NENE		
10	NENE		

CONDITIONS OF APPROVAL AND REMARKS

1. Proof of construction of works and application of water to beneficial use shall be submitted on or before June 1, 2003.
2. Subject to all prior water rights.

MICROFILMED

JUN 04 1998

State of Idaho
Department of Water Resources**Permit To Appropriate Water**

NO. 61-07731

CONDITIONS OF APPROVAL AND REMARKS

3. Use of water under this right may be affected by an agreement between the protestant and the right holder.
4. Project construction shall commence within one year from the date of permit issuance and shall proceed diligently to completion unless it can be shown to the satisfaction of the Director of the Department of Water Resources that delays were due to circumstances over which permit holder had no control.
5. Use of water under this water right will be regulated by the watermaster of State Water District No. 61A.
6. The storage of water under this right is contingent upon the certification of the dam and authorization of storage per the dam safety provisions of the Idaho Code.
7. Any license issued by IDWR pursuant to the right or portion thereof for the use of trust water is subject to a term review of 20 years after the date of this approval to determine availability of water for the use and to re-evaluate the public interest at the end of the term.
8. Diversion and use of water under this right is subject to an annual use fee if rules are subsequently promulgated which provide for the submittal of the fee.
9. The Director retains jurisdiction over this right and may change, add, or remove any requirement as determined to be appropriate.
10. Use of water under this approval shall comply with applicable water quality standards of the Division of Environmental Quality of the Idaho Department of Health and Welfare.
11. The issuance of this right does not grant any right-of-way or easement across the land of another.
12. Upon specific notification by the department, the right holder shall install/maintain permanent measuring devices in such a manner that the amount of water entering the reservoir and the amount of water released from the reservoir can be measured.
13. Return flows discharged to any subsurface system must be authorized by separate injection well permits.
14. Groundwater recharge storage place of use is locally known as Fraser Reservoir.
15. Prior to diversion of water under this right, the right holder shall consult with the department to determine the best construction methods for the diversion structures.
16. This right is subject to all prior water rights, including those water rights for power purposes that may otherwise be subordinated by contract entered into by the governor and Idaho Power Company on October 25, 1984, and ratified by the legislature pursuant to section 42-203B, Idaho Code.
17. Pursuant to section 42-4201A(3), Idaho Code, the director may reduce the amount of water diverted for recharge purposes under this right even though there is sufficient water to supply the entire amount authorized for appropriation under this right.

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State of Idaho
Department of Water Resources

Permit To Appropriate Water

NO. 61-07731

CONDITIONS OF APPROVAL AND REMARKS

18. To insure that other water rights are not injured by the operations of the recharge project authorized by this right, the director retains jurisdiction to approve, disapprove, or require alterations in the methods employed to achieve ground water recharge.

This permit is issued pursuant to the provisions of Section 42-204, Idaho Code. Witness the signature of the Director, affixed at Boise, this

22 day of may, 1998.

J. Glen Saxton

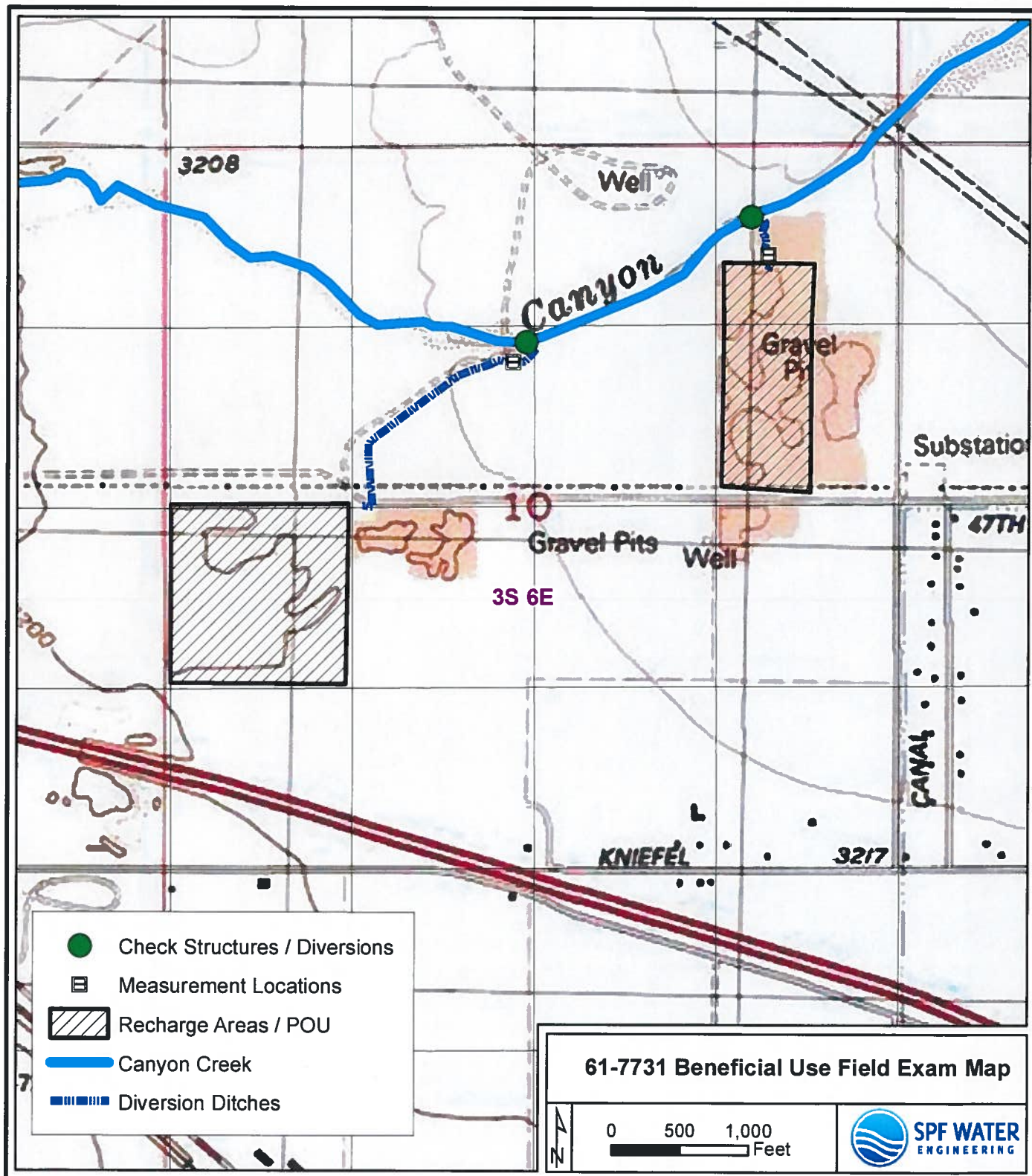
Karl J. Dreher, Director

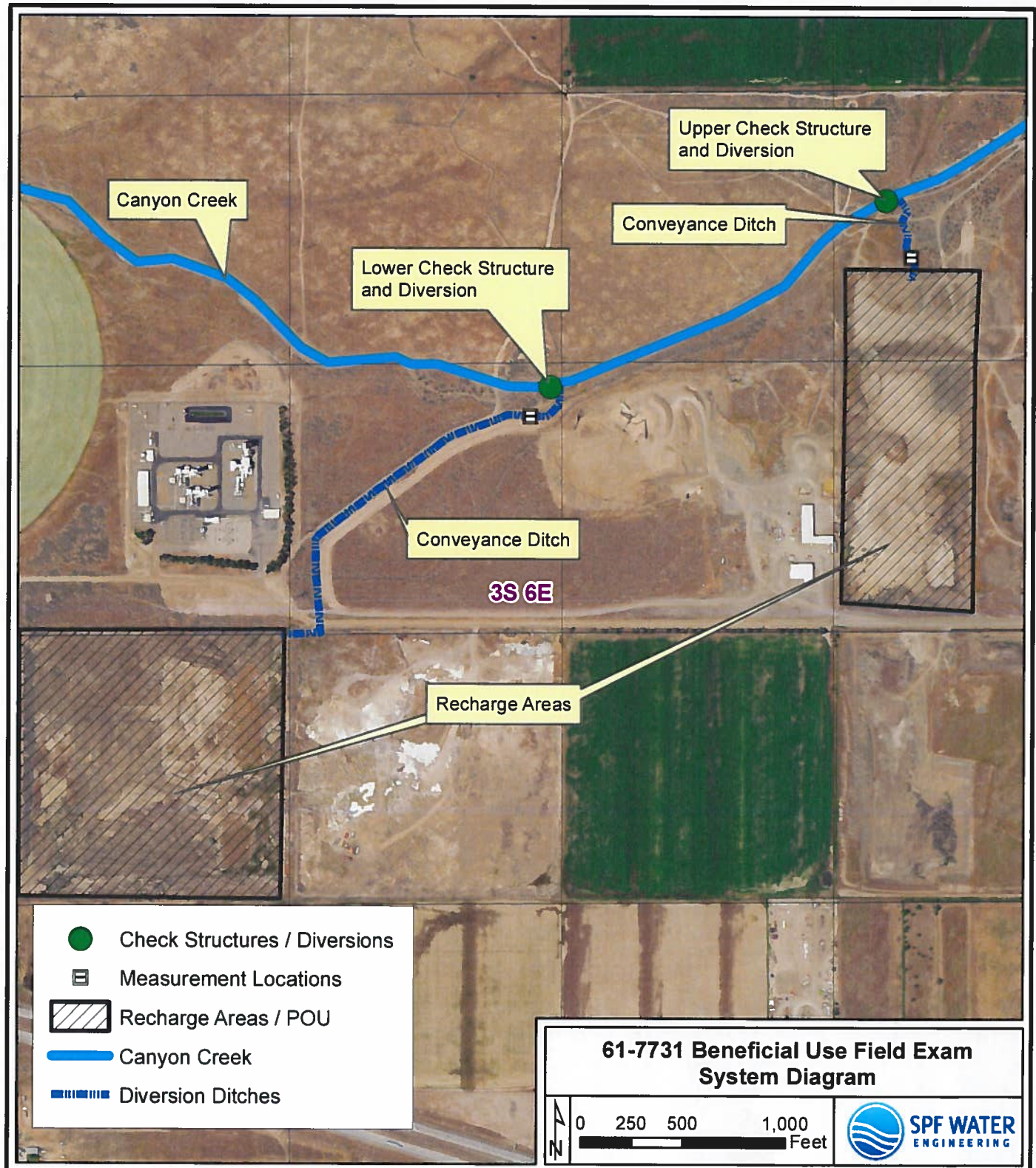
for

MICROFILMED

JUN 04 1998

ATTACHMENT B
TOPO MAP AND 2015 AERIAL PHOTO





ATTACHMENT C
FLOW CALCULATIONS

Culvert Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc.

Monday, May 1 2017

Upper Diversion 3.20.17

Invert Elev Dn (ft) = 10.00
Pipe Length (ft) = 49.00
Slope (%) = 0.53
Invert Elev Up (ft) = 10.26
Rise (in) = 30.0
Shape = Circular
Span (in) = 30.0
No. Barrels = 1
n-Value = 0.022
Culvert Type = Circular Corrugate Metal Pipe
Culvert Entrance = Projecting
Coeff. K,M,c,Y,k = 0.034, 1.5, 0.0553, 0.54, 0.9

Embankment

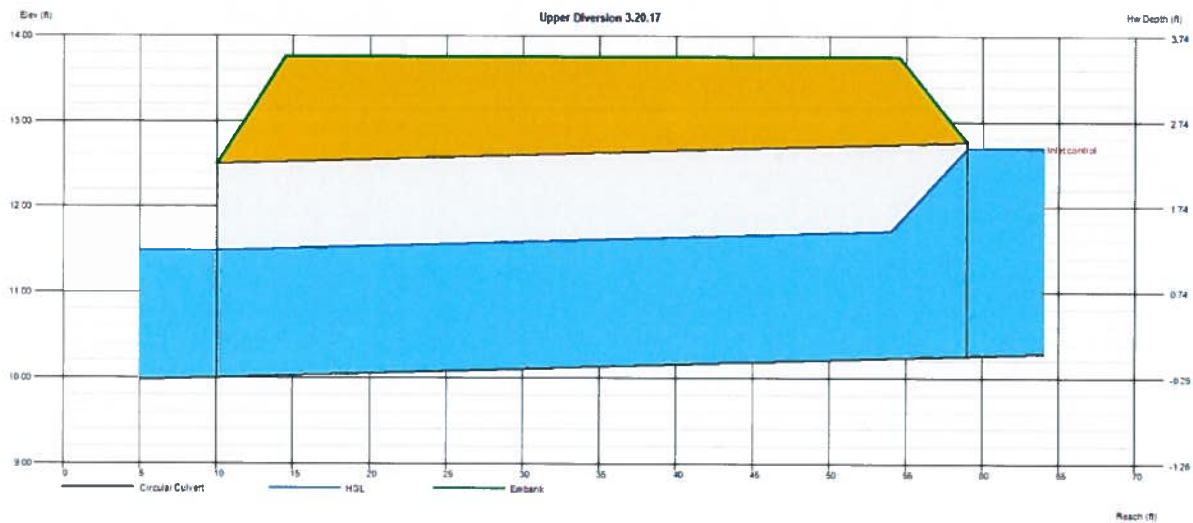
Top Elevation (ft) = 13.76
Top Width (ft) = 40.00
Crest Width (ft) = 10.00

Calculations

Qmin (cfs) = 10.00
Qmax (cfs) = 20.00
Tailwater Elev (ft) = 0.00

Highlighted

Qtotal (cfs) = 19.20
Qpipe (cfs) = 19.20
Qovertop (cfs) = 0.00
Veloc Dn (ft/s) = 6.32
Veloc Up (ft/s) = 6.32
HGL Dn (ft) = 11.48
HGL Up (ft) = 11.74
Hw Elev (ft) = 12.69
Hw/D (ft) = 0.97
Flow Regime = Inlet Control



Culvert Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc.

Monday, May 1 2017

Upper Diversion 3.29.17

Invert Elev Dn (ft) = 10.00
Pipe Length (ft) = 49.00
Slope (%) = 0.53
Invert Elev Up (ft) = 10.26
Rise (in) = 30.0
Shape = Circular
Span (in) = 30.0
No. Barrels = 1
n-Value = 0.022
Culvert Type = Circular Corrugate Metal Pipe
Culvert Entrance = Projecting
Coeff. K,M,c,Y,k = 0.034, 1.5, 0.0553, 0.54, 0.9

Embankment

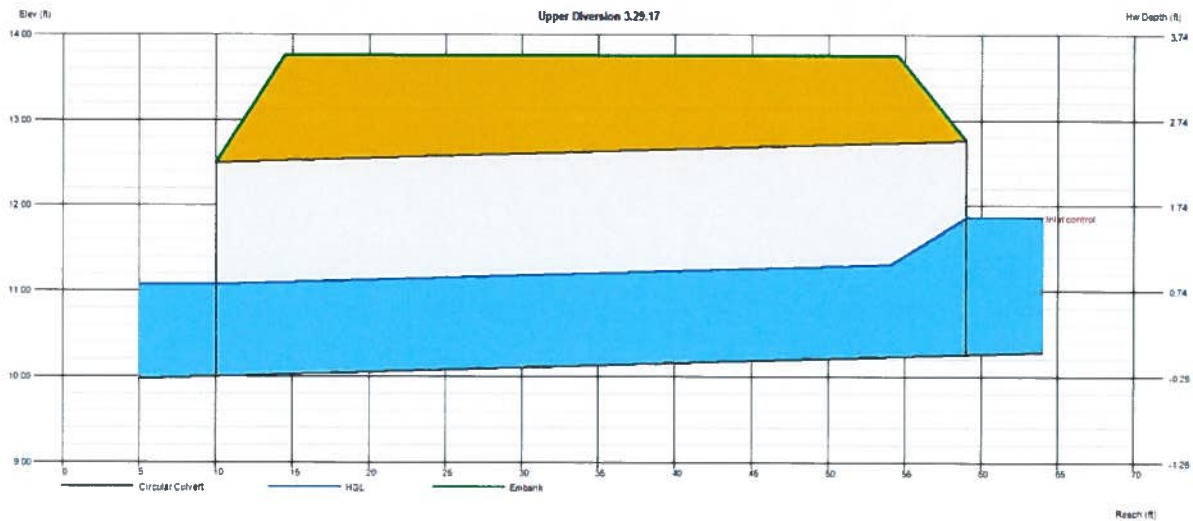
Top Elevation (ft) = 13.76
Top Width (ft) = 40.00
Crest Width (ft) = 10.00

Calculations

Qmin (cfs) = 10.00
Qmax (cfs) = 20.00
Tailwater Elev (ft) = 0.00

Highlighted

Qtotal (cfs) = 10.30
Qpipe (cfs) = 10.30
Qovertop (cfs) = 0.00
Veloc Dn (ft/s) = 5.12
Veloc Up (ft/s) = 5.12
HGL Dn (ft) = 11.07
HGL Up (ft) = 11.33
Hw Elev (ft) = 11.86
Hw/D (ft) = 0.64
Flow Regime = Inlet Control



Culvert Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc.

Wednesday, May 3 2017

Upper Diversion (Hw 1-ft above top of culvert)

Invert Elev Dn (ft)	= 10.00
Pipe Length (ft)	= 49.00
Slope (%)	= 0.53
Invert Elev Up (ft)	= 10.26
Rise (in)	= 30.0
Shape	= Circular
Span (in)	= 30.0
No. Barrels	= 1
n-Value	= 0.022
Culvert Type	= Circular Corrugate Metal Pipe
Culvert Entrance	= Projecting
Coeff. K,M,c,Y,k	= 0.034, 1.5, 0.0553, 0.54, 0.9

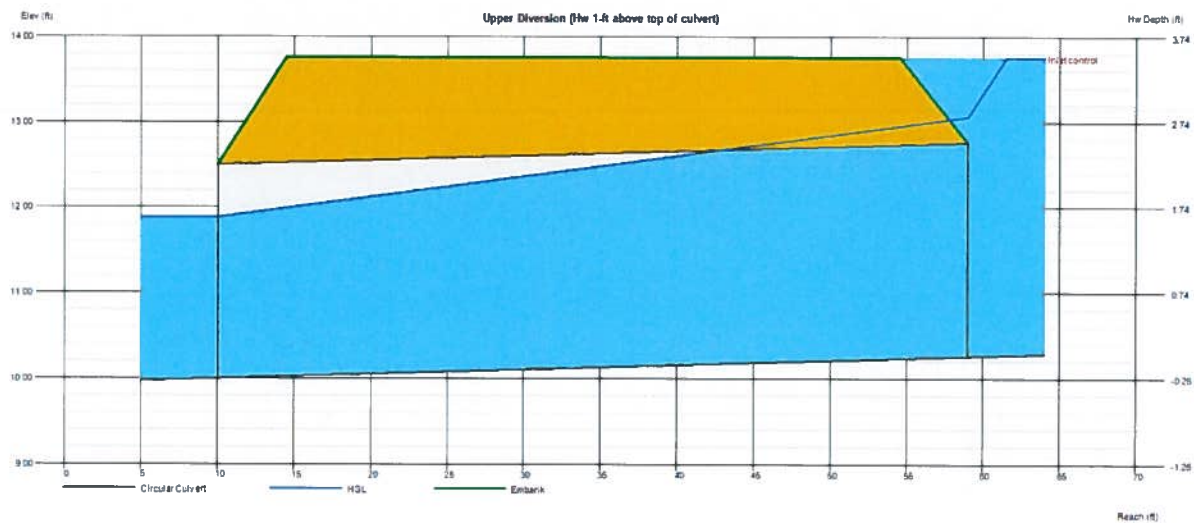
Embankment	
Top Elevation (ft)	= 13.76
Top Width (ft)	= 40.00
Crest Width (ft)	= 10.00

Calculations

Qmin (cfs)	= 30.00
Qmax (cfs)	= 31.00
Tailwater Elev (ft)	= 0.00

Highlighted

Qtotal (cfs)	= 30.60
Qpipe (cfs)	= 30.60
Qovertop (cfs)	= 0.00
Veloc Dn (ft/s)	= 7.71
Veloc Up (ft/s)	= 6.23
HGL Dn (ft)	= 11.88
HGL Up (ft)	= 13.06
Hw Elev (ft)	= 13.75
Hw/D (ft)	= 1.40
Flow Regime	= Inlet Control



Culvert Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc.

Monday, May 1 2017

Lower Diversion 3.20.17

Invert Elev Dn (ft) = 10.00
Pipe Length (ft) = 18.00
Slope (%) = 1.72
Invert Elev Up (ft) = 10.31
Rise (in) = 24.0
Shape = Circular
Span (in) = 24.0
No. Barrels = 1
n-Value = 0.022
Culvert Type = Circular Corrugate Metal Pipe
Culvert Entrance = Projecting
Coeff. K,M,c,Y,k = 0.034, 1.5, 0.0553, 0.54, 0.9

Embankment

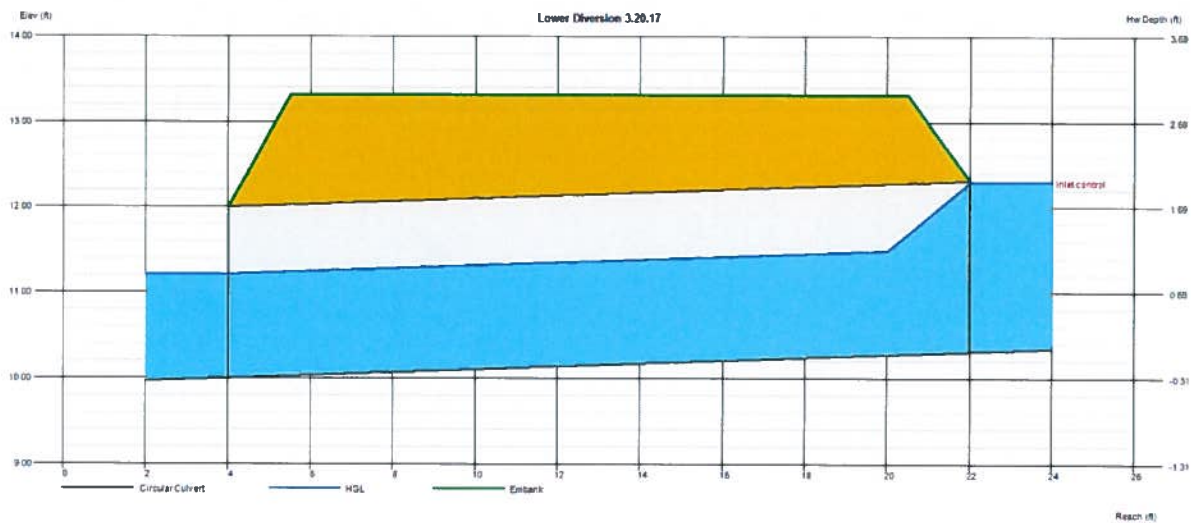
Top Elevation (ft) = 13.31
Top Width (ft) = 15.00
Crest Width (ft) = 15.00

Calculations

Qmin (cfs) = 7.00
Qmax (cfs) = 15.00
Tailwater Elev (ft) = 0.00

Highlighted

Qtotal (cfs) = 11.40
Qpipe (cfs) = 11.40
Qovertop (cfs) = 0.00
Veloc Dn (ft/s) = 5.73
Veloc Up (ft/s) = 5.70
HGL Dn (ft) = 11.21
HGL Up (ft) = 11.53
Hw Elev (ft) = 12.29
Hw/D (ft) = 0.99
Flow Regime = Inlet Control



Culvert Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc.

Monday, May 1 2017

Lower Diversion 3.29.17

Invert Elev Dn (ft) = 10.00
Pipe Length (ft) = 18.00
Slope (%) = 1.72
Invert Elev Up (ft) = 10.31
Rise (in) = 24.0
Shape = Circular
Span (in) = 24.0
No. Barrels = 1
n-Value = 0.022
Culvert Type = Circular Corrugate Metal Pipe
Culvert Entrance = Projecting
Coeff. K,M,c,Y,k = 0.034, 1.5, 0.0553, 0.54, 0.9

Embankment

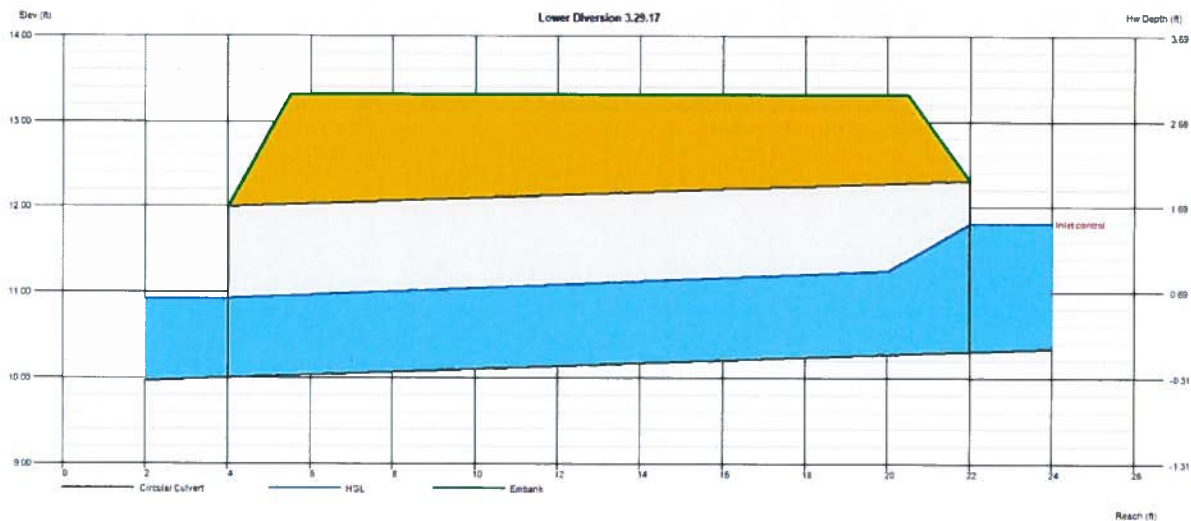
Top Elevation (ft) = 13.31
Top Width (ft) = 15.00
Crest Width (ft) = 15.00

Calculations

Qmin (cfs) = 7.00
Qmax (cfs) = 12.00
Tailwater Elev (ft) = 0.00

Highlighted

Qtotal (cfs) = 7.60
Qpipe (cfs) = 7.60
Qovertop (cfs) = 0.00
Veloc Dn (ft/s) = 5.35
Veloc Up (ft/s) = 4.97
HGL Dn (ft) = 10.92
HGL Up (ft) = 11.29
Hw Elev (ft) = 11.81
Hw/D (ft) = 0.75
Flow Regime = Inlet Control



Culvert Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc.

Wednesday, May 3 2017

Lower Diversion (Hw 1-ft above top of culvert)

Invert Elev Dn (ft) = 10.00
 Pipe Length (ft) = 18.00
 Slope (%) = 1.72
 Invert Elev Up (ft) = 10.31
 Rise (in) = 24.0
 Shape = Circular
 Span (in) = 24.0
 No. Barrels = 1
 n-Value = 0.022
 Culvert Type = Circular Corrugate Metal Pipe
 Culvert Entrance = Projecting
 Coeff. K,M,c,Y,k = 0.034, 1.5, 0.0553, 0.54, 0.9

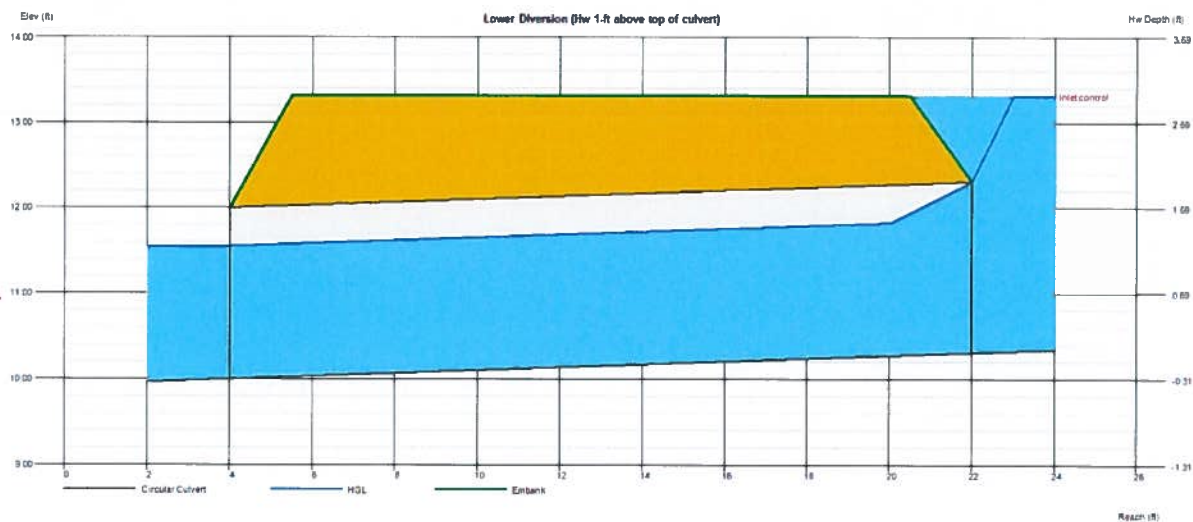
Embankment
 Top Elevation (ft) = 13.31
 Top Width (ft) = 15.00
 Crest Width (ft) = 15.00

Calculations

Qmin (cfs) = 18.00
 Qmax (cfs) = 19.00
 Tailwater Elev (ft) = 0.00

Highlighted

Qtotal (cfs) = 18.60
 Qpipe (cfs) = 18.60
 Qovertop (cfs) = 0.00
 Veloc Dn (ft/s) = 7.11
 Veloc Up (ft/s) = 7.11
 HGL Dn (ft) = 11.55
 HGL Up (ft) = 11.86
 Hw Elev (ft) = 13.31
 Hw/D (ft) = 1.50
 Flow Regime = Inlet Control



ATTACHMENT D
PHOTOS



Figure 1: Check structure in Canyon Creek at #1 "Upper" diversion. Just upstream of the check is a concrete abutment on left bank with diversion to the ditch conveying water to recharge areas.



Figure 2: Upper diversion abutment in Canyon Creek and culvert entrance.



Figure 3: Upper diversion culvert discharging to ditch conveying water to recharge area.



Figure 4: Measuring discharge at Upper diversion.



Figure 5: "Lower" diversion headgate from Canyon Creek with check structure in background.



Figure 6: Lower diversion culvert discharge into ditch.



Figure 7: Measuring discharge at lower diversion.



Figure 8: Lower diversion recharge area near I-84.