Deadman's Basin Supply Canal Diversion and Headgate Replacement Project

Montana Environmental Policy Act
ENVIRONMENTAL ASSESSMENT

Montana Department of Natural Resources and Conservation,
State Water Projects Bureau,
1424 9th Ave. P.O. Box 201601, Helena, MT 59620

April 2014

Aerial view of diversion and headgate on the Musselshell River

DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

STEVE BULLOCK
GOVERNOR

DIRECTOR'S OFFICE (406) 444-2074
TELEFAX NUMBER (406) 444-2684

STATE OF MONTANA

WATER RESOURCES DIVISION (406) 444-6601
TELEFAX NUMBERS (406) 444-0533 / (406) 444-5918
http://www.dnrc.mt.gov

1424 9TH AVENUE
PO BOX 201601
HELENA, MONTANA 59620-1601

Cover Letter

April 15th, 2015

TO: Governor's Office, Tim Burton, Rm. 204, State Capitol, P.O. Box 200801, Helena, MT 59620-0801
Environmental Quality Council, Capitol Building, Room 106, P.O Box 201704, Helena, MT 59620
Dept. of Environmental Quality, Metcalf Building, P.O. Box 200901, Helena, MT 59620-0901
Director's Office
Dept. of Natural Resources and Conservation, 1625 11th Ave. Helena, MT 59620
Director's Office
Information Services Section
Water Resources Division, 1424 9th Ave., P.O. Box 201601, Helena, MT 59620-1601
Kim Overcast, DNRC Water Resources Div., Billings Regional Office, Airport Business Park, 1371 Rimtop Dr., Billings, MT 59105-1978
Montana Department of Fish, Wildlife & Parks, 1420 E. 6th Ave. Helena, MT 59620
Director's Office
Fisheries Division
Gary Hammon, DFWP Region 5 Office, 2300 Lake Elmo Dr., Billings, MT 59105
Ken Frazer, DFWP Region 5 Office, 2300 Lake Elmo Dr., Billings, MT 59105
MT State Library, 1515 E. Sixth Ave., P.O. Box 201800, Helena, MT 59620
Robert Goffena, Deadman's Basin Water Users Association, 152 Goffena Rd. Roundup, MT 59072
Montana Environmental Information Center, P.O. Box 1184, Helena, MT 59624
Montana Audubon Council, P.O. Box 595, Helena, MT 59624
Wheatland County Commissioners, 201 A. Ave. NW, Harlowton, MT 59036
Wildlife Federation, P.O. Box 1175, Helena, MT 59624
Trout Unlimited, P.O. Box 7186, Missoula, MT 59807
Northern Plains Resource Council, 2401 Montana Ave. Suite 200, Billings, MT 59626-2336
U.S. Army Corps of Engineers, 10 W. 15th St. Suite 2200, Helena, MT 59626
U.S. Fish and Wildlife Service, MT Field Office, 584 Shepard Way, Suite 1, Helena, MT 59601

Ladies and Gentlemen:

The enclosed Draft Environmental Assessment (EA) has been prepared for the Deadman's Basin Supply Canal Diversion and Headgate Replacement Project and is submitted for your consideration. Please feel free to contact James Domino at (406) 444-6622 (e-mail jdomino@mt.gov.) should you have any questions or comments. Comments will be accepted until 5:00 p.m., Wednesday, May 15th 2014. Comments can also be mailed to: MT Dept. of Natural Resources and Conservation, State Water Projects Bureau, 1424 9th Avenue, P.O. Box 201601, Helena, MT 59620-1601, attn. James P. Domino. Copies of the Draft EA are available upon request. The Draft EA can also be viewed on the DNRC website at www.dnrc.mt.gov. Thank you.

Sincerely,

Tim Davis
Water Resources Division Administrator

I. BACKGROUND

This Environmental Assessment (EA) has been prepared to comply with the Montana Environmental Policy Act (MEPA).

1. General Description

The Deadman's Basin Water Project is owned by the DNRC and operated by the Deadman's Basin Water Users' Association. The Project comprises a 76,900 acre-feet, off-stream reservoir; one 11.5-mile-long, 600-cfs supply canal; and two delivery canals that total 12.5 miles in length. The original project was completed in 1941 and was constructed by the collaborative effort of the federal WPA and the State of Montana Water Conservation Board. The diversion dam and headgate are located in Wheatland County Montana, approximately 6 miles north-west of the town of Shawmut, MT and approximately 10 miles east of the town of Harlowton, MT, just south of State Highway 12.

2. Agency authority for the proposed action: The Montana Legislature enacted statute 85-1- 101(1) through (6) MCA, which states: "It is hereby declared as follows:

> (a) The general welfare of the people of Montana, in view of the state's population growth and expanding economy, requires that water resources of the state be put to optimum beneficial use and not wasted.
>
> (b) The public policy of the state is to promote the conservation, development, and beneficial use of the state's water resources to secure maximum economic and social prosperity for its citizens.
>
> (c) The state, in the exercise of its sovereign power, acting through the Department of Natural Resources and Conservation, shall coordinate the development and use of the water resources of the state so as to effect full utilization, conservation, and protection of its water resources.
>
> (d) The development and utilization of water resources and the efficient, economic distribution thereof is vital to the people in order to protect existing uses and to assure adequate future supplies for domestic, industrial, agricultural, and other beneficial uses.
>
> (e) The water resources of the state must be protected and conserved to assure adequate supplies for public recreational purposes and for the conservation of wildlife and aquatic life.
>
> (f) The public interest requires the construction, operation, and maintenance of a system of works for the conservation, development, storage, distribution, and utilization of water, which construction, operation, and maintenance is a single object and is in all respects for the welfare and benefit of the people of the state.

3. Purpose and Need

In the spring of 2011 the Musselshell River experienced extreme flooding which damaged the diversion dam and radial gates. The flooding was so severe, this area was designated a Federal Disaster Area by the Federal Emergency Management Agency (FEMA). DNRC hired an engineering firm to prepare a Field Investigation Narrative to document the diversion dam damage, and to prepare a Preliminary Engineering Report recommending repair alternatives.

4. Project Details

The resulting repair project, based on the Preliminary Engineering Report, will involve demolition of the existing 10' high by 222' long concrete diversion dam and construction of a new rock ramp diversion structure. The rock ramp design will enhance fish passage and be much safer from a maintenance and operational perspective, and be a substantial improvement for recreational related river passage. The existing concrete headgate structure will be modified to replace the existing twin 14'-6" radial gates with four 6' by 6' slide gates. The new headgates will remedy two problems: 1) It will stem water loss from the chronically depleted Musselshell River, and 2) it will redress the malfunctioning headgates that are nearly inoperable after the 2011 flooding.

The construction will generally proceed as follows:

- Construction of a cofferdam to temporarily divert the river into an old, pre-existing side channel, allowing it to flow around the construction site.
- Demolition and removal of the existing diversion.
- Constructing of a new rock ramp diversion.
- Modification of the headgate structure and installation of the new gates.
- Removal of the cofferdam and restoration of the river channel to its original condition.
- Reclamation / reseeding of disturbed areas.
- Weed control measures implemented.

Additional information:

Construction is tentatively planned to begin on August 15 2014, with the project completed by December 15, 2014. Equipment to be used includes backhoes, front end loaders, tracked excavators, dump trucks and cement trucks.

It is anticipated that the total disturbed area will be less than 1 acre.

Appendix A contains project drawings, photographs, budget, tentative schedule and location map.

5. Location of Project

The Deadman's Basin Diversion and supply canal headgates are located in Wheatland County Montana, approximately 6 miles north-west of the town of Shawmut, MT and approximately 10 miles east of the town of Harlowton, MT, just south of State Highway 12. Latitude (decimal degrees) 46.385 Longitude (decimal degrees) 109.632; T7N, R17E; NW1/4, NW1/4, Section 8 (see attached map in Appendix B).

The surrounding land is presently owned by the Winnacook Ranch. The diversion works, headgate structure and canal are owned by the DNRC. The DNRC possesses a permanent easement to the diversion, headgates and canal for maintenance and operational purposes.

II. ENVIRONMENTAL REVIEW

Whenever possible, effects to the environment will be avoided. Where effects cannot be avoided, they will be minimized to the greatest extent possible.

1. Environmental Impact Checklist

An environmental checklist has been included as Part III of this EA.

2. Environmental Consequences

Air

During construction, equipment emissions will contain some pollutants. Because of the rural location of the site, these emissions should not impact adjacent property owners.

Because of the timing of the construction and general high water content of local soils, it is anticipated that construction dust will not be significant and that dust control will not be necessary.

Water

The river flow will be routed through an old river channel during construction.

A temporary and slight degradation of water quality is likely to occur during the construction period due to sediments. This should happen only as water is turned back into the river. Any downstream water quality impacts would be minor, temporary and end upon completion of the project. Potential impacts would be minimized by the low water flows normally experienced during the construction timeframes, relatively short project duration, and the temporary nature of the river re-routing.

Construction dewatering, if needed, will result in water being discharged onto an adjacent field where it will be absorbed (a 3A permit from the Department of Environmental Quality will not be required). Discharge flows, if any, should amount to less then 25 gallons per minute (gpm).

Fuel storage and equipment refueling will take place away from both the river channel and the floodplain.

Vegetation

The disturbed area will be less than one acre, with existing vegetation consisting of sage, grasses and small shrubs. All disturbed areas would be re-seeded using native seed stock. A weed control program will also be implemented.

Fish and Wildlife

The project will allow fish migration upon its completion. No impacts to fish or wildlife are anticipated. Any potentially adverse effects (primarily related to noise and increased human activity) will be non-significant, temporary and end with the completion of the project. A file search to identify plant and animal species of special concern was conducted by the MT Natural Heritage Program. No impacts are anticipated to any threatened, endangered or special concern species.

Noise

Noise levels will increase temporarily during the construction period. Because of the rural location of the site, construction noise would not impact the adjacent landowners.

Land Use

There will be no change in land use.

Taxes

The tax base will not be affected.

Aesthetics / Recreation

Construction will temporarily affect the aesthetics of the area in the short-term. Some anglers and boaters may be impacted. The quality of the recreational opportunities and setting may be temporarily impacted (this location does not receive heavy recreational use). The effects will be minor, short-term and non-significant and end with the completion of the project. Recreational boating will be improved by the new rock ramp design.

Cultural Resources

The Montana Historical Society has been consulted and the diversion dam and headgate structure are considered historic resources due to their age. However, the structures require replacement and it would not be feasible to replace them with ones of similar design in order to maintain historical integrity. This is primarily due to the negative environmental and safety issues currently associated with the existing conditions. Since the structures will be removed, the impacts are adverse but minor and non-significant. The positive benefits of the new structures (enhanced in stream flows, fish passage and operational safety) far out weight any adverse impacts to the historic nature of the existing dam and headgates. The site has been fully documented for historic files and an updated historic site form completed. This is adequate mitigation for adverse impacts to historic irrigation structures. No other cultural or historic resources are known to exist in the project area and no additional impacts are anticipated.

III. ALTERNATIVES

1. No Action Alternative

The existing diversion and headgates would continue to deteriorate, becoming increasingly unsafe and eventually inoperable. This could impede the delivery of irrigation water to downstream users, potentially having negative effects to the area's agricultural based economy. Upstream and downstream fish passage and recreational boating would continue to be blocked by the no action alternative.

IV. CONSULTATION AND COORDINATION

1. Agencies Consulted

Federal and State Government agencies were contacted regarding the construction project, as follows:

Agency Name	Type of Responsibility
Corps of Engineers	regulatory/technical
Montana Dept. of Fish, Wildlife & Parks	regulatory/technical
Montana Dept. of Environmental Quality	regulatory/technical
Montana Historical Preservation Office	advisory
Montana Natural Heritage Program	advisory

2. Permits Required

The following permits will be needed for the project:

Permit	Issuing Agency	Status
404-Permit	Army Corps of Engineers	Pending
124-Permit	DFWP	Pending
Cultural Clearance	MT SHPO	Pending
Dewatering	MT DEQ	Pending

3. Public Involvement

Public comments will be accepted until the closing date, as listed on the EA Cover page.

4. Need for an EIS

Because no significant impacts were identified, the DNRC believes this EA is sufficient to comply with the MEPA and that an EIS will not be required.

V. CONCLUSION

Based on the criteria evaluated in this EA, no significant impacts, either individually or cumulative will result from the project.

PART III. ENVIRONMENTAL CHECKLIST REVIEW

1. PHYSICAL ENVIRONMENT

	IMPACTS					
	UNKNOWN*	NO IMPACTS	MINOR IMPACTS:*	POTENTIALLY SIGNIFICANT IMPACTS:*	CAN IMPACTS BE MITIGATED *	COMMENT INDEX
1. LAND RESOURCES						
Will the proposed action result in:						
a. Soil instability or changes in geologic substructure?		X				
b. Disruption, displacement, erosion, compaction, moisture loss, or over-covering of soil which would reduce productivity or fertility?		X				
c. Destruction, covering or modification of any unique geologic or physical features?		X				
d. Changes in siltation, deposition or erosion patterns that may modify the channel of a river or stream or the bed or shore of a lake?			X		See 1d Note.	1d
e. Exposure of people or property to earthquakes, landslides, ground failure, or other natural hazard?		X				
f. Other: _____						

Note:

1d. The construction may cause a temporary, non-significant and minor increase in erosion patterns that could potentially affect the river channel. This would end upon project completion when the river is allowed to return to its original channel.

PHYSICAL ENVIRONMENT (Continued)

	IMPACTS					
	UNKNOWN*	NO IMPACTS	MINOR IMPACTS:*	POTENTIALLY SIGNIFICANT IMPACTS:*	CAN IMPACTS BE MITIGATED *	COMMENT INDEX
2. AIR						
Will the proposed action result in:						
a. Emission of air pollutants or deterioration of ambient air quality?			X		See 2a. Notes.	2a.
b. Creation of objectionable odors?			X		See 2b Notes.	2b.
c. Alteration of air movement, moisture, or temperature patterns or any change in climate, either locally or regionally?		X				
d. Adverse effects on vegetation, including crops, due to increased emissions of pollutants?		X				
e. Other: _____						

Note: 2a. & b.) During construction, heavy equipment emissions will contain some pollutants and odors.

PHYSICAL ENVIRONMENT (Continued)

IMPACTS

	UNKNOWN*	NO IMPACTS	MINOR IMPACTS:*	POTENTIALLY SIGNIFICANT IMPACTS:*	CAN IMPACTS BE MITIGATED *	COMMENT INDEX
3. WATER						
Will the proposed action result in:						
a. Discharge into surface water or any alteration of surface water quality including but not limited to temperature, dissolved oxygen or turbidity?			X		See 3a. Notes.	3a.
b. Changes in drainage patterns or the rate and amount of surface runoff?		X				
c. Alteration of the course or magnitude of flood water or other flows?		X				
d. Changes in the amount of surface water in any water body or creation of a new water body?			X		See 3d. Notes	3d.
e. Exposure of people or property to water related hazards such as flooding?		X				
f. Changes in the quality of groundwater?		X				
g. Changes in the quantity of groundwater?		X				
h. Increase in the risk of contamination of surface or groundwater?		X				
i. Violation of the Montana Non-Degradation Statute?		X				
j. Effects on any existing water right or reservation?		X				
k. Effects on other water users as a result of any alteration in surface or groundwater quality?		X				
l. Effects on other users as a result of any alteration in surface or groundwater quantity?		X				
m. Other: _____						

Note: 3a.) Minor discharge of 25 gpm or less onto neighboring lands. Discharge may result from construction dewatering (if needed). The impacts would be non-significant and end upon completion of the project. 3d.) The River would be temporarily diverted into an existing side channel during construction. Downstream impacts would be minor, temporary and end upon completion of the project. Any potential impacts would be minimized by low river water flows and utilizing required best management practices as stipulated in the various applicable permits.

PHYSICAL ENVIRONMENT (Continued)

IMPACTS

	UNKNOWN*	NO IMPACTS	MINOR IMPACTS:*	POTENTIALLY SIGNIFICANT IMPACTS:*	CAN IMPACTS BE MITIGATED *	COMMENT INDEX
4. VEGETATION						
Will the proposed action result in:						
a. Changes in the diversity, productivity or abundance of plant species (including trees, shrubs, grass, crops, and aquatic plants)?			X		See 4a. comment	4a.
b. Alteration of a plant community?		X				
c. Adverse effects on any unique, rare, threatened, or endangered plant species?		X				4c.
d. Reduction in acreage or productivity of any agricultural land?		X				
e. Establishment or spread of noxious weeds?		X				
f. Other: _____						

Notes:
4a.) Less than one acre of vegetation would be disturbed, consisting of sage, grasses and shrubs. All disturbed areas would be reclaimed and reseeded upon project completion.
4c.) A species of special concern file search was conducted by the Montana Natural Heritage Program. No listed plant species are known to be present in the project area. No impacts are anticipated to any threatened, endangered or species of special concern.

PHYSICAL ENVIRONMENT (Continued)

IMPACTS

	UNKNOWN*	NO IMPACTS	MINOR IMPACTS:*	POTENTIALLY SIGNIFICANT IMPACTS:*	CAN IMPACTS BE MITIGATED *	COMMENT INDEX
5. FISH/WILDLIFE						
Will the proposed action result in:						
a. Deterioration of critical fish or wildlife habitat?		X				
b. Changes in the diversity or abundance of game animals or bird species?		X				5b.
c. Changes in the diversity or abundance of nongame species?		X				5c.
d. Introduction of new species into an area?		X				
e. Creation of a barrier to the migration or movement of animals?		X				
f. Adverse effects on any unique, rare, threatened, or endangered species?		X				5f.
g. Increase in conditions that stress wildlife populations or limit abundance (including harassment, legal or illegal harvest or other human activity)?		X				
h. Other: _____						

Notes: 5b, c & f.

The new diversion will improve upstream and downstream fish passage. The new headgates will greatly reduce uncontrolled seepage into the canal, thereby helping to enhanced in-stream flows.

Local wildlife within the vicinity of the project would most likely avoid the immediate work site during construction. This impact would be minor, non-significant and end upon project completion.

A species of special concern file search was conducted by the Montana Natural Heritage Program. Listed wildlife and fish species include Bald Eagle, Ferruginous Hawk, Golden Eagle, Black-tailed Prairie Dog and Northern Redbelly Dace. There have been no observed nesting raptors in the immediate vicinity. No significant impacts are anticipated to any wildlife or fish species as a result of the project.

All non-significant or potentially adverse impacts to fish and wildlife resources will be temporary, minor, short-term and end upon completion of the project.

2. HUMAN ENVIRONMENT

	IMPACTS					
	UNKNOWN*	NO IMPACTS	MINOR IMPACTS:*	POTENTIALLY SIGNIFICANT IMPACTS:*	CAN IMPACTS BE MITIGATED *	COMMENT INDEX
6. NOISE/ELECTRICAL EFFECTS						
Will the proposed action result in:						
a. Increases in existing noise levels?			X		See 6a. comment	6a.
b. Exposure of people to severe or nuisance noise levels?			X		See 6b. comment	6b.
c. Creation of electrostatic or electromagnetic effects that could be detrimental to human health or property?		X				
d. Interference with radio or television reception and operation?		X				
e. Other: _____						

Note: 6a.) Noise levels will increase temporarily during the construction period. However, this is a very rural area, so no significant impacts are anticipated to adjacent property owners.
6b.) (Same as item a. above)

HUMAN ENVIRONMENT
(Continued)

	IMPACTS					
	UNKNOWN*	NO IMPACTS	MINOR IMPACTS:*	POTENTIALLY SIGNIFICANT IMPACTS:*	CAN IMPACTS BE MITIGATED *	COMMENT INDEX
7. LAND USE						
Will the proposed action result in:						
a. Alteration of or interference with the productivity or profitability of the existing land use of an area?		X				
b. Conflict with a designated natural area or area of unusual scientific or educational importance?		X				
c. Conflict with any existing land use whose presence would constrain or potentially prohibit the proposed action?		X				
d. Adverse effects on or relocation of residences?		X				
e. Increase regulatory restrictions on private property rights?		X				
f. Other: _____						

Note: .

HUMAN ENVIRONMENT
(Continued)

	IMPACTS					
	UNKNOWN*	NO IMPACTS	MINOR IMPACTS:*	POTENTIALLY SIGNIFICANT IMPACTS:*	CAN IMPACTS BE MITIGATED *	COMMENT INDEX
8. RISK/HEALTH HAZARDS						
Will the proposed action result in:						
a. Risk of an explosion or release of hazardous substances (including but not limited to oil, pesticides, chemicals, or radiation) in the event of an accident or other forms of disruption?		X				
b. Affect an existing emergency response or emergency evacuation plan or create a need for a new plan?		X				
c. Creation of any human health hazard or potential hazard?		X				
d. Other: _____						

HUMAN ENVIRONMENT
(Continued)

	IMPACTS					
	UNKNOWN*	NO IMPACTS	MINOR IMPACTS:*	POTENTIALLY SIGNIFICANT IMPACTS:*	CAN IMPACTS BE MITIGATED *	COMMENT INDEX
9. COMMUNITY IMPACTS						
Will the proposed action result in:						
a. Alteration of the location, distribution, density, or growth rate of the human population of an area?		X				
b. Alteration of the social structure of a community?		X				
c. Alteration of the level or distribution of employment or community or personal income?		X				
d. Changes in industrial or commercial activity?		X				
e. Increased traffic hazards or effects on existing transportation facilities or patterns of movement of people and goods?		X				
f. Other: _____						

HUMAN ENVIRONMENT
(Continued)

	IMPACTS					
	UNKNOWN*	NO IMPACTS	MINOR IMPACTS:*	POTENTIALLY SIGNIFICANT IMPACTS:*	CAN IMPACTS BE MITIGATED *	COMMENT INDEX
10. PUBLIC SERVICES/ TAXES/UTILITIES						
Will the proposed action:						
a. Have an effect upon or result in a need for new or altered governmental services in any of the following areas: fire or police protection, schools, parks/recreational facilities, roads or other public maintenance, water supply, sewer or septic systems, solid waste disposal, health, or other governmental services? If any, specify: _____ _____ _____		X				
b. Have an effect upon the local or state tax base and revenues?		X				
c. Result in a need for new facilities or substantial alterations of any of the following utilities: electric power, natural gas, other fuel supply or distribution systems, or communications?		X				
d. Result in increased use of any energy source?		X				
e. Other: _____						

Note:

HUMAN ENVIRONMENT
(Continued)

	IMPACTS					
	UNKNOWN*	NO IMPACTS	MINOR IMPACTS:*	POTENTIALLY SIGNIFICANT IMPACTS:*	CAN IMPACTS BE MITIGATED *	COMMENT INDEX
11. AESTHETICS/ RECREATION						
Will the proposed action result in:						
a. Alteration of any scenic vista or creation of an aesthetically offensive site or effect that is open to public view?		X				11a.
b. Alteration of the aesthetic character of a community or neighborhood?		X				
c. Alteration of the quality or quantity of recreational opportunities and settings?		X				11c.
d. Other: _____						

Note: 11 a & c.) Construction will temporarily affect the aesthetics of the area in the short-term. Some anglers and boaters may be impacted. The quality of the recreational opportunities and setting may also be temporarily impacted. The effects will be minor, short-term, non-significant and end with the completion of the project. The new diversion will enhance boat passage and may improve fishing opportunities.

HUMAN ENVIRONMENT
(Continued)

	IMPACTS					
	UNKNOWN*	NO IMPACTS	MINOR IMPACTS:*	POTENTIALLY SIGNIFICANT IMPACTS:*	CAN IMPACTS BE MITIGATED *	COMMENT INDEX
12. CULTURAL/ HISTORICAL RESOURCES						
Will the proposed action result in:						
a. Destruction or alteration of any site, structure or object of prehistoric, historic, or paleontological importance?			X			12a.
b. Physical change that would affect unique cultural values?			X			12b.
c. Effects on existing religious or sacred uses of a site or area?			X			12c.
d. Other: _____						

Note: 12a, b, and c.) An assessment of cultural resources was completed by the State Historic Preservation Office. The impacts are adverse (since the existing structures will be removed) but minor and non-significant. The positive benefits of enhanced in stream flows, fish passage and operational safety far out weight the adverse impacts to the historic nature of the existing dam and headgates. No other historic resources are known to exist in the project area and no additional impacts are anticipated.

3. SIGNIFICANCE CRITERIA

	IMPACTS					
	UNKNOWN*	NO IMPACTS	MINOR IMPACTS:*	POTENTIALLY SIGNIFICANT IMPACTS:*	CAN IMPACTS BE MITIGATED *	COMMENT INDEX
13. SUMMARY EVALUATION OF SIGNIFICANCE						
Will the proposed action, considered as a whole:						
a. Have impacts that are individually limited, but cumulatively considerable? (A project or program may result in impacts on two or more separate resources which create a significant effect when considered together or in total.)		X				
b. Involve potential risks or adverse effects which are uncertain but extremely hazardous if they were to occur?		X				
c. Potentially conflict with the substantive requirements of any local, state, or federal law, regulation, standard or formal plan?		X				
d. Establish a precedent or likelihood that future actions with significant environmental impacts will be proposed?		X				
e. Generate substantial debate or controversy about the nature of the impacts that would be created?		X				
f. Other: _____						

REFERENCES:

MT Natural Heritage Program – Data Query on Plant and Animal Species of Special Concern. March 2014

MT DFWP On-line Fishing Guide, March 2014. DFWP Website, www.dfwp.mt.gov

Consultation with MT DFWP Region 5 Wildlife Manager, March 2014.

Consultation with MT State Historic Preservation Office, March 2014.

Consultation with U.S. Army Corps of Engineers, March 2014

Census and Economic Information Center Website, MT Dept. of Commerce, March 2014. www.ceic.mt.gov

MT DNRC State Water Project Bureau, Project Information Report, by James P. Domino, MT DNRC State Water Projects Bureau, March 2014.

Consultation with MT DFWP Region 5 Fisheries Biologist, February2014.

Consultation with MT DEQ, February 2014

Water Storage in Montana; A Report Submitted to the 63rd Legislature – Office of the Governor, Jan. 2013

Preliminary Engineering Report - Dowl HKM, Billings, MT. May 2012.

A Guide to the Montana Environmental Policy Act, John Mundinger and Todd Everts, 1998. Revised by Larry Mitchell, 2004 and Todd Everts, 2006. Published by the Legislative Environmental Policy Office, Environmental Quality Council.

Montana Water Law. MT Department of Natural Resources and Conservation, Water Resources Division, Helena MT., 2003.

Deadman's Basin Manual for Operation and Maintenance, DNRC State Water Projects Bureau, 1424 9th Avenue, P.O. Box 201601, Helena, MT 59620, Originally Published 1993, Revised 2005.

Deadman's Basin Project Cultural and Historic Resources Site Report, by Patrick Rennie, DNRC Trust Lands Management Division, 1998.

Climax Vegetation of Montana Based on Soils and Climate, U.S. Dept. of Agriculture, Soil Conservation Service, Bozeman, MT. September 1976

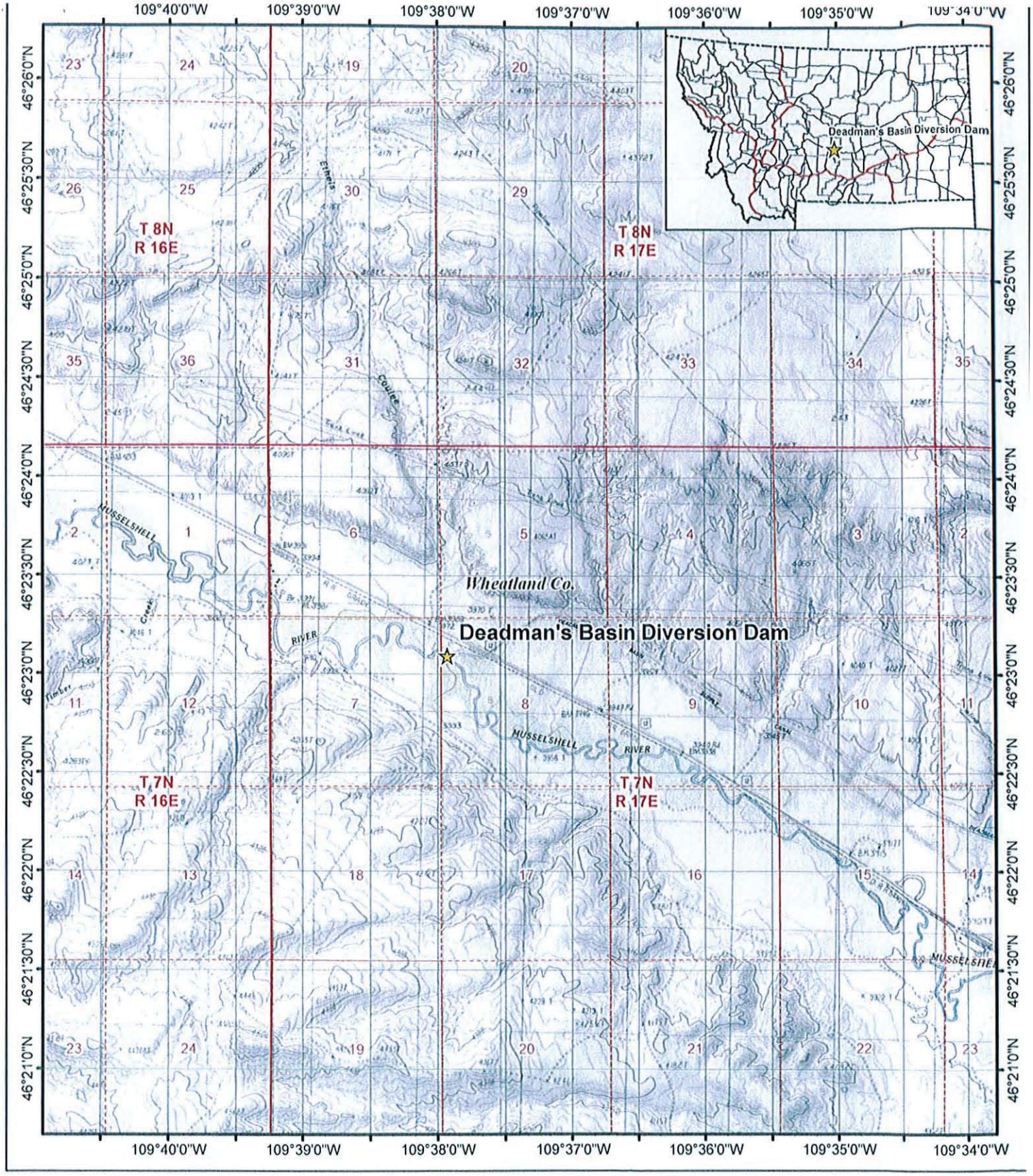
Water Resources Survey, Wheatland County, MT, State Water Conservation Board, Helena, MT. June 1965.

EA PREPARATION

Jim Domino, DNRC, SWPB – Natural resources issues/impacts, MEPA compliance, project permitting, agency consultations
Rhonda Bowman, DNRC, SWPB Editing and EA Distribution
Dan Deutsch – DNRC, SWPB Engineering planning and review, Project Manager
Brian Holling – DNRC, SWPB Engineering and project supervision
Fred Robinson, DNRC – Legal review
Kevin Smith, DNRC, SWPB Administrative supervision

APPENDIX A

Project map, photographs, drawings, schedule, and budget



Legend

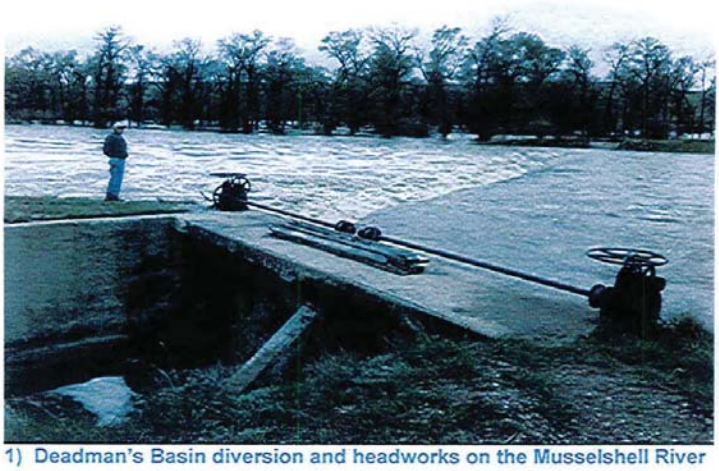
- ☆ Project Location
- Township and Range
- Sections

N
W E
S

0 3,000 6,000 12,000 Feet

FIGURE 3-1 LOCATION MAP
DEADMAN'S BASIN DIVERSION

H:\26\20355\GIS\Exhibits\RDGP Location Map.mxd

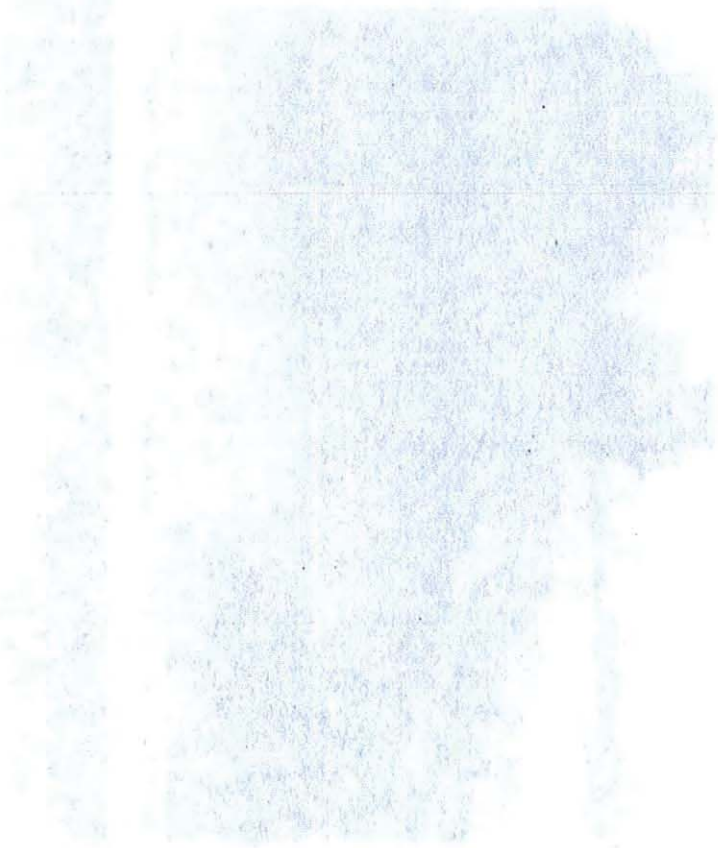


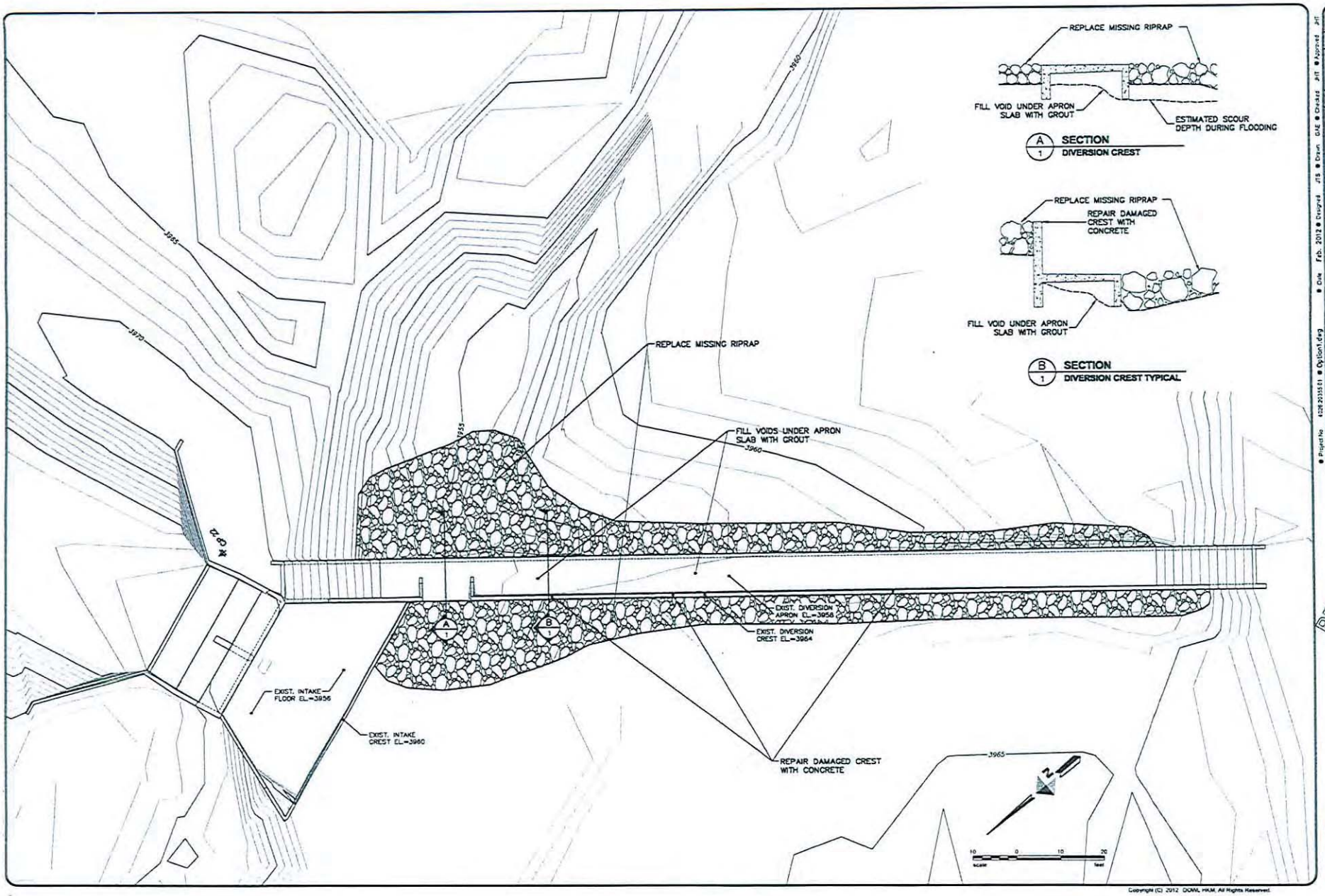
1) Deadman's Basin diversion and headworks on the Musselshell River

2) Water leaking past the existing radial headgates

3) Attempting to adjust headgate during 2011 Musselshell Flood

4) Deadman's Basin Diversion on the Musselshell River





● Project No 4026.2035.01 ● Option1.dwg ● Date Feb. 2012 ● Designed JTS ● Drawn GAE ● Checked JHT ● Approved JHT

DEADMAN'S BASIN DIVERSION DAM
ENGINEERING STUDY

OPTION 1: REPAIR EXISTING DIVERSION DAM
DIVERSION DAM LAYOUT

WARNING
IF THIS BAR DOES NOT MEASURE THEN DRAWING IS NOT TO SCALE

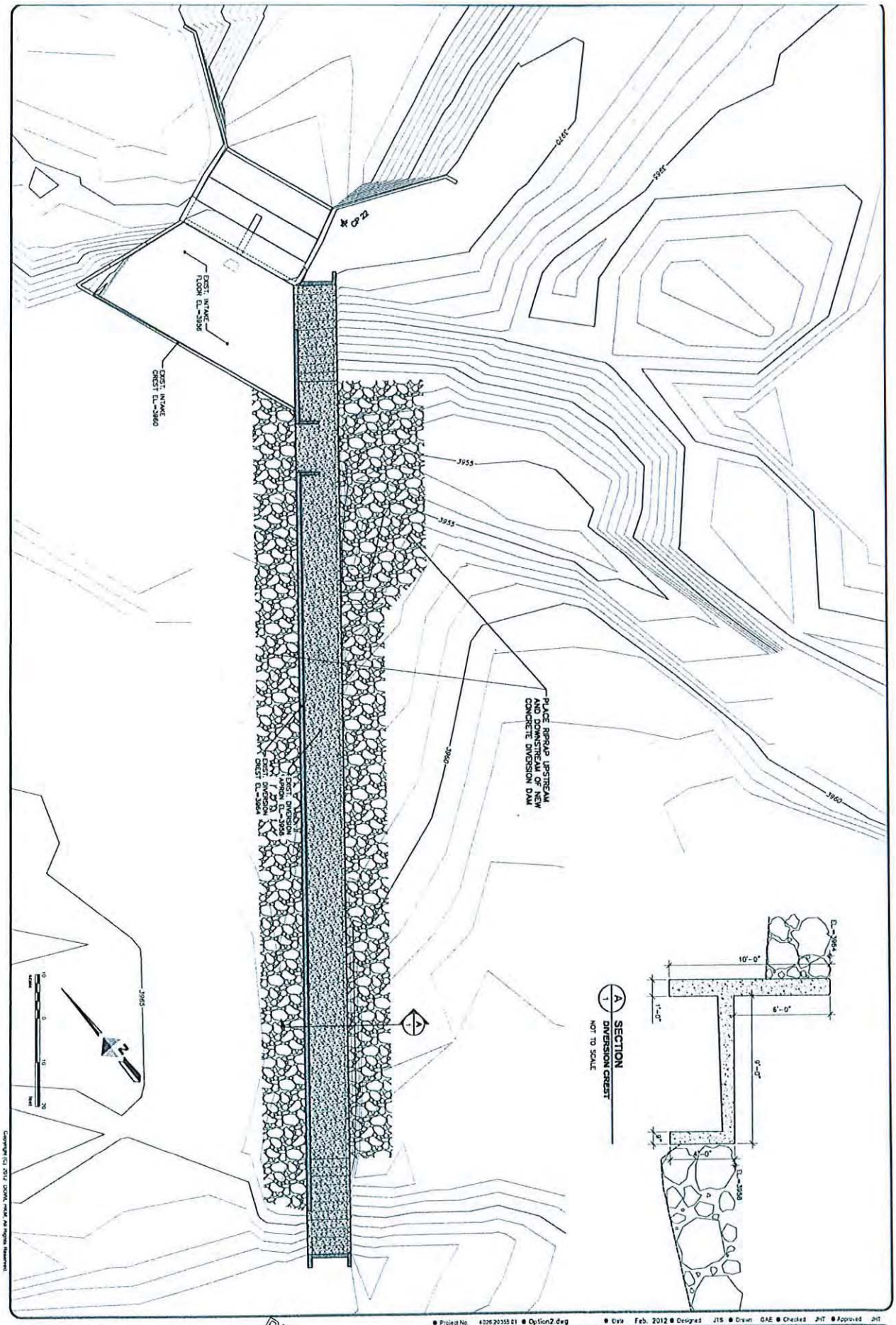
No	Revision	By	Date

PRELIMINARY
NOT FOR CONSTRUCTION

DOWL HKM
GRANITE TOWER BUILDING
222 N. 32ND ST., SUITE 700
P.O. BOX 31318
BILLINGS, MT 59107-1318
406-656-6399
406-656-6398 (FAX)
DOWLHKM.COM

Sheet No
1-1

Copyright (C) 2012 DOWL HKM, All Rights Reserved.



Copyright (c) 2012 DOWL HKM. All Rights Reserved.

PRELIMINARY
NOT FOR CONSTRUCTION

Project No. 4026.20355.01 ● Option2.dwg ● Date Feb. 2012 ● Designed JTS ● Drawn GAE ● Checked JHT ● Approved JHT

DEADMAN'S BASIN DIVERSION DAM
ENGINEERING STUDY

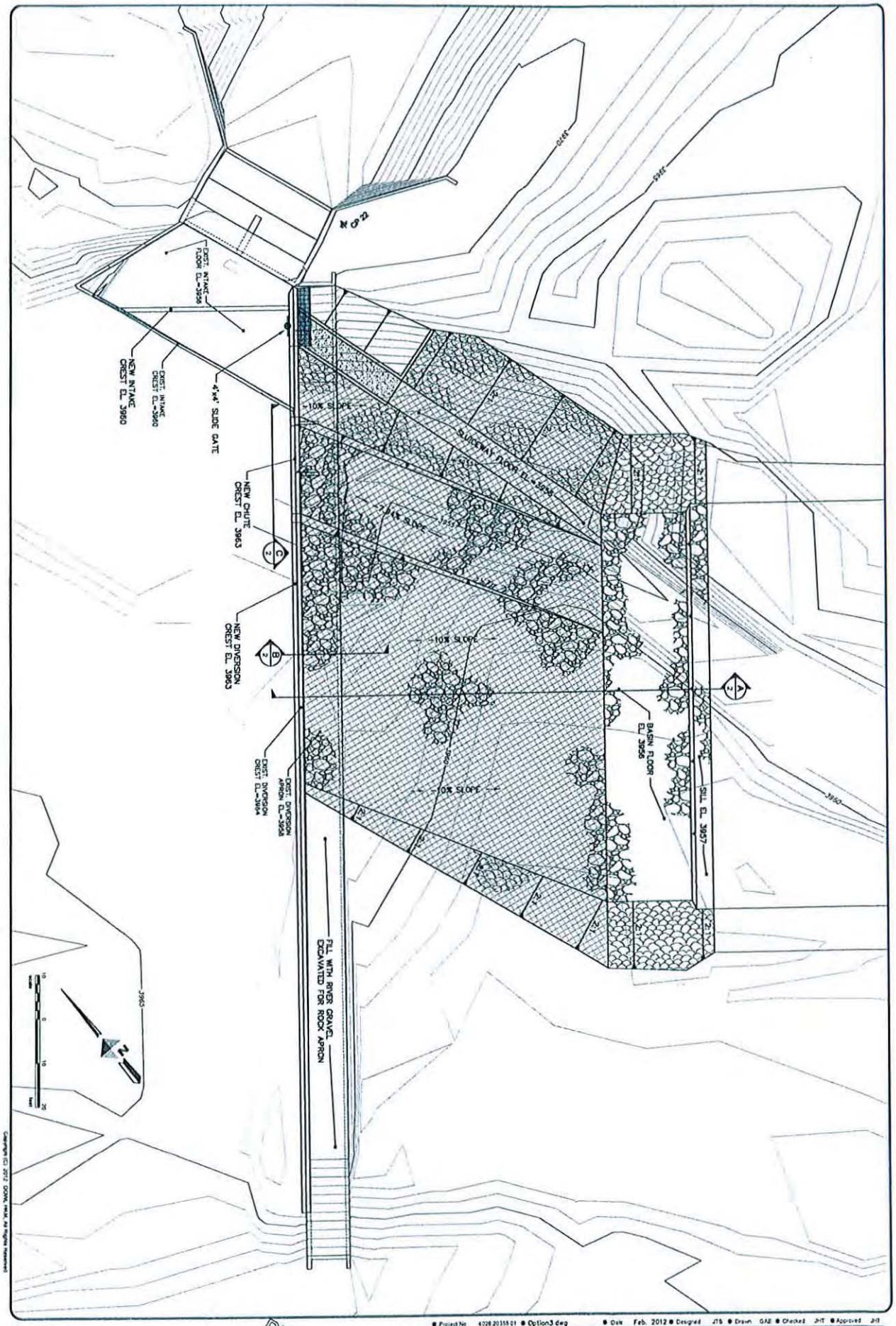
OPTION 2: REPLACE IN-KIND
DIVERSION DAM LAYOUT

WARNING
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

No.	Revision	By	Date

Sheet No. 2-1

DOWL HKM
GRANITE TOWER BUILDING
222 N. 32ND ST., SUITE 700
P.O. BOX 31318
BILLINGS, MT 59107-1318
406-656-6399
406-656-6398 (FAX)
DOWLHKM.COM



PRELIMINARY
NOT FOR CONSTRUCTION

Project No 4026.20355.01 ● Option3.dwg ● Date Feb. 2012 ● Designed JTS ● Drawn GAE ● Checked JHT ● Approved JHT

DEADMAN'S BASIN DIVERSION DAM
ENGINEERING STUDY

OPTION 3: ROCK RAMP
DIVERSION DAM LAYOUT

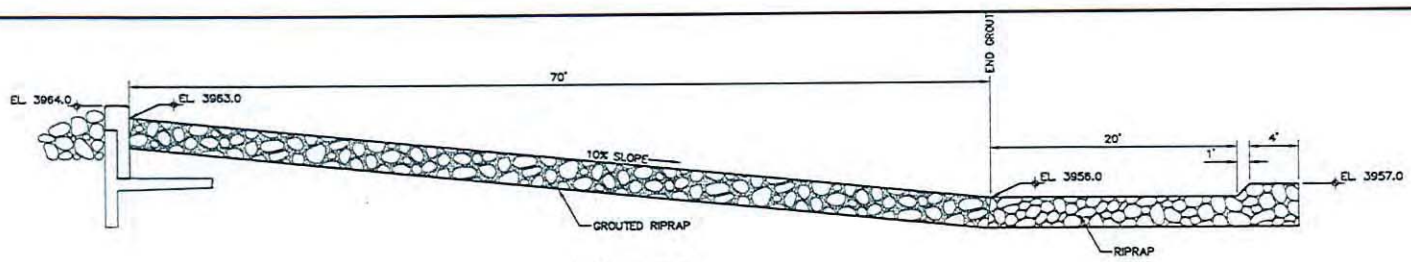
WARNING
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

No	Revision	By	Date

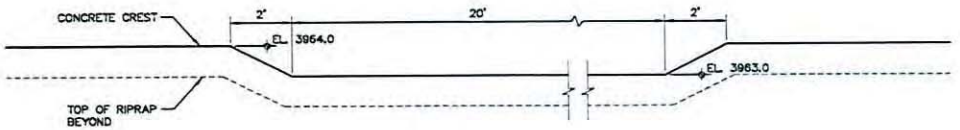
Sheet No 3-1

DOWL HKM
GRANITE TOWER BUILDING
222 N. 32ND ST., SUITE 700
P.O. BOX 31318
BILLINGS, MT 59107-1318
406-656-6399
406-656-6398 (FAX)
DOWLHKM.COM

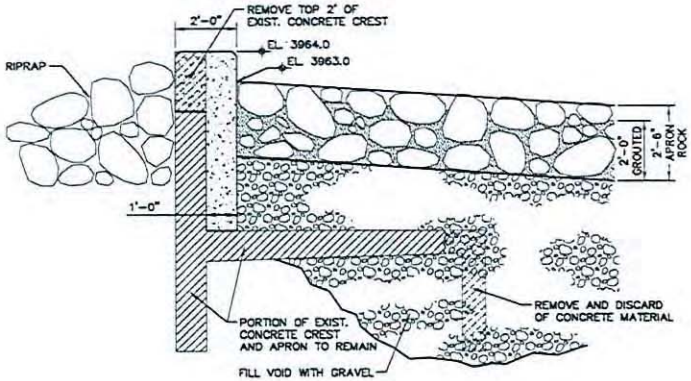
Copyright (C) 2012 DOWL HKM. All Rights Reserved.



A 1 **PROFILE**
DIVERSION ROCK RAMP



C 1 **PROFILE**
DIVERSION CREST AT CHUTE



B 1 **SECTION**
DIVERSION CREST TYPICAL

● Project No 4026.20.355.01 ● Option3.dwg ● Date Feb. 2012 ● Designed JTS ● Drawn GAE ● Checked JHT ● Approved JHT

DEADMAN'S BASIN DIVERSION DAM
ENGINEERING STUDY

OPTION 3: ROCK RAMP
DIVERSION DAM SECTIONS AND DETAILS

WARNING
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

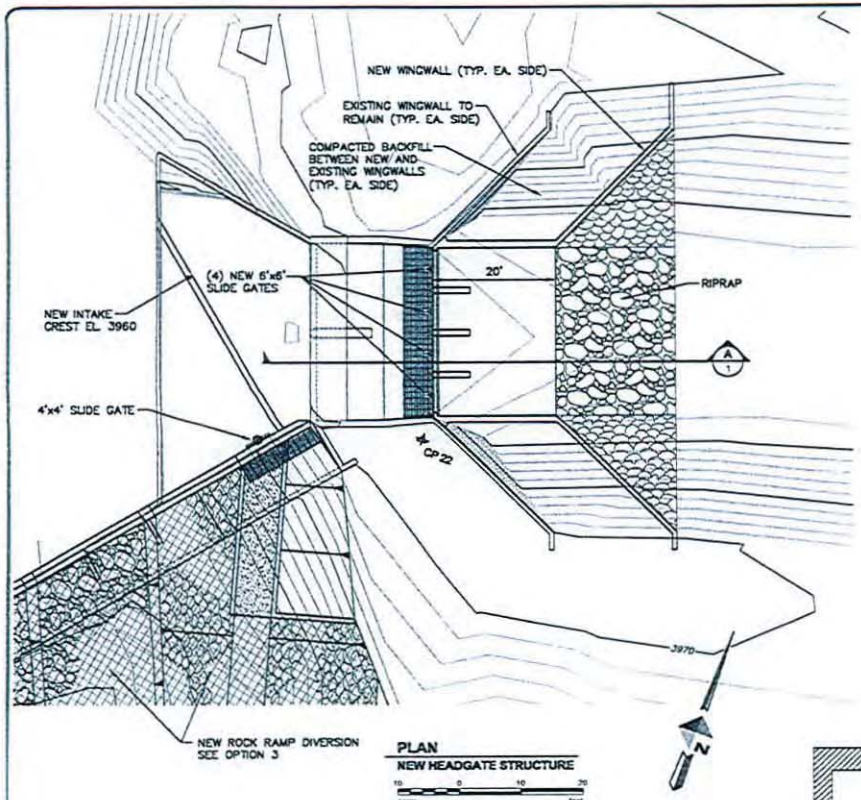
No	Revision	By	Date

PRELIMINARY
NOT FOR CONSTRUCTION

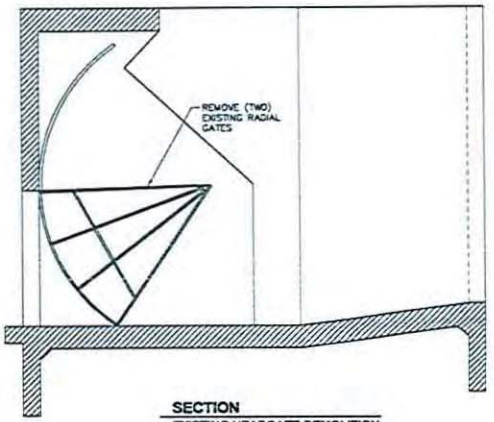
DOWL HKM
GRANITE TOWER BUILDING
222 N. 32ND ST., SUITE 700
P.O. BOX 31318
BILLINGS, MT 59107-1318
406-656-6399
406-656-6398 (FAX)
DOWLHKM.COM

Sheet No
3-2

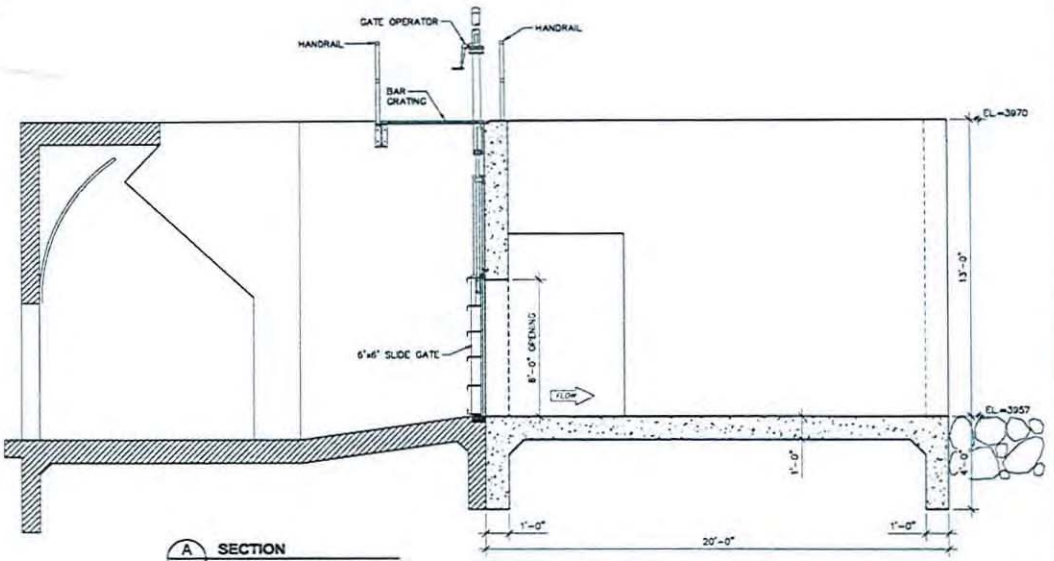
Copyright (C) 2012 DOWL HKM. All Rights Reserved



PLAN
NEW HEADGATE STRUCTURE



SECTION
EXISTING HEADGATE DEMOLITION
NOT TO SCALE



A 1 **SECTION**
NEW HEADGATE STRUCTURE
NOT TO SCALE

DEADMAN'S BASIN DIVERSION DAM
ENGINEERING STUDY

OPTION 4: NEW CANAL HEADGATES
AND CANAL HEADGATE REHABILITATION

PRELIMINARY
NOT FOR CONSTRUCTION

DOWL HKM
BRANITE TOWER BUILDING
222 N. 32ND ST., SUITE 700
P.O. BOX 31318
BILLINGS, MT 59107-1318
406-656-6399
406-656-6398 (FAX)

Sheet No.
4-1

Copyright (C) 2012 DOWL HKM, All Rights Reserved

PROJECT SCHEDULE

The needs of irrigators and river flow conditions require that construction begin on or around August 15, 2014. This is the main schedule objective. To accomplish this objective, DNRC desires that the consultant's project schedule generally be as follows:

PHASE	TARGET COMPLETION DATE
Design	Complete Preliminary Engineering Design Report by March 13, 2014; Final Engineering Report by April 17, 2014; and Project Manual by May 22, 2014.
Bidding	Bid by June 1, 2014 and executed construction contract by July 15, 2012.
Construction	Begin construction on or around August 15, 2014. Substantial completion date to be determined.
Project Close-out	Finalize project close-out (excluding warranty inspection report) by December 31, 2014.

Project Budget

Category	RDGP	DNRC SWPB	DBWUA	FEMA	Total
Administrative Costs					
Personnel Cost			$6,750		$6,750
Supplies & Materials		$1,300	$300		$1,600
Communications			$50		$50
Travel		$3,300	$3,000		$6,300
Rent & Utilities					
Equipment					
Miscellaneous					
Total Administrative Costs		$4,600	$10,100	$0	$14,700
Activity Costs					
Personnel Cost		$15,400			$15,400
Contracted Services:					
Activity: Final Engineering Design			$36,900		$36,900
Activity: Construction	$145,000		$159,182	$70,818	$375,000
Activity: Construction Oversight			$48,000		$48,000
Total Activity Costs	$145,000	$15,400	$244,082	$70,818	$475,300
TOTAL PROJECT COSTS					
TOTAL	$145,000	$20,000	$254,182	$70,818	$490,000

Person with disabilities who need an alternative accessible format of this document should contact:

http://dnrc.mt.gov/wrd

Montana Department of Natural Resources and Conservation
Water Resources Division
1424 9th Ave. P.O. Box 201601
Helena, MT 59620-1601
Telephone (406) 444-6646
Fax (406) 444-0533