EA Form R 1/2007

Montana Department of Natural Resources and Conservation
Water Resources Division
Water Rights Bureau

ENVIRONMENTAL ASSESSMENT
For Routine Actions with Limited Environmental Impact

Part I. Proposed Action Description

1. Applicant/Contact name and address: 4 Diamond Ranch at Wallrock LLC
   31 St. James Ave #740
   Boston, MA 02116-4186

2. Type of action: Application for Beneficial Water Use Permit No. 43A 30160012

3. Water source name: Shields River

4. Location affected by project: Section 4, 19, 20, 29, T4N, R9E, Park County

5. Narrative summary of the proposed project, purpose, action to be taken, and benefits: The DNRC shall issue a water use permit if an applicant proves the criteria in 85-2-311 MCA are met. ***The DNRC issued a draft Preliminary Determination to Deny this application on November 18, 2024. The Applicant requested a meeting with the Department on November 19, 2024. The Applicant met with the Department on November 25, 2024 and requested 60 days to submit additional information to DNRC. The 60-day deadline is January 24, 2025.***

The Applicant proposes to divert water from the Shields River, by means of a headgate and the Big Ditch, on intermittent days between April 21 and May 31, at up to 73.8 CFS and up to 2264.7 AF per year, from Lot 15, Section 4, T4N, R9E, Park County. The Applicant proposes to build an off-stream reservoir, and divert water to fill this reservoir for storage, in an unnamed tributary of Potter Creek in Section 19, T4N, R9E. The proposed reservoir would have an estimated surface area of 49.6 acres, depth of 60 ft, and capacity of 1265 AF. A 0.58- mile feeder ditch would be constructed to deliver water from the Big Ditch to fill the proposed reservoir. The proposed appropriation is for fishery purpose from January 1 to December 31, and for irrigation purpose from April 20 to October 10.

6. Agencies consulted during preparation of the Environmental Assessment:
   (include agencies with overlapping jurisdiction)

   - Montana Department of Natural Resources and Conservation
   - Montana Natural Heritage Program website
   - Montana Department of Fish, Wildlife, & Parks website
   - Montana Department of Environmental Quality website
   - USDA Web Soil Survey website
   - US Fish & Wildlife Service National Wetlands Inventory website

Part II. Environmental Review

1. Environmental Impact Checklist:

PHYSICAL ENVIRONMENT

WATER QUANTITY, QUALITY AND DISTRIBUTION

Water quantity *- Assess whether the source of supply is identified as a chronically or periodically dewatered stream by MT FWP. Assess whether the proposed use will worsen the already dewatered condition.*

A search conducted on Oct. 30, 2024 found that the Montana Department of Fish, Wildlife & Parks (MT FWP) in 2005 identified the 82-mile Shields River as a periodically dewatered stream (stream where dewatering is a significant problem only in drought or water-short years). The MT FWP holds two instream flow reservations below the proposed point of diversion, in the middle (near Clyde Park) and lower (at mouth) portions of the Shields River, to maintain adequate flows for fishery purpose. The Department's Sept. 3, 2024 technical report indicates that there are specific days with legally available flow rates between April 21 and May 31. These legally available dates and amounts were developed with existing private water rights, water rights claiming the Big Ditch, and MT FWP instream reservations as legal demand. See Table 1 below. The Applicant proposes to not exceed these days and flow rates.

Table 1: Dates of legally available flow rate (CFS) at the proposed point of diversion									
April 21	April 22	April 23	April 24	April 25	April 26	April 27	April 28	April 29	April 30
10.4	18.0	38.9	63.2	52.9	43.2	40.8	46.1	42.0	47.5
May 2	May 3	May 4	May 5	May 6	May 7	May 8	May 9	May 10	May 16
1.0	7.0	18.9	24.6	38.5	28.3	29.0	29.5	9.4	20.0
May 17	May 18	May 19	May 20	May 21	May 29	May 30	May 31		
23.9	29.7	7.4	49.7	14.2	10.7	22.3	16.1		

An irrigation water supply study conducted by the Department in 2005 reported that the upper Shields River is at times dewatered in May and June by irrigation diversions, and stream flow typically decreases in mid to late summer below irrigation demand. The proposed project seeks to capture unappropriated spring flow between April 21 and May 31, and could potentially impact the water supply of the Shields River.

Determination: Diversion of spring runoff in accordance with the Table 1 would maintain MT FWP instream flow reservation but would further withdraw water from the Shields River.

Water quality *- Assess whether the stream is listed as water quality impaired or threatened by DEQ, and whether the proposed project will affect water quality.*

The lower Shields River is listed on the 2020 Montana 303(d) list as fully supporting agriculture, drinking water, and primary contact recreation, and not fully supporting aquatic life. Causes of

impairment for aquatic life are alterations in stream-side or littoral vegetative covers, fish passage barriers, and chemical and mineral levels. Probable sources of the impairment are the impacts from irrigation crop productions, rangeland grazing, streambank modification/destabilization, hydro-structure flow regulation/modification, and natural or unknown sources of chemical or mineral properties. The proposed appropriation would not have significant effect on the Shields River's water quality.

Determination: No significant impact.

Groundwater **-** *Assess if the proposed project impacts ground water quality or supply. If this is a groundwater appropriation, assess if it could impact adjacent surface water flows.*

This surface water appropriation will not have significant impact on groundwater.

Determination: *No significant impact.*

DIVERSION WORKS **-** *Assess whether the means of diversion, construction and operation of the appropriation works of the proposed project will impact any of the following: channel impacts, flow modifications, barriers, riparian areas, dams, well construction.*

The Applicant plans to divert water at a rate of up to 73.8 CFS and 2264.7 AF from the Shields River from a headgate in Lot 15, Section 4, T4N, R9E, Park County into the Big Ditch. The headgate and the Big Ditch are both existing structures. About 10 miles down Big Ditch, the Applicant would construct an open-cut feeder ditch diverting water from the Big Ditch to fill the proposed reservoir. The proposed reservoir is designed with a surface area of 49.6 acres, maximum depth of 60 feet, and storage capacity of 1265 AF. The dam is classified as high-hazard dam due to potential loss of life and property in the event of dam failure.

A 12-inch buried gravity-flow PVC pipeline would convey water from the reservoir to two proposed new pivots in W2 Section 19, on the west side of the reservoir. Each pivot requires about 500 GPM. Water intake for this gravity-flow pipeline would be located in the southwest corner of the reservoir in SENESW of Section 19, T4N, R9E.

A floating pump (capable of operating at 125 HP and 2257.5 GPM) would be installd in the southeast corner of the reservoir, located in approximately SENWSE Section 19, to supply water for irrigation on the east side of the reservoir. A buried 12-inch mainline will deliver water from the floating pump to a new pivot straddling Sections 19 and 20, a new flood-irrigaton field in Section 20, and connect with the exisintg pivot pipelines to serve supplemental irrigation water to existing Pivots 1 in Sections 20/29 and existing Pivot 8 in Section 29. At full capacity, Pivot 1 would operate at 1100 GPM with an 58.7 HP pump, and Pivot 8 would operate at 400 GPM with a 13.5 HP pump.

The proposed reservoir is located off-stream at the headwater basin of an unnamed tributary of Potter Creek. This tributary is an ephemeral stream which flows in response to rain/snow events. There is no existing lake or pond in this 0.2-mile^2 watershed as precipitation is typically lost to evaporation or runoff. Stream channel or riparian area would be inundated by the reservoir.

On the Shields River, capturing peak spring runoff as proposed, in addition to diversion by existing irrigation appropriators, could potentially modify the flow regime of the river, its riparian area, and the fishery habitat it supports.

The Applicant is working with professional engineering company, DOWL, and the DNRC Dam Safety program to design and permit the proposed reservoir.

The Applicant indicated that 40% of diverted water would be lost during conveyance. At this rate, there might not be sufficient water to accomplish the beneficial uses (irrigation and fishery) proposed by the Applicant.

The Applicant has not obtained shared ditch use agreement with other ditch users which would outline how available ditch capacity would be quantified and rotated between existing uses and the new use.

Determination: The proposed project would create a large reservoir and a feeder ditch where none existed. It could potentially impact the flow regime of the Shields River, and the River's riparian and fishery habitats. The proposed diversion works might not be able to deliver sufficient water to serve the proposed beneficial uses. Senior water right holders could be adversely affected by the proposed project.

UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES

Endangered and threatened species *- Assess whether the proposed project will impact any threatened or endangered fish, wildlife, plants or aquatic species or any "species of special concern," or create a barrier to the migration or movement of fish or wildlife. For groundwater, assess whether the proposed project, including impacts on adjacent surface flows, would impact any threatened or endangered species or "species of special concern."*

The Montana Natural Heritage Program identified a list of 8 species of concern in Section 19, T4N, R9E. None are listed as endangered by the U.S. Fish and Wildlife Service. Greater Sage-Grouse and the Bald Eagle are listed as sensitive species by the U.S. Forest Service.

Species Group	Common Name
Birds	Bald Eagle
Birds	Bobolink
Birds	Brewer's Sparrow
Birds	Golden Eagle
Birds	Greater Sage-Grouse
Birds	Sage Thrasher
Birds	Great Blue Heron
Fish	Rocky Mountain Cutthroat Trout (formally Yellowstone Cutthroat Trout)

The point of diversion, a headgate on the Big Ditch located in Section 4, 4N 9E, is an existing structure. Water rights have been claimed on the Big Ditch as far back as 1884 for irrigation and

livestock use. According to a July 28, 2022 FWP memo that recommended FWP making call on junior water rights on the Shields River, the Shields River basin holds a relatively intact distribution of native Yellowstone cutthroat trout. Water withdrawal can increase water temperatures leading to and fragmented habitat increasing stress and mortality on the fishery. A June 14, 2024 FWP press release states, "Yellowstone cutthroat trout have declined throughout much of their native range primarily due to competition and hybridization with non-native trout species and habitat loss. Yellowstone cutthroat trout populations have especially declined in the upper Shields River watershed largely due to the invasion of non-native brook trout." Montana Field Guides states, "Rocky Mountain Cutthroat Trout are a Montana Fish of Special Concern. Much of their spawning habitat in tributaries of the upper Yellowstone River has been lost to irrigation withdrawals which dewater the streams before spawning and egg-incubation are completed in July and August."

The Applicant proposes to divert water on intermittent days between April 21 and May 31 to capture spring runoff on the Shields that has not been appropriated. If granted, permit conditions would require the Applicant to measure diverted flow, submit annual measurement report, check USGS gage near Livingston daily and divert water in accordance with the allowed schedule only when flow rate exceeds FWP instream flow; and to obtain an FWP private pond permit.

In Section 19, the Applicant is proposing to build a 1265 AF-capacity reservoir to store water for irrigation and fishery purposes. The proposed location is the head of an unnamed tributary of Potter Creek. There is no existing dam or lake in this upper watershed. A new reservoir is anticipated to increase utilization by waterfowl and riparian species. Conversion of native upland sagebrush steppe to a large water body and irrigated farming would decrease native upland animal and plant species habitat.

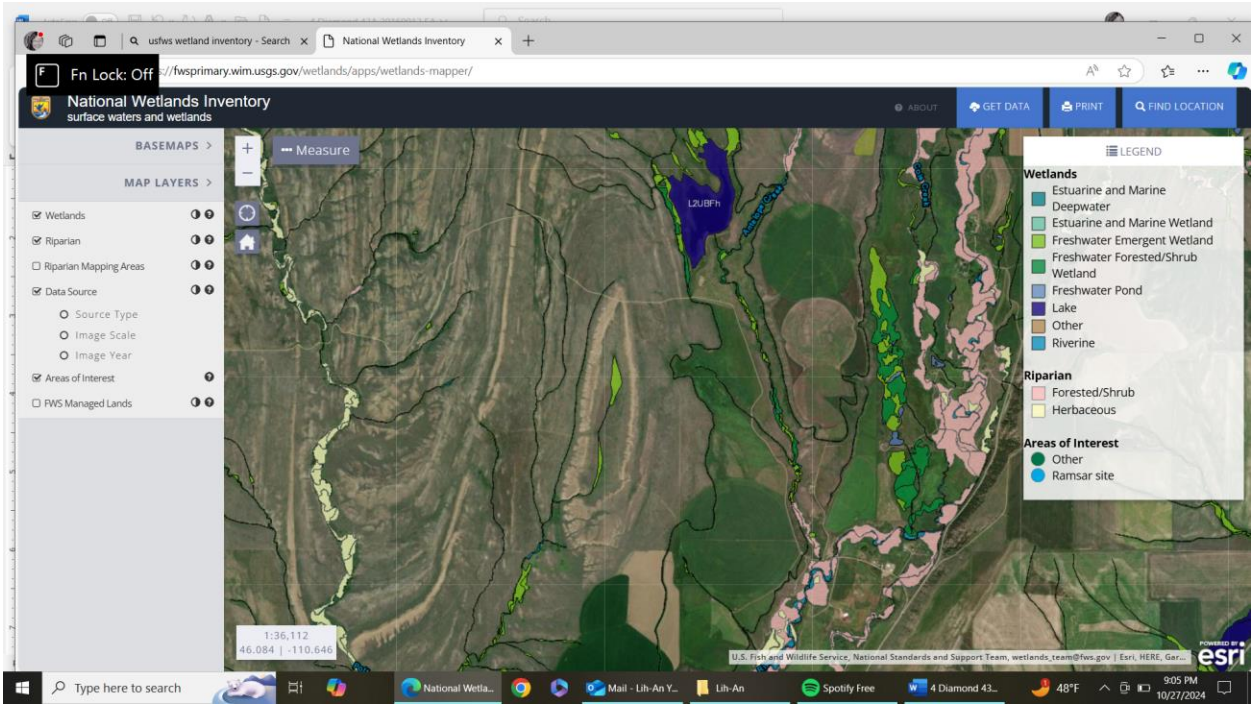
A June 8, 2023 consultation review by the Montana Sage Grouse Habitat Conservation Program determined that the project area is located within designated General Habitat for sage grouse, and is not within two miles of any active sage grouse lek in General Habitat. The consultation recommended three management practices to help maintain sage grouse habitat, population, and distribution:

- Reclamation of disturbed area with native plant species
- Weed control
- Elimination of mosquito habitat and transmission of West Nile Virus

Determination: If the project is granted, permit conditions would help mitigate the impact of water withdrawal on fishery environment. A large reservoir and new irrigation are expected to alter the wildlife and plant composition of the area.

Wetlands **-** *Consult and assess whether the apparent wetland is a functional wetland (according to COE definitions), and whether the wetland resource would be impacted.*

There is currently no ponding of water in the project site. The USFWS National Wetlands Inventory does identify a "freshwater emergent wetland" in the headwater basin of the unnamed tributary of Potter Creek. A road traverses the project site.



Determination: Significant impact to wetlands is not anticipated.

Ponds **-** *For ponds, consult and assess whether existing wildlife, waterfowl, or fisheries resources would be impacted.*

There is currently no pond or lake in the project site. With water supplied from the Big Ditch, the Applicant proposed to construct a 1265-AF reservoir to store water for irrigation and provide fishery habitat. The Applicant would be required to obtain a private pond permit from the MT FWP upon project completion.

DOWL, an engineering firm in Bozeman, has provided to DNRC a preliminary design report of the reservoir and the feeder ditch. DOWL has also conducted a hazard classification analysis of the dam. The proposed dam is determined to be a high-hazard dam.

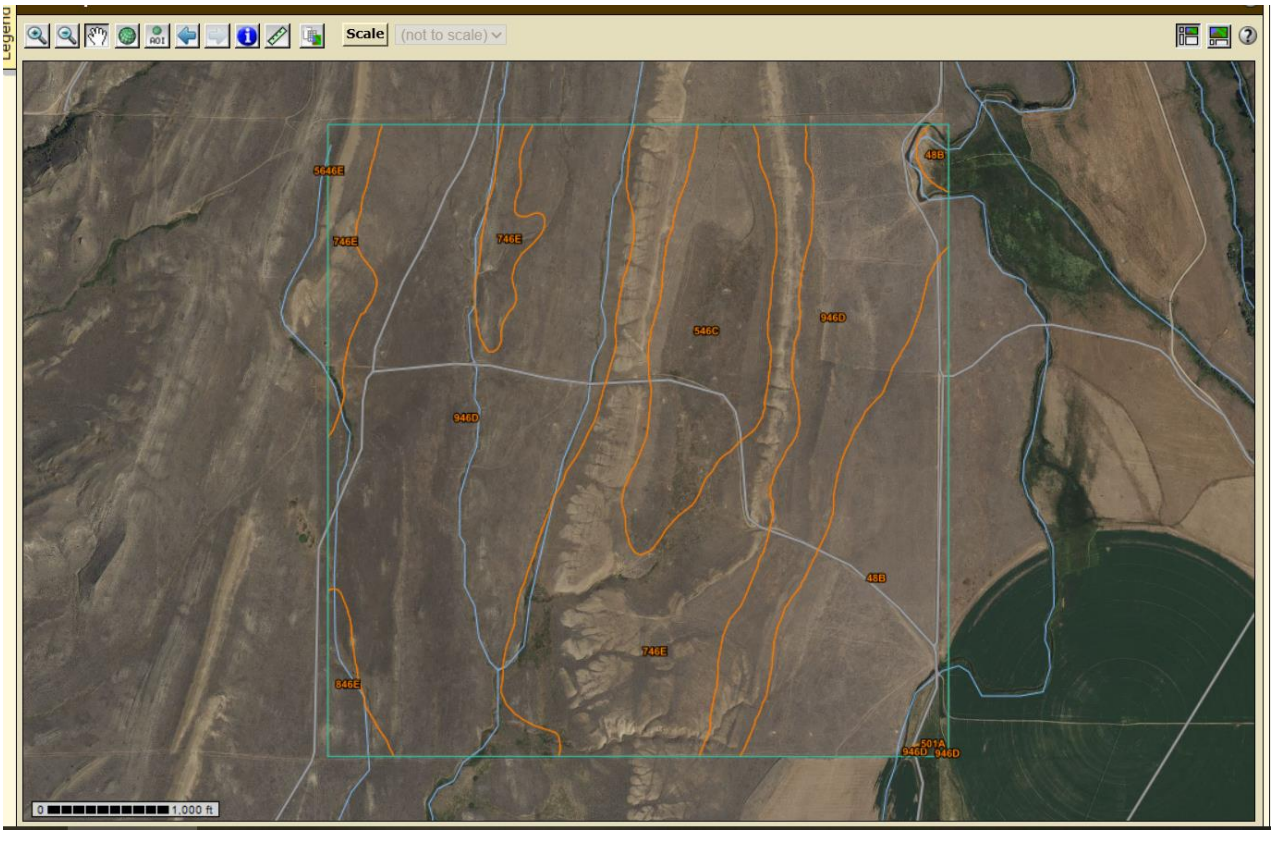
Determination: There are no existing ponds identified within the project area.

GEOLOGY/SOIL QUALITY, STABILITY AND MOISTURE - *Assess whether there will be degradation of soil quality, alteration of soil stability, or moisture content. Assess whether the soils are heavy in salts that could cause saline seep.*

Soil Units in Section 19 are assessed because the proposed reservoir and feeder ditch will be constructed in Section 19. Parts of Section 19 will also be converted to pivot irrigation. The soil units occurring in Section 19 are shown in the following table and map:

Park County Area, Montana (MT669)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
48B	Tamaneen cobbly clay loam, 0 to 4 percent slopes	91.9	14.9%
501A	Soapcreek-Clunton complex, 0 to 4 percent slopes, occasionally flooded	0.5	0.1%
546C	Bacbuster-Wilsall complex, 2 to 8 percent slopes	62.3	10.1%
746E	Bacbuster-Vershal complex, 4 to 25 percent slopes	160.8	26.0%
846E	Bacbuster-Whitlash-Vershal complex, 8 to 35 percent slopes	8.9	1.4%
946D	Bacbuster-Wilsall-Tolbert complex, 2 to 15 percent slopes	293.7	47.5%
5646E	Copenhaver-Dalys-Bridger complex, 8 to 45 percent slopes	0.0	0.0%
Totals for Area of Interest		**618.1**	**100.0%**



Soil Unit 546C, Bacbuster-Wilsall complex on 2 to 8 percent slopes, will be affected by the construction of the proposed reservoir. It is characterized by clay loam to clay texture on low-hills position with nonsaline quality, derived from a parent material of residuum weathered from sandstone and shale and restricted by 16-40 inches to paralithic bedrock. Depth to water table is more than 80 inches.

The feeder ditch will cut through Units 48B, 746E and 946D. Unit 48 B is Tamaneen cobbly clay loam on 0 to 4 percent slopes in stream terraces position. Parent material is alluvium derived from igneous and sedimentary rock. Soil has a deep profile, with very gravelly sandy loam from 15 to 28 inches, and very cobbly sandy loam from 28 to 60 inches. Unit 746E is Bacbuster-Vershal complex on 4 to 25 percent slopes; Unit 946D is Bacbuster-Wilsall-Tolbert complex on 2 to 15 percent slopes. Both are on hillslopes position and derived from a parent material of colluvium or residuum weathered from sandstone and shale, with depth to bedrock at about 30 inches. Depth to water table is more than 80 inches. All three units are characterized by clay loam to clay texture and nonsaline quality. DOWL engineering indicated that soil excavated from the cut could be used as high-strength embankment fill of the new dam.

None of the soil units in Section 19 has ponding potential. In terms of susceptibility to wind erosion in cultivated areas, the soil units are rated as group 4 to group 7 but mostly as group 6--the soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. Electric conductivity in 0-70 cm profile ranges from 0.5 to 0.8 mmhos/cm as nonsaline; pH ranges from 7.7-8.0. All soils are well drained with very slow infiltration rate.

Yields of irrigated alfalfa hay is estimated at 2.73 tons/acres in the SE corner of Section 19, which falls in a pivot irrigation. Yields of non-irrigated grass-legume hay, by contract, is approximately 0.09 tons/acre, according to the USDA NRCS Web Soil Survey.

Determination: Soils would be removed, disturbed or otherwise impacted by the construction of reservoir and ditch, as well as by hay crop cultivation and irrigation.

VEGETATION COVER, QUANTITY AND QUALITY/NOXIOUS WEEDS - *Assess impacts to existing vegetative cover. Assess whether the proposed project would result in the establishment or spread of noxious weeds.*

The proposed reservoir is an off-stream reservoir to be filled with water supplied from the Big Ditch. The reservoir is to be constructed in the upper basin of an unnamed tributary of Potter Creek; elevation ranges from 5320 to 5420 feet. The annual precipitation is approximately 16 inches. Native vegetation in the assessment area is predominantly upland sagebrush steppe.

There are no endangered or threatened plant species listed by the USFWS or USFS in the project area. The control of noxious weeds is the responsibility of the landowner and is recommended by the Montana Sage Grouse Habitat Conservation Program.

Ground disturbance associated with dam, ditch, pipeline and pivot construction is expected to increase the presence of introduced plant species and noxious weeds. Water storage would also alter the plant community composition around the water's edge.

Determination: Temporary construction, permanent water storage and irrigated farming are expected to change the plant community of the assessment area.

AIR QUALITY - *Assess whether there will be a deterioration of air quality or adverse effects on vegetation due to increased air pollutants.*

Ground disturbance associated with dam, ditch, pipeline and pivot construction is expected to increase the dust and air pollutant temporarily until reclamation and crop production are established.

Determination: No significant impact.

HISTORICAL AND ARCHEOLOGICAL SITES - *Assess whether there will be degradation of unique archeological or historical sites in the vicinity of the proposed project if it is on State or Federal Lands. If it is not on State or Federal Lands simply state NA-project not located on State or Federal Lands.*

Determination: Not applicable, project not located on State or Federal Lands.

DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AND ENERGY - *Assess any other impacts on environmental resources of land, water and energy not already addressed.*

Determination: No other potential impacts have been identified.

HUMAN ENVIRONMENT

LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS - *Assess whether the proposed project is inconsistent with any locally adopted environmental plans and goals.*

Determination: No known environmental plans or goals will be significantly impacted by this project.

ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES - *Assess whether the proposed project will impact access to or the quality of recreational and wilderness activities.*

Determination: No access or recreational activities will be significantly impacted by this project.

HUMAN HEALTH - *Assess whether the proposed project impacts on human health.*

Determination: This project will have no significant impact on human health.

PRIVATE PROPERTY - *Assess whether there are any government regulatory impacts on private property rights.*
Yes___ No _X__ If yes, analyze any alternatives considered that could reduce, minimize, or eliminate the regulation of private property rights.

Determination: No significant impact.

OTHER HUMAN ENVIRONMENTAL ISSUES - *For routine actions of limited environmental impact, the following may be addressed in a checklist fashion.*

Impacts on:

(a) Cultural uniqueness and diversity? No significant impacts identified.

(*b) Local and state tax base and tax revenues?* No significant impacts identified.

(c) Existing land uses? No significant impacts identified.

(*d) Quantity and distribution of employment?* No significant impacts identified.

(e) Distribution and density of population and housing? No significant impacts identified.

(f) Demands for government services? No significant impacts identified.

(g) Industrial and commercial activity? No significant impacts identified.

(h) Utilities? No significant impacts identified.

(i) Transportation? No significant impacts identified.

(j) Safety? No significant impacts identified.

(k) Other appropriate social and economic circumstances?

2. *Secondary and cumulative impacts on the physical environment and human population:*

Secondary Impacts No significant impacts.

Cumulative Impacts No significant impacts.

3. *Describe any mitigation/stipulation measures:* None

4. *Description and analysis of reasonable alternatives to the proposed action, including the no action alternative, if an alternative is reasonably available and prudent to consider:*

A reasonable alternative would be to deny the application, in which the Department would not authorize the proposed water right permit for irrigation and fishery use. Under the denial alternative, the Applicant will not be able to divert water as proposed.

PART III. Conclusion

1. ***Preferred Alternative:*** Deny a water use permit if the applicant does not prove the criteria in §85-2-311, MCA are met**.** Issue a water use permit if the applicant proves the criteria in §85-2-311, MCA are met**.** The Applicant is to provide additional supporting information by January 24, 2025.

2 Comments and Responses

3. ***Finding:***
*Yes___ No __**X**__ Based on the significance criteria evaluated in this EA, is an EIS required?*

If an EIS is not required, explain <u>why</u> the EA is the appropriate level of analysis for this proposed action: No significant impacts have been identified, therefore an EIS is not necessary.

Name of person(s) responsible for preparation of EA:

Name: Lih-An Yang
Title: Regional Manager, Glasgow Water Resources Regional Office
Date: December 9, 2024