TCCWSD construction application and guidelines

1) Ditch Easements and Encroachments:

Tin Cup County Water and/or Sewer District (hereafter the District) has a ditch easement for the conveyance of irrigation water to district members via the McIntosh-Morello Lowline Ditch (hereafter the Ditch). District members can then divert water up to their allotted flow into laterals via head gates, pumps, or other means. The following paragraphs summarize the obligations of the District and the users with respect to operation and maintenance, and the encroachments that potentially interfere with ditch maintenance and/or operation. To minimize potential interferences the District is instituting an approval process for modifications to an existing encroachment or installation of a new encroachment. An application form listing the location and the type of encroachment to be installed or modified will be supplied by the General Manager upon request and completed by the user. Attached to this form will be a list of requirements and specifications for the particular type of encroachment. This form and the approval process protects both the requestor and the District's interests.

Montana law establishes that the holder of a ditch easement has a secondary easement that allows entry for the purposes of maintaining the ditch and the ditch banks, including, but not limited to, inspection, cleaning, repair, installment of liners or addition of bentonite clay to prevent leakage, removal of sediment accumulations and removal of trees and shrubs, fallen or standing, in the secondary easement as necessary. The purpose is to assure the appropriate distribution of irrigation water to points of diversion and to minimize the risk of ditch bank failure and/or ditch blockage, which could result in damage to adjacent property. The Ditch cannot be enlarged or deepened beyond the original dimensions at the time the easement was established. There is typically no set width of secondary easements[1/]. Rather the width depends on the requirements of the usual and customary equipment used to maintain the ditch and its embankments. For the Ditch the usual and customary equipment would consist of a small excavator or backhoe and the width of the easement would be the distance from the centerline of the ditch sufficient to accommodate this equipment. This would typically be on the order of about 10 feet on either side of the centerline so that the equipment and personnel can move along the ditch embankment top. No person may encroach upon or otherwise impair any easement for a canal or ditch used for irrigation, unless the holder of the ditch easement (the District) consents in writing to the encroachment or impairment. On the other hand the holder of a ditch easement cannot encroach upon the land owners right to use the land, so long as that use does not significantly encroach on the ditch or secondary easement.

[1/] Recorded easements may specify a set width. Prescriptive easements, common especially for ditches established around the turn of the last century, do not unless a document exists that specifies it. The easement for the Ditch is prescriptive.

While the District has the obligation to maintain the Ditch and manage the irrigation water conveyed in it, responsibility for maintenance of a lateral from the point of diversion from the Ditch rests with the users of that lateral. Management of the water in a lateral or lateral system is also the responsibility of the users and must be such that encroachment of waste water onto adjacent land is minimized to the maximum extent possible. This is particularly so if the waste water flows across the district boundary and therefore might damage property outside of the District.

Encroachments that are of particular concern:

1) Fences crossing the Ditch or the secondary easement that restrict the access of personnel and equipment. A gate over the Ditch, or where necessary in the secondary easement, that allows passage of persons and equipment should be installed. This gate cannot be locked or otherwise configured in a way that restricts District personnel from free access for inspection, cleaning and maintenance purposes.

2) Pipes crossing the Ditch, either above or below it, must be such that equipment and personnel can move within the easement. Pipes carrying sewage to or from a septic system require special consideration to assure no possibility of leakage or seepage into the ditch. Plans for such a pipe must be approved by the Ravalli County Healt**h** Department.

3) Notches cut in the ditch embankment for the purpose of diverting water into a lateral. These are places where erosion and ultimately ditch failure can occur.

4) Rock dams or weirs placed within the ditch for the purpose of raising the upstream water level. These should be removed at the end of the irrigation season so that equipment movement and cleaning can occur

5) Headgates inproperly constructed or installed can lead to leakage around the structure possibly leading to ditch wall failure .

6) pump inlet pipes must be located so that the inlet screens and pipe do not interfere with the normal flows in the ditch or with ditch cleaning operations

7) Pipes buried within the ditch walls. These are potential sites of leakage and may interfere with ditch cleaning and maintenance.

8) Bridges and culverts. Must be large enough to accommodate expected flows of irrigation water plus additional flows resulting from runoff from storms. The installation must provide for reasonable access to the secondary easement to allow equipment to be moved around the bridge or culvert.

9) Utility lines. Must be installed in a manner that eliminates the risk of electrical shock to personnel or livestock, and the possibility that ditch cleaning activities might inadvertently

contact or sever the conduit and/or cable.

10) Landscaping such as the planting of trees and shrubs in the secondary easement that encroaches on the ability to move equipment.

Contact the General Manager if you plan any activities or installations that encroach either on the ditch or secondary easements. The manager will work with you to arrive at a satisfactory installation or modification. Where appropriate, the General Manager will provide a form to be filled out with a description of the proposed encroachment, the location, the approximate date proposed for installation or modification, and any drawings, diagrams or photos that clarify the encroachment. This form and the approval serves as protection of your rights as well as the rights of the District. Details and specifications to be followed for various types of encroachments will be supplied with the form. The General Manager may approve the encroachment, suggest modifications that would lead to approval or deny the application. Work requiring a water outage should generally be planned for either before or after the irrigation season when the ditch is not conveying water. The District will always endeavor to reach a reasonable accommodation with a member requesting an encroachment.

For Tin Cup County Water and/or Sewer District members receiving their water on the South side of Tin Cup Creek via the Hyline Ditch, this approval system does not apply as these members are responsible for cleaning and maintenance, and management of the water in the Hyline Ditch.

Emergency repairs requiring a water outage may occasionally be necessary. If a water outage is necessary, district members will be promptly notified via the email list of the reason for the outage, the start time and the expected duration.

With respect to funding there are three classes of potential encroachments: 1) a new encroachment requested by a District member, 2) an existing encroachment that a member or members wishes to modify to, for example, improve its operation and 3) an existing encroachment that the District deems should be modified or replaced because of the danger of failure. Some diversions have been installed for decades and there is a risk of failure simply because of aging of the materials. For 1 and 2, the costs of construction, installation and operation of the encroachment are to be borne by the member or members holding the approved permit. For 3, the District is applying for grants that hopefully will cover the expenses. The District of course does not know whether the application will be successful but it will continue to seek funding as necessary for upgrading the ditch and the encroachments. The first phase of this upgrading will be to develop an inventory and a strategic plan that prioritizes encroachments with respect to the need for modification or replacement. Then, in any given year limited numbers can be addressed based on time and funding constraints.

Permit #_____

Tin Cup Ditch/Easement Construction Application

The undersigned herby applies for consent to construct and maintain facilities, which encroach upon District easements, works or facilities. If consent is issued, the Applicant agrees to comply with the conditions, provisions and specifications set forth and to commence and complete construction either prior to beginning of irrigation season (usually May 1) or after the end of irrigation season (usually October 1). Work will be completed by (date)_____.

See the attached for Construction Requirements & Guidelines

Type of crossing or penetration of the ditch: (1) Domestic Water _____ (6) Electric Line_____
The Crossing will be: (2) Roadway – Culvert _____ (7) Fence ___Electric____
Underground_____ (3) Roadway – Bridge _____ (8) Gate _____
Above ground _____ (4) Telephone Line _____ (9) Pump Inlet _____
(5) Head Gate _____ (10) Other _____

*Location, GPS coordinates: _____

Pipe/Head Gate location - drawing or sketch including description of location near what property lines_____

_____

_____

* Allotted flow at head gate or pump (miners inches): _____

Brief description of work to be performed attached plans, sketches & photos (from different angles for details as necessary for clarity) _____

_____

If application concerns a shared head gate/pump inlet. List users and their % or responsibility for any costs;

_____

Primary applicant member to contact _____Phone:_____

Contact member address: _____ Phone(s) :_____

Signed: _____ Date: _____

Approved to perform work as described TCCSWD Board _____Date_____

TCCSWD General Manager _____ Date_____

Final site inspection completed and approved by TCCSWD Manager

TCCSWD General Manager _____ Date_____

(**Information available from TCCSWD Manager)* completed copy to be filed with the General Manager

Tin Cup County Water and/or Sewer District, P.O. Box 292 Darby, Montana 59829, phone: 406-360-8342

Attachment to Tin Cup Ditch/Easement Construction Application

CONSTRUCTION REQUIREMENTS AND GUIDELINES

A. General conditions

1. Where equipment movement within the ditch is restricted by culverts, bridges, weirs, head gates or terrain. The ditch banks must provide a points of reasonable egress and ingress to the secondary easement so that the restriction can be avoided.

2. Upon completion of the installation/modification, the Ditch and secondary easement shall be restored to a condition at least as good/ or better than as before the crossing was made.

3. The District Manager and Board of Directors may, at their sole discretion may require a crossing to be designed and documented by a TCCWSD approved Engineer. This is in situations where there is a particular risk of a breach of the ditch.

4, Prior notification of the District Manager of the date that work will be initiated is required so that District personnel can inspect the work in progress.

B. Fences crossing the ditch or secondary easement.

1. Gates facilitating movement of personnel and machinery required for ingress and egress must be installed.

2. Electric fences must have a disconnect feature located on an easily accessible gate post.

3. Fences must not extend below the water level during the irrigation season. Where fences cross the ditch, the bottom wire must have a 1.5 to 2-inch dia. pipe attached to it - at least 2 inches above the high water level and extending for the full width of the water crossing. This will aid in minimizing the collection of debris on the fence. During non irrigation periods, a temporary extension can be added below the fence for livestock control.

4. Livestock crossing areas should be minimized as they are often sites of ditch bank erosion. It is the users responsibility to inspect crossings by April 1 and to report any damage to the District Manager for determination if any repair work might be required prior to irrigation season.

C. Pipes crossing the ditch

1. This section covers requirements for pipes carrying irrigation water, domestic water, drainage water or [“sewage pipes which require Ravalli County Sanitarian approval for said crossing and/or close proximity location to the ditch”]. All pipeline crossings shall comply

with the specifications governing the specific type of crossing set forth by the District unless approved in writing by the District Manager.

2. Pipelines shall be installed at least three (3) feet below the bottom of the ditch and no 2 pipes be closer than two (2) feet apart laterally. If large boulders interfere, the District Manager must be notified and a designed exception agreed too. This must be documented with a separate attachment to the permit signed by the District Manager .

3. The type of pipe, its inside diameter, wall thickness, standard strength, and type of joint shall be as approved for use by the District manager,

4. The manner of installation, and the operating conditions for the specified crossing shall be as approved for use by the District manager prior to construction and installation.

5. Backfill: No stones larger than 3-inch select material to be placed within six inches of the pipe top. Thereafter the backfill in the trench should contain no stones larger than 6 inches.

6. Pipes carrying sewage to or from a septic system require special attention to assure no possibility of leakage or seepage into the ditch. Plans for such a pipe must be approved by the Ravalli County Sanitarian. This shall be part of the septic system approval process.

D. Crossings by Electric and Telephone Lines or Other lines or Cables

1. All material, workmanship and installation shall be in conformity with existing state, local and Federal regulations and codes.

2. The cost of a required de-energizing of any line as required for maintenance or for any work to be performed by the District on the ditch, shall be at the permittee's expense and according to the National Electrical Code regarding equipment clearances and tag-out procedures. If the Utility Company or electrician is required and costs are applied, the permittee pays for outage preparation and be re-energized. OSHA - Federal/State lock and tag procedures are required any place where sources of energy can cause injury, death and or property damage.

3. Overhead crossings must meet the specifications set forth by current National Electrical Codes. Clearances required are a minimum for all conditions of temperature (120 degrees F Max.) and loading. Each case will be reviewed on its own merits. Additional clearances required for construction operations shall be provided by the permittee, such as for track mounted excavators or stick cranes, must be able to perform work on the ditch and easement without being obstructed by overhead wires.

4. (*)Underground cables shall be placed in conduits or casings that permit pulling of new cables or pipes without requiring replacement of the conduit or casings. This will be done in such a manner so that they will not interfere with the District's normal operation. It shall be the

duty of the permittees and or utility to maintain, repair or replace the underground cable at their own expense as may be necessary for good working order. (see #5 below)

5. (*)All buried lines or cables crossing underground irrigation pipelines shall have 24-inch lateral clearance from the pipe, all crossings under the Ditch shall have a minimum clearance of 36 inches below the ditch bottom. The length of all conduits and casings to be constructed under pipelines, canals, ditches, waste ways and laterals shall be determined and authorized by the District Manager or his assigned representative.

6. * **It is the desire of the District to minimize any and all under the ditch, pipes, conduits, cables and other devises to eliminate potential for a long term failure and/or leakage and or a breach of the ditch**.

E. Culverts and Bridges.

1. Where a roadway or driveway crossing is required and a culvert is to be installed, the culvert shall have its bottom set a minimum of ¼ of the pipe diameter below the existing watercourse grade and with at least 24 inches of backfill over the top of the culvert. Depending on the existing ditch grade, if 24 inches of backfill is not be possible, an engineering evaluation shall be made to determine if a squash pipe must be used to provide a sufficient safety factor for large/heavy traffic loads. This must be reviewed and documented by attachments to construction permit and signed by the District Manager.

2. When backfilling, no stones larger than 3-inch select material is to be placed within six inches of the culvert pipe. Backfill in the remainder of the trench should contain no stones larger than 6 inches

3. Backfill at both ends of a culvert must be rip -wrapped to prevent erosion.

4. Culverts must be sized as follows: Designed size should be sufficient to transmit the full flow of irrigation water plus the potential extra flow contributed by storm runoff plus a safety factor of 25%. This shall be calculated based on Normal high flows at the given downstream location of said crossing, with additional 30% over size for potential unanticipated high flow conditions. The size must be approved by the TCWSD general manager [*Note 1 miner inch equals11.22 gallons per minute]

5. All bridges must be designed for the expected traffic loading and must be fabricated so the load bearing portion of the bridge can be removed with and excavator or equal. The bridge design must be presented to the district for approval prior to fabrication and installation.

F. Head gates, weirs and pump inlet pipes that intrude into the Ditch or ditch walls.

1. A head gate shall be installed in accordance with specifications approved by the District. See the attached preferred head gate design see attached sketch and photos. The outlet pipe from head gate must be pre packed approximately 2 inches thick all around it with granular bentonite clay prior to backfill. Backfill should be added in 6 to 8 inch increments and compacted until the trench is full, up to the original ditch bank level. A removable flow control end flange shall be attached to the outlet side of head gate pipe to permit the allotted miners inches of flow for the given property or lateral plus District manager approved oversize. The outlet pipe must be set to no more than four (4) inches of drop over 10 feet from the inlet at the ditch side of head gate to the outlet side of discharge pipe to permit good drainage and debris removal.

2. A weir shall be installed downstream of the outlet pipe of the head gate to measure the assigned flow for the permittee and/or permittee(s) in the case of a feed to a group lateral. The general manager will provide information as to the proper sizing for the weir. [* The ideal distance below the outlet pipe for the weir is at least 6 foot upstream from the weir].

   Inlets to pumps must be sized to permit proper net suction ability for the given pump and be equipped with a filter to prevent plugging of underground gravity feed lines, pump and sprinkler systems. The suction shall be located such that it does not inhibit natural flow of the ditch and can be removed during spring ditch cleaning and maintenance if required. The pump system must be equipped with loss of suction - electrical control to de-energize the pump in the event of an emergency shutdown of the ditch.

4. The preferred design for irrigation pump location is a sump on the outlet side of the head gate. A screen should be located on the inlet side of the head gate that can be easily cleaned by the user and will not impede the ditch flow or create and issue with annual ditch cleaning. Examples and photos can be provided by the District Manager.

5. All pumps should be equipped with loss of inlet water protection to minimize potential damage in the event of an unplanned loss of water. This can be pressure switches, float switches, computer control switching and or a combination of any and all.

6. Pump houses located on easements (property owners or adjacent property owners) must be located in a manner to permit construction equipment access for ditch maintenance. Buildings must be kept in good repair, and closed to keep livestock out of building (prefer that barbed wire not be used). Electrical feeders and equipment must meet electrical codes, safety and local power shut off capability.

_____Permittee's Initials

Preferred Head Gate Design

Side View

Front View

Outlet View

Preferred Pump Protection Screen

full surround removable screen