

Mapleton Irrigation Company

Application Packet

Guide for Application, Review, and Approval Process with
Mapleton Irrigation Company
For Encroachment upon Easements & Facilities

Mapleton Irrigation Company
General Instructions

**** Notice:** As of November 2021, Mapleton Irrigation District & Company (MIDC) will now be called Mapleton Irrigation Company (MIC).

This packet is intended to assist Applicants in working with Mapleton Irrigation Company (MIC). All Applicants are required to obtain permission from MIC to do work affecting MIC facilities, which mainly include irrigation ditches.

Central Utah Water Conservancy District (CUWCD) has taken over ownership, including encroachment reviews, on the Springville/Mapleton Lateral. If a project is on this lateral, MIC will not be involved in the project.

Any desired development that will affect MIC facilities must go through the Application, Review, and Approval Process. This includes any time that work is done within MIC easements. Franson Civil Engineers (Franson Civil) is the engineering firm for MIC. Franson Civil will review all plans that affect MIC facilities. This review process is in-depth and may be lengthy depending on the quality of the plans submitted for review.

The following is a guideline for the Application, Review, and Approval Process affecting MIC facilities:

- The Applicant uses the guidelines in this application packet to design the affected facilities to MIC standards.
- Franson Civil receives the **application, application fees, and drawings. The review process will not begin until these items have been received.**
- Franson Civil will **review** the drawings, including the plat map. A meeting will be held with Franson Civil and MIC to discuss the development. A redline comment letter will be sent to the Applicant with a checklist of items that must be addressed prior to approval (2-3 weeks for each review). The reviews will repeat as explained above until all items from the checklist have been addressed and plans are to MIC standards. This typically takes 2-3 reviews. **If the standards in the packet are strictly adhered to, and the improvements to the facilities are well designed, the time involved in this review process can be greatly reduced.**
- Upon completion of the review process, Franson Civil will send a letter to Mapleton City verifying that the design and drawings are approved by MIC.
- **Bonding** is required by MIC. When the drawings are acceptable, the Applicant will provide a cost estimate to Franson Civil for the construction of MIC facilities so the bonding amount can be determined. Once the bonding amount has been determined, reviewed, and accepted by MIC, the Applicant will be notified of the amount. Once the bonding amount is set, the Applicant should have their bank prepare the bond using a template that will be provided by Franson Civil.
- **Easements** for MIC facilities must be recorded with the Utah County Recorder. Easements shall be shown on the Plat Map for the subdivision. A signed statement from the landowner stating that the easement will be recorded must be submitted if the easement has not been recorded at this point in the process. Proof of record for the irrigation easements or the signed statement must be submitted to Franson Civil before the Encroachment Agreement will be prepared. Easements shall be in the name of Mapleton Irrigation Company.

Mapleton Irrigation Company
General Instructions

- An **Encroachment Agreement** will be prepared between the Applicant and MIC once all of the above-mentioned items have been completed. An electronic copy of the Agreement will be sent to the Applicant for signature, or, if preferred, three copies of the agreement will be mailed to or arranged for pickup by the Applicant for signature. If the Applicant desires to make any changes to the terms of the agreement, these changes will have to be discussed and approved by the MIC President and Board.
- Once the Encroachment Agreement has been signed by the Applicant and MIC, permission has been granted to the Applicant to begin the construction phase in accordance with the agreement. **The agreement is for construction on irrigation facilities only; the Applicant is responsible for obtaining all other necessary permits.** All installation and construction activities must take place between October 31 and April 1. Failure to comply may result in agreement termination and monetary fines.
- The Applicant is required to notify MIC and Franson Civil at least 24 hours in advance of beginning construction on irrigation facilities, as outlined in the agreement. The MIC contact for this step is Mike Miner, 801-376-1454.
- A representative from MIC will make occasional site visits for construction review of the facilities to see construction progress. It is the responsibility of the Applicant to provide inspection of the work and to ensure the work is completed in accordance with the agreement.
- After construction is complete, a **final walkthrough** will be done by Franson Civil and MIC to identify any final items that need to be completed before work is accepted by MIC. A **punch list** will be prepared and sent to the Applicant listing items required, as applicable.
- Recording of easement(s) through the Utah County Recorder's Office should be completed (if not already done so) once construction is complete. If construction changes alter where MIC facilities were previously installed and the easement was already recorded, an updated easement document will need to be recorded prior to acceptance by MIC.
- When all these items are complete, Franson Civil will prepare a **letter of acceptance** to the Applicant stating the irrigation company facilities are complete. MIC will sign the letter and send it to the Applicant.

Enclosed in this packet are:

- Large Subdivisions (Developments greater than or equal to 2.5 acres) – Application Type 1
- Small Subdivisions (Developments less than 2.5 acres) – Application Type 2
- City or Utility Crossings (Bore, Overhead, Etc.) – Application Type 3
- Ditch Modifications (Minor facility modifications on a single lot) – Application Type 4
- Development Design Checklist (Assist Applicant in designing plans to MIC standards)

MAPLETON IRRIGATION COMPANY

LARGE SUBDIVISIONS – APPLICATION TYPE 1

Application for Agreement to Encroach and Construct within
Mapleton Irrigation Company (MIC) Right-of-Way or Easement
(for developments greater than or equal to 2.5 acres)

1. Applicant for Encroachment Agreement (Applicant): _____
Mailing Address: _____
Contact Person: _____
Telephone Number: _____
Email: _____

2. Legal Name of Owner for Agreement: _____
Owner Mailing Address: _____
Signatory Name: _____
Telephone Number: Email: _____

3. Contact Person (if different than #1): _____
Mailing Address: _____
Telephone Number: _____
Email: _____

4. Engineering Company: _____
Mailing Address: _____
Telephone Number: _____
Contact Person: _____
Email: _____

5. Brief Description of Proposed Construction and Encroachment on MIC Facilities (include location and subdivision name if applicable): _____

6. Proposed start date: _____ Proposed completion date: _____

7. Attach two (2) 11x17 copies of plans/design drawings for the proposed construction. Also, email a digital plan set to Franson Civil Engineers. (see #9). Plans shall be drawn to MIC standards. A Design Checklist is available to assist engineers in designing to MIC standards.

8. Attach a check for \$12,000 for the application and review fee. The application fee will be used by MIC for purposes of administration, coordination, engineer review, preparation of agreements, construction review, legal guidance, and any other expenses it incurs related to this application. If costs incurred by MIC are greater than the application fee, the Applicant will be responsible to reimburse MIC for the remainder of the expenses.

Please make all checks payable to: **Mapleton Irrigation Company.**

9. Send application, plans, and application fee by mail or email to:

Franson Civil Engineers
Attn: Canal Reviews
1276 South 820 East, Suite 100
American Fork, UT 84003
Email: encroachment@fransonicivil.com

10. The following persons are available for consultation:

MIC Office	801-491-6264	
Mike Miner	801-376-1454	MIC President
Patricia Ayaa	801-756-0309	Franson Civil Engineers

NOTES:

1. The review process will not begin until the application fee is paid.
2. The MIC bonding requirements are as follows: Bonding will be 110% of the total cost of irrigation facilities. Upon completion of construction, approval by MIC, and successful delivery of water through the system, 100% of the bond will be released. One year after the project has been accepted and approved by MIC, and pending no problems with the facilities, the remaining 10% of the bond will be released. All bond releases are subject to approval by MIC.
3. Easements for MIC must be recorded with the Utah County Recorder. The recorded document, or a signed statement stating the easement will be recorded, must be provided to Franson Civil Engineers prior to the Encroachment Agreement being released for signatures.
4. Starting construction without prior written approval in the form of an Encroachment Agreement from MIC may result in an additional fee assessment of \$10,000 and a project cease and desist letter. This fee may be taken from the bond if the Applicant does not pay within 30 days upon receipt of a written invoice.
5. If costs incurred by MIC are greater than the application fee, the Applicant will be responsible to reimburse MIC for the remainder of the expenses. These additional costs may be taken from the bond if the Applicant does not pay within 30 days upon receipt of a written invoice.
6. This application is valid for 6 months from the date it is submitted. The Encroachment Agreement must be signed within this 6-month period. If the Encroachment Agreement is not signed within this period, the Applicant may be required to submit a new application. Once the Encroachment Agreement is signed, the Applicant has one year to complete work on irrigation facilities.
7. This application cannot be sold to other parties. If the Applicant chooses to sell the property associated with this application, the application is voided and the new owner is required to begin the application process again.

I have read, understood, and agree to the terms of this application.

Signature of Applicant

Printed

Date

MAPLETON IRRIGATION COMPANY

SMALL SUBDIVISIONS – APPLICATION TYPE 2

Application for Agreement to Encroach and Construct within
Mapleton Irrigation Company (MIC) Right-of-Way or Easement
(for developments less than 2.5 acres)

1. Applicant for Encroachment Agreement (Applicant): _____
Mailing Address: _____
Contact Person: _____
Telephone Number: _____
Email: _____

2. Legal Name of Owner for Agreement: _____
Owner Mailing Address: _____
Signatory Name: _____
Telephone Number: _____
Email: _____

3. Contact Person (if different than #1): _____
Mailing Address: _____
Telephone Number: _____
Email: _____

4. Engineering Company: _____
Mailing Address: _____
Telephone Number: _____
Contact Person: _____
Email: _____

5. Brief Description of Proposed Construction and Encroachment on MIC Facilities (include location and subdivision name, if applicable): _____

6. Proposed start date: _____ Proposed completion date: _____

7. Attach two (2) 11x17 copies of plans/design drawings for the proposed construction. Also, email a digital plan set to Franson Civil Engineers (see #9). Plans shall be drawn to MIC standards. A Design Checklist is available to assist engineers in designing to MIC standards.

8. Attach a check for \$8,500 for the application and review fee. The application fee will be used by MIC for purposes of administration, coordination, engineer review, preparation of agreements, construction review, legal guidance, and any other expenses it incurs related to this application. If costs incurred by MIC are greater than the application fee, the Applicant will be responsible to reimburse MIC for the remainder of the expenses.

Please make all checks payable to: **Mapleton Irrigation Company.**

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Franson Civil Engineers
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1276 South 820 East, Suite 100
American Fork, UT 84003
Email: encroachment@fransonicivil.com

10. The following persons are available for consultation:

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Mike Miner	801-376-1454	MIC President
Patricia Ayaa	801-756-0309	Franson Civil Engineers

NOTES:

1. The review process will not begin until the application fee is paid.
2. The MIC bonding requirements are as follows: Bonding will be 110% of the total cost of irrigation facilities. Upon completion of construction, approval by MIC, and successful delivery of water through the system, 100% of the bond will be released. One year after the project has been accepted and approved by MIC, and pending no problems with the facilities, the remaining 10% of the bond will be released. All bond releases are subject to approval by MIC.
3. Easements for MIC must be recorded with the Utah County Recorder. The recorded document, or a signed statement stating the easement will be recorded, must be provided to Franson Civil Engineers prior to the Encroachment Agreement being released for signatures.
4. Starting construction without prior written approval in the form of an Encroachment Agreement from MIC may result in an additional fee assessment of \$10,000 and a project cease and desist letter. This fee may be taken from the bond if the Applicant does not pay within 30 days upon receipt of a written invoice.
5. If costs incurred by MIC are greater than the application fee, the Applicant will be responsible to reimburse MIC for the remainder of the expenses. These additional costs may be taken from the bond if the Applicant does not pay within 30 days upon receipt of a written invoice.
6. This application is valid for 6 months from the date it is submitted. The Encroachment Agreement must be signed within this 6-month period. If the Encroachment Agreement is not signed within this period, the Applicant may be required to submit a new application. Once the Encroachment Agreement is signed, the Applicant has one year to complete work on irrigation facilities.
7. This application cannot be sold to other parties. If the Applicant chooses to sell the property associated with this application, the application is voided and the new owner is required to begin the application process again.

I have read, understood, and agree to the terms of this application.

Signature of Applicant

Printed

Date

MAPLETON IRRIGATION COMPANY

CITY OR UTILITY CROSSINGS (BORE, OVERHEAD, ETC) - APPLICATION TYPE 3
Application for Agreement to Encroach and Construct within
Mapleton Irrigation Company (MIC) Right-of-Way or Easement

1. Applicant for Encroachment Agreement (Applicant): _____

Mailing Address: _____
Contact Person: _____
Telephone Number: _____
Email: _____

2. Legal Name of Owner for Agreement: _____
Owner Mailing Address: _____
Signatory Name: _____
Telephone Number: _____
Email: _____

3. Contact Person (if different than #1): _____
Mailing Address: _____
Telephone Number: _____
Email: _____

4. Engineering Company: _____
Mailing Address: _____
Telephone Number: _____
Contact Person: _____
Email: _____

5. Brief Description of Proposed Construction and Encroachment on MIC Facilities (include location and subdivision name if applicable): _____

6. Proposed start date: _____ Proposed completion date: _____

7. Attach two (2) 11x17 copies of plans/design drawings for the proposed construction. Also, email a digital plan set to Franson Civil Engineers (see #9). Plans shall be drawn to MIC standards. A Design Checklist is available to assist engineers in designing to MIC standards.

8. Attach a check for \$4,500 for the application and review fee. The application fee will be used by MIC for purposes of administration, coordination, engineer review, preparation of agreements, construction review, legal guidance, and any other expenses it incurs related to this application. If costs incurred by MIC are greater than the application fee, the Applicant will be responsible to reimburse MIC for the remainder of the expenses.

Please make all checks payable to: **Mapleton Irrigation Company.**

9. Send application, plans, and application fee by mail or email to:

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1276 South 820 East, Suite 100
American Fork, UT 84003
Email: encroachment@fransonicivil.com

10. The following persons are available for consultation:

MIC Office	801-491-6264	
Mike Miner	801-376-1454	MIC President
Patricia Ayaa	801-756-0309	Franson Civil Engineers

NOTES:

1. The review process will not begin until the application fee is paid.
2. Starting construction without prior written approval in the form of an Encroachment Agreement from MIC may result in an additional fee assessment of \$10,000 and a project cease and desist letter. This fee may be taken from the bond if the Applicant does not pay within 30 days upon receipt of a written invoice.
3. If costs incurred by MIC are greater than the application fee, the Applicant will be responsible to reimburse MIC for the remainder of the expenses. These additional costs may be taken from the bond if the Applicant does not pay within 30 days upon receipt of a written invoice.
4. This application is valid for 6 months from the date it is submitted. The Encroachment Agreement must be signed within this 6-month period. If the Encroachment Agreement is not signed within this period, the Applicant may be required to submit a new application. Once the Encroachment Agreement is signed, the Applicant has one year to complete work on irrigation facilities.
5. This application cannot be sold to other parties. If the Applicant chooses to sell the property associated with this application, the application is voided and the new owner is required to begin the application process again.

I have read, understood, and agree to the terms of this application.

Signature of Applicant

Printed

Date

MAPLETON IRRIGATION COMPANY

DITCH MODIFICATIONS – APPLICATION TYPE 4

Application for Agreement to Encroach and Construct within
Mapleton Irrigation Company (MIC) Right-of-Way or Easement
(for minor modifications to existing facilities on a single lot, such as turnout, ditch and
embankment modifications, and turnout abandonment. Does not include piping or relocation of
existing facilities)

1. Applicant for Encroachment Agreement (Applicant): _____

Mailing Address: _____
Contact Person: _____
Telephone Number: _____
Email: _____
2. Legal Name of Owner for Agreement: _____
Owner Mailing Address: _____
Signatory Name: _____
Telephone Number: _____
Email: _____
3. Contact Person (if different than #1): _____
Mailing Address: _____
Telephone Number: _____
Email: _____
4. Engineering Company: _____
Mailing Address: _____
Telephone Number: _____
Contact Person: _____
Email: _____
5. Brief Description of Proposed Construction and Encroachment on MIC Facilities (include location, and subdivision name if applicable): _____

6. Proposed start date: _____ Proposed completion date: _____
7. Attach two (2) 11x17 copies of plans/design drawings for the proposed construction. Also, email a digital plan set to Franson Civil Engineers (see #9). Plans shall be drawn to MIC standards. A Design Checklist is available to assist engineers in designing to MIC standards.
8. Attach a check for \$4,500 for the application and review fee. The application fee will be used by MIC for purposes of administration, coordination, engineer review, preparation of agreements, construction review, legal guidance, and any other expenses it incurs related to this application. If costs incurred by MIC are greater than the application fee, the Applicant will be responsible to reimburse MIC for the remainder of the expenses.

Please make all checks payable to: **Mapleton Irrigation Company.**

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10. The following persons are available for consultation:

MIC Office	801-491-6264	
Mike Miner	801-376-1454	MIC President
Patricia Ayaa	801-756-0309	Franson Civil Engineers

NOTES:

1. The review process will not begin until the application fee is paid.
2. The MIC bonding requirements are as follows: Bonding will be 110% of the total cost of irrigation facilities. Upon completion of construction, approval by MIC, and successful delivery of water through the system, 100% of the bond will be released. One year after the project has been accepted and approved by MIC, and pending no problems with the facilities, the remaining 10% of the bond will be released. All bond releases are subject to approval by MIC.
3. Easements for MIC must be recorded with the Utah County Recorder. The recorded document, or a signed statement stating the easement will be recorded, must be provided to Franson Civil Engineers prior to the Encroachment Agreement being released for signatures.
4. Starting construction without prior written approval in the form of an Encroachment Agreement from MIC may result in an additional fee assessment of \$10,000 and a project cease and desist letter. This fee may be taken from the bond if the Applicant does not pay within 30 days upon receipt of a written invoice.
5. If costs incurred by MIC are greater than the application fee, the Applicant will be responsible to reimburse MIC for the remainder of the expenses. These additional costs may be taken from the bond if the Applicant does not pay within 30 days upon receipt of a written invoice.
6. This application is valid for 6 months from the date it is submitted. The Encroachment Agreement must be signed within this 6-month period. If the Encroachment Agreement is not signed within this period, the Applicant may be required to submit a new application. Once the Encroachment Agreement is signed, the Applicant has one year to complete work on irrigation facilities.
7. This application cannot be sold to other parties. If the Applicant chooses to sell the property associated with this application, the application is voided and the new owner is required to begin the application process again.

I have read, understood, and agree to the terms of this application.

Signature of Applicant

Printed

Date

Project: _____

Engineer: _____

Date: _____

DEVELOPMENT DESIGN CHECKLIST

**** Notice:** As of November 2021, Mapleton Irrigation District & Company (MIDC) will now be called Mapleton Irrigation Company (MIC). Please ensure that all application and design materials are correctly labeled.

This checklist is intended to assist engineers in designing projects to Mapleton Irrigation Company (MIC) standards. All projects seeking acceptance by MIC must be designed to these standards. When used correctly, this checklist will expedite the review and Encroachment Agreement process. Not all items on this checklist will be applicable to every project.

Neither MIC nor Franson Civil Engineers (Franson Civil) will have responsibility for design or construction of Applicant's facilities. It is the responsibility of the Applicant and their engineer to design the project to MIC standards. No approval or acquiescence by MIC or Franson Civil will operate as a waiver or modification of MIC standards.

MIC Typical Drawings (Typical Drawings) are available for reference and are to be used as design examples. Typical Drawings, being design examples, do not represent an actual site-specific design and are not to be directly included in the project plans. Final development drawings must be designed and prepared by a licensed professional engineer.

The Applicant will install the facilities that are constructed through the application process with no interruption of MIC operations.

Note: This checklist is updated when standards are amended. Checking for the latest version of this checklist at <https://fransonicivil.com/canal-applications/> will ensure the most up-to-date information. MIC reserves the right to make exceptions to the standards or impose other requirements, dependent upon the Applicant's project.

GENERAL

- Appropriate application must be filled out and all application fees submitted.
- All drawings must be stamped, signed, and dated by a licensed professional engineer and must be professionally designed and drafted to current engineering standards.
- Show all existing irrigation ditches affected by the development.
- If any MIC facilities are located during construction that are not identified on the drawings, Applicant shall work with MIC through drawing reviews and then shall perform what work is required to cause the MIC facilities to remain functional for use by MIC. All work shall be to MIC standards. All costs are the responsibility of the Applicant.
- Show new location of all ditches. All open channel ditches must be piped.
- Submit Plat Map; all MIC facilities must have recorded easements (see Easements section).
- All streets shall be labeled properly.
- Before submitting drawings to Franson Civil, please review and verify that all notes, references, and labels are correct and accurate.

- Bonding is required on all MIC facility improvements. After drawings have been deemed acceptable by Franson Civil, please submit a detailed cost estimate of construction (materials and labor) of MIC facilities. Once this has been checked, the bond amount will be set.
- Notes to be added to the drawing set under heading “Mapleton Irrigation Company Notes:”
 - Applicant must notify Franson Civil Engineers (Franson Civil) at least 24 hours before construction on MIC facilities. Call Kyle DeVaney, P.E. with Franson Civil at 801-756-0309. Failure to do so may result in a \$10,000 fine.
 - All construction must be done to MIC standards.
 - MIC contact during construction: Mike Miner, President, 801-376-1454.
 - Work cannot interfere with the delivery of irrigation water. All construction that impacts MIC facilities must take place between October 31st and April 1st.
 - It is the responsibility of the contractor to protect the worksite. Any damage to the canal corridor caused by construction activities will be the responsibility of the contractor and Applicant.
 - Applicant is required to perform compaction testing at Applicant’s cost. If requested, compaction test results shall be submitted to Franson Civil. All failed material shall be removed and compacted to specifications. Testing must be performed by a licensed soils lab.
 - All backfill materials shall be compacted to a minimum of 95% standard Proctor density.
 - All concrete used in construction shall have a minimum compressive strength of 4,000 psi. The concrete mix shall include between 5% and 7% air entrainment.
 - Apply Swellstop, Waterstop RX, or MIC Engineer-approved equivalent to all concrete cold joints to prevent water seepage.
 - PVC, Waterstop, or equivalent is required in all joints of cast-in-place concrete to prevent seepage between the surfaces.
 - Fences disturbed during construction activities must be replaced and returned to pre-construction conditions, or better.
 - Neither MIC nor Franson Civil can verify the location of underground facilities. Blue Stakes should always be called before digging

PIPES

- Plan and profile view of each pipe is required.
- Any pipe replacing a ditch shall have a minimum inside diameter of 24 inches.
- MIC standards require 24-inch or 30-inch reinforced concrete pipe (RCP). Fused high density polyethylene (HDPE) is also acceptable in some instances.
- When fused HDPE pipe is used, the pipe needs to be restrained entering the cleanout boxes. A commonly used restraint is electro-fusing flex restraints onto the HDPE pipe and encasing it in concrete. Please add thrust restraint details to the drawings.

- All pipes on all drawings must be specifically labeled for pipe type and size (e.g., 24-inch RCP). If proposed pipe is fused HDPE, specify inside diameter, pressure rating, etc. HDPE pipe requires a minimum $\frac{3}{4}$ -inch wall thickness.
- All pipe sizes must be designed to carry sufficient flow for irrigation demands. Coordinate with Franson Civil for flow requirements before beginning design of irrigation facilities.
- Under roadways – trench detail is required showing bedding detail. MIC standards require bedding 6 inches below pipe and 12 inches above, using a minimum of $\frac{3}{4}$ -inch clean crushed rock unless specified otherwise by manufacturer.
- Yards, fields, etc. – trench detail is required showing bedding detail. MIC standards require bedding 6 inches below pipe up to the springline, using a minimum of $\frac{3}{4}$ -inch clean crushed rock unless specified otherwise by manufacturer.
- Metallic warning tape (labeled “Caution: Buried Irrigation Line Below”) must be installed a minimum of 18 inches above the pipe to help protect pipe from future excavations. In some circumstances, a locating wire may be required.
- Notes to be added to the drawing set under heading “Mapleton Irrigation Company Notes:”
 - All new pipes must be documented by video camera after installation and backfill. Any problems with joints, levels, slopes, etc. discovered by the video must be repaired. A digital copy of the video will be submitted to Franson Civil.
 - Prior to backfilling of pipes, the contractor must notify Kyle DeVaney, P.E., of Franson Civil Engineers so a GPS survey of the location and elevation of the installed pipelines can be performed.
 - Pipes or other utilities running parallel to the irrigation pipe in a shared easement shall be placed at a minimum of 5 feet horizontally from the irrigation pipe.
 - Pipes crossing perpendicularly over or under the irrigation pipe shall have a minimum 1-foot vertical clearance.
 - Pipes entering boxes shall be concreted on the outside and grouted on the inside.

IRRIGATION/CLEANOUT BOXES

- Irrigation cleanout boxes are required every 500 feet of pipe, at all alignment changes, on each side of a road crossing, and where two pipes of a different type come together.
- Provide detail drawings for the irrigation boxes.
- Boxes must show all pipes entering and exiting.
- Box connection detail for HDPE pipe must show thrust restraints and thrust blocks.
- All boxes must be correctly labeled showing size and dimensions.
- Boxes shall have a minimum inside dimension of 3-feet by 3-feet. There shall be a minimum of 6 inches on each side of the pipe to the edge of the box.
- Boxes must be labeled to show distance between pipe and bottom of box (typically 6 inches).
- Boxes must show all gates with gate detail or specifics as to gate type, size, flow direction, etc. Waterman C-10 canal gates are required on all improvements.

- Lid/grate detail required:
 - Solid lids marked “IRRIGATION” are required when debris and soil can enter.
 - Grates should be used on diversion boxes with gates and where debris will not enter.
- Boxes shall have a metal sign attached to the grate that reads:

Property of Mapleton Irrigation Company
Irrigation Box May Not Be Fenced Within Property
Company Must Have Access From City Street
- Notes to be added to the drawing set under heading “Mapleton Irrigation Company Notes:”
 - Knock-out boxes are not allowed. All boxes shall be pre-cast with cored openings for the pipes or shall be cast-in-place.
 - Irrigation boxes shall not be completely buried. They shall extend 6 inches above the surface of the final grade. Any existing boxes that do not extend to the final grade surface shall be raised 6 inches above final grade.

INLET AND OUTLET STRUCTURES

- Concrete flared end sections are required (pre-fabricated or cast-in-place) where a pipe will connect to a soil-lined ditch. Where a pipe will connect to a concrete-lined ditch, cast-in-place concrete shall be used and formed as a gradual transition from the pipe to the ditch.
- On small turnouts that enter an open ditch for a single field, a flared end is not required. Instead, a 6-foot-long pipe shall be connected from the box to the ditch, and native soil material can be used as a transition from the pipe to the ditch.
- Trash racks are needed for all inlets from open ditches showing:
 - Spacing details: 4 inches on center for most inlets, 7 inches on center for pipes greater or equal to 36 inches in diameter.
 - Slope 2:1 (H:V) or flatter.
 - Mounting details.
- If transitioning to or from a soil-lined ditch, the detail should show riprap appropriately designed to protect the structure:
 - Riprap sized for velocities.
 - Appropriate length and location for riprap.
- Notes to be added to the drawing set under heading “Mapleton Irrigation Company Notes:”
 - Canal floor and embankment material removed for excavation shall be replaced with 12-inch minimum thickness of 10^{-6} cm/sec permeability clay material, compacted to 95% standard Proctor density in 6-inch minimum lifts.
 - Canal embankment shall be shaped to match the existing canal prism.

BORING

For the purpose of this application packet, boring refers to the installation of a casing under the canal without excavating the canal itself. Also see the “Directional Drilling and Microtrenching” section to see if your project qualifies for that section.

- All facilities (utilities, pipes, etc.) installed under the canal (even under box culverts) must be encased in a continuous welded steel, fused HDPE solid wall, or fused PVC casing.
- Minimum thickness for steel casing can be found on the standard drawings. Minimum HDPE casing thickness shall be DR 32.5. PVC casing shall have a minimum pressure rating of 50 psi. Verification that the minimum thickness is sufficient is the responsibility of the Applicant.
- Casings under the canal must be shown on the plan and profile view.
- In locations where steel casing pipe is used, soil tests for resistivity shall be completed by the Applicant and at the Applicant’s expense. Test results shall be submitted to Franson Civil. Soils with a soil resistivity (ohm cm) of 2,500 or less shall have cathodic protection with a 25-year life or have cellular concrete placed in the annular space between the carrier pipe and casing pipe.
- Casings must have a minimum of 2 feet between the top of the casing and the bottom of the box culvert or concrete-lined canal, and 4 feet between the top of the casing and the earthen canal bottom. In areas with sand or cobbles, this distance may need to be increased. The actual safe depth is to be determined by the Applicant’s engineer.
- The casing shall extend outside the canal corridor.
- Bore pits must be located outside the canal corridor.
- The carrier pipe shall have adequate casing spacers.
- The carrier pipe must have adequate steel-banded skids.
- Waterline pipes inside the casings shall have restraining joints.
- Adequate thrust blocks are required on all bends for DIP, PVC, or PIP waterlines.
- See the “Canal Boring Plan and Section” in the MIC Standard Drawing Set for additional requirements.
- Notes to be added to drawing set under heading labeled “Mapleton Irrigation Company Notes”:
 - Bore pits must be placed completely outside the canal right-of-way.
 - Fill bore pits with a mixture of native material and 10% bentonite powder to create a seal that will prevent water from following the new conduit.
 - Bore pit compaction shall be a minimum of 95% standard Proctor density.
 - Trench plugs are to be placed at each end of the casing.
 - Trench plugs are to extend the width of trench, 12 inches above and below casing pipes, and with a thickness of 24 inches.

- Trench plugs shall be a 10% bentonite and 90% clay mixture. At least 40% of the backfill material must pass a No. 200 U.S. standard sieve prior to adding bentonite powder. The backfill material shall then be amended by adding and thoroughly mixing commercial bentonite powder with the backfill material at a ratio of one-part bentonite to nine parts backfill material. Impermeable flowable fill is an acceptable alternative.
- Contractor to notify Kyle DeVaney of Franson Civil Engineers when trench plugs are installed. Verification of trench plug completion must be performed by Franson Civil Engineers before backfilling. Kyle can be reached at 801-756-0309.
- If requested, compaction test results shall be submitted to Franson Civil Engineers. All failed material shall be removed and compacted to specifications. Testing must be performed by a licensed soils lab.
- Water line pipe inside the casing shall have restraining joints.
- Thrust blocks are required on all bends for DIP, PVC, or PIP water lines.

DIRECTIONAL BORING/DRILLING AND MICROTRENCHING

For the purpose of this application packet, directional drilling refers to the installation of a smaller casing for a utility (usually under six inches in diameter) installed by directional drilling. Microtrenching involves the excavation of narrow shallow trenches, typically 1 to 2 inches wide and up to 12-16 inches deep into existing roadways and sidewalks to install fiber optic cables and other utilities.

- Label the conduit material and thickness. Verification that the conduit specifications are sufficient is the responsibility of the Applicant.
- Conduit must have a minimum of 2 feet between the top of the conduit and the bottom of a box culvert or concrete-lined canal, and 4 feet between the top of the conduit and the earthen canal bottom. In areas with sand or cobbles, this distance may need to be increased. The actual safe depth is to be determined by the Applicant's engineer.
- For directional bore or microtrench above the box or pipe culvert, there should be a minimum of 1 foot between the bottom of the conduit and the top of the box or pipe culvert.
- The conduit shall extend outside the canal corridor.
- Bore pits must be located outside the canal corridor.
- Fill bore pits with a mixture of native material and 10% bentonite powder to create a seal that will prevent water from following the new conduit.
- Bore pit compaction shall be a minimum of 95% standard Proctor density.
- See the "Directional Drilling and Microtrenching Details" in the MIC Standard Drawing Set for additional requirements.
- Notes to be added to drawing set under heading labeled "Mapleton Irrigation Company Notes":
 - Work cannot interfere with delivery of irrigation water. Installation activities can take place at any time provided MIC's access to operation, maintenance, and replacement of irrigation facilities is not impacted.
 - Bore pits must be placed completely outside the canal right-of-way.

- Fill bore pits with a mixture of native material and 10% bentonite powder to create a seal that will prevent water from following the new conduit.
- Bore pits shall be compacted to a minimum of 95% standard Proctor Density.

OCCUPYING EXISTING BLANK CONDUIT / CASING

This section is used when an existing blank conduit is in place under the canal and the Applicant wishes to occupy the conduit. It is common for conduits to be installed at the same time as a box culvert; however, the placement of these conduits does **not** give permission for the utility to be installed in the conduit. An application, drawings, and fee need to be submitted, and an encroachment agreement signed before the conduit is occupied. Drawings from the original conduit placement can be used if the Applicant can provide them.

- Show the plan and profile view of the existing blank conduit.
- Specify the existing conduit material and thickness.
- Show or note the details of the utility to be installed in the blank conduit.
- Show where and how the conduit will be accessed to install the utility.
- Show the canal corridor.

EASEMENTS

- Easements are required to be recorded with the Utah County Recorder for all MIC facilities:
 - Plat Maps are best to have these easements recorded.
 - If the plat has already been recorded, the owner can grant the easement with a legal description and have this recorded.
 - Proof of the record must be submitted to Franson Civil.
- Easements are 20-foot wide minimum, centered over the pipe. Ditch easements shall be in the name of Mapleton Irrigation Company.
- Notes to be added to the Plat Map:
 - No trees or shrubs in Mapleton Irrigation Company easements.
 - No telephone boxes or power boxes in Mapleton Irrigation Company easements.
 - Fences disturbed during construction activities must be replaced and returned to pre-construction condition, or better.
 - Irrigation boxes may not be fenced in yards. Direct access (not through fences) must be provided to Mapleton Irrigation Company from city streets.