

VILLAGE OF EMPRESS

In the Province of Alberta

BYLAW NO. 2017-02

A BYLAW REGARDING THE INSTALLATION OF RESIDENTIAL DRIVEWAYS AND CULVERTS WITHIN THE VILLAGE OF EMPRESS, IN THE PROVINCE OF ALBERTA.

WHEREAS Section 7 of the Municipal Government Act, R.S.A. 2000, c. M-26 as amended, and any amendment or substitutions thereof, provides that a Municipal Council may pass bylaws to provide for the safety, health and welfare of people and the protection of people and property;

AND WHEREAS the *Municipal Government Act* (the "MGA") Division 2, Section 18 (1) allows the municipality to control, direct and manage all roads within the municipality.

AND WHEREAS the Council of the Village of Empress deems it expedient and in the public's interest to pass a bylaw to regulate the construction of driveways and culverts to ensure a minimum amount of ditch will remain after a driveway or parking spot has been created. This includes specifications for culverts, and the requirement for a development permit for modifications to be done on the ditch within the Village of Empress;

NOW THEREFORE, the Council of the Village of Empress in the province of Alberta, duly assembled, hereby enacts as follows:

Section 1 - TITLE

This Bylaw shall be cited as the "Driveways & Culverts Bylaw"

Section 2 - DEFINITIONS

In this Bylaw, including this section, unless the context otherwise requires:

"Council" means the Municipal Council of the Village of Empress

"Culvert" means new galvanized corrugated steel pipe(s) or plastic pipe(s), complying with CSA Standard G401, and designed for culvert use, to act as drainage conduits to conduct the flow of surface drainage.

"Ditch" means a long narrow excavation adjacent to a roadway for the purpose of assisting the orderly flow of rainwater or snow melt with minimal damage or adverse erosion effects to the developed road or private property.

"Driveway" means vehicle access to or from private property by crossing boulevards, municipal property and/or ditches and is synonymous with the term **"approach"**. A driveway consists of two portions: (i) the property access portion connects the travelled part of the Village road to the property line, and (ii) the *residential portion* starts at the property line and continues onto the lot.

"Residential Culvert" means culvert placed under a driveway leading to a property in the Village used primarily for residential purposes.

"Rip-Rap" means rock ranging in size from 150mm to 350mm.

"Village" means the entity of The Village of Empress.

Section 3 - RATIONALE

- a) This Bylaw is intended to give guidance on the construction of residential driveways (approaches), and parking areas along the municipal roadways, while adhering to the original intention and integrity of the ditch which is for the purpose of assisting the orderly flow of rainwater or snow melt. Driveways can be counter-productive to proper drainage management even with culverts installed. Therefore the limited length of residential culverts and proper diameter of same, with erosion protection (rip-rap), reduce the risk of plugging and negatively impacting the drainage management system.
- b) This Bylaw is intended to provide further guidance regarding ditches. Ditches which have been filled in, even with the installation of culverts, effectively removes the functionality of the ditch and may create drainage problems for neighboring properties
- c) This Bylaw is intended to provide for the control of orderly development within the boundaries of the Village for maintaining and improving the infrastructure. This includes guidance on the installation of residential culverts for the purpose of proper drainage and safety.

Section 4 - SPECIFICATIONS

All residential driveways shall be installed in accordance with the requirements of the Village of Empress Land Use Bylaw #7-13, Part VI, Section 15 (d) and any amendment or substitutions thereof. This section states: *"The Development Authority at its discretion may require the applicant to install a catch basin or similar drainage system on site if it is felt that drainage will otherwise affect neighboring parcels."*

Beginning on the date of approval of this Bylaw, all new residential driveways and culverts to be installed, and modifications of ditches shall meet the following criteria:

- d) The minimum culvert diameter shall be 400mm or equal to the existing upstream culvert, whichever is greater.
- e) Culverts shall have a minimum wall thickness of 1.6mm.
- f) The minimum width of a residential driveway shall be 5 meters.
- g) The maximum width of a residential driveway shall be 8 meters.
- h) Total driveway widths are not to exceed 50% of the width of the residential lot at the roadway.
- i) All culverts shall have rip-rap placed around the inlet and outlet sides with the rip-rap extending approximately one meter past the end of the culvert. For erosion protection, all ditches and areas around the ends of culverts shall be grassed.
- j) Couplings, fittings and hardware shall match the culvert pipe.
- k) All culverts shall be constructed using new galvanized pipe or of suitable materials for the use under a driveway.
- l) All culverts must be installed in a proper manner without any modifications to the ditch profile unless specified in the development permit application.
- k) The property access segment of the driveway shall be surfaced with well-compacted gravel, crushed rock, or asphalt (concrete, paving stones, or any other permanent or semi-permanent surfacing materials are not allowed). The residential segment of the driveway may be surfaced with any suitable material approved on the Development Permit (concrete, pavers, asphalt, and gravel are all acceptable).
- l) Other than Driveways, no other crossings may be constructed across Drainage Ditches, i.e. Driveways are to be used as pedestrian access to lots.

All exceptions to the above shall be approved by the Village's Development Officer.

***! In addition to the above, residential driveways shall be installed using guidelines, which are attached to this Bylaw.

Section 5 - EXCLUSIONS

A development permit is required for the installation of a driveway and culvert.

Section 6-RETROACTIVITY

This bylaw is not retroactive but significant driveway or culvert repairs or modifications shall meet this Bylaw.

Any modifications to ditches made prior to the date of this Bylaw which infilled the ditch without provision for a culvert installation or where the normal flow of water is impeded, shall be rectified in line with this Bylaw to the satisfaction of the Village.

Section 6-SEVERABILITY

Should any section or part of this Bylaw be found to have been improperly enacted, and become invalid, void, illegal or otherwise not enforceable, then such section or part shall be regarded as being severable from the rest of this Bylaw and the Bylaw remaining after such severance shall be effective and enforceable as if the section found to be improperly enacted had not been included as part of this Bylaw.

Section 7 - REPEAL OF EXISTING BYLAW

Any previous Driveway & Culvert bylaws, and amendments thereto, are hereby repealed.

Section 8 - EFFECTIVE DATE

This bylaw shall take effect on the date of the third and final reading.

Read the first time this 20th day of April, 2017.

Read a second time this 20th day of April, 2017.

Presented for third reading this 20th day of April, 2017.

Read a third time and passed this 20th day of April, 2017.

Chad Van Dam

Chad Van Dam, Mayor

Debbie Ross

Debbie Ross, CAO

Culvert Installation Guidelines

All culverts, except those in industrial developments, shall be installed to provide a minimum depth of cover of three hundred millimetres (300mm) or one half (1/2) the culverts diameter, whichever is greater. This should be measured from the finished shoulder grade of the roadway to the top of the culvert. Culverts in industrial developments shall be installed to provide a minimum depth of cover of five hundred millimetres (500mm) or one half (1/2) the culverts diameter, whichever is greater, as measured from the finished shoulder grade of the roadway to the top of the culvert.

Rip rap shall be placed around the inlet and outlet of each culvert, with the rip-rap extending a minimum of point five meter (.5m) beyond the inlet end of the culvert and three (3) times the pipe diameter beyond the outlet end of the culvert. Rip-rap material shall consist of rock ranging in size from one hundred fifty millimetres (150mm) to three hundred fifty millimetres (350mm) with fifty percent (50%) of the rock material being larger than two hundred millimetres (200mm).

Culvert size requirements shall be determined through the storm water drainage analysis; however, the minimum size culverts shall be as follows:

Roadway cross culvert	600 mm (24 inch)
Residential approach culvert	400 mm (16 inch)
Industrial approach culvert	500 mm (20 inch)

Culverts shall be new galvanized C.S.P. (corrugated steel pipe) with a minimum wall thickness of one point six millimetre (1.6mm), or as required by the loading criteria. All culverts shall be installed in accordance with the manufacturer's recommendations.

DESIGN GUIDELINES AND CONSTRUCTION STANDARDS FOR CULVERTS GENERAL

1. Definition

Culverts shall mean galvanized corrugated steel pipes acting as drainage conduits to conduct the flow of surface drainage water.

2. Terminology

CSP shall mean Corrugated Steel Pipe.

CSP Arch means Corrugated Steel Pipe Arch.

SPCSP means Structural Plate Corrugated Steel Pipe

3. References

The latest version of the publications listed below form part of this Specification to the extent specified in this Section:

CSA Standard G401

Corrugated Steel Pipe Institute (CSPI):

501-78 Metric Specification for Corrugated Steel Pipe Products.

4. Quality Assurance

Supply, fabricate and install CSP culverts strictly in accordance with manufacturer's instructions and recommendations and as specified.

5. Product Delivery and Handling

Deliver to site, handle and store pipes, sections, fittings and hardware in a manner to prevent distortion or bending and damage to metal or galvanized coating.

6. Job Conditions

Protect CSP pipes before, during and after installation and protect installed work and materials. In the event of damage, make repairs or replacements necessary to the Village's approval.

7. Products

Culvert pipe shall be galvanized corrugated steel pipe complying with CSA Standard G401.

Culvert pipes up to six hundred millimeter (600mm) diameter shall have a wall thickness of one point six millimeter (1.6mm) and larger pipe up to and including nine hundred millimeter (900mm) diameter, shall have minimum two millimeter (2mm) wall thickness. Specified wall thicknesses shall not include the thickness of galvanized coating. The zinc coating mass shall be not less than one thousand one hundred grams per square meter (1,100g/m²) when tested by the single spot test. Corrugation profile for the pipes shall be sixty-eight millimeters by thirteen millimeter (68mm x 13 mm). End sections (square or beveled as indicated), couplers, fittings and hardware shall match the culvert pipe.

8. Execution

Trench shall be properly drained and free of unsuitable material prior to placing and compaction of bedding material.

9. Trenching and Excavation

The excavation for the culvert base shall be carried to a depth of not less than one hundred fifty millimeter (150mm) below the invert grade, as established by the Village and shall be of sufficient width to permit pipe assembly and to accommodate operation of compaction equipment on either side of the culvert.

10. Culvert Bedding

Place minimum one hundred fifty millimeter (150mm) thick layer of compacted granular material on bottom of excavation. Place material in uniform layers not exceeding one hundred fifty millimeter (150mm) thickness, and compact each layer to at least ninety eight percent (98%) Standard Proctor Density before placing succeeding layer. Any soft and yielding or other unsuitable material below this level shall be removed to the depth required by the Village and backfilled with approved granular material compacted to a uniform density of ninety eight percent (98%) of Standard Proctor Density throughout the entire length of the culvert. The base for culverts installed along main water courses or through yielding areas shall consist of gravel bedding compacted to the excavated depth and extending over a width of three (3) times the diameter of the pipe. The depth of this base shall be not less than three hundred millimeter (300mm). An impervious compacted bedding material shall be provided for a minimum length of three meter (3 m) or three (3) times the diameter of the pipe, whichever is greater, at the inlet end of the culvert to achieve a seal against seepage. Trench line and grade requires the Village's approval prior to placing bedding material or pipe. Do not backfill until pipe grade and alignment are checked and accepted by the Village.

11. Laying Corrugated Steel Pipe Culverts

Commence pipe placing at downstream end on the prepared granular bedding with separated sections securely joined together by means of a coupling band. The couplers are to match thickness and corrugations of the pipe. Corrugations of pipes and couplers must mate before tightening and joints shall be tapped with a mallet during tightening to ensure proper seating of couplers. Do not allow water to flow through pipes during construction except as permitted by the Village.

All culverts shall be laid so that the horizontal seams fall at the sides of the culverts. The pipe shall be laid true to line and grade as established by the Village and the pipe shall be carefully handled to prevent damage to the galvanized coating. Damaged pipe sections shall be immediately reported to the Village and repaired and replaced according to his direction. Damaged protective coating shall receive two coats of zinc rich paint. Centerline of culvert shall not vary from the designated horizontal alignment by more than seventy five millimeter (75mm). Invert grade shall not vary from the designated invert grade elevation by more than twelve millimeter (12mm) provided positive flow is maintained.

12. Culvert Backfill

After assembly of the culvert on the bedding, the culvert shall be backfilled with approved granular and random backfill. Backfill shall be brought up on both sides of the culvert simultaneously in one hundred fifty millimeter (150mm) lifts and shall be compacted with a method approved by the Village to a minimum density of ninety five percent (95%) Standard Proctor. The backfill shall be spread and compacted in one hundred fifty millimeter (150mm) layers and special care shall be taken to ensure proper filling and compacting under the haunches and within the culvert corrugations. Heavy equipment shall not be allowed over the culvert until a minimum of point five meter (.5m) of fill is obtained above the crown of the pipe.

13. Rock Rip Rap

The ends of the culvert shall be finished with the placement of rock rip -rap as shown in the detailed sketches. Rip-rap shall not be placed in the water line at an elevation above the invert of the pipe at the outlet end.

14. Adjustment and Cleaning

Inlet and outlet ends and waterway through the pipe shall be kept free from debris or foreign matter, to prevent restriction to flow of water through the culvert.