TOWN OF NORTHFIELD
69 Main Street
Northfield, MA 01360
(413) 498-2901

BID PACKAGE

INVITATION FOR BIDS

PRECAST CULVERT

Bids are due on or before
2:00 p.m., MAY 28, 2020

By the
Selectboard
Town of Northfield
69 Main Street
Northfield, MA 01360

Table of Contents

I. General Information and Bid Submission Requirements

Bids are due in the office of the Selectboard, 69 Main Street, Northfield, MA 01360 by **2:00 PM on Thursday, MAY 28, 2020**. If, at the time of the scheduled bid opening, the Northfield Town Hall is closed due to uncontrolled events such as fire, snow, ice, wind, or building evacuation, the bid opening will be postponed until 2:00 p.m. on the next normal business day. Bids will be accepted until that date and time. If the Northfield Town Hall remains closed due to COVID-19, there will be a virtual opening streamed live via Zoom on the due date at the due time. To participate in this opening please email Sandra Wood at townsec@northfieldma.gov for participation credentials. There will be a person present to accept bids at Town Hall on the due date between 1:00 p.m. and 2:00 p.m. There is a lock box located on the back of Town Hall were bidders may leave their bid.

For in person deliveries please call (413) 498-2901 x110 upon arrival and the delivery person will be met at the BACK DOOR of the Town Hall. All bids will be posted to the Town Website at northfieldma.gov as soon as possible after the opening.

The bid will be awarded at the discretion of the Northfield Selectboard within sixty (30) days after the bid opening. The time for award may be extended for up to 45 additional days by mutual agreement between the Town and the apparent lowest responsive and responsible bidder.

If any changes are made to this IFB, an addendum will be issued. Addenda will be mailed or faxed to all bidders on record as having picked up the IFB.

Questions concerning this invitation for bids must be submitted in writing to Sandra Wood, Administrative Assistant, before **2:00 p.m. on Monday, May 11, 2020**. Questions may be hand-delivered or mailed to 69 Main Street Northfield, MA 01360; faxed to (413) 498-5103 or emailed to: townsec@northfieldma.gov. Written responses will be faxed or emailed to all bidders on record as having picked up the IFB

A bidder may correct, modify, or withdraw a bid by written notice received by the Town prior to the time and date set for the bid opening. Bid modifications must be submitted in a sealed envelope clearly labeled "Modification No.__." Each modification must be numbered in sequence and must reference the original IFB.

After the bid opening, a bidder may not change any provision of the bid in a manner prejudicial to the interests of the Town or fair competition. Minor informalities will be waived, or the bidder will be allowed to correct them. If a mistake and the intended bid are clearly evident on the face of the bid document, the mistake will be corrected to reflect the intended correct bid, and the bidder will be notified in writing; the bidder may not withdraw the bid. A bidder may withdraw a bid if a mistake is clearly evident on the face of the bid document, but the intended correct bid is not similarly evident.

The Town of Northfield Selectboard (the Board) may cancel this IFB or reject in whole or in part any and all bids, if the Board determines that cancellation or rejection serves the best interests of the Town.

All bid prices submitted in response to this IFB must remain firm for sixty (60) days following the bid opening.

Please submit two (2) complete copies of your bid by the bid due date and time in a sealed envelope clearly marked "PRECAST CULVERT" in the lower left corner.

Your bid must include all required forms, including a bid form, a completed Appendix A form, a certificate of non-collusion form, a tax compliance statement, a reference form, and a Certificate of Vote form if applicable. All required forms are included in this IFB.

Your bid must be signed as follows: 1) if the bidder is an individual, by her/him personally; 2) if the bidder is a partnership, by the name of the partnership, followed by the signature of each general partner; and 3) if the bidder is a corporation, by the authorized officer, whose signature must be attested to by the Clerk/Secretary of the corporation and the corporate seal affixed.

II. Purchase Description

The Town of Northfield is seeking bids for the outright purchase of one Precast Culvert. The complete specifications sought by the Town of Northfield are listed in Appendices A and B of this document. The seller assumes all responsibilities and costs up to the point of delivery at South Mountain Road, including insurance and transportation costs. It is expected that the culvert would be delivered would be the last week of July/the first week of August – depends on weather and progress of project. This timeline is subject to change based on current conditions (may be extended).

III. Quality Requirements

1. Bidders must provide all of the items described in the specifications in **Appendix A** and comply with all **Bid Submission Requirements** listed in **Parts 1-3**.
2. Bidders must have been a licensed retailer and servicer of a similar size and type of material specified for a minimum of two (2) years.

IV. References

Bidders must submit a complete Reference Form with a minimum of 3 customers who have purchased the proposed or similar material over the past five (5) years, with **current** contact names and telephone numbers. Poor references may be a basis for a determination that the vendor is not a responsible bidder. References will each be asked a standard list of questions. A reference form is provided for you. If you have all the information requested in a different format, you may substitute your form.

V. Rule for Award

The contract will be awarded to the responsive and responsible bidder offering the lowest total price for the specified material. The Town of Northfield reserves the right to reject any or all bids, to waive any informality in the bids and to accept bids as may be deemed in the best interest of the Town of Northfield. The Northfield Selectboard is the awarding authority.

VI. Bid Documents

The following forms must be completed and submitted with your bid. Blank forms can be found on the following pages of this bid document.

BID FORM

To The Town of Northfield Selectboard:

A. The Undersigned proposes to furnish one **9' X 6/10" X 31'5" PRECAST CONCRETE OPEN BOTTOM BOX CULVERT WITH FOOTINGS** for the contract price specified below, according to the terms of the specifications in Appendix A. Culvert shall be the size as shown on the drawings. Footings shall be sized by the manufacturer and shall be installed under the culvert walls and wingwalls.

B. Add Alternate #1 (To be awarded if budget allows). **PEDESTAL FOOTINGS** for an additional price.

C. This bid includes addenda numbered:_____ to _____

D. The proposed culvert lump sum contract price is:

_____US dollars ($_____)

The Add Alternate additional contract price is:

_____US dollars ($ _____)

TOTAL PRICE INCLUDING ADD ALTERANTE contract price is:

_____US dollars ($ _____)

E. Anticipated length of time to delivery after acceptance of bid:_____

F. Length of time in years that your firm has been a licensed suppler of similar materials_____Years

Date_____

_____ _____
Authorized Official's Signature Title of Person Signing

_____ _____
Typed or Printed Name of Person Signing Company or Corporation Name

_____ _____
Telephone Number Address

_____ _____
E-mail Address

_____

Fax Number

REFERENCE FORM

Bidder:_____

IFB Title: **PRECAST CONCRETE OPEN BOTTOM CULVERT**

Bidder must provide references for:

Similar material provided within the past five (5) years. Please make sure that both the contact name and telephone number are current.

- Reference: _____
  Address:_____
  Current Contact:_____
  Phone:_____
  Fax:_____

  Description of material and date delivered:

- Reference: _____
  Address:_____
  Current Contact:_____
  Phone:_____
  Fax:_____

  Description of material and date delivered:

- Reference: _____
  Address:_____
  Current Contact:_____
  Phone:_____
  Fax:_____

  Description of material and date delivered:

Attach additional sheets if necessary

TAX COMPLIANCE STATEMENT

Any person or corporation that fails to date, sign with original signature, and submit the following statement shall not be awarded this contract.

Tax Compliance

Pursuant to M.G.L. Ch. 62C, Sec. 49A, I certify under the penalties of perjury that I, to my best knowledge and belief, I am in compliance with all laws of the Commonwealth relating to taxes, reporting of employees and contractors, and withholding and remitting support.

_____	_____
Authorized Official's Signature	Title of Person Signing
_____	_____
Typed or Printed Name of Person Signing	Date

CERTIFICATE OF NON-COLLUSION

Any person or corporation that fails to date, sign with original signature, and submit the following statement at the time of the bid shall not be awarded this contract.

The undersigned certifies under the penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this paragraph the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity.

_____	_____
Authorized Official's Signature	Title of Person Signing
_____	_____
Typed or Printed Name of Person Signing	Date

CERTIFICATE OF VOTE
(to be filed if Vendor is a Corporation)

I, _____, hereby certify that I am the duly qualified
(Secretary of the Corporation)

and acting Secretary of _____
(Name of Corporation)

and I further certify that a meeting of the Directors of said Company, duly called and held on

_____, at which all Directors were present and voting, the following vote
(Date of Meeting)

was unanimously passed:

VOTED: To authorize and empower

_____

_____

_____

_____

_____

Anyone acting singly, to execute Forms of General Bid, Contracts or Bonds on behalf of the Corporation.

I further certify that the above vote is still in effect and has not been changed or modified in any respect.

By:_____
(Secretary of Corporation)

A True Copy:

Attest:_____
(Notary Public)

My Commission Expires:_____
(Date)

APPENDIX A

PRECAST CONCRETE CULVERT

It is the intent of these specifications to describe the requested culvert, and for vendors to meet the requirements. In cases where the bidder cannot fully comply with the following specifications, any and all exceptions are to be noted below or on an attached sheet. Designs differing from the requested bid specifications will not be cause for rejection if they are deemed to be equivalent by the Town of Northfield, Highway Department. The town reserves the right to reject any bid that is not in their best interest. **Bidders must provide detailed description of the structure bid**. The vender shall note any deviations in the specifications below or on an attached sheet. The Town of Northfield reserves the right to reject any or all bids, to waive any informality in bids to accept bids as may be deemed in the best interest of the Town of Northfield.

OVER ALL DIMENSIONS:

LENGTH: 31 feet, 5 inches **Yes __ No __**

WIDTH: 9 feet **Yes __ No __**

HEIGHT: 6 feet, 10 inches **Yes __ No __**

FOOTINGS: Attached Description **Yes __ No __**

FOOTINGS: Attached Drawings **Yes__ No __**

ALTERNATE FOOTINGS: Attached Description **Yes __ No __**

ALTERNATE FOOTINGS: Attached Drawings **Yes __ No __**

SECTION 00300

GEOTECHNICAL DATA

PART 1 GENERAL

1.1 SUMMARY

A. For the preparation of Bidding Documents, Engineer has relied upon the following reports and tests of subsurface and latent physical conditions of the site. The location of all bore holes is shown on the Drawings.

1. Soil boring data (attached)

a. The subsurface data are not guaranteed as to accuracy or completeness, nor are they a part of the Contract Documents.

b. Bidders are cautioned that the subsurface data have been utilized for general design purposes only. No explicit or implicit representation is made as to the nature of the materials which may be encountered below the surface of the ground.

c. The making available of this subsurface data to Bidders is not intended to relieve them from their responsibility to familiarize themselves with the subsurface and other site conditions.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 03485

PRECAST CONCRETE STRUCTURES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

1. Precast Concrete Three-sided Box Culvert

2. Precast Concrete Footings

3. Precast Concrete Headwall

B. Related Sections

1. Section 02315 - Excavating, Backfilling and Compacting

1.2 REFERENCES

A. Precast Concrete Institute (PCI)

1. MNL-116 - Manual for Quality Control for Plants and Production of Structural Precast Concrete Products.

2. MNL-127 Standards and Guidelines for the Erection of Precast Concrete Products

B. American Concrete Institute (ACI)

1. ACI 301 - Specifications for Structural Concrete for Buildings, (included as part of this specification).

2. ACI 318 - Building Code Requirements for Reinforced Concrete.

3. ACI 350 - Environmental Engineering Concrete Structures.

C. American Society for Testing and Materials (ASTM)

1. ASTM A615 - Specification for Deformed and Plain Billet - Steel Bars for Concrete Reinforcement.

2. ASTM C33 - Standard Specification for Concrete Aggregates.

3. ASTM C39 - Standard Method of Testing for Compressive Strength of Cylindrical Concrete Specimens.

4. ASTM C150 - Standard Specification for Portland Cement.

5. ASTM C260 - Standard Specification for Air-Entraining Admixtures for Concrete.

6. ASTM C494 - Standard Specification for Chemical Admixtures for Concrete.

1.3 SUBMITTALS

A. Submit to the Engineer, as provided in Section 01330, material specifications, and shop drawings for all materials specified and furnished under this Section.

B. The drawings show a generalized configuration for the precast concrete structures. Submittals shall include separate scaled, detailed drawings for each precast concrete structure.

C. Submit to the Engineer shop drawings sealed by an Engineer registered in the Commonwealth of Massachusetts, and material specifications for all materials specified and furnished under this Section. Submittals shall include: details of underground structures, accessories, fittings, connections, size and elevations of all structure penetrations, sleeve materials and sleeve elevations.

D. Submit structural design calculations including verification of adequate anti-flotation features prepared and sealed by an Engineer registered in the Commonwealth of Massachusetts.

E. Submit manufacturer's data on structures, and associated specialty products.

F. Submit Certificates of Compliance for reinforcing steel and concrete.

1.4 QUALITY ASSURANCE

A. Design Criteria

1. Precast concrete units shall be designed for all applicable dead loads and wall Live loads, weight of soil of at least 120 pcf and H-20 truck loading.

2. Precast concrete unit shall be designed to resist buoyancy with a flood water table up to an elevation of 15 feet.

3. Precast unit shall be designed in accordance with ACI 318 and ACI 350.

4. Comply with applicable requirements of American Society for Testing and Materials (ASTM) standards pertaining to construction and materials for precast structures.

B. Fabricator Qualifications – Contractor shall employ a firm that has at least 5 years successful experience in fabrication of precast concrete units similar to units required for this project.

1. Fabricator must be producer member of the Prestressed Concrete Institute (PCI) and participate in its Plant Certification Program.

C. Contractor's Qualifications - Firms with at least 3 years of successful installation on projects with structures, similar to those required for project.

D. Allowable Tolerances

1. Dimensional and erection tolerances shall be in accordance with PCI MNL-116 or as modified herein.

2. Compression test results shall be evaluated in accordance with ACI 214. Concrete strength level will be considered satisfactory if the average of all sets of 3 consecutive strength test results equal or exceed the specified compressive strength and no individual strength test results fall below the specific compressive strength by more than 500 psi.

E. Source Quality Control

1. One set of 4 compression test cylinders shall be made for each day's production for each type of precast Unit. Make compression test specimens in accordance with ASTM C31. Obtain concrete for specimens from actual production batch. Cure specimens using same methods used for curing precast units.

2. 2 specimens shall be tested at 28 days for acceptance, one shall be tested prior to removing forms, and one shall be tested at seven days. Compression tests shall be conducted in accordance with ASTM C39. Do not remove precast units from forms unless strength tests have been completed and results are equal to, or greater than, minimum required values.

F. Provide 7 day written notification to the Owner's Project Representative prior to casting the structures. The Engineer may sample the concrete and inspect reinforcement placement at the time of fabrication.

G. The quality of all materials, the process of manufacture, and the finished sections shall be subject to inspection and approval by the Owner's Project Representative. Such inspection may be made at the place of manufacture, or on the work after delivery, or at both places, and the materials shall be subject to rejection at any time on account of failure to meet any of the Specifications requirements, even though samples may have been accepted as satisfactory at the place of manufacture. Material rejected after delivery to the job shall be marked for identification and shall be removed from the job at once. All materials, which have been damaged after delivery will be rejected, and if already installed, shall be acceptably repaired, if permitted, or removed and replaced, entirely at the Contractor's expense.

H. At the time of inspection, the materials will be carefully examined for compliance with these Specifications, and with the approved manufacturer's drawings. All sections shall be inspected for general appearance, dimension, "scratch-strength," blisters, cracks, roughness, soundness, etc. The surface shall be dense and close-textured.

I. Imperfections in sections may be repaired, subject to the approval of the Owner's Project Representative, after demonstration by the manufacturer that strong and permanent repairs result. Repairs shall be carefully inspected before final approval. Cement mortar used for repairs shall have a minimum compressive strength of 4,000 psi. at 7 days and 5,000 psi. at 28 days, when tested in 3 inch by 6 inch cylinders stored in the standard manner. Epoxy mortar may be utilized for repairs subject to the approval of the Engineer.

J. Plans and calculations for the precast structures shall be approved and stamped by a Structural/Civil Professional Engineer registered in the Commonwealth of Massachusetts.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Equip and protect factory-fabricated product to prevent damage, including chipping and cracking during transportation, storage and handling. Do not install damaged units; replace, and remove damaged units from project site at the Contractor's expense.

B. Lift and support units only at designated lift points. Provide permanent lifting hooks on the top.

C. Protect all lifting devices from rusting by applying red lead primer.

D. Do not store units on soft ground.

E. Provide setting diagrams and instructions as required for installation.

PART 2 PRODUCTS

2.1 CONCRETE MATERIALS

A. Portland Cement - ASTM C150, Type III.

B. Aggregates - ASTM C33, and as herein specified. Provide aggregates from a single source for exposed concrete.

C. Local aggregates not complying with ASTM C33, but which have shown by special test or actual service to produce concrete of adequate strength and durability, may be used when acceptable to Engineer.

D. Water - Potable and free from foreign materials in amounts harmful to concrete and embedded steel.

E. Air-Entraining Admixture - ASTM C260, not containing calcium chloride.

F. Water-Reducing Admixture - ASTM C494, Type A, not containing calcium chloride.

G. Calcium Chloride - Not permitted.

2.2 FORM MATERIALS

A. Forms shall be of metal or wood. If unlined wood forms are used, they shall be of selected material with tongue and groove joints and shall be kept continuously wet to prevent shrinking and warping due to exposure to the elements. Nonstaining form oil shall be used.

B. Forms shall be sufficiently tight to prevent leakage of mortar.

C. Forms shall be accurately constructed, mortar-tight, of sufficient strength to withstand pressures due to concrete placing operations and temperature changes.

D. Coat surface of forms with bond-breaking compound before reinforcement is placed. Provide a commercial formulation form-coating compound that will not bond with,

stain, nor adversely affect concrete surfaces, and will not impair subsequent treatments of concrete surfaces requiring bond or adhesion. Apply in compliance with manufacturer's instructions.

2.3 REINFORCEMENT

A. Reinforcement shall be clean of loose rust and mill scale, earth and other materials, which reduce or destroy bond with concrete.

B. Reinforcing steel shall be new billet steel conforming to ASTM Specification A615 (latest edition), Grade 60.

C. Reinforcement shall be accurately positioned, supported, and secured against displacement by formwork construction, or concrete placement operations. Locate and support reinforcement by metal chairs, runners, bolsters, spacers and hangers, as required. Welding of reinforcement is strictly prohibited

D. Place reinforcement to obtain at least the minimum coverage for concrete reinforcing protection. Minimum allowable cover shall be ¾ inch.

2.4 GROUT MATERIALS

A. Non-metallic Shrinkage-Resistant Grout - Pre-mixed, non-metallic, non-corrosive, non-staining product containing selected silica sands, Portland cement, shrinkage compensating agents, plasticizing and water reducing agents. Compressive strength not less than 10,000 psi. at 28 days.

1. Products - Subject to compliance with requirements, provide one of the following:

a. Eucocrete; Euclid Chemical Co.
b. Crystex; L&M Construction Chemicals
c. Masterflow 713; Master Builders
d. Five Star Grout; U.S. Grout Corp.
e. Upcon; Bostik Construction Products
f. or equal.

2.5 PROPORTIONING AND DESIGN OF MIXES

A. Prepare design mixes for each type of concrete required.

B. Design mixes may be prepared by independent testing facility or by qualified precast manufacturing plant personnel, at precast manufacturer's option.

C. Produce standard-weight concrete consisting of the specified Portland cement, aggregates, admixtures, and water to produce the following properties.

1. Compressive strength; 5,000 psi. minimum at 28 days.

2. Air entrainment shall be 4.5% plus or minus 1%.

D. Admixtures

1. Use air-entraining admixture in concrete, unless otherwise indicated.

2. Use water-reducing admixtures in strict compliance with manufacturer's directions. Admixtures to increase cement dispersion, or provide increased workability for low-slump concrete, may be used.

3. Use amounts as recommended by admixture manufacturer for climatic conditions prevailing at time of placing. Adjust quantities of admixtures as required to maintain quality control.

2.6 FABRICATION

A. General - Fabricate precast concrete units complying with manufacturing and testing procedures, quality control recommendations, and dimensional tolerances specified for the type of unit required.

B. Clean reinforcement of the loose rust and mill scale, earth and other materials that reduce or destroy bond with concrete.

C. Place concrete in a continuous operation to prevent formation of seams or planes of weakness in precast units. Thoroughly consolidate placed concrete by internal and external vibration without dislocation or damage to reinforcement and built-in items.

D. Identification - Provide permanent markings to identify pickup points and orientation in structure, complying with markings indicated on final shop drawings. Imprint date of casting on each precast unit on a surface, which will not show in finished structure.

E. Fabricate precast concrete units as detailed in accordance with approved erection drawings and to meet requirements of these specifications.

F. Each precast module shall be provided with formed male and female joints to insure accurate joint surfaces and tolerance for a watertight seal. All joints between adjoining precast modules shall be sealed when modules are set in the field utilizing a vulcanized butyl rubber compound sealant conforming to AASHTO M-198 (latest revision). Sealant shall be “Conseal CS-102” as manufactured by Concrete Sealants, New Carlisle, Ohio or equivalent.

G. All surfaces of the precast structure shall be smooth, even and free from roughness, irregularities and other defects, and shall be suitable for receiving the interior and exterior finishes specified elsewhere herein.

H. The precast concrete structures shall be constructed to the lengths, widths and heights as shown on the Plans. The structures shall be designed to adequately and safely support all live and dead loads to which the structure will be subjected, and to withstand all conditions which may be encountered. Structural drawings and calculations shall be prepared, signed and sealed by a registered Professional Engineer in the State in which the structure is to be installed, and shall be included with the submittal by the Contractor.

1. Design calculations shall verify that the structure has been designed to withstand the burial depth, submergence due to flooding, anti-flotation, if applicable, and the dead and live loads anticipated for the structure. The structures shall have

adequate wall, floor and roof thickness and steel reinforcement sufficient for the depth of burial shown on the Plans.

2. Roof slab/ceiling designs shall account for the loads imposed on the slab by the weight of pumps or other equipment that will be lifted from their positions for maintenance purposes by lifting hooks or other hoisting equipment installed in the slab.

I. The precast concrete structures shall have minimum wall, floor and roof thickness of 6 inches. The structures shall have a design loading in accordance with AASHTOHS20-44 and be constructed of 5,000 psi. 28 days strength concrete. Reinforcing steel shall be in accordance with ASTM A615 Grade 60 with a minimum of 1 inch of concrete cover.

2.7 ACCEPTABLE PRECAST STRUCTURE MANUFACTURERS

A. Manufacturers - Subject to compliance with requirements, provide prefabricated unit of one of the following:

1. Arrow Concrete Products, Inc.

2. American Precast Corp.

3. Chase Precast

4. Old Castle/Rotondo & Sons, Inc.

5. Ditullio & Sons, Inc.

6. Utility Vault Co.

7. TRENWA

8. or equal

PART 3 EXECUTION

3.1 INSPECTION

A. Installer must examine areas and conditions under which each structure is to be installed, and notify Contractor in writing of those conditions detrimental to proper completion of work. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Contractor.

3.2 INSTALLATION OF FACTORY - FABRICATED UNITS

A. General - Install structure as indicated, in accordance with manufacturer's written instructions, and in accordance with recognized industry practices to ensure compliance with requirements and intended purposes.

B. Precast Concrete Units - Place precast concrete sections as indicated.

1. Install rubber joint gasket at joints between sections.

2. Apply bituminous mastic coating at joints between sections.

3. Apply butyl rubber sheet patch at exterior of all joints.

4. Apply bonding agent to enhance the adhesion of the grout to the concrete floor.

3.3 DAMPPROOFING

A. Below-grade outer surfaces of precast units shall be given two coats of bituminous dampproofing at the rate of 30-60 sq. ft. per gallon in accordance with manufacturer's instructions.

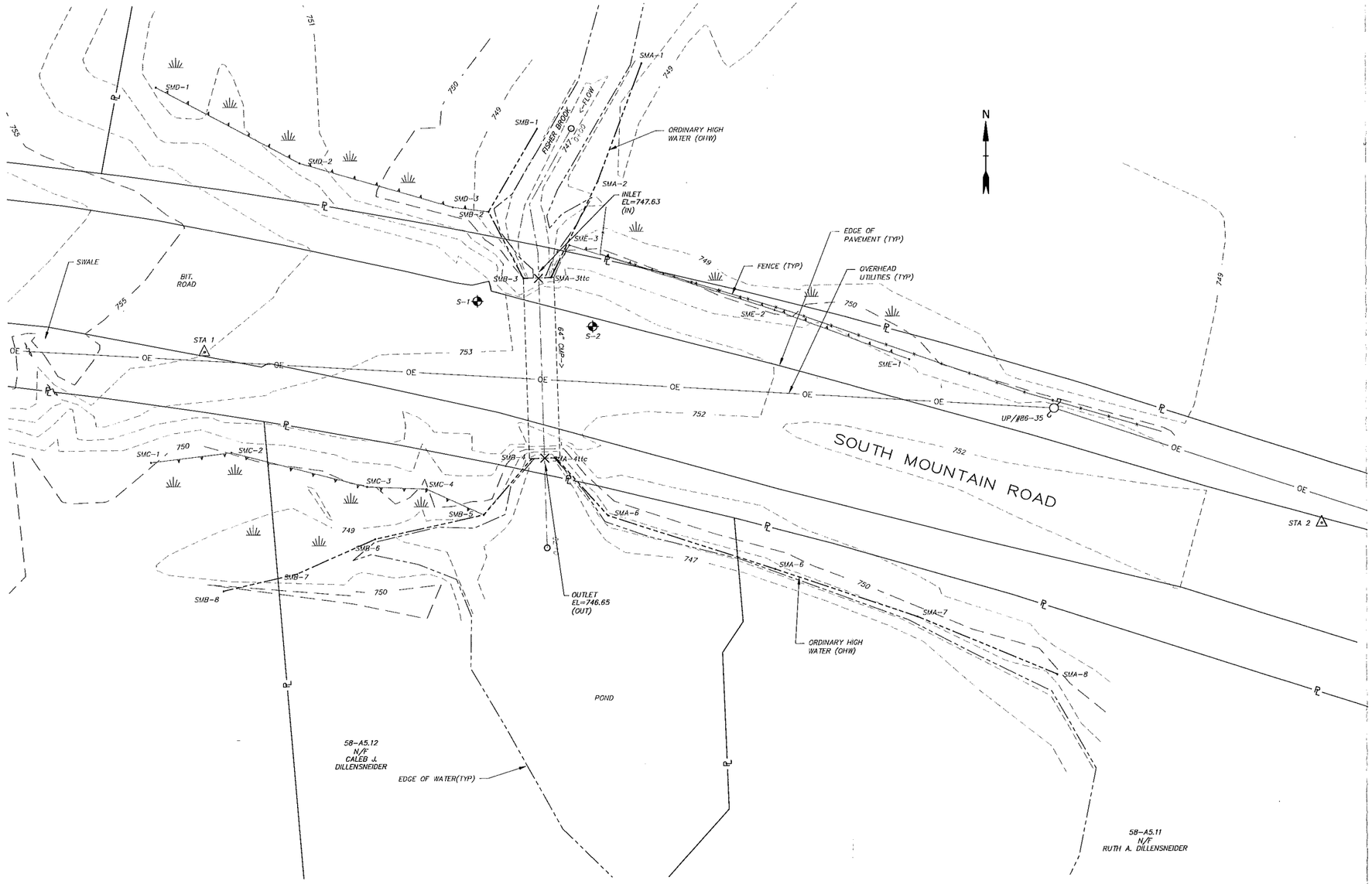
3.4 BACKFILLING

A. General - Delay backfilling of excavation until after Owner's Project Representative's inspection has been completed. Backfilling shall be in accordance with Section 02315.

END OF SECTION

APPENDIX B

See Attached Drawings:



EXISTING CONTROL POINTS			
POINT	NORTHING	EASTING	ELEVATION
STA 1	3062655.81	402466.43	753.95
STA 2	3062624.95	402660.66	752.30

NOTE:
ALL PROPOSED WORK IS LOCATED WITHIN THE 200-FOOT RIVERFRONT AREA AND 100-FOOT BUFFER ZONE.

SCALE IN FEET
0 10' 20'
GRAPHIC SCALE

Tighe&Bond
www.tighebond.com

Permit Set Not For Construction

Town of Northfield

South Mountain Road Culvert Replacement Project

Northfield, Massachusetts

Mark	Date	Description

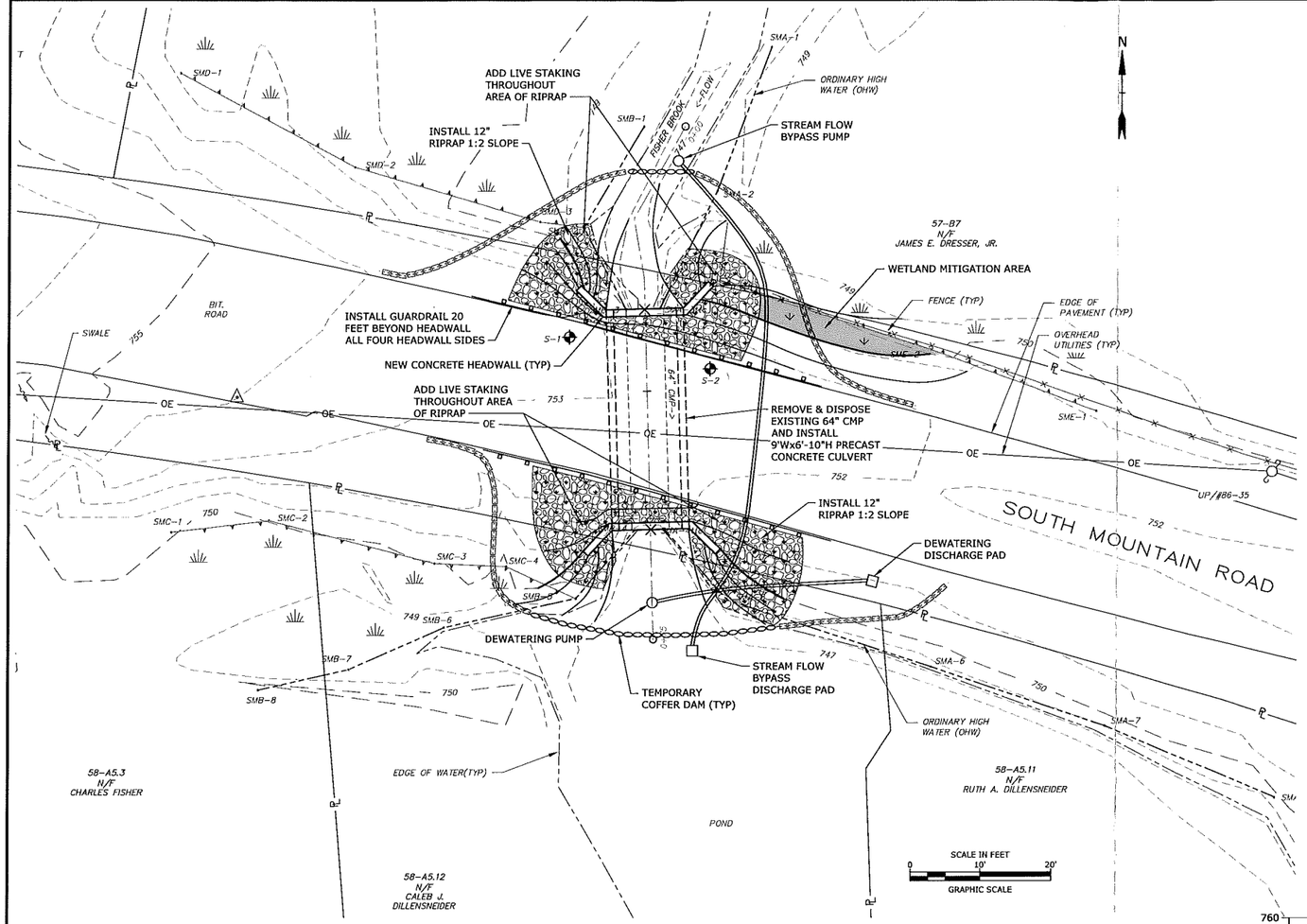
PROJECT NO:	N5026/2
FILE:	N5026-02-EXST_COND.dwg
DRAWN BY:	TMP
CHECKED:	ZPC
APPROVED BY:	PMV

EXISTING CONDITIONS PLAN

SCALE: 1" = 10'

SHEET 3

Last Saved: 7/10/2019
Full Set: Oct 15, 2019 - 9:20am By: CFY
Tighe & Bond J:\NN5026\002 - South Mountain Road Culvert Replacement\Drawings, Figures\AutoCAD\Sheet\N5026-02-EXST_COND.dwg

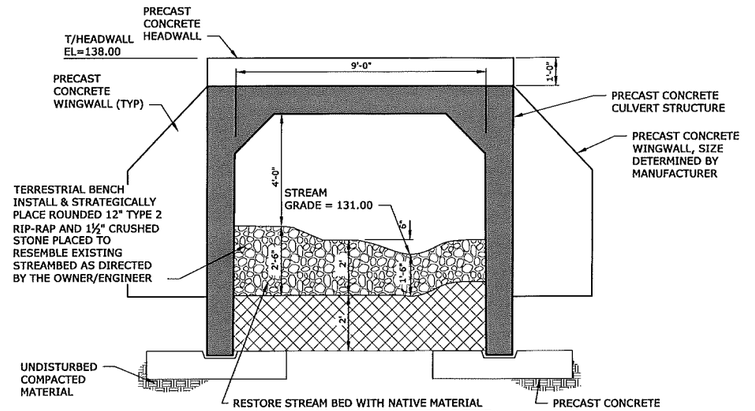


CULVERT CROSSING PLAN
1"=10'

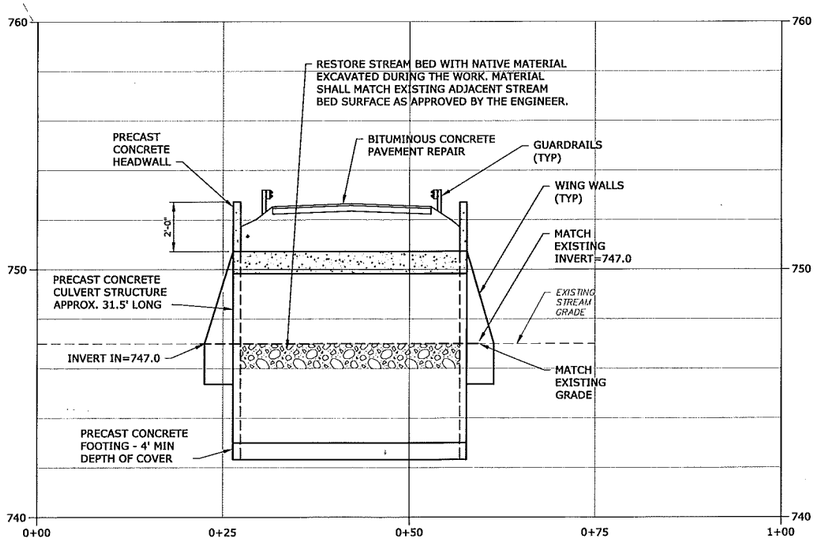
NOTES:

1. PROVIDE TEMPORARY COFFERDAM AND DEWATERING AS DETAILED ON SHEET 5.

	EXISTING	PROPOSED
CROSS-SECTIONAL AREA	17.39 SF	25.50 SF
OPENNESS RATIO	0.55	0.81
PIPE SIZE AND MATERIAL	64" CMP	9'Wx6'-10"H PRECAST CONCRETE
LENGTH	31.5 LF	31.5 LF



ELEVATION VIEW OF CULVERT
3/8"=1'-0"



CULVERT CROSSING PROFILE
1"=10' H ; 1"=3' V

Tighe&Bond
www.tighebond.com

Permit Set Not For Construction

Town of Northfield

South Mountain Road Culvert Replacement Project

Northfield, Massachusetts

Mark	Date	Description

PROJECT NO:	N5026/2
FILE:	N5026-02-PROP_COND.dwg
DRAWN BY:	TMP
CHECKED:	ZPC
APPROVED BY:	PMV

PROPOSED CONDITIONS PLAN AND PROFILE

SCALE: AS SHOWN

SHEET 4

Last Saved: 7/10/2019
Plotted On: Jul 10, 2019--8:24am By: CFY
Plotted Saved: N:\N5026\02 - South Mountain Road Culvert Replacement\Drawings, Figures\AutoCAD\Sheet\N5026-02-PROP_COND.dwg