ADDENDUM TO
CONTRACT DOCUMENTS
AND SPECIFICATIONS

E. Bridge & Kelli Drive Sewer Extension
For the City of Breaux Bridge, LA

ADDENDUM NO. 1                    MAY 21, 2018

The following items shall take precedence over referenced counterparts in the specifications, contract drawings and any other documents in conflict herewith.

Item No. 1  REFER to the Specifications and Contract Documents. Include as Appendix B the attached permit from the Louisiana Department of Transportation and Development. The successful bidder is required to comply with all requirements of this permit at no direct cost to the Owner.

Item No. 2  Refer to the Specifications and Contract Documents. Include the attached electrical specifications in the documents. They were inadvertently omitted from the original specifications. All electrical and/or control work shall comply with the requirements of these sections.

Item No. 3  PRIOR APPROVAL LIST: The following manufacturers’ equipment may be considered for use on this project (they have received prior approval subject to the following):

The Engineer may allow minor deviations subject to the Engineer’s judgment as to whether such deviations would detract from the quality, reliability or function of the equipment. The equipment manufacturer shall be responsible for any and all redesign required to accommodate their equipment. All drawings and calculations detailing the deviations from the plans and specifications shall be submitted to the Engineer with the shop drawings for approval. Drawings must be in AutoCad 2010 or more recent format and must be stamped by an Engineer licensed in the State of Louisiana. Submit both hard copies and electronic copies for approval.

Prior approval of other manufacturers’ equipment shall in no way relieve the Contractor of responsibility for submitting the specified shop drawings for approval or complying fully with all provisions of the specifications and drawings.

If prior approved equipment is used, the contractor shall, at his own expense, make any changes or additions in the structures, piping, electrical, etc. as necessary to accommodate the equipment. If engineering is required due to substitution of prior approved equipment, the contractor shall furnish and pay for all such engineering services. No qualifications or exceptions listed in prior approval submittals shall in any way alter or serve as substitute provisions relative to this contract.

Note: Although prior approval allows the manufacturer to bid the project in accordance with the documents, many of the features/items required by the specifications were listed as optional equipment by the manufacturer (e.g. stainless steel guides, two moisture probes, non-sparking assembly, etc.). It is the Contractor’s responsibility to ensure that the products used to determine the bid are in FULL
compliance with the specifications, including the costs for the options required to fully meet the specifications.

<table>
<thead>
<tr>
<th>Section</th>
<th>Description of Items</th>
<th>Approved Mfr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>11300</td>
<td>Wet Well Coating</td>
<td>Sherwin Williams Dura-Plate 5900, 125 mils&lt;br&gt;Tnemec: 1st Coat: Tnemec Series 218-1000 Mortarclad at a minimum 1/16&quot; -1/8&quot; thickness to fill voids and provide a smooth finish.&lt;br&gt;2nd Coat Tnemec Series 434 Permashield 125 mils.</td>
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**Item No. 4** Refer to the Specifications and Contract Documents, Section 11300 – Duplex Submersible Sewage Pump Station; Wet Well & Valve Pit. Add the following paragraph:

Surface preparation shall be in strict conformance with the coating manufacturer’s recommendations. Upon full cure, the installed lining system shall be checked by high voltage spark detection in accordance with NACE RP0188-90 to verify a pinhole-free surface. Voltage shall be set at 11,000 volts. Areas which do not pass the spark detection test shall be corrected at no cost to the Owner and rechecked.

**Item No. 5** Refer to the Contract Drawings. Section A-A on Sheet 7 is hereby revised to include the denoted stilling tube.

**Item No. 6** Refer to the Specifications, Section 00820 – Special Conditions, Article 55 – Water for Construction. Substitute the paragraph below for this Section:

All water required by the Contractor for performing the work in this Contract shall be provided for and the cost covered by the Contractor. The Contractor is advised to make arrangements with the City for all water required and for any other costs associated with obtaining such water (e.g. meter, labor to open and close fire hydrants). All costs for water, (including labor and associated costs) shall be included in the unit prices bid for the appropriate individual work items for which the water use is required.

**Item No. 7** REFER to the Specifications and Contract Documents, Section 02730 – Sanitary Sewer (Gravity). Certa-Flo PVC Gravity Sewer Pipe SDR 26 or thicker is allowable for push joint pipes. All sewer installed under roads must be jointless/fusible.

**Item No. 8** REFER to the Specifications and Contract Documents, Section 00300 – Bid Form. Substitute the attached Bid Form. This Bid Form must be utilized for the submission of all bids.

**Item No. 9** REFER to the Plans for the Project and the Specifications, Section 02730 – Sanitary Sewer (Gravity). The contractor will be allowed to install the gravity sewer pipe by boring in lieu of open cut installation if they choose to do so. The pipe may be Certainteed Certalok pipe DR 25 or thicker, or Fusible C900 PVC pipe DR 25 or thicker. The thickness of the pipe must be coordinated with the pipe manufacturer relative to pull forces; should thicker pipe be recommended by the pipe manufacturer, the thicker pipe shall be provided and the cost for the thicker pipe included in the contract unit price. The contractor shall be responsible for achieving the correct grade of the pipe, and to correct any defects in grade, etc., at no cost to
the Owner. The contractor shall be required to connect to each manhole with flexible connectors (e.g. Kor-N-Seal boots) as per the plans and specifications. Manholes shall conform to the contract requirements. Any couplings, materials, etc. required to install the manhole as per the details shall be included at no direct pay. Should this alternative be chosen by the contractor, the contractor shall not be paid for special backfill, embedment, surface restoration, etc., since such work will not be performed if bored. The pipe installed by this method shall be paid at the unit price for “Furnish & Install 8” Gravity Sewer” at the depth of cut indicated in the contract bid form for the appropriate depth. Payment at the unit price shall constitute full payment for all materials, labor, excavation, backfill, bore pits, mud pits, etc. The length paid shall be from center of manhole to center of manhole only (no payment for excess pipe pulled in the bore). If the contractor chooses to use this method of construction, he may use a stainless steel saddle for the service risers, as depicted in the detail included in this addendum. There shall be no additional pay for this item; it shall be paid as a service riser, and payment shall include all materials including but not limited to limestone encasement, clamps, etc. Limestone will not be measured for separate payment; it shall be included in the unit price for the service riser. The hole for the service shall be cut with a hole saw and shall be smooth, round, and without defects of any kind.

**Item No. 10**  
As a point of emphasis, where jack or bores are shown on the plan, the contractor shall only be paid for the length of bore shown on the plans. The contractor shall not be paid for additional bore length in excess of bore lengths shown on the plans.

Received by:  
Signed: ___________________________  Dated: ___________________________

Company: ___________________________

FAX THIS SIGNED PAGE TO DOMINGUE, SZABO & ASSOCIATES, INC. AT 337-237-7132; OR RESPOND TO EMAIL ACKNOWLEDGING RECEIPT OF ADDENDUM

End of Addendum No. 1
Three (3) copies of the drawings must accompany the utility permit application.

When applicable, the following supplements are also required and shall become a part of this permit: Bridge Attachment, Pipe Data Sheet or Certification for Permit Lighting.

ENTERED IN COMPUTER FILE

INITIAL AND DATE

STATE OF LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

UTILITY PERMIT
(Required by State Law) Rev 5/13
A copy of this permit shall be available at the site where and when work is performed.

Whereas, The City of Breaux Bridge, Louisiana
(Print or type name of applicant)
hereinafter termed applicant, requests a permit for the use and occupancy of the right-of-way of State Highway No. LA 347
in St. Martin Parish, located as follows:
from: 1.04 miles northeast of LA 328, south side

Lat: 30.2839365 Long: -091.8792810

(to: SAME

Lat: Long: ____________

(in Decimal Degrees, e.g. Lat: -30.545, Long: -91.178)

for the installation, operation and maintenance of the following described project (please summarize and use additional sheets as necessary):

E. Bridge & Kelli Drive Sewer Extension - 8" gravity sewer extension from La Hwy 347 along Kelli Drive

Estimated number of times this facility will be accessed each year after construction has been completed, including meter readings: n/a

By signing this permit, applicant/permittee hereby acknowledges receiving a copy of the permit, the general conditions and standards, the Standards for the Installation of Pipelines on State Highways, and the Standards for the Installation of Supply and Communication Lines on State Highways, and agrees to comply with all provisions contained therein and all applicable laws, rules and regulations.

DOTD USE ONLY:
Permit is subject to the following conditions (use additional sheets as necessary):

RECOMMENDED FOR APPROVAL
(Check box if review required)

[ ] District Permit Specialist / Date

[ ] District Traffic Operation Engineer / Date

[ ] District Administrator (or Designee) / Date

Applicant must notify District Permit Specialist at phone number: 337-322-0130 prior to beginning work and after work is completed.

Final inspection and approval by:

Issue Date: 4-30-18

Installation to be completed by: 10-30-18

Permit must be signed by the owner or lessee of the property. Contractor may NOT acquire permit:

Ricky Cajais

Owner

Date: 3-21-18

Ricky Cajais

Name of Person Signing Permit

Mayor

(Title)

101 Berard Street

Street or P.O. Box

Breaux Bridge LA 70517

City or Town

(State)

337-332-8301

(Telephone Number)

rcalais@breauxbridgela.net

(E-mail Address)

DOTD APPROVAL:

William O. Felton

4/21/18

District Right-of-Way Permit Examiner / Date

District Administrator (or Designee) / Date

Print Name

pc: DISTRICT

pc: PERMITTEE

Page 1 of 4
The following general conditions and standards shall apply:

FIRST: That, the rights and privileges granted herein shall be nonexclusive and shall not be construed to be any broader than those expressly set out in Acts of the Legislature of the State of Louisiana, regardless of the language used in this permit and that any facilities placed on the highway right-of-way shall be placed in accordance with existing laws and the standards of the Department.

SECOND: That, all facilities thereto, after having been erected, shall at all times be subject to inspection and the right is reserved to require such changes, additions, repairs, relocations and removal as may at anytime be considered necessary to permit the relocation, reconstruction, widening and maintaining of the highway and to provide proper and safe protection to life and property on or adjacent to the highway, or in the interest of safety to traffic on the highway and that the cost of making such changes, additions, repairs and relocations shall be borne by the applicant, and that all of the cost of the work to be accomplished under this permit shall be borne by the permittee who agrees to hold the Department harmless therefore.

THIRD: That, the proposed facilities or their operation or their maintenance shall not unreasonably interfere with the facilities or the operation or maintenance of the facilities of other persons, firms or corporations previously issued permits of use and occupancy, and the proposed facilities shall not be dangerous to persons or property using or occupying the highway or using facilities constructed under previously granted permits of use and occupancy; and that the Department's records of prior permits are available, it being the duty of the applicant to determine the existence and location of all facilities within the highway right of way.

FOURTH: That, installations within the highway right-of-way shall be in accordance with applicable provisions contained in the following: AASHTO Guide for Accommodating Utilities within Highway Right of Way, Code of Federal Regulations 23 (CFR 23), National Electrical Safety Code C2, 1996 Federal Telecommunications Act. Those facilities not included in the above mentioned documents shall be in accordance with accepted practice. Where standards of the Department exceed those of the above cited codes, the standards of the Department shall apply. The Department reserves the right to modify its policies as may be required if conditions warrant.

FIFTH: That, data relative to the proposed location, relocation and design of fixtures or appurtenances as may be required by the Department shall be furnished to the Department by the applicant free of cost, and that the applicant may make any and all changes or additions necessary to make the proposed facilities thereto satisfactory to the Department.

SIXTH: That, cutting and trimming of trees, shrubs, etc., shall be in accordance with the Department's Guide for Accommodating Utilities within Highway Right of Way, Code C2, 1996 Federal Telecommunications Act. Those facilities not included in the above mentioned documents shall be in accordance with accepted practice. Where standards of the Department exceed those of the above cited codes, the standards of the Department shall apply. The Department reserves the right to modify its policies as may be required if conditions warrant.

SEVENTH: That, the applicant agrees to defend, indemnify, and hold harmless the Department and its duly appointed agents and employees from and against any and all claims, suits, liabilities, losses, damages, costs or expenses, including attorneys' fees sustained by reason of the exercise of this permit, whether or not the same may have been caused by the negligence of the Department, its agents or employees, provided, however, that the provisions of this last clause (whether or not the same may have been caused by the negligence of the Department, its agents or employees) shall not apply to any personal injury or property damage caused by the sole negligence of the Department, its agents or employees, unless such sole negligence shall consist or shall have consisted entirely and only of negligence in the granting of a permit or permits.

EIGHTH: That, the applicant is the owner of the facility for which a permit is requested, and is responsible for maintenance of such, and any permit granted by the Department is granted only so far as the Department had the power and right to grant the same.

NINTH: That, any permit granted by the Department is subject to revocation at any time.

TENTH: That, signing for warning and protection of traffic in instances where workmen, equipment or materials are in close proximity to the roadway surfacing, shall be in accordance with requirements contained in the Department's Manual on Uniform Traffic Control Devices. No vehicles, equipment and/or materials shall operate from, or be parked, stored or stock piled on any highway, median or in an area extending from the outer edge of the shoulder of the highway on one side to the outer edge of the shoulder of the highway on the opposite side or in the median of any divided highway.

ELEVENTH: That, all provisions and standards contained herein relative to the installation of utilities shall apply to future operation, service and maintenance of utilities.

TWELFTH: That, drainage in highway side and cross ditches must be maintained at all times. The entire highway right of way affected by work under a permit must be restored to as good a condition as existed prior to beginning work to the complete satisfaction of the Department's R/W Permit Engineer.

THIRTEENTH: Any non-metallic or non-conductive underground facility must be installed with a non-corrosive metallic wire or tape placed directly over and on the center of the facility for its entire length within highway right-of-way. Wire or tape must be connected to all facilities.

FOURTEENTH: Prior to performing any excavations, the applicant is required to call Louisiana One Call. If installing any underground facilities such as cable or conduits, the applicant must be a member of Louisiana One Call. In addition, the applicant must contact DOTD at 1-800-259-4929 or DOTD-FiberLocates@la.gov at least 24 hours prior to performing any excavation on DOTD Right-of-way (either for installation or maintenance).
STANDARDS FOR THE INSTALLATION OF PIPELINES ON STATE HIGHWAYS

A. GENERAL

(1) All materials and workmanship shall conform to the requirements of the applicable industry code and to Department specifications.

(2) All safety precautions for the protection of the traveling public must be observed. Undue delay to traffic will not be tolerated.

(3) All excavations within the limits of the right-of-way shall be backfilled and tamped in six inch layers to the density of the adjacent undisturbed soil. Where sod is removed or destroyed, it shall be replaced. Where it is necessary to make excavations in the shoulder, the top six inches of backfill shall be sand-clay gravel or equivalent. Where existing spoil material is, at the discretion of the Department, unsuitable for backfill, select material shall be furnished in lieu thereof and the existing material disposed of by approved methods.

(4) Protruding valves and other above ground appurtenances shall not be installed at any point within the right of way of the highway except for vents, markers, etc., which may be installed at the right-of-way line, unless specifically approved herein.

B. PARALLEL TO THE HIGHWAY (All provisions of general standards to apply.)

(1) Pipelines paralleling the highway:
   (a) shall occupy the last few feet of the right-of-way back of the ditch except where upon showing of actual necessity a permit is issued for another location;
   (b) shall have a minimum earth cover of twenty-four (24) inches;
   (c) shall have a minimum clearance of twenty-four (24) inches below existing or proposed drainage structures, where possible.

(2) Utilities paralleling the highway are limited to distribution facilities.

C. CROSSING THE HIGHWAY (All provisions of general standards apply.)

(1) Uncased pipelines may be permitted, provided the conditions outlined in E.D.S.M. IV 2.1.9 are met.

(2) If the permittee elects to use casing, it must extend from right-of-way to right-of-way, and be properly vented and marked at or beyond the right-of-way line.

(3) For cased pipelines, the casing shall have at least four (4) feet of cover below the roadway and two (2) feet of cover below ditches or drainage structures. Uncased pipelines shall have at least five (5) feet and three (3) feet of cover respectively.

(4) Crossings shall be made at as nearly right angles to the highway as possible. No existing drainage structure under the highway may be used for this purpose.

(5) Construction methods used shall be in accordance with the following requirements:
   (a) Cutting the surface or tunneling under it is specifically prohibited.
   (b) Installation shall be made either by boring or jacking under and through the highway at least from ditch bottom to ditch bottom. In the absence of ditches, or along sections of highway with curb or gutter, boring or jacking shall extend beyond the outside edge of the traveled way to a point at least equal to three (3) times the vertical difference between the elevation of the roadway surfacing and the elevation of the top of the cable. Where width of right-of-way is insufficient to enable compliance with this requirement or where it is necessary to make a connection to an existing parallel facility which precludes compliance, the distance shall be to the right-of-way line or to the parallel facility. Any voids or overbreaks resulting from this shall be backfilled with grout consisting of a cement mortar or slurry of fine sand or clay, as conditions require. Excavating an open ditch to the edge of the pavement and boring and jacking the remainder of the distance is prohibited. Jacking and boring shall be done in accordance with Section 728 of the La. Standard Specifications for Roads and Bridges, latest edition.

D. REMOVAL AND ABANDONMENT OF UTILITY FACILITIES

(1) All facilities installed within state highway right-of-way shall be removed and disposed of by their owner as soon as they stop serving a useful purpose. Facilities may be abandoned under the following circumstances.
   (a) Pipelines and casings crossing highways or other hard surfaces may be abandoned in place, with the recommendation of the district utility and permit specialist and the project engineer, and with the approval of the headquarters utility and permit engineer.
   (b) Pipelines and casings installed along highways, may be abandoned in place, with the recommendation of the district utility and permit specialist and the project engineer, and with the approval of the headquarters utility and permit engineer, provided that they are less than 6 inches in diameter, or that they are buried with more than 8 feet or cover.
   (c) Electrical and communication facilities installed within a casing, and crossing under highways or other hard surfaces may be abandoned in place with the recommendation of the district utility and permit specialist and the project engineer, and with the approval of the headquarters utility and permit engineer, provided that the cable is removed from the casing.
   (d) Uncased cables crossing under highways or other hard surfaces may be abandoned in place provided that they are removed to a point as near to the edge of the highway as feasible.
(e) Electrical and communication cables installed along highways may be abandoned in place, with the recommendation of the district utility and permit specialist and the project engineer, and with the approval of the headquarters utility and permit engineer, provided that they are less than 4 inches in diameter, or that they are buried with more than 8 feet of cover.

(f) All above-ground facilities installed along state highways shall be removed and disposed of by their owner as soon as they stop serving a useful purpose.

(g) Facilities that are located so that their removal would be likely to result in damage to the highway, or to other facilities, may be abandoned in place, with the recommendation of the district utility and permit specialist and the project engineer, and with the approval of the headquarters utility and permit engineer. The procedure for abandoning these facilities will be specified on a case-by-case basis; however, in general, sections shall be removed here possible, and all remaining lines shall be filled with grout.

(2) Where it is not possible nor feasible to remove pipelines and/or casings under existing highways, such pipelines and/or casings may be abandoned in place provided removals shall be accomplished by the owner, as near to the highway on each side as possible and in all cases, beyond existing ditches to right-of-way lines, and further provided that all pipelines and/or casings abandoned under the highway shall be abandoned in accordance with D.O.T. Title 49 (i.e., pipelines are purged, capped, and filled with grout; note that when highway construction will remove the line in the near future, the DOTD's project engineer may approve the use of water in place of grout).

(3) Pipelines and cables shall be removed from abandoned casings where possible.

(4) In all cases the highway right-of-way shall be repaired, at the permittee's expense, to match DOTD standards. An approved backfill material shall be used to fill in any trenches or low areas, and shall be compacted to the same density as the surrounding soil. Any desirable trees or shrubs that are damaged shall be replaced, and any other damages (i.e. to subsurface drainage, traffic signs, etc.) shall be repaired.

(5) Companies who fail to comply with this by leaving their facilities within highway right-of-way after they are no longer used, or by not repairing the right-of-way after removing their facilities, shall not receive any permits until the situation is rectified.

(6) In cases where the DOTD decides that it is necessary to remove a facility and/or to repair highway right-of-way damaged by a utility or the utility's facility, the company shall be invoiced for costs to the DOTD for removing abandoned facilities, or for repairing damaged right-of-way. Unpaid invoices shall be referred to DOTD's accounting section for further action.

(7) Note that a recommendation for abandonment by the project engineer is required only on construction projects. The district construction engineer should be consulted by the district utility and permit specialist when an abandonment may cause a potential problem with future construction. The assistant district administrator should be consulted by the district utility and permit specialist when an abandonment may cause a potential maintenance problem.

(8) The owner of the abandoned facilities shall maintain full responsibility for any future problems caused by the facilities, and shall remove the facilities upon receiving a written request from the DOTD. The cost of removing these facilities shall be borne by the owner and the DOTD shall assume no liability for this cost.

STANDARDS FOR THE INSTALLATION OF SUPPLY AND COMMUNICATION LINES ON STATE HIGHWAYS

A. All pole lines shall occupy the last few feet of the right-of-way behind the ditch but shall be no further from the right-of-way line than one-half of the width of the cross-arms plus one foot, except where upon a showing of actual necessity a permit is issued for another location.

B. A minimum vertical clearance of twenty (20) feet shall be maintained between the traveled surface of the highway and any aerial installation. In no case shall the vertical clearance for an overhead utility line be less than the clearance required by the National Electrical Safety Code. A minimum clearance of sixteen (16) feet shall be maintained between existing ground elevation and any aerial installation when such installation is within highway right-of-way but does not cross the traveled surface of a highway.

C. Where supply and/or communication lines are placed underground, the standards for pipelines shall govern. Underground electric facilities must have at least four (4) feet of cover and must be encased when crossing a highway. These facilities must also be adequately marked by appropriate signs at specified locations.
STATE OF LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
UTILITY PERMIT SUPPLEMENT
Rev 3/13
PIPE DATA SHEET

Highway No. LA 347
Owner of Proposed Facility City of Breaux Bridge, Louisiana

<table>
<thead>
<tr>
<th>Data</th>
<th>Carrier Pipe</th>
<th>Casing (If Used)</th>
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<tbody>
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<td>Pipe Material</td>
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*This is not design pressure. MAOP is the highest pressure a pipeline may be operated under DOTD regulations.

This proposed installation is in compliance with Department Standards.

(Signature of Owner, required)  3-21-18  
(Date)
CONSTRUCTION DOCUMENTS
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PROJECT NAME: Breaux Bridge
ARCHITECT: Domingue Szabo & Associates
PROJECT NO: 18030

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<td>Basic Electrical Materials and Methods</td>
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<tr>
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<td>16120</td>
<td>Conductors and Cables</td>
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<td>Duplex Control Panel</td>
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<tr>
<td>16800</td>
<td>Lift Station Scada Panel</td>
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1.1 SUMMARY

A. This Section includes the following:
   1. Supporting devices for electrical components.
   2. Electricity-metering components.
   3. Concrete equipment bases.
   4. Touchup painting.

1.2 DEFINITIONS

A. EMT: Electrical metallic tubing.
B. FMC: Flexible metal conduit.
C. IMC: Intermediate metal conduit.
D. LFMC: Liquidtight flexible metal conduit.
E. RNC: Rigid nonmetallic conduit.

1.3 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
B. Comply with NFPA 70.

1.4 COORDINATION

A. Coordinate chases, slots, inserts, sleeves, and openings with general construction work and arrange in building structure during progress of construction to facilitate the electrical installations that follow.
   1. Set inserts and sleeves in poured-in-place concrete, masonry work, and other structural components as they are constructed.
B. Sequence, coordinate, and integrate installing electrical materials and equipment for efficient flow of the Work.
C. Where electrical identification devices are applied to field-finished surfaces, coordinate installation of identification devices with completion of finished surface.
D. Coordinate connecting to all equipment with equipment provider. Contractor to refer to equipment installation documents prior to any rough-in.

E. The contractor shall label the main service disconnecting means with the maximum available fault current shall be listed on the device to meet the requirements of NFPA 70:110.24. The labeling shall be engraved plastic. The maximum available fault current shall be obtained from the electrical utility for the secondary side of the utility transformer.

PART 2 - PRODUCTS

2.1 SUPPORTING DEVICES

A. Material: Cold-formed steel, with corrosion-resistant coating acceptable to authorities having jurisdiction.

B. Metal Items for Use Outdoors or in Damp Locations: Hot-dip galvanized steel.

C. Slotted-Steel Channel Supports: Flange edges turned toward web; and 9/16-inch- (14-mm-) diameter slotted holes at a maximum of 2 inches (50 mm) o.c., in webs.

D. Raceway and Cable Supports: Manufactured clevis hangers, riser clamps, straps, threaded C-clamps with retainers, ceiling trapeze hangers, wall brackets, and spring-steel clamps or click-type hangers.

E. Cable Supports for Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug for nonarmored electrical cables in riser conduits. Plugs have number and size of conductor gripping holes as required to suit individual risers. Body constructed of malleable-iron casting with hot-dip galvanized finish.

F. Expansion Anchors: Carbon-steel wedge or sleeve type.

G. Toggle Bolts: All-steel springhead type.


2.2 EQUIPMENT FOR ELECTRICITY METERING BY CONTRACTOR

A. Meter: Contractor shall provide metering per the local utility. Contractor shall provide all necessary enclosures, meter cans, etc. per the local utility requirements.

2.3 CONCRETE BASES

A. Concrete: 3000-psi (20.7-MPa), 28-day compressive strength as specified in Division 3

2.4 TOUCH-UP PAINT

A. For Equipment: Equipment manufacturer's paint selected to match installed equipment finish.

B. Galvanized Surfaces: Zinc-rich paint recommended by item manufacturer.
PART 3 - EXECUTION

3.1 ELECTRICAL EQUIPMENT INSTALLATION

A. Headroom Maintenance: If mounting heights or other location criteria are not indicated, arrange and install components and equipment to provide the maximum possible headroom.

B. Materials and Components: Install level, plumb, and parallel and perpendicular to other building systems and components, unless otherwise indicated.

C. Equipment: Install to facilitate service, maintenance, and repair or replacement of components. Connect for ease of disconnecting, with minimum interference with other installations.

D. Right of Way: Give to raceways and piping systems installed at a required slope.

3.2 ELECTRICAL SUPPORTING DEVICE APPLICATION

A. Damp Locations and Outdoors: Hot-dip galvanized materials or nonmetallic, U-channel system components.

B. Dry Locations: Steel materials.

C. Support Clamps for PVC Raceways: Click-type clamp system.

D. Selection of Supports: Comply with manufacturer’s written instructions.

E. Strength of Supports: Adequate to carry present and future loads, times a safety factor of at least four; minimum of 200-lb (90-kg) design load.

3.3 SUPPORT INSTALLATION

A. Install support devices to securely and permanently fasten and support electrical components.

B. Install individual and multiple raceway hangers and riser clamps to support raceways. Provide U-bolts, clamps, attachments, and other hardware necessary for hanger assemblies and for securing hanger rods and conduits.

C. Support parallel runs of horizontal raceways together on trapeze- or bracket-type hangers.

D. Size supports for multiple raceway installations so capacity can be increased by a 25 percent minimum in the future.

E. Support individual horizontal raceways with separate, malleable-iron pipe hangers or clamps.

F. Install 1/4-inch (6-mm-) diameter or larger threaded steel hanger rods, unless otherwise indicated.

3.4 CONCRETE BASES

A. Provide a concrete base for all floor mounted equipment. Construct concrete bases of dimensions indicated, but not less than 4 inches (100 mm) larger, in both directions, than supported unit. Follow
supported equipment manufacturer’s anchorage recommendations and setting templates for anchor-bolt and tie locations, unless otherwise indicated. Use 3000-psi (20.7-MPa), 28-day compressive-strength concrete and reinforcement as specified in Division 3 Section "Cast-in-Place Concrete."

3.5 REFINISHING AND TOUCH-UP PAINTING

A. Refinish and touch up paint.

1. Clean damaged and disturbed areas and apply primer, intermediate, and finish coats to suit the degree of damage at each location.
2. Follow paint manufacturer’s written instructions for surface preparation and for timing and application of successive coats.
3. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
4. Repair damage to PVC or paint finishes with matching touchup coating recommended by manufacturer.

3.6 CLEANING AND PROTECTION

A. On completion of installation, including outlets, fittings, and devices, inspect exposed finish. Remove burrs, dirt, paint spots, and construction debris.

B. Protect equipment and installations and maintain conditions to ensure that coatings, finishes, and cabinets are without damage or deterioration at time of Substantial Completion.

END OF SECTION 16050
Section 16060 – Grounding and Bonding

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY
A. This Section includes methods and materials for grounding systems and equipment.
   1. Underground grounding.

1.3 QUALITY ASSURANCE
A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
B. Comply with UL 467 for grounding and bonding materials and equipment.

PART 2 - PRODUCTS

2.1 CONDUCTORS
A. Insulated Conductors: Copper or tinned-copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.
B. Bare Copper Conductors:
   4. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG conductor, 1/4 inch (6 mm) in diameter.
   5. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
   6. Bonding Jumper: Copper tape, braided conductors, terminated with copper ferrules; 1-5/8 inches (41 mm) wide and 1/16 inch (1.6 mm) thick.
   7. Tinned Bonding Jumper: Tinned-copper tape, braided conductors, terminated with copper ferrules; 1-5/8 inches (41 mm) wide and 1/16 inch (1.6 mm) thick.
C. Bare Grounding Conductor and Conductor Protector for Wood Poles:
   1. No. 4 AWG minimum, soft-drawn copper.
   2. Conductor Protector: Half-round PVC or wood molding. If wood, use pressure-treated fir or cypress or cedar.
D. Grounding Bus: Rectangular bars of annealed copper, 1/4 by 2 inches by 24” minimum in cross section, unless otherwise indicated; with insulators.

2.2 CONNECTORS
A. Listed and labeled by a nationally recognized testing laboratory acceptable to authorities having jurisdiction for applications in which used, and for specific types, sizes, and combinations of conductors and other items connected.

B. Bolted Connectors for Conductors and Pipes: Copper or copper alloy, bolted pressure-type, with at least two bolts.
   1. Pipe Connectors: Clamp type, sized for pipe.

C. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

2.3 GROUNDING ELECTRODES
A. Ground Rods: Copper-clad steel, sectional type; 3/4 inch by 10 feet (19 mm by 3 m) in diameter.

PART 3 - EXECUTION

3.1 APPLICATIONS
A. Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger, unless otherwise indicated.

B. Underground Grounding Conductors: Install bare tinned-copper conductor, No. 2/0 AWG minimum.
   1. Bury at least 24 inches below grade.
   2. Duct-Bank Grounding Conductor: Bury 12 inches above duct bank when indicated as part of duct-bank installation.

C. Isolated Grounding Conductors: Green-colored insulation with continuous yellow stripe. On feeders with isolated ground, identify grounding conductor where visible to normal inspection, with alternating bands of green and yellow tape, with at least three bands of green and two bands of yellow.

D. Grounding Bus: Install in electrical and telephone equipment rooms, in rooms housing service equipment, and elsewhere as indicated.
   1. Install bus on insulated spacers 1 inch, minimum, from wall 6 inches above finished floor, unless otherwise indicated.
   2. Where indicated on both sides of doorways, route bus up to top of door frame, across top of doorway, down to specified height above floor, and connect to horizontal bus.

E. Conductor Terminations and Connections:
   1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
   2. Underground Connections: Welded connectors, except at test wells and as otherwise indicated.
3. Connections to Ground Rods at Test Wells: Bolted connectors.

3.2 EQUIPMENT GROUNDING

A. Install insulated equipment grounding conductors with all feeders and branch circuits.

B. Install insulated equipment grounding conductors with the following items, in addition to those required by NFPA 70:
   1. Feeders and branch circuits.
   2. Lighting circuits.
   3. Receptacle circuits.
   5. Three-phase motor and appliance branch circuits.
   6. Flexible raceway runs.

C. Signal and Communication Equipment: For telephone, alarm, voice and data, and other communication equipment, provide No. 4 AWG minimum insulated grounding conductor in raceway from grounding electrode system to each service location, terminal cabinet, wiring closet, and central equipment location.
   2. Terminal Cabinets: Terminate grounding conductor on cabinet grounding terminal.

D. Metal Poles Supporting Outdoor Lighting Fixtures: Install grounding electrode and a separate insulated equipment grounding conductor in addition to grounding conductor installed with branch-circuit conductors.

3.3 INSTALLATION

A. Grounding Conductors: Route along shortest and straightest paths possible, unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.

B. Common Ground Bonding with Lightning Protection System: Comply with NFPA 780 and UL 96 when interconnecting with lightning protection system. Bond electrical power system ground directly to lightning protection system grounding conductor at closest point to electrical service grounding electrode. Use bonding conductor sized same as system grounding electrode conductor, and install in conduit.

C. Ground Rods: Drive rods until tops are 2 inches (50 mm) below finished floor or final grade, unless otherwise indicated.
   1. Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating, if any.
   2. For grounding electrode system, install at least three rods spaced at least one-rod length from each other and located at least the same distance from other grounding electrodes, and connect to the service grounding electrode conductor.

D. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance, except where routed through short lengths of conduit.
1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install so vibration is not transmitted to rigidly mounted equipment.
3. Use exothermic-welded connectors for outdoor locations, but if a disconnect-type connection is required, use a bolted clamp.

E. Grounding and Bonding for Piping:

1. Metal Water Service Pipe: Install insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes, using a bolted clamp connector or by bolting a lug-type connector to a pipe flange, using one of the lug bolts of the flange. Where a dielectric main water fitting is installed, connect grounding conductor on street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.
2. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with a bolted connector.
3. Bond each aboveground portion of gas piping system downstream from equipment shutoff valve.

F. Bonding Interior Metal Ducts: Bond metal air ducts to equipment grounding conductors of associated fans, blowers, electric heaters, and air cleaners. Install tinned bonding jumper to bond across flexible duct connections to achieve continuity.

END OF SECTION 16060
Section 16120 – Conductors and Cables

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
   A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY
   A. This Section includes building wires and cables and associated connectors, splices, and terminations for wiring systems rated 600 V and less.

1.3 QUALITY ASSURANCE
   A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
   B. Comply with NFPA 70-Latest edition or edition enforced by state or local code authority.

PART 2 - PRODUCTS

2.1 CONDUCTORS AND CABLES
   A. Refer to Part 3 "Conductor and Insulation Applications" Article for insulation type, cable construction, and ratings.
   C. Conductor Material: Copper; stranded conductor or solid conductor for No. 10 AWG and smaller, stranded for No. 8 AWG and larger.
   D. Conductor Insulation Types: Type THHN-THWN.

2.2 CONNECTORS AND SPLICES
   A. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.
PART 3 - EXECUTION

3.1 CONDUCTOR AND INSULATION APPLICATIONS

A. Service Entrance: Type THHN-THWN, single conductors in raceway.

B. Exposed Feeders: Type THHN-THWN, single conductors in raceway.

C. Feeders Concealed in Ceilings, Walls, and Partitions: Type THHN-THWN, single conductors in raceway.

D. Feeders Concealed in Concrete, below Slabs-on-Grade, and in Crawlspace: Type THHN-THWN, single conductors in raceway.

E. Exposed Branch Circuits, including in Crawlspace: Type THHN-THWN, single conductors in raceway.

F. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN-THWN, single conductors in raceway.

G. Branch Circuits Concealed in Concrete and below Slabs-on-Grade: Type THHN-THWN, single conductors in raceway.

H. Single Phase Circuits: Provide a dedicated neutral. Sharing of neutrals is not allowed.

3.2 INSTALLATION

A. Conceal cables in finished walls, ceilings, and floors, unless otherwise indicated.

B. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

C. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.

D. Support cables according to Division 16 Section "Basic Electrical Materials and Methods."

E. Identify and color-code conductors and cables according to Division 16 Section "Electrical Identification."

F. Use #10 AWG conductors for 20 amperage 120 circuits when the circuit conductors are longer that 75 feet. Use #10 AWG conductors for 20 amperage 277 circuits when the circuit conductors are longer than 200 feet.
3.3 CONNECTIONS

A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values.

B. Wiring at Outlets: Install conductor at each outlet, with at least 6 inches (150 mm) of slack.

END OF SECTION 16120
Section 16130 – Raceways and Boxes

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY
A. This Section includes raceways, fittings, boxes, enclosures, and cabinets for electrical wiring.
B. Related Sections include the following:
   1. Refer to architectural for firestopping materials and installation at penetrations through walls, ceilings, and other fire-rated elements.
   2. Division 16 Section "Basic Electrical Materials and Methods" for supports, anchors, and identification products.
   3. Division 16 Section "Wiring Devices" for devices installed in boxes and for floor-box service fittings.

1.3 DEFINITIONS
A. EMT: Electrical metallic tubing.
B. ENT: Electrical nonmetallic tubing.
C. FMC: Flexible metal conduit.
D. IMC: Intermediate metal conduit.
E. LFMC: Liquidtight flexible metal conduit.
F. LFNC: Liquidtight flexible nonmetallic conduit.
G. RNC: Rigid nonmetallic conduit.

1.4 SUBMITTALS
A. Product Data: For surface raceways, floor boxes, and cabinets.
1.5 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. Comply with NFPA 70-Latest edition or edition enforced by state and local code authority.

1.6 COORDINATION

A. Coordinate layout and installation of raceways, boxes, enclosures, cabinets, and suspension system with other trades.

PART 2 - PRODUCTS

2.1 METAL WIREWAYS

A. Material and Construction: Sheet metal sized and shaped as indicated, NEMA 1 or 3R.

B. Fittings and Accessories: Include couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.

C. Select features, unless otherwise indicated, as required to complete wiring system and to comply with NFPA 70.

D. Wireway Covers: Hinged type.

E. Finish: Manufacturer's standard enamel finish.

2.2 NONMETALLIC WIREWAYS

A. Description: Fiberglass polyester, extruded and fabricated to size and shape indicated, with no holes or knockouts. Cover is gasketed with oil-resistant gasket material and fastened with captive screws treated for corrosion resistance. Connections are flanged, with stainless-steel screws and oil-resistant gaskets.

B. Description: PVC plastic, extruded and fabricated to size and shape indicated, with snap-on cover and mechanically coupled connections with plastic fasteners.

C. Fittings and Accessories: Include couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.

D. Select features, unless otherwise indicated, as required to complete wiring system and to comply with NFPA 70.

2.3 BOXES, ENCLOSURES, AND CABINETS

A. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.

B. Cast-Metal Pull and Junction Boxes: NEMA FB 1, cast aluminum with gasketed cover.
C. Hinged-Cover Enclosures: NEMA 250, Type 1, with continuous hinge cover and flush latch.

1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.

D. In grade enclosures, boxes and covers are required to conform to all test provisions of the most current ANSI/SCTE 77 “Specification For Underground Enclosure Integrity” for Tier 22 applications. When multiple “Tiers” are specified the boxes must physically accommodate and structurally support compatible covers while possessing the highest Tier rating. All covers are required to have the Tier level rating embossed on the surface. In no assembly can the cover design load exceed the design load of the box. All components in an assembly (box & cover) are manufactured using matched surface tooling. Independent third party verification or test reports stamped by a registered Professional Engineer certifying that all test provisions of this specification have been met are required with each submittal. Cover to labeled per use of box, ie “Electrical, Communications, etc”. Communications pull boxes shall be a minimum of 24” w x 36” l x 36 “ d.

2.5 FACTORY FINISHES

A. Finish: For raceway, enclosure, or cabinet components, provide manufacturer's standard prime-coat finish ready for field painting.

2.6 METAL CONDUIT AND TUBING

A. Rigid Steel Conduit: ANSI C80.1.
B. Aluminum Rigid Conduit: ANSI C80.5.
C. IMC: ANSI C80.6.
F. EMT and Fittings: ANSI C 80.3.
G. LFMC: Flexible steel conduit with PVC jacket.
J. Fittings: NEMA FB 1; compatible with conduit and tubing materials.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

A. Outdoors:

1. Exposed: Rigid steel or IMC.
2. Concealed: Rigid steel or IMC.
3. Underground, Single Run: RNC.
4. Underground, Grouped: RNC.
5. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.

B. Indoors:
1. Exposed: EMT in non finished areas. Surface metal raceway in existing finished unaccessible areas unless noted otherwise.
2. Concealed: EMT.
3. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC; except use LFMC in damp or wet locations.
4. Damp or Wet Locations above Ground: Rigid steel conduit.
5. Boxes and Enclosures: NEMA 250, Type 1, except as follows:
   a. Damp or Wet Locations: NEMA 250, Type 4, stainless steel.

C. Minimum Raceway Size: 3/4-inch trade size (DN 21) below grade and ½ inch trade size above grade.

D. Raceway Fittings: Compatible with raceways and suitable for use and location.

3.2 INSTALLATION

A. Keep raceways at least 6 inches (150 mm) away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.

B. Complete raceway installation before starting conductor installation.

C. Support raceways as specified in Division 16 Section "Basic Electrical Materials and Methods."

D. Install temporary closures to prevent foreign matter from entering raceways.

E. Protect stub-ups from damage where conduits rise through floor slabs. Arrange so curved portions of bends are not visible above the finished slab.

F. Make bends and offsets so ID is not reduced. Keep legs of bends in the same plane and keep straight legs of offsets parallel, unless otherwise indicated.

G. Raceways Embedded in Slabs: Install in middle 1/3 of slab thickness where practical and leave at least 2 inches (50 mm) of concrete cover.
   1. Secure raceways to reinforcing rods to prevent sagging or shifting during concrete placement.
   2. Space raceways laterally to prevent voids in concrete.
   3. Run conduit larger than 1-inch trade size (DN 27) parallel or at right angles to main reinforcement. Where at right angles to reinforcement, place conduit close to slab support.

H. Install exposed raceways parallel or at right angles to nearby surfaces or structural members and follow surface contours as much as possible.
   1. Run parallel or banked raceways together on common supports.
   2. Make parallel bends in parallel or banked runs. Use factory elbows only where elbows can be installed parallel; otherwise, provide field bends for parallel raceways.

I. Join raceways with fittings designed and approved for that purpose and make joints tight.
   1. Use insulating bushings to protect conductors.

J. Tighten set screws of threadless fittings with suitable tools.

K. Terminations:
1. Where raceways are terminated with locknuts and bushings, align raceways to enter squarely and install locknuts with dished part against box. Use two locknuts, one inside and one outside box.
2. Where raceways are terminated with threaded hubs, screw raceways or fittings tightly into hub so end bears against wire protection shoulder. Where chase nipples are used, align raceways so coupling is square to box; tighten chase nipple so no threads are exposed.

L. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb (90-kg) tensile strength. Leave at least 12 inches (300 mm) of slack at each end of pull wire.

M. Stub-up Connections: Extend conduits through concrete floor for connection to freestanding equipment. Install with an adjustable top or coupling threaded inside for plugs set flush with finished floor. Extend conductors to equipment with rigid steel conduit; FMC may be used 6 inches (150 mm) above the floor. Install screwdriver-operated, threaded plugs flush with floor for future equipment connections.

N Flexible Connections: Use maximum of 72 inches (1830 mm) of flexible conduit for recessed and semirecessed lighting fixtures; for equipment subject to vibration, noise transmission, or movement; and for all motors. Use LFMC in damp or wet locations. Install separate ground conductor across flexible connections.

3.3 PROTECTION

A. Provide final protection and maintain conditions that ensure coatings, finishes, and cabinets are without damage or deterioration at time of Substantial Completion.

1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
2. Repair damage to PVC or paint finishes with matching touchup coating recommended by manufacturer.

3.4 CLEANING

A. After completing installation of exposed, factory-finished raceways and boxes, inspect exposed finishes and repair damaged finishes.

END OF SECTION 16130
Section 16410 – Enclosed Switches and Circuit Breakers

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes individually mounted enclosed switches and circuit breakers used for the following:

1. Feeder and branch-circuit protection.

1.3 DEFINITIONS

A. GFCI: Ground-fault circuit interrupter.
B. RMS: Root mean square.
C. SPDT: Single pole, double throw.

1.4 SUBMITTALS

A. Product Data: For each type of switch, circuit breaker, accessory, and component indicated. Include dimensions and manufacturers' technical data on features, performance, electrical characteristics, ratings, and finishes.

B. Shop Drawings: For each switch and circuit breaker.

1. Dimensioned plans, elevations, sections, and details, including required clearances and service space around equipment. Show tabulations of installed devices, equipment features, and ratings. Include the following:

   a. Enclosure types and details for types other than NEMA 250, Type 1.
   b. Current and voltage ratings.
   c. Short-circuit current rating.
   d. UL listing for series rating of installed devices.
   e. Features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.

3. Qualification Data: Submit data for testing agencies indicating that they comply with qualifications specified in "Quality Assurance" Article.

1.5 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. Comply with NFPA 70- Latest edition or edition enforced by state and local code authority.

C. Product Selection for Restricted Space: Drawings indicate maximum dimensions for enclosed switches and circuit breakers, including clearances between enclosures, and adjacent surfaces and other items. Comply with indicated maximum dimensions.

1.6 COORDINATION

A. Coordinate layout and installation of switches, circuit breakers, and components with other construction, including conduit, piping, equipment, and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Fusible Switches:
   b. General Electric Co.; Electrical Distribution & Control Division, TH.
   c. Siemens Energy & Automation, Inc., VBII.
   d. Square D Co, 3110.

2.2 ENCLOSED SWITCHES

A. Enclosed, Nonfusible Switch: NEMA KS 1, Type HD, with lockable handle.

B. Enclosed, Fusible Switch, 800 A and Smaller: NEMA KS 1, Type HD, with clips to accommodate specified fuses, lockable handle with two padlocks, and interlocked with cover in closed position.

2.3 ENCLOSURES

A. NEMA AB 1 and NEMA KS 1 to meet environmental conditions of installed location.

1. Outdoor Locations: NEMA 250, Type 3R.
2. Other Wet or Damp Indoor Locations: NEMA 250, Type 4.
2.4 FACTORY FINISHES

A. Manufacturer's standard prime-coat finish ready for field painting.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine elements and surfaces to receive enclosed switches and circuit breakers for compliance with installation tolerances and other conditions affecting performance.

1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 IDENTIFICATION

A. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs as specified in Division 16 Section "Basic Electrical Materials and Methods."

B. Enclosure Nameplates: Label each enclosure with engraved metal or laminated-plastic nameplate mounted with corrosion-resistant screws.

C. If the disconnect or enclosed circuit breaker is used as a Main Service Disconnect then the maximum available fault current shall be listed on the device to meet the requirements of NFPA 70:110.24. The labeling shall be engraved plastic. The maximum available fault current shall be obtained from the electrical utility for the secondary side of the utility transformer.

3.3 CONNECTIONS

A. Install equipment grounding connections for switches and circuit breakers with ground continuity to main electrical ground bus.

B. Install power wiring. Install wiring between switches and circuit breakers, and control and indication devices.

C. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values.

D. Maintain all necessary clearances per NFPA-70.

3.4 FIELD QUALITY CONTROL

A. Prepare for acceptance tests as follows:

1. Test insulation resistance for each enclosed switch, circuit breaker, component, and control circuit.
2. Test continuity of each line- and load-side circuit.
3.5 ADJUSTING

A. Set field-adjustable switches and circuit-breaker trip ranges.

3.6 CLEANING

A. On completion of installation, inspect interior and exterior of enclosures. Remove paint splatters and other spots. Vacuum dirt and debris; do not use compressed air to assist in cleaning. Repair exposed surfaces to match original finish.

END OF SECTION 16410
Section 16700 – Duplex Control Panel.

PART 1 – GENERAL

1.01 GENERAL

A. Contractor shall furnish all labor, materials, equipment and incidentals required to provide a UL listed control panel compatible with the pump(s) specified.

B. The control panel shall be assembled and tested by a supplier meeting UL Standard 508 for industrial controls. The panel shall be provided by the same manufacturer supplying the submersible pump so as to insure compatibility and assurance in matching the proper panel and features with the pump being supplied and to assure single source responsibility for the equipment supplied.

2.01 CONSTRUCTION

A. The control panel shall be housed in a NEMA 4X Stainless Steel. Panel shall include a high water alarm light, motor contactor or soft starter, pump disconnect switch, control power disconnect switch, seal leak light, selector switches and pilot lights. Provide a soft starter for all pumps over 10 HP.

B. The duplex panel configuration shall incorporate a pump alternator function, which enables each pump to operate as the “lead” pump during the alternation sequence. The panel circuitry is to be mounted on a plate, which is bolted to the enclosure with 300 series SS fasteners. The enclosure will be 14 gauge type 304 stainless steel with seams continuously welded and ground smooth. A rolled lip around three sides of door and all sides of the enclosure opening excludes liquids and contaminants. A stainless steel door clamp assembly will ensure a watertight seal. The enclosure must meet UL 508 file no. E61997 specifications. The control panel shall provide adjustable overload protection if the pump(s) being controlled does not have an integral thermal overload protection in its motor winding. The control panel shall include an internal seal leak monitoring circuit with indicator. A three phase control panel shall include a thermal cutout circuit, interfaced with the motor contactor and pump’s thermal sensor. Pump run pilot LED lights and selector switches shall be mounted in the enclosure. The visual high water alarm shall be a top mounted red beacon with 360-degree visual check. A panel mounted audible alarm with silence switch shall be provided. A three-phase panel shall get its 120-volt control power from an internal transformer. A wiring schematic shall be provided and stored in a plastic packet provided in the enclosure. The schematic is to be an exact representation of the panel circuitry identifying the terminal locations for the float switch, pump(s) and incoming power connections. All ground wires shall be terminated at the grounding lug furnished inside the enclosure. Contractor is responsible for installing the panel so as to maintain the NEMA 4X rating. All conduit, cord connections and enclosure openings are to be properly sealed in a manner, which prevents any liquids or vapors from entering the enclosure. A properly sized and rated main disconnect switch, separate from the panel, is to be installed by the contractor in front of the panel and pump(s), per NEC Code. Voltage and horsepower per drawings.

C. Circuit Breakers: Circuit breakers shall be provided for the pump motor and for the primary of the control transformer. Circuit breaker shall be of the thermal-magnetic type rated for volts indicated on the drawings. Breaker will be operable through cutouts in the inner-door. Circuit breakers will be Square D – HDL series or approved equivalent.

D. Motor Starters: Motor Starters shall be NEMA rated and be provided with overload relays. A normally open holding contact shall be provided. The starter shall be 3-pole polyphase type units as manufactured by Square D or approved equivalent. Provide a MotorSavor series 355 or equivalent to
monitor the voltage and phasing.

E. Selector Switches: “Hand-Off-Auto” selector switches shall be provided for the pump motor and mounted on the outer-door.

F. Pilot Lights: All pilot lights shall be mounted on the outer-door and be supplied as follows:
   - Pump Run – Green
   - Seal Fail – Red

3.01 Provide the following items:

A. Isolated output contacts for alarms to be monitored by a separate SCADA panel. Alarm Contacts shall be:
   1. “WET WELL HIGH WATER LEVEL FLOAT”
   2. “SEAL FAILURE”
   3. “MOTOR OVER-TEMPERATURE”
B. Audible high water alarm with silence switch.
C. Flashing high water alarm light.
D. Alternator selector switch. Enables the operator to either select the lead pump or allows the control system to automatically alternate the pumps with each duty cycle.
E. Elapsed time meter. Tracks the number of hours that each pump has operated.
F. Cycle counter. Tracks the number of cycles that each pump has operated.
G. Seal leak relay with external indication.
H. Inner door with dead front enclosure. The inner door is the mounting location for the pilot lights, selector switches and other optional monitoring features. Outer door is blank. Intrinsically safe relays. Enable the voltage passing through the float switches to decrease to less than 12 volts, which will prevent any arcing in case of float damage. Feature is required when a “hazardous environment” designation is applied.
I. Redundant off switch. Provides an additional off switch, which will shut down the pump(s) in case the primary “off” float switch malfunctions.
J. Lightning arrester. Protect the panel components and pump motor from lightning strikes.
K. Condensation heater. A thermostat, which protects the internal, panel components from moisture by keeping the air temperature above dew point.
L. Electrical service for 120/240 volt service. Four 20/1 circuit breakers for 120 volt service to the following items:
   1. Control Power
   2. Heat Trace
   3. Spare
   4. Weather proof GFCI outlet and exterior light.
      (Provide 3/4” conduit with 3#12 to each device)

4.01 FLOAT SWITCHES AND MOUNTING ACCESSORIES

A. Provide 4 (QTY.) UL listed control switches with normally open contacts, which close as the float tips slightly above the horizontal plane. Rated at 5 amps, with 2 conductor 16-gauge cable. Float housing to consist of high impact corrosion resistant PVC. The switch shall be suitable for intrinsically safe control circuits.

B. Mounting type shall be of an externally cable weight where the switches shall be suspended from above with a cable bracket (not included).

C. The float switch cable length shall be as needed for the project.
D. A cable bracket for suspending the externally weighted float switch shall be:

1. 304 SS construction with cord grips for four (4) floats.
2. Provide a watertight junction box suitably sized and constructed to accept and seal all float switch and pump cords located in the basin.

END OF SECTION 16700
Section 16800 – Lift Station SCADA Panel

General:

INSTALLATION

The intent is to provide a SCADA control panel adjacent to the lift station controls. The SCADA control panel will be connected to the lift station control to monitor alarms and receive control power.

Installation of SCADA controls shall be in strict compliance with the manufacturer's instruction. The locations of these items as shown on the Contract Drawings are approximate only. Exact locations shall be as approved by the Engineer during construction. It is the duty of the Contractor to obtain, in the field, all relevant information required for proper placement of instrumentation and controls. In the case of interference with other work, proceed as instructed by the Engineer and provide all materials and labor required to prevent construction delays.

Execution of the installation shall be in full accordance with codes and local rulings. The Contractor shall be responsible for any expenses that are a result of work performed contrary to said codes and regulations.

The Scada Panel Manufacture shall coordinate with the Contractor the installation, the location of process equipment, and connections of process equipment to related equipment panels, subject to the Engineer's approval. The equipment being furnished with electrical controls or instrumentation must be submitted to the Control Panel Manufacture for approval and coordination with all other control and instrumentation on this project. This engineer will not approve any equipment submittal until this coordination has been accomplished.

Material
All electrical components and materials supplied shall function as a complete unit to automatically control the pump down of the wet well. All devices and material shall be new and of standard product design.

UL Label
The control panel enclosure shall be in accordance with Underwriters Laboratories and must bear the manufacturers UL label for enclosures to indicated and qualify same.

The control panel assembly and wiring shall be in accordance with Underwriters Laboratories UL508. All components used in the panel shall be Underwriters Laboratories approved for the application. Electrical work shall be in accordance with the latest edition of the National Electric Code and subject to local codes.

One enclosure shall house the SCADA controller only.

Manufacturer
Pump Control Panel manufacture shall be Techneaux Technology Services, Scada Integrators, CAD Control Systems, Revere Controls, Birmingham, AL. or prior approved equivalent.

Manufacturers Nameplate
There shall be permanently affixed to the inside of the exterior enclosure door a nameplate indicating the voltage, order reference number, date manufactured and the control panel manufacturer’s name, address and telephone number.

Wiring
All power wire shall be stranded and sized as required for load and application according to the NEC. All control and signal wire shall be a minimum of #14 AWG, 90 degree insulated and color-coded. Colors shall be red for all AC control, blue for all DC control, yellow for eternal source control, white for AC neutral and green for equipment
ground wiring. All wiring on the rear of the inner door shall be neatly bundled using tie wraps or other means. All internal wiring on the backplate shall be neatly routed in wire duct with removable covers. All wiring shall be continuous point to point (no splices) and be totally accessible with permanent number marking on each end to match the control schematic drawings.

Scope and Panel Operation
The SCADA control panel shall provide communications to a SCADA system via antenna. The alarms being monitored are part of the documents. The control voltage shall be 120 Volt, 1 Phase.

Panel Enclosure
The enclosures for the control panel shall be NEMA 4X Stainless Steel with door locks. Enclosure shall have full-length aluminum inner door.

Lightning Arrestor
The control panel shall have lightning arrestor protection included within the panel to protect the motors and control equipment from lightning induced line surges. It shall be 600 volt rated and be a three phase unit with connection to ground. The arrestor shall be mounted near the incoming power source and be properly wired to all three phases and ground. Lightning arrestor shall be a Joslyn TT-3Y208 or an approved equal.

Surge Capacitor
The control panel shall have surge capacitor protection included within the panel to protect the unit from damaging transient voltage surges. The surge arrestor shall be mounted near the incoming power source and be properly wired to all three phases and ground. Surge arrestor shall be a Joslyn TK-LTE120-30A-DIN2 or an approved equal.

Control System Components:

SCADA Controller
The SCADA Controller shall be an Industrial Control Link Rubicon, controller with built-in programming, multiple loop PID control, data and alarm logging and historical trending, integrated web server HMI with no user license fees, high performance processor, 10/100 Ethernet port, expandable flash drive and external disk, Internal LCD HMI – 4 line x 20 characters, remote program updates, -40 C to +70 C operating temperature and a 3 year warranty on parts and labor. Provide all programming to accommodate the process indicated with in this specification. Provide all interconnections to the antenna via Ethernet. Set up programming to allow monitoring of alarms through the remote Trihedral SCADA system. All alarms indicated within this specification shall be monitored remotely. PLC Software design and passwords shall be turned over to the owner in electronic form. The SCADA Controller shall utilize point to multipoint configuration and Modbus TCP/IP protocol. Approved equivalent controllers are Siemens or Allen Bradley.

The following alarms shall be monitored via the operator interface or remotely through SCADA:
1. “WET WELL HIGH WATER LEVEL FLOAT”
2. “SEAL FAILURE”
3. “MOTOR OVER-TEMPERATURE”
4. “POWER FAILURE”

Wireless Access Point
Provide a pole mounted Yagi antenna at a height determined in field to receive a signal from an access point antenna installed on the city’s water tower. Yagi antenna to be a Laird PC906N 900 MHZ or approved equivalent. Provide RF cable and ground kit for antenna. Terminate ground to system ground of lift station. Provide a Cambium cnReach N500 900 MHz Radio. Connection between the SCADA Controller and the wireless access point shall be surge protected. System shall be installed and maintained by a local wireless provider located within 50 miles of project site. Wireless access point shall be warranted and maintained by local wireless provider for 24 months. Approved wireless provider is Reach4 Communications, Rayne LA, 337-783-3436, Jay Domingue.
**Power Terminal**
A main power terminal shall be provided for single point service termination of adequate size to accept the full size wire of the service required.

**Telemetry Line Filter**
Provide a telemetry line filter with a fast-acting design to protect data and communications equipment from transient voltage surges and induced voltages on the Ethernet cable between the antenna and the radio. Provide a Citel MJ8-POE-B.

**Wire**
Type THWN, 600V, 90 degree C., wire as manufactured by Alpha, Belden, or approved equal. Minimum wire size shall be No. 12, control wire to be AWG type MTW red.

**Wire Markers**
All control wiring to be numbered on both ends for ease of future troubleshooting.

**Terminal Blocks**
600 Volt, heavy-duty type, as manufactured by Phoenix or approved equal. Provide terminal blocks for future wire termination.

**Name Plates**
Fabricated from solid black vinyl (PVC) base material with white colored vinyl overlay fused to the base sheet, cut with beveled edges to exposed black base sheet on the perimeter of all name plates. Engrave through colored overlay to expose base sheet as indicated.

**Strip Heaters**
Each panel shall include a strip heater for moisture control. Strip heater shall be 120 VAC and rated as required by enclosure size with adjustable thermostat.

**Codes**
All work shall be done in accordance with the latest edition of the National Electrical Code and applicable local ordinances. All permits and inspection certificates shall be paid for by the Contractor.

**Drawings**
The drawings indicate the general arrangement of equipment. Review other drawings for arrangement of equipment. Discrepancies shown on different plans shall be promptly brought to the attention of the Engineer. Do not scale drawings. Dimensions required for layout of equipment shall be obtained from dimensioned plans unless specifically indicated on electrical plans.

**Related System Components**
The attention of the Control Panel Manufacture is called to sections concerned with electrical work, chemical feeders, valves, piping, etc., and such other devices not specified under this section, but related to it.

**Materials**
Materials specified by manufacturer’s name shall be used unless prior approval of alternate is given through addenda. Request for substitution must be received in the office of the Engineer for at least 10 days prior to opening of bids.

All materials shall be new and in accordance with applicable standards, i.e., Underwriter’s Lab (U.L.), National Electrical Manufacturer Associates (N.E.M.A.), Institute of Electrical and Electronic Engineers (I.E.E.E.), United States of American Standards Institute (U.S.A.S.I.). U.L. approved equipment shall be U.L. label. Similar material shall be the product of one manufacturer.
Materials not readily available from Regional sources shall be ordered immediately upon approval. Failure to place orders for approved material shall not relieve the Contractor from obligation to complete the work within the contract period.

**Shop Drawings**
The Contractor shall submit for approval by the Engineer a complete schedule and data of materials and equipment to be incorporated in the work. Submittals shall be supported by descriptive material, such as catalogs, cuts, diagrams, performance curves, and charts published by the manufacturer, to show conformance to specifications and drawing requirements; model numbers alone will not be acceptable. Complete electrical characteristics shall be provided for all equipment.

**Wood Poles for SCADA Antenna**
Poles shall be pressure-treated Southern Pine of the length and class indicated. They shall be turned smooth full length, and be roofed prior to pressure treatment.

Poles shall be set 6 feet in the ground. Holes shall be dug large enough to permit the proper use of tampers to the full depth of the hole. Earth shall be thrown into the hole in six-inch (6") maximum layers, then thoroughly tamped before the next layer is thrown in. Surplus earth shall be placed around the pole in a conical shape and packed tightly to drain water away from the pole.

**Mounting Channel**
Provide hot dipped galvanized channels 1-5/8" x 1-5/8", 12 G. with hot dipped galvanized or stainless steel hardware.

**Guarantee and Test**
Upon completion of the project, all systems shall be tested for proper operation as directed by the Engineer or his representative.

All systems and component parts shall be guaranteed for a period of one year from date of final acceptance of the complete project. Defects found during this guarantee period shall be promptly corrected at no additional cost to the Owner.

**Instruction Manuals**
Prior to 65% of the value of job completion, Control Panel Manufacture shall furnish two (2) copies to the Engineer and one (1) copy to the Owner of all descriptive matter and complete system operation instruction manuals in separate indexed binders coordinated with the equipment that is furnished and installed for approval. Control Panel Manufacture shall incorporate Engineer's comments and resubmit for approval within 30 days of receipt of Engineer's comments. Once final approval is obtained, Control Panel Manufacture shall furnish two (2) copies to the Owner and two (2) to the Engineer.

END OF SECTION 16800
The undersigned bidder hereby declares and represents that she/he: a) has carefully examined and understands the Bidding Documents, b) has not received, relied on, or based his bid on any verbal instructions contrary to the Bidding Documents or any addenda, c) has personally inspected and is familiar with the project site, and hereby proposes to provide all labor, materials, tools, appliances and facilities as required to perform, in a workmanlike manner, all work and services for the construction and completion of the referenced project, all in strict accordance with the Bidding Documents prepared by: Domingue, Szabo & Associates, Inc. and dated: March, 2018.

Bidders must acknowledge all addenda. The Bidder acknowledges receipt of the following ADDENDA: (Enter the number the Designer has assigned to each of the addenda that the Bidder is acknowledging) ________________________________ .

TOTAL BASE BID: For all work required by the Bidding Documents (including any and all unit prices designated “Base Bid” * but not alternates) the sum of:

Dollars ($ _______)

ALTERNATES: For any and all work required by the Bidding Documents for Alternates including any and all unit prices designated as alternates in the unit price description.

Alternate No. 1 (Owner to provide description of alternate and state whether add or deduct) for the lump sum of:
N/A ________________________________ Dollars ($ _______)

Alternate No. 2 (Owner to provide description of alternate and state whether add or deduct) for the lump sum of:
N/A ________________________________ Dollars ($ _______)

Alternate No. 3 (Owner to provide description of alternate and state whether add or deduct) for the lump sum of:
N/A ________________________________ Dollars ($ _______)

NAME OF BIDDER: ________________________________

ADDRESS OF BIDDER: ________________________________

LOUISIANA CONTRACTOR’S LICENSE NUMBER: ________________________________

NAME OF AUTHORIZE SIGNATORY OF BIDDER: ________________________________

TITLE OF AUTHORIZED SIGNATORY OF BIDDER: ________________________________

SIGNATURE OF AUTHORIZED SIGNATORY OF BIDDER **: ________________________________

DATE: ________________________________

THE FOLLOWING ITEMS ARE TO BE INCLUDED WITH THE SUBMISSION OF THIS LOUISIANA UNIFORM PUBLIC WORK BID FORM:

* The Unit Price Form shall be used if the contract includes unit prices. Otherwise it is not required and need not be included with the form. The number of unit prices that may be included is not limited and additional sheets may be included if needed.

** A CORPORATE RESOLUTION OR WRITTEN EVIDENCE of the authority of the person signing the bid for the public work as prescribed by LA R.S. 38:2212(B)(5).

BID SECURITY in the form of a bid bond, certified check or cashier’s check as prescribed by LA R.S. 38:2218(A) attached to and made a part of this bid.

Addendum 1
Addendum 1

LOUISIANA UNIFORM PUBLIC WORK BID FORM
UNIT PRICE FORM

TO: Mayor & Board of Alderman
City Hall
Breaux Bridge, LA  70517

BID FOR: E. BRIDGE STREET & KELLI DRIVE SEWER EXTENSION

(Owner to provide name and address of owner)

(Owner to provide name of project and other identifying information)

UNIT PRICES: This form shall be used for any and all work required by the Bidding Documents and described as unit prices. Amounts shall be stated in figures and only in figures.

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>REF. NO.</th>
<th>QUANTITY</th>
<th>UNIT OF MEASURE</th>
<th>UNIT PRICE</th>
<th>UNIT PRICE EXTENSION</th>
<th>(Quantity times Unit Price)</th>
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<td>#Base Bid or Alt. Furnish &amp; Install 8” Gravity Sewer, 0-6’ Deep</td>
<td>1</td>
<td>190</td>
<td>Linear Feet</td>
<td></td>
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<td>Base Bid or Alt. Furnish &amp; Install 8” Gravity Sewer, 6-8’ Deep</td>
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<td>1230</td>
<td>Linear Feet</td>
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<td>Base Bid or Alt. Furnish &amp; Install 8” Gravity Sewer, 8-10’ Deep</td>
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<td>Linear Feet</td>
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<td>400</td>
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<td>Alt. Additional Material Cost to use D.I. Pipe (6”)</td>
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<td>10</td>
<td>Linear Feet</td>
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<tr>
<td>Alt. Additional Material Cost to use D.I. Pipe (8”)</td>
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<td>Alt. Install by Jack or Bore 8” Gravity Sewer (all depths)</td>
<td>9</td>
<td>20</td>
<td>Linear Feet</td>
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Addendum 1
# LOUISIANA UNIFORM PUBLIC WORK BID FORM

## UNIT PRICE FORM

**TO:** Mayor & Board of Alderman  
City Hall  
Breaux Bridge, LA 70517  

**BID FOR:** E. BRIDGE STREET & KELLI DRIVE SEWER EXTENSION  

(Owner to provide name and address of owner)  

(Owner to provide name of project and other identifying information)

### UNIT PRICES:

This form shall be used for any and all work required by the Bidding Documents and described as unit prices. Amounts shall be stated in figures and only in figures.

<table>
<thead>
<tr>
<th>REF. NO.</th>
<th>QUANTITY</th>
<th>UNIT OF MEASURE</th>
<th>UNIT PRICE</th>
<th>UNIT PRICE EXTENSION</th>
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<tbody>
<tr>
<td>10</td>
<td>300</td>
<td>Linear Feet</td>
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**DESCRIPTION:** Base Bid or Alt. # Install by Jack or Bore 4” Sewer Force Main (all depths)

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<th>REF. NO.</th>
<th>QUANTITY</th>
<th>UNIT OF MEASURE</th>
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<tr>
<td>11</td>
<td>240</td>
<td>Linear Feet</td>
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**DESCRIPTION:** Base Bid or Alt. # Install by Jack or Bore Sewer Service (all depths)

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<th>REF. NO.</th>
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<th>UNIT OF MEASURE</th>
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<tr>
<td>12</td>
<td>600</td>
<td>Linear Feet</td>
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**DESCRIPTION:** Base Bid or Alt. # 4” or 6” Sewer Service Lines

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<th>UNIT OF MEASURE</th>
<th>UNIT PRICE</th>
<th>UNIT PRICE EXTENSION</th>
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</thead>
<tbody>
<tr>
<td>13</td>
<td>45</td>
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**DESCRIPTION:** Base Bid or Alt. # PVC Wyes and Tees

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<th>REF. NO.</th>
<th>QUANTITY</th>
<th>UNIT OF MEASURE</th>
<th>UNIT PRICE</th>
<th>UNIT PRICE EXTENSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>20</td>
<td>Each</td>
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**DESCRIPTION:** Base Bid or Alt. # Ductile Iron Tees (for risers)

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<tr>
<th>REF. NO.</th>
<th>QUANTITY</th>
<th>UNIT OF MEASURE</th>
<th>UNIT PRICE</th>
<th>UNIT PRICE EXTENSION</th>
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<tbody>
<tr>
<td>15</td>
<td>20</td>
<td>Each</td>
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**DESCRIPTION:** Base Bid or Alt. # Service Risers

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<tbody>
<tr>
<td>16</td>
<td>50</td>
<td>Each</td>
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**DESCRIPTION:** Base Bid or Alt. # PVC Bends (for service)

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<th>UNIT OF MEASURE</th>
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<tbody>
<tr>
<td>17</td>
<td>25</td>
<td>Each</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**DESCRIPTION:** Base Bid or Alt. # Cleanouts

Addendum 1
# LOUISIANA UNIFORM PUBLIC WORK BID FORM
## UNIT PRICE FORM

**TO:**  Mayor & Board of Alderman  
City Hall  
Breaux Bridge, LA 70517  

(Owner to provide name and address of owner)

**BID FOR:**  E. BRIDGE STREET & KELLI DRIVE SEWER EXTENSION

(Owner to provide name of project and other identifying information)

### UNIT PRICES:
This form shall be used for any and all work required by the Bidding Documents and described as unit prices. Amounts shall be stated in figures and only in figures.

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<th>REF. NO.</th>
<th>QUANTITY</th>
<th>UNIT OF MEASURE</th>
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<th>UNIT PRICE EXTENSION (Quantity times Unit Price)</th>
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<tr>
<td>18</td>
<td>3,000</td>
<td>Linear Feet</td>
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**DESCRIPTION:** Base Bid or Alt. # ___ Furnish & Install 4” C900 PVC Force Main

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<th>REF. NO.</th>
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<td>19</td>
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**DESCRIPTION:** Base Bid or Alt. # ___ Furnish & Install 4” Restrained Joint C900 PVC Force Main

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<tr>
<th>REF. NO.</th>
<th>QUANTITY</th>
<th>UNIT OF MEASURE</th>
<th>UNIT PRICE</th>
<th>UNIT PRICE EXTENSION (Quantity times Unit Price)</th>
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<td>20</td>
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<td>Linear Feet</td>
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**DESCRIPTION:** Base Bid or Alt. # ___ Additional Material Cost to use D.I. Force Main Pipe (4”)

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<th>REF. NO.</th>
<th>QUANTITY</th>
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<th>UNIT PRICE</th>
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<td>21</td>
<td>0.10</td>
<td>Tons</td>
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**DESCRIPTION:** Base Bid or Alt. # ___ Furnish & Install Joint Ductile Iron Force Main Fittings

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<thead>
<tr>
<th>REF. NO.</th>
<th>QUANTITY</th>
<th>UNIT OF MEASURE</th>
<th>UNIT PRICE</th>
<th>UNIT PRICE EXTENSION (Quantity times Unit Price)</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>300</td>
<td>Linear Feet</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**DESCRIPTION:** Base Bid or Alt. # ___ Install by Jack or Bore 4” Force Main

<table>
<thead>
<tr>
<th>REF. NO.</th>
<th>QUANTITY</th>
<th>UNIT OF MEASURE</th>
<th>UNIT PRICE</th>
<th>UNIT PRICE EXTENSION (Quantity times Unit Price)</th>
</tr>
</thead>
<tbody>
<tr>
<td>23</td>
<td>1</td>
<td>Each</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**DESCRIPTION:** Base Bid or Alt. # ___ Connect Force Main to Existing Manhole (incl. coating)

<table>
<thead>
<tr>
<th>REF. NO.</th>
<th>QUANTITY</th>
<th>UNIT OF MEASURE</th>
<th>UNIT PRICE</th>
<th>UNIT PRICE EXTENSION (Quantity times Unit Price)</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>2</td>
<td>Each</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**DESCRIPTION:** Base Bid or Alt. # ___ Sanitary Sewer Manholes, 0-6’ Deep

<table>
<thead>
<tr>
<th>REF. NO.</th>
<th>QUANTITY</th>
<th>UNIT OF MEASURE</th>
<th>UNIT PRICE</th>
<th>UNIT PRICE EXTENSION (Quantity times Unit Price)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>6</td>
<td>Each</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**DESCRIPTION:** Base Bid or Alt. # ___ Sanitary Sewer Manholes, 6-8’ Deep
# LOUISIANA UNIFORM PUBLIC WORK BID FORM

## UNIT PRICE FORM

**TO:** Mayor & Board of Alderman  
City Hall  
Breaux Bridge, LA 70517  

(Owner to provide name and address of owner)

**BID FOR:** E. BRIDGE STREET & KELLI DRIVE SEWER EXTENSION

(Owner to provide name of project and other identifying information)

**UNIT PRICES:** This form shall be used for any and all work required by the Bidding Documents and described as unit prices. Amounts shall be stated in figures and only in figures.

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
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<th>UNIT OF MEASURE</th>
<th>UNIT PRICE</th>
<th>UNIT PRICE EXTENSION (Quantity times Unit Price)</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Base Bid or ☐ Alt. # ___Sanitary Sewer Manholes, 8-10’ Deep</td>
<td>26</td>
<td>3</td>
<td>Each</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Base Bid or ☐ Alt. # ___Sanitary Sewer Manholes, 10-12’ Deep</td>
<td>27</td>
<td>2</td>
<td>Each</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Base Bid or ☐ Alt. # ___Sanitary Sewer Manholes, 12-14’ Deep</td>
<td>28</td>
<td>1</td>
<td>Each</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Base Bid or ☐ Alt. # ___Sanitary Sewer Manholes, 14-16’ Deep</td>
<td>29</td>
<td>1</td>
<td>Each</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Base Bid or ☐ Alt. # ___Driveway Crossings</td>
<td>30</td>
<td>180</td>
<td>Linear Feet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Base Bid or ☐ Alt. # ___Remove and Replace Fences</td>
<td>31</td>
<td>40</td>
<td>Linear Feet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Base Bid or ☐ Alt. # ___Limestone for Maintenance and Drives</td>
<td>32</td>
<td>500</td>
<td>Tons</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Base Bid or ☐ Alt. # ___Limestone for Embedment and Backfill</td>
<td>33</td>
<td>600</td>
<td>Cubic Yards</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TO: Mayor & Board of Alderman  
City Hall  
Breaux Bridge, LA 70517  

(Owner to provide name and address of owner)

BID FOR: E. BRIDGE STREET & KELLI DRIVE SEWER EXTENSION  

(Owner to provide name of project and other identifying information)

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<th>UNIT PRICE:</th>
<th>UNIT PRICE EXTENSION:</th>
</tr>
</thead>
<tbody>
<tr>
<td>☑ Base Bid or ☐ Alt.# Fillcrete</td>
<td>34</td>
<td>20</td>
<td>Cubic Yards</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☑ Base Bid or ☐ Alt.# Special Backfill</td>
<td>35</td>
<td>20</td>
<td>Cubic Yards</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☑ Base Bid or ☐ Alt.# Formed Concrete</td>
<td>36</td>
<td>4</td>
<td>Cubic Yards</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☑ Base Bid or ☐ Alt.# Unformed Concrete</td>
<td>37</td>
<td>5</td>
<td>Cubic Yards</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☑ Base Bid or ☐ Alt.# Hydro Seeding</td>
<td>38</td>
<td>2</td>
<td>Acres</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☑ Base Bid or ☐ Alt.# Connect to Existing Gravity Sewer Line</td>
<td>39</td>
<td>1</td>
<td>Each</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☑ Base Bid or ☐ Alt.# Board Sheeting Left in Place</td>
<td>40</td>
<td>2</td>
<td>MFBM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☑ Base Bid or ☐ Alt.# Clearing, Grubbing, Tree &amp; Stump Removal</td>
<td>41</td>
<td>1</td>
<td>Lump</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TO: Mayor & Board of Alderman  
City Hall  
Breaux Bridge, LA 70517  

(Owner to provide name and address of owner)

BID FOR: E. BRIDGE STREET & KELLI DRIVE SEWER EXTENSION  

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<th>UNIT PRICE EXTENSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>42</td>
<td>1</td>
<td>Lump</td>
<td></td>
<td></td>
</tr>
<tr>
<td>43</td>
<td>1</td>
<td>Lump</td>
<td></td>
<td></td>
</tr>
<tr>
<td>44</td>
<td>1</td>
<td>Lump</td>
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<td></td>
</tr>
<tr>
<td>45</td>
<td>1</td>
<td>Lump</td>
<td></td>
<td></td>
</tr>
<tr>
<td>46</td>
<td>1</td>
<td>Lump</td>
<td></td>
<td></td>
</tr>
<tr>
<td>47</td>
<td>1</td>
<td>Each</td>
<td></td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>1</td>
<td>Each</td>
<td></td>
<td></td>
</tr>
<tr>
<td>49</td>
<td>1</td>
<td>Lump</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

All quantities are estimated. The contractor will be paid based upon actual quantities as verified by the Owner.
SPECIAL PROVISIONS FOR
SERVICE RISERS ON BORED SEWER LINES

"BP" ALL STAINLESS STEEL SADDLE MANUFACTURED BY ROMAC INDUSTRIES, INC. (O.A.E.)

SCHEDULE 40 PVC RISER PIPE WITH LIMESTONE ENCASEMENT (SEE SERVICE RISER DETAIL FOR ENCASEMENT CONFIGURATION)

NOTES:
1. CLAMPS FOR SEWER PIPE SHALL BE ROMAC INDUSTRIES STAINLESS STEEL, "SS1–H", "SS2–H" OR SS3–H", (O.A.E.). MIN. 18" WIDTH FOR 8" SEWERS, 30" MIN. WIDTH FOR LARGER SEWERS.
2. FULL CIRCLE, FULL WIDTH GASKET SHALL BE USED FOR SADDLE, SBR PER ASTM D 2000 MAA 610, COMPOUNDED FOR WATER AND SEWER SERVICE.
3. BRANCH TO NECK CONNECTION SHALL BE MADE WITH ROMAC SS1–H REPAIR CLAMP.

RISERS/SADDLES FOR BORED SEWERS >6’ DEEP (SERVICES 10:00–2:00)

N.T.S.

CITY OF BREAUX BRIDGE, LOUISIANA
EAST BRIDGE & KELLI DRIVE SEWER EXTENSION
SHEET 9 - RISERS/SADDLES DETAIL
ADDENDUM #1