



ST. TAMMANY PARISH

MICHAEL B. COOPER
PARISH PRESIDENT

NOTICE TO BIDDERS

ST. TAMMANY PARISH

Sealed bids will be received by the Department of Procurement, until 2:00 p.m., **Tuesday, October 7, 2025**, and then opened and read publicly at that time by the Procurement Staff for the following project:

Bid # 25-6-2 – Alton Water System Interconnection

Each paper bid must be submitted in a sealed envelope. The outside of the envelope shall show the Name and Address of the Bidder, the State Contractor's License Number of the Bidder (if the work is estimated at \$50k or more), the Bid Name and the Bid Number.

The project classification is:

Municipal and Public Works Construction

This bid package is available online at www.bidexpress.com or LaPAC <https://www.cfprd.doa.louisiana.gov/osp/lapac/pubmain.cfm>. It is the Vendor's responsibility to check Bid Express, or LaPAC frequently for any possible addenda that may be issued. The Parish is not responsible for a Vendor's failure to download any addenda documents required to complete a submission.

A Non-Mandatory pre-bid meeting will be held on Thursday, September 11, 2025, at 10:00 AM at the Tyler Street Hall of Excellence, located at 620 N. Tyler St., Covington, LA 70433. Attendance is strongly encouraged.

Bids will be received at 21454 Koop Dr., Suite 2F, Mandeville, LA 70471 from each bidder or his agent and given a written receipt, by certified mail with return receipt requested, or electronically at www.bidexpress.com.

Procurement Department

BID PROPOSAL

ST. TAMMANY PARISH
GOVERNMENT

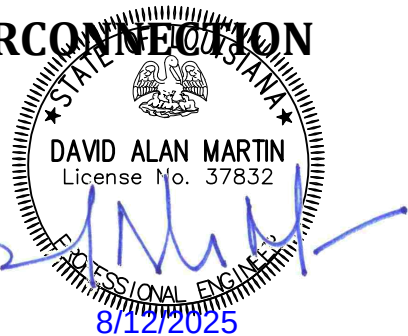


BID PACKAGE FOR

ALTON WATER SYSTEM INTERCONNECTION

BID NO.: 25-6-2

AUGUST 12, 2025



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Instructions to Bidders

Bidders are urged to promptly review the requirements of this specification and submit questions for resolution as early as possible during the bid period. Questions or concerns must be submitted in writing to the Procurement Department no later than 2:00 CST seven (7) working days prior to the bid opening date. Otherwise, this will be construed as acceptance by the bidders that the intent of the specifications is clear and that competitive bids may be obtained as specified herein. Protests with regard to the specification documents will not be considered after bids are opened.

1. Bid security is required. Be sure that your bid includes such security as is necessary to meet Parish requirements and is properly signed. The bid must be fully completed. All applicable Louisiana license numbers must be affixed.
2. The Owner is the St. Tammany Parish Government (the “Parish”).
3. The terms “he/his” and “it/its” may be used interchangeably.
4. The terms “Owner,” the “Parish,” and “St. Tammany Parish” may be used interchangeably.
5. The successful Bidder understands the limited contract time in the contract is **ONE HUNDRED EIGHTY (180) CONSECUTIVE CALENDAR DAYS** and shall submit any request for an extension of time in accordance with the General and Supplementary Conditions. Said request will reflect the days requested and the reason for same. No extension request is guaranteed or absolute.
6. Bidder specifically understands that acknowledgment of the General Conditions is required. Bidder specifically understands that signature of receipt of the General Conditions is mandated. **The Bidder’s signature on the “Louisiana Uniform Public Work Bid Form” will serve as acknowledgment of the Bidder’s receipt and understanding of the General Conditions as well as any Supplementary Conditions.**
7. ***If any additional work is performed by the contractor without written approval by owner, the cost of the work will be borne by the contractor and will not be reimbursed by the Parish.***
8. **Only** the Louisiana Uniform Public Bid Form, the Unit Price Form (if necessary), the bid security, and written evidence of authority of person signing the bid shall be submitted on or before the bid opening time and date provided for in the Bid Documents. Necessary copies of the Louisiana Uniform Public Work Forms and Unit Price Forms (if necessary) will be furnished for Bidding. Bound sets of the Contract Documents are for Bidder’s information and should not be used in submitting Bids.
9. All other documents and information required are to be submitted by the low Bidder within ten (10) days after the opening of the bids, and at the same time of day and location as given for the opening of the bids in the Bid Documents.
10. Each Bid must be submitted in a sealed envelope, unless submitted electronically. The outside of the envelope shall show the name and address of the Bidder, the State Contractor’s License Number of the Bidder (if work requires contractor’s license), and the Project name and the Bid number. In the case of an electronic bid proposal, a contractor may submit an authentic digital signature on the electronic bid proposal accompanied by the contractor’s license number, Project name and the Bid number.
11. The price quoted for the Work shall be stated in words and figures on the Bid Form, and in figures only on the Unit Price Form. The price in the Bid shall include all costs necessary for the complete performance of the Work in full conformity with the conditions of the Contract Documents, and shall include all applicable Federal, State, Parish, Municipal or other taxes and is the responsibility of the contractor to obtain tax exemption if applicable. The price bid for the items listed on the Unit Price Form will include the cost of all related items not listed, but which are normally required to do the type of Work bid.

12. The Bid shall be signed by the Bidder. The information required on the Louisiana Uniform Public Work Bid Form must be provided. Evidence of agency, corporate, or partnership authority is required and shall be provided in conformance with LSA-R.S. 38:2212(B).
13. Only a Contractor licensed by the State to do the type of Work as indicated on the Notice to Bidders can submit a Bid. The Bidder's signature on the Bid Form certifies that he holds an active license under the provisions of Chapter 24 of Louisiana Revised Statutes Title 37. Failure to be properly licensed constitutes authority for the Owner to reject the Bid.
14. Bidders shall not attach any conditions or provisions to the Bid. Any conditions or provisions so attached may, at the sole option of the Owner, cause rejection of the Bid.
15. A Bid Guarantee of five percent (5%) of the amount of the total Bid, including Alternates, must accompany the Proposal and, at the option of the Bidder, may be a cashier's check, certified check or a satisfactory Bid Bond. The Bid Guarantee must be attached to the Louisiana Uniform Public Work Bid Form. No Bid will be considered unless it is so guaranteed. Cashier's check or certified check must be made payable to the order of the Owner. Cash deposits will not be accepted. The Owner reserves the right to cash or deposit the cashier's check or certified check. Such guarantees shall be made payable to the Parish of St. Tammany. In accordance with LSA-R.S. 38:2218(C), if a bid bond is used, it shall be written by a surety or insurance company currently on the U.S. Department of the Treasury Financial Management Service list of approved bonding companies which is published annually in the Federal Register, or by a Louisiana domiciled insurance company with at least an A- rating in the latest printing of the A.M. Best's Key Rating Guide to write individual bonds up to ten percent of policyholders' surplus as shown in the A.M. Best's Key Rating Guide or by an insurance company in good standing licensed to write bid bonds which is either domiciled in Louisiana or owned by Louisiana residents. It is **not** required to be on any AIA form.
16. Bid securities of the three (3) lowest Bidders will be retained by the Owner until the Contract is executed or until final disposition is made of the Bids submitted. Bid securities of all other Bidders will be returned promptly after the canvas of Bids. Bids shall remain binding for forty-five (45) days after the date set for Bid Opening. The Parish shall act within the forty-five (45) days to award the contract to the lowest responsible bidder or reject all bids. However, the Parish and the lowest responsible bidder, by mutual written consent, may agree to extend the deadline for award by one or more extensions of thirty (30) calendar days. In the event the Owner issued the Letter of Award during this period, or any extension thereof, the Bid accepted shall continue to remain binding until the execution of the Contract.
17. A Proposal may be withdrawn at any time prior to the scheduled closing time for receipt of Bids, provided the request is in writing, executed by the Bidder or its duly authorized representative and is filed with the Owner prior to that time. When such a request is received, the Proposal will be returned to the Bidder unopened. A bid withdrawn under the provisions of LSA-R.S. 38:2214(C) cannot be resubmitted.
18. Written communications, over the signature of the Bidder, to modify Proposals will be accepted and the Proposal corrected in accordance therewith if received by the Owner prior to the scheduled closing time for receipt of Bids. Oral, telephonic or telegraphic Modifications will not be considered.
19. No oral interpretation obligating the Owner will be made to any Bidder as to the meaning of the Drawings, Specifications and Contract Documents. Every request for such an interpretation shall be made in writing and addressed and forwarded to the Owner. Inquiries received within seven (7) days prior to the day fixed for opening of the Bids may not be given consideration. Every interpretation made to the Bidder shall be in the form of an addendum to the Specifications. All such Addenda shall become part of the Contract Documents. Failure of the Owner to send or failure of Bidder to receive any such interpretation shall not relieve any Bidder from any obligation under this Bid as submitted without Modification. All Addenda shall be issued in accordance with the Public Bid Law, LSA-R.S. 38:2212(O).
20. The Owner reserves the right to reject any or all Bids for just cause in accordance with the Public Bid Law, LSA-R.S. 38:2214(B). Incomplete, informal, illegible, or unbalanced Bids may be rejected. Reasonable grounds for belief that any one Bidder is concerned directly

or indirectly with more than one Bid will cause rejection of all Bids wherein such Bidder is concerned. If required, a Bidder shall furnish satisfactory evidence of its competence and ability to perform the Work stipulated in its Proposal. Incompetence will constitute cause for rejection. If the Parish determines that the bidder is not responsive or responsible for any reason whatsoever, the bid may be rejected in accordance with State law.

21. Contractor shall be liable without limitation to the Parish for any and all injury, death, damage, loss, destruction, damages, costs, fines, penalties, judgments, forfeitures, assessments, expenses (including attorney fees), obligations, and other liabilities of every name and description, which may occur or in any way arise out of any act or omission of Contractor, its owners, agents, employees, partners or subcontractors.
22. Upon notice of any claim, demand, suit, or cause of action against the Parish, alleged to arise out of or be related to this Contract, Contractor shall investigate, handle, respond to, provide defense for, and defend at its sole expense, even if the claim, demand, suit, or cause of action is groundless, false, or fraudulent. The Parish may, but is not required to, consult with or assist the Contractor, but this assistance shall not affect the Contractor's obligations, duties, and responsibilities under this section. Contractor shall obtain the Parish's written consent before entering into any settlement or dismissal.
23. It is understood and agreed that neither party can foresee the exigencies beyond the control of each party which arise by reason of an Act of God or force majeure; therefore, neither party shall be liable for any delay or failure in performance beyond its control resulting from an Act of God or force majeure. The Parish shall determine whether a delay or failure results from an Act of God or force majeure based on its review of all facts and circumstances. The parties shall use reasonable efforts, including but not limited to, use of continuation of operations plans (COOP), business continuity plans, and disaster recovery plans, to eliminate or minimize the effect of such events upon the performance of their respective duties under this Contract.
24. Contractor shall fully indemnify and hold harmless the Parish, without limitation, for any and all injury, death, damage, loss, destruction, damages, costs, fines, penalties, judgments, forfeitures, assessments, expenses (including attorney fees), obligations, and other liabilities of every name and description, which may occur or in any way arise out of any act or omission of Contractor, its owners, agents, employees, partners or subcontractors. The Contractor shall not indemnify for the portion of any loss or damage arising from the Parish's act or failure to act.
25. Contractor shall fully indemnify and hold harmless the Parish, without limitation, from and against damages, costs, fines, penalties, judgments, forfeitures, assessments, expenses (including attorney fees), obligations, and other liabilities in any action for infringement of any intellectual property right, including but not limited to, trademark, trade-secret, copyright, and patent rights.

When a dispute or claim arises relative to a real or anticipated infringement, the Contractor, at its sole expense, shall submit information and documentation, including formal patent attorney opinions, as required by the Parish.

If the use of the product, material, service, or any component thereof is enjoined for any reason or if the Contractor believes that it may be enjoined, Contractor, while ensuring appropriate migration and implementation, data integrity, and minimal delays of performance, shall at its sole expense and in the following order of precedence: (i) obtain for the Parish the right to continue using such product, material, service, or component thereof; (ii) modify the product, material, service, or component thereof so that it becomes a non-infringing product, material, or service of at least equal quality and performance; (iii) replace the product, material, service, or component thereof so that it becomes a non-infringing product, material, or service of at least equal quality and performance; or, (iv) provide the Parish monetary compensation for all payments made under the Contract related to the infringing product, material, service, or component, plus for all costs incurred to procure and implement a non-infringing product, material, or service of at least equal quality and performance. Until this obligation has been satisfied, the Contractor remains in default.

The Contractor shall not be obligated to indemnify that portion of a claim or dispute based upon the Parish's unauthorized: i) modification or alteration of the product, material or service; ii) use of the product, material or service in combination with other products not

furnished by Contractor; or, iii) use of the product, material or service in other than the specified operating conditions and environment.

26. Bidders shall familiarize themselves with and shall comply with all applicable Federal and State Laws, municipal ordinances and the rules and regulations of all authorities having jurisdiction over construction of the Project, which may directly or indirectly affect the Work or its prosecution. These laws and/or ordinances will be deemed to be included in the Contract, as though herein written in full.
27. Each Bidder shall visit the site of the proposed Work and fully acquaint itself with all surface and subsurface conditions as they may exist so that it may fully understand this Contract. Bidder shall also thoroughly examine and be familiar with drawings, Specifications and Contract Documents. The failure or omission of any Bidder to receive or examine any form, instrument, Drawing or document or to visit the site and acquaint itself with existing conditions shall in no way relieve any Bidder from any obligation with respect to its Bid and the responsibility in the premises.
28. The standard contract form enclosed with the Proposal documents is a prototype. It is enclosed with the Contract Documents for the guidance of the Owner and the Contractor. It has important legal consequences in all respects and consultation with an attorney is encouraged. Contractor shall be presumed to have consulted with its own independent legal counsel.
29. When one set of Contract plans show the Work to be performed by two or more prime Contractors, it is the responsibility of each Bidder to become knowledgeable of the Work to be performed by the other where the Work upon which this bid is submitted is shown to come into close proximity or in conflict with the Work of the other. In avoiding conflicts, pressure pipe lines must be installed to avoid conflict with gravity pipe lines and the Bidder of the smaller gravity pipe line in conflict with the larger gravity pipe line must include in his Bid the cost of a conflict box at these locations. The location of and a solution to the conflicts do not have to be specifically noted as such on the plans.
30. Bidder shall execute affidavit(s) attesting compliance with LSA-R.S. 38:2212.10, 38:2224, 38:2227, each as amended, and other affidavits as required by law, prior to execution of the contract.
31. In accordance with Louisiana Law, all Corporations (See LA R.S. 12:26.1) and Limited Liability Companies (See LA R.S. 12:1308.2) should be registered and in good standing with the Louisiana Secretary of State in order to hold a contract.
32. Sealed Bids shall be delivered to St. Tammany Parish Government at the office of **St. Tammany Parish Government, Department of Procurement, 21454 Koop Drive, Suite 2-F, Mandeville, LA 70471**, and a receipt given, until the time and date denoted in Notice to Bidders, at which time and place the Bids shall be publicly opened and read aloud to those present. In accordance with LSA-R.S. 38:2212(H), the designer's final estimated cost of construction shall be read aloud upon opening bids. Sealed Bids may also be mailed by certified mail to **St. Tammany Parish Government, Department of Procurement, 21454 Koop Drive, Suite 2-F, Mandeville, LA 70471**, and must be received before the bid opening. Bids may also be submitted electronically. Information concerning links for electronic bidding is contained in the Notice to Bidders. It is the responsibility of the Bidders to ensure that bids are delivered in a timely fashion. **Late bids, regardless of reason, will not be considered, and will be returned to bidder.**
33. Paper bids shall be placed in a sealed envelope, marked plainly and prominently as indicated in the Notice to Bidders, and these Instructions, and addressed:

**St. Tammany Parish Government
Department of Procurement
21454 Koop Drive, Suite 2-F
Mandeville, LA 70471**

34. See Notice to Bidders for availability of Drawings, Specifications and Contract Documents via electronic methods.

35. The successful Bidder shall be required to post in each direction a public information sign, 4' x 4' in size, at the location of the project containing information required by the Owner. The Owner shall supply this information.
36. The award of the Contract, if it is awarded, will be to the lowest responsible Bidder, in accordance with State Law. No award will be made until the Owner has concluded such investigations as it deems necessary to establish the responsibility and qualifications of the Bidder to do the Work in accordance with the Contract Documents to the satisfaction of the Owner within the time prescribed as established by the Department based upon the amount of work to be performed and the conditions of same. The written contract and bond shall be issued in conformance with LSA-R.S. 38:2216. If the Contract is awarded, the Owner shall give the successful Bidder written notice of the award within forty-five (45) calendar days after the opening of the Bids in conformance with LSA-R.S. 38:2215(A), or any extension as authorized thereunder.
37. At least three days prior to the execution of the Contract, the Contractor shall deliver to the Owner the required Bonds.
38. Failure of the successful Bidder to execute the Contract and deliver the required Bonds within ten (10) days of the Notice of the Award shall be just cause for the Owner to annul the award and declare the Bid and any guarantee thereof forfeited. Award may then be made to the next lowest responsible bidder.
39. In order to ensure the faithful performance of each and every condition, stipulation and requirement of the Contract and to indemnify and hold harmless the Owner from any and all damages, either directly or indirectly arising out of any failure to perform same, the successful Bidder to whom the Contract is awarded shall furnish a Performance and Payment Bond in an amount of at least equal to one hundred percent (100%) of the Contract Price. The Contract shall not be in force or binding upon the Owner until such satisfactory Bond has been provided to and approved by the Parish. The cost of the Bond shall be paid for by the Contractor unless otherwise stipulated in the Special Provisions.
40. No surety Company will be accepted as a bondsman which has no permanent agent or representative in the State upon whom notices referred to in the General Conditions of these Specifications may be served. Service of said notice on said agent or representative in the State shall be equal to service of notice on the President of the Surety Company, or such other officer as may be concerned.
41. In conformance with LSA-R.S. 38:2219(A)(1)(a), (b), and (c):

Any surety bond written for a public works project shall be written by a surety or insurance company currently on the U.S. Department of the Treasury Financial Management Service list of approved bonding companies which is published annually in the Federal Register, or by a Louisiana domiciled insurance company with at least an A- rating in the latest printing of the A.M. Best's Key Rating Guide, to write individual bonds up to ten percent of policyholders' surplus as shown in the A.M. Best's Key Rating Guide or by an insurance company that is either domiciled in Louisiana or owned by Louisiana residents and is licensed to write surety bonds.

For any public works project, no surety or insurance company shall write a bond which is in excess of the amount indicated as approved by the U.S. Department of the Treasury Financial Management Service list or by a Louisiana domiciled insurance company with an A- rating by A.M. Best up to a limit of ten percent of policyholders' surplus as shown by A.M. Best; companies authorized by this Paragraph who are not on the treasury list shall not write a bond when the penalty exceeds fifteen percent of its capital and surplus, such capital and surplus being the amount by which the company's assets exceed its liabilities as reflected by the most recent financial statements filed by the company with the Department of Insurance.

In addition, any surety bond written for a public works project shall be written by a surety or insurance company that is currently licensed to do business in the state of Louisiana. All contractors must comply with any other applicable provisions of LSA-R.S. 38:2219.

42. Should the Contractor's Surety, even though approved and accepted by the Owner, subsequently remove its agency or representative from the State or become insolvent,

bankrupt, or otherwise fail, the Contractor shall immediately furnish a new Bond in another company approved by the Owner, at no cost to the Owner. The new Bond shall be executed under the same terms and conditions as the original Bond. The new bond shall be submitted within thirty (30) days of such time as the Owner notifies Contractor or from the time Contractor learns or has reason to know that the original surety is no longer financially viable or acceptable to the Parish, whichever occurs first. In the event that Contractor fails or refuses to timely secure additional surety, then the Owner may secure such surety and thereafter deduct such cost or expense from any sum due, or to become due to Contractor.

43. The Contractor's bondsman shall obligate itself to all the terms and covenants of these Specifications and of contracts covering the Work executed hereunder. The Owner reserves the right to do Extra Work or make changes by altering, adding to deducting from the Work under the conditions and in the manner herein before described without notice to the Contractor's surety and without in any manner affecting the liability of bondsman or releasing it from any of its obligations hereunder.
44. The Bond shall also secure for the Owner the faithful performance of the Contract in strict accordance with plans, specifications, and other Contract Documents. It shall protect the Owner against all lien laws of the State and shall provide for payment of reasonable attorney's fees for enforcement of Contract and institution or concursus proceedings, if such proceedings become necessary. Likewise, it shall provide for all additional expenses of the Owner occurring through failure of the Contractor to perform.
45. The surety of the Contractor shall be and does hereby declare and acknowledge itself by acceptance to be bound to the Owner as a guarantor, jointly and in solido, with the Contractor, for fulfillment of terms of the Contract.
46. The performance Bond and Labor and Material Bond forming part of this Contract shall be continued by Contractor and its Surety for a period of one (1) year from date of acceptance of the Work/Project by Owner to assure prompt removal and replacement of all defective material, equipment, components thereof, workmanship, etc., and to assure payment of any damage to property of Owner or others as a result of such defective materials, equipment, workmanship, etc.
47. Contractor authorizes Parish to deduct from any payment due herein costs and service fees for recordation of this Contract in full or an excerpt hereof, or any revisions or modifications thereof as required by law. Contractor agrees to execute an excerpt or extract of this agreement for recordation purposes. If Contractor fails to execute such an excerpt, then the Parish shall file and record the entire Contract and all attachments at the expense of Contractor and Parish is hereby authorized to deduct all related costs from any proceeds due to the Contractor.
48. Contractor shall secure and maintain at its expense such insurance that will protect it and the Parish from claims for injuries to persons or damages to property which may arise from or in connection with the performance of Services or Work hereunder by the Contractor, his agents, representatives, employees, and/or subcontractors. The cost of such insurance shall be included in Contractor's bid.
49. The Contractor shall not commence work until it has obtained all insurance as required for the Parish Project. If the Contractor fails to furnish the Parish with the insurance protection required and begins work without first furnishing Parish with a currently dated certificate of insurance, the Parish has the right to obtain the insurance protection required and deduct the cost of insurance from the first payment due the Contractor. Further deductions are permitted from future payments as are needed to protect the interests of the Parish including, but not limited to, renewals of all policies.
50. Payment of Premiums: The insurance companies issuing the policy or policies shall have no recourse against the Parish of St. Tammany for payment of any premiums or for assessments under any form of policy.
51. Deductibles: Any and all deductibles in the described insurance policies shall be assumed by and be at the sole risk of the Contractor.

52. Authorization of Insurance Company(ies) and Rating: All insurance companies must be authorized to do business in the State of Louisiana and shall have an A.M. Best rating of no less than A-, Category VII.
53. Policy coverages and limits must be evidenced by Certificates of Insurance issued by Contractor's carrier to the Parish and shall reflect:

Date of Issue: Certificate must have current date.

Named Insured: The legal name of Contractor under contract with the Parish and its principal place of business shall be shown as the named insured on all Certificates of Liability Insurance.

Name of Certificate Holder: St. Tammany Parish Government, Office of Risk Management, P. O. Box 628, Covington, LA 70434

Project Description: A brief project description, including Project Name, Project Number and/or Contract Number, and Location.

Endorsements and Certificate Reference: All policies must be endorsed to provide, and certificates of insurance must evidence the following:

Waiver of Subrogation: The Contractor's insurers will have no right of recovery or subrogation against the Parish of St. Tammany, it being the intention of the parties that all insurance policy(ies) so affected shall protect both parties and be the primary coverage for any and all losses covered by the below described insurance. *Policy endorsements required for all coverages.*

Additional Insured: The Parish of St. Tammany shall be named as additional named insured with respect to general liability, marine liability, pollution/environmental liability, automobile liability and excess liability coverages. *Policy endorsements required.*

Hold Harmless: Contractor's liability insurers shall evidence their cognizance of the Hold Harmless and Indemnification in favor of St. Tammany Parish Government by referencing same on the face of the Certificate(s) of Insurance.

Cancellation Notice: Producer shall provide thirty (30) days prior written notice to the Parish of policy cancellation or substantive policy change.

54. The types of insurance coverage the Contractor is required to obtain and maintain throughout the duration of the Contract shall be designated by a separate document issued by the Office of Risk Management.
55. It is the intent of these instructions that they are in conformance with State Bid Laws. Should there be any discrepancy or ambiguity in these provisions, the applicable State Bid Law shall apply.
56. The letting of any public contract in connection with funds that are granted or advanced by the United States of America shall be subject to the effect, if any, of related laws of said United States and valid rules and regulations of federal agencies in charge, or governing use and payment of such federal funds.
57. Protests based on alleged solicitation improprieties that are apparent before bid opening, or the time set for receipt of initial proposals must be filed with and received by the Procurement Department BEFORE two (2) working days of the bid opening. Any other protest shall be filed no later than ten (10) calendar days after: the opening of the bid; the basis of the protest is known; or the basis of the protest should have been known (whichever is earlier).
58. It is the Parish's policy to provide a method to protest exclusion from a competition or from the award of a contract, or to challenge an alleged solicitation irregularity. It is always better to seek a resolution within the Parish system before resorting to outside agencies and/or litigation to resolve differences. All protests must be made in writing, and shall be

concise and logically presented to facilitate review by the Parish. The written protest shall include:

The protester’s name, address, and fax and telephone numbers and the solicitation, bid, or contract number;

A detailed statement of its legal and factual grounds, including a description of the resulting prejudice to the protester;

Copies of relevant documents;

All information establishing that the protester is an interested party and that the protest is timely; and

A request for a ruling by the agency; and a statement of the form of relief requested.

The protest shall be addressed to St. Tammany Parish Government Department of Procurement, P.O. Box 628, Covington, LA 70434

The protest review shall be conducted by the Parish Legal Department.

Only protests from interested parties will be allowed. Protests based on alleged solicitation improprieties that are apparent before bid opening, or the time set for receipt of initial proposals, must be filed with and received by the Department of Procurement BEFORE those deadlines.

Any other protest shall be filed no later than ten (10) calendar days after the basis of the protest is known, or should have been known (whichever is earlier).

The Parish will use its best efforts to resolve the protest within thirty (30) days of the date that it is received by the Parish. The written response will be sent to the protestor via mail and fax, if a fax number has been provided by the protestor. The protester can request additional methods of notification.

- 59. The last day to submit questions to Procurement shall be no later than 2:00 pm CST, seven (7) working days prior to the opening of bids, and verification on comparable products will be no later than 2:00 pm CST, fourteen (14) working days prior to the opening date of the bid/proposal due date. Further, any questions or inquiries must be submitted via fax to 985-898-5227, or via email to Procurement@stpgov.org. Any questions or inquiries received after the required deadline to submit questions or inquiries will not be answered.

Schedule of Events

	<u>Date</u>	<u>Time (CT)</u>
Bid Due Date	October 7, 2025	2:00 PM
Inquiry Deadline	September 26, 2025	2:00 PM
Addendum Deadline	October 2, 2025	2:00 PM
Non-Mandatory pre-bid meeting	September 11, 2025	10:00 AM

NOTE: The Parish reserves the right to revise this schedule. Any such revision will be formalized by the issuance of an addendum to the Bid Request.

- 60. St. Tammany Parish Government contracts to be awarded are dependent on the available funding and/or approval by members designated and/or acknowledged by St. Tammany Parish Government. At any time, St. Tammany Parish Government reserves the right to cancel the award of a contract if either or both of these factors is deficient.
- 61. Any action by the Parish to disqualify any Bidder on the grounds that they are not a responsible Bidder shall be conducted in accordance with LSA-R.S. 38:2212(X).
- 62. Failure to complete or deliver within the time specified or to provide the services as specified in the bid or response will constitute a default and may cause cancellation of the

contract. Where the Parish has determined the contractor to be in default. The Parish reserves the right to purchase any or all products or services covered by the contract on the open market and to charge the contractor with the cost in excess of the contract price. Until such assessed charges have been paid, no subsequent bid or response from the defaulting contractor will be considered.

63. If any part of the provisions contained herein and/or in the Specifications and Contract for the Work shall for any reason be held invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability shall not affect any other provisions of this Agreement or attachment, but it shall be construed as if such invalid, illegal, or unenforceable provision or part of a provision had never been contained herein.

Section 03

Summary of Work

I. Work to Include:

The work includes the construction of an interconnecting pipeline, approximately one thousand six hundred (1,600) linear feet in length, to provide a connection between the Alton Water System and an adjacent privately owned utility. All work shall be performed in accordance with the Contract Documents and as further detailed in the technical specifications.

II. Location of Work:

The location of this work is in Slidell, Louisiana, at the intersection of US Highway 11 and Hass Road, between Ashton Parc. A project vicinity map is provided within the design drawings. Refer to the technical specifications and drawings for additional requirements.

III. Documents: Bid Documents dated August 12, 2025, and entitled:

Alton Water System Interconnection

Bid No. 25-6-2

IV. Special provisions:

1) SITE CONDITION

- a) The location of the work of this contract is located within Alton, Louisiana in close proximity to residences and businesses, as well as the rights of way of the Norfolk Southern Railway and the Louisiana Department of Transportation and Development. The Contractor shall perform all his work in a way that minimizes interferences with the Parish's Department of Utilities (DU) operation of the facility and the public. All schedules and methods of work are subject to approval by the Engineer. It will be assumed that all prospective bidders have inspected the site(s) and have acquainted themselves with the local conditions.
- b) Because of the location of the job site, it is imperative that the Contractor schedule and conduct his work in such a manner so as not to interfere in any way with the operation of the facility. Trucking through the facility, delivering and storing materials and equipment, shall be done with the approval of the engineer. The Contractor's personnel will be allowed to enter the facility and park private vehicles on site; however, he will be allowed to bring equipment and company vehicles only into the facility as necessary in the execution of this contract but may be required to remove them if their presence interferes with the operations of the Department of Utilities, all at the discretion of the Engineer.
- c) All work of this contract MUST be coordinated with the Department of Utilities (DU) through the Engineer, with proper advanced notice.
- d) No Field Office is required unless specified elsewhere in these documents.
- e) All existing operational water mains MUST remain operational throughout the length of this contract, and proper site access for maintenance and operations MUST be provided at all times, as approved by the DU. Any outage of this facility and/or other damages due to the contractor's negligence shall be repaired immediately by the Contractor at no additional cost to the contract. Contractor shall inform the DU at least 72 hours in advance for any coordination required for tie-in the existing facility to the new facility, weather permitting. No work shall begin without express written approval of the DU. Wastewater spillage, if any, shall be

remediated immediately to the satisfaction of DU at no additional cost to the contract.

2) BIDDERS TO EXAMINE LOCATION AND PLANS

- a) Each Bidder shall make a personal examination of the location of the proposed work and of the surrounding area. He/she shall thoroughly acquaint themselves with the details of the work to be done and all the conditions and obstacles likely to be encountered, including soil conditions, in the performance and completion of work. Bidders shall inform themselves as to the facilities for the transportation, handling, and storage of equipment and materials.
- b) Each bidder shall carefully study the plans, specifications and other contract documents and thoroughly satisfy themselves as to the conditions under which the work is to be done, and as to the character, qualities and quantities of work to be performed, and materials to be furnished, and be prepared to execute a finished job in every particular.
- c) Additional calcifications to Section 08, paragraphs 13.01of General Conditions:

The Contractor may utilize water provided by the Dept. of Utilities without charge provided that the contractor opens an account with St. Tammany Parish Department of Utilities specific to the Utilities project and pays the required deposit for a hydrant mounted water meter. The Department of Utilities will install the meter at an agreed upon fire hydrant following payment of deposit. By signing the contract, the contractor acknowledges and agrees that water from this meter shall only be used for the specific Utilities project.

3) PARKING FACILITIES

- a) The work under this contract is to be executed in close proximity of the residences and other businesses. The Contractor will be allowed to bring construction equipment and construction vehicles onto the site as necessary in the execution of this contract but may be required to relocate them if their presence interferes with the operations of the Board or businesses. All roadways must remain open throughout the entire construction period.

4) UTILITY LOCATION

- a) The locations of all utilities shown on the plans are approximate. Contractor shall field verify all utilities and their tie-in points prior to any work commences.
- b) Any damages to any utility line due to lack of the contractor's field verification shall be repaired immediately to the satisfaction of the Engineer, all at no cost to the contract.

5) TIE-IN

- a) The location and condition of each tie-in is approximate. It is the contractor's responsibility, as the first order of business to field verify the location and the conditions of each tie-in point prior to ordering any materials and inform the Engineer of the findings.
- b) Additionally, once the tie-in points are exposed, the contractor **MUST** notify the DU to operate and exercise the isolation valves at either end to see if they are operable and lines are flushed and cleaned (**ALL existing valves shall be operated by operations personnel of DU only**). In the event that the existing valves are not operable as determined by the Engineer, new valves may be installed at the discretion of DU through the Engineer.
- c) Contractor shall perform "mock-up" for every tie-in and disinfect fittings, valves and pipe used. DU and/or Engineer must be present to observe/inspect this work.
- d) Contractor and DU together shall determine the number of customers impacted by the outage, if any.

- e) Contractor shall furnish and deliver the affected customers with DU approved notices/door hangers at least 48-hours prior to service interruption as part of this contract work.
- f) DU will turn off water and issue required Boil Water Advisory (BWA) for affected customers, if applicable.
- g) Once the tie-in is complete, DU will restore water service and collect necessary Bac-T samples to lift the BWA. The tie-in(s) can only be scheduled Monday through Thursday (work on Thursday must be completed by 12:00 PM), excluding holidays. Under no circumstances shall customers be under a boil-advisory through the weekend and/or holidays.

6) ENVIRONMENTAL REQUIREMENTS

- a) The parties agree that the work and duties required to be performed in accordance with the Contract Documents shall meet and comply with all environmental requirements, including the laws and regulations of the United States and the State of Louisiana.
- b) For public areas that have come in contact with overflowed sewage, the Contractor will take reasonable action to implement disinfection procedures. Generally, these procedures will involve an application of an oxidizing agent, such as a diluted chlorine solution, on constructed surfaces (streets, driveways, walls, etc.) and a lime application on organic surfaces (lawns, soil areas, etc.). The level and extent of disinfection will be determined in the field. It is not the intent of this disinfection procedure to infer that total pathogen destruction has been achieved, nor that any other level of disinfection has been achieved.
- c) The Contractor shall develop a plan to report, contain/by-pass and clean up all sewage spills or unanticipated hazards that would adversely affect the health of the community.
- d) REPORT: A report shall be given immediately to the DU Compliance Office (985-893-1717). The information communicated in the report must include location, nature of problem, name of project, name of company performing work, name of the individual making the call, time of incident, volume of spill (gallons), method of remediation and clean up, and other pertinent data as necessary.

7) NOISE AND SOUND ISSUE

- a) Contractor's attention shall be given specifically to St. Tammany Parish Ordinance, Article IV – Noise and Sound, which in part states that the sound measured by a performer taken at least 25 feet from the source of the noise cannot exceed 70 decibels between Noon and 9 p.m. Between 9 p.m. and Noon, the sound measurement taken at least 25 feet from the source of the noise cannot exceed 55 decibels.

8) NIGHT, WEEKEND, OR HOLIDAY WORK

- a) No work shall be done between 6:00 p.m. to 7:00 a.m., nor on Saturdays, Sundays, or Parish's legal holidays without permission of Owner. Emergency work may be done without prior permission; however, notification is required to the Engineer.
- b) Night work may be undertaken as a regular procedure with the permission of Owner; such permission; however, may be revoked at any time by the Owner if Contractor fails to maintain adequate equipment and supervision for the proper prosecution and control of the work at night. Regular working hours shall not exceed a maximum of 40 hours per week. Requests to work during other than regular working hours as established by Contractor must be submitted to the Engineer at least 72 hours in advance of the period for such overtime work and shall set forth the proposed schedule for work to give the Engineer ample time to arrange for his personnel to be at the site of the work.
- c) The contractor shall pay for all additional engineering charges to the Owner on account of the overtime work which may be authorized as stated

above. Such engineering and inspection charges shall be a subsidiary obligation of the Contractor and no extra payment shall be made by the Owner on account of such overtime work. Engineer and/or inspection overtime charges will be assessed in accordance with the terms of the Owner's agreement with the Engineer.

9) LONG LEAD ITEMS

- a) Due to long delivery of certain items specified in this contract work, it is strongly recommended that the Contractor to order those long delivery items as soon as NTP has been issued. Contract substantial completion date shall not be extended due to contractor's negligence in ordering material and/or equipment in timely manner.

10) DELIVERY & UNLOADING

- a) Seventy-two (72) hours advanced notice of arrival must be rendered by notifying the Engineer (Tel: 985 893-1717) so that unloading may be arranged without inconvenience to either the Parish or the carrier. Arrangements shall be made for delivery before noon on a regular workday. Deliveries attempted without proper advance notice or on other than flatbed trucks will be refused and any additional storage or delivery charges shall be the responsibility of the Contractor. All freight and insurance charges shall be included in the Bid Price. Risk of loss due to damage of any kind shall be borne by the Contractor until receipt and unloading by the Parish.
- b) All components shall be adequately secured and bolted or otherwise made fast to prevent movement and/or damages during shipment
- c) Special notice is hereby given to all Contractors that the terms stipulated in this section will be strictly interpreted and rigidly enforced.
- d) All openings shall be completely covered and protected for shipment.

11) AS-BUILT DRAWINGS

- a) The Contractor shall furnish one (1) neat and legibly marked blue line set of contract drawings to depict actual "as-built" conditions.
- b) The "as-built" drawings shall show all construction, elevation, equipment, mechanical and electrical systems and connections as installed or built to the satisfaction of the Engineer.
- c) The work under this contract will not be considered "complete" until "as-built" drawings, prepared to the satisfaction of the Engineer, are received.
- d) There will be no direct payment for furnishing the "as-built" drawings specified above.
- e) Provide copies of operation and maintenance manuals for all equipment. Manuals shall include spare parts lists recommended by the manufacturer.

12) JOB SITE DRAWINGS AND SPECIFICATIONS

- a) A complete and current set of contract drawings and specifications (including any addenda) shall be maintained on the job site by the Contractor.
- b) One copy of all approved shop drawings, equipment or material drawings, etc. shall be maintained on the job site by the Contractor.

13) EMERGENCY TELEPHONE

- a) The Contractor shall, before contract work begins, furnish to the Engineer Telephone Numbers at which company officers and/or responsible persons can be contacted at night, weekends and holidays in case of emergencies.

14) CONFLICT BETWEEN DRAWINGS AND SPECIFICATIONS

- a) In case of the conflict between the drawings and the specifications, the Engineer shall be the sole authority in determining which of the two shall take precedence in the Contract Documents. Such conflict shall not be a basis for an extra expense to the Parish.

- b) The Contractor is hereby cautioned to base his/her price and work upon the more costly item in event of conflict as no claim for extra expense will be entertained on this basis.

15) PERMITS (IF APPLIES)

- a) Contractor shall be required to apply for, meet all requirements and obtain all required permits.
- b) St. Tammany Parish Permit information is as follows:
 - i) Four permits are required, one sitework permit for each location and one building permit for each location. The Department of Utilities will prepare the permit application, and the Contractor will submit the permit application to the Parish. All fees shall be paid by the Contractor.
 - ii) Contractor must register with St. Tammany Parish.
 - iii) Traffic and Drainage Impact Fees shall not apply.
 - iv) Permit fee schedule is available at:
<http://www.stpgov.org/departments/permits-and-inspections>
 - v) Other fees and costs shall be paid by Contractor
- c) LDH authorization has been obtained by Owner.
- d) St. Tammany Parish Dept. of Environmental Services Letter of No Objection will be obtained by Owner. (Includes Engineering and Planning Dept. reviews)

16) CLARIFICATIONS OF PROJECT COMPLETION TIMES

- a) Substantial Completion
 - i) The date shown in Section 2, Paragraph 5 of these documents is the date of “*substantial Completion*”. Substantial completion is a critical milestone that signifies the point at which this construction project is considered to be almost finished by DU. While not every minor detail or finishing touch may be in place, substantial completion denotes that the project is functional and can be occupied or utilized for its intended purpose. It indicates that the contractor has fulfilled the major requirements outlined in the contract, allowing the owner to take possession of the premises or facility.
 - ii) At the stage of substantial completion, the project should meet specific criteria agreed upon in the contract documents. These criteria may include the completion of major systems, such as electrical, plumbing, and HVAC, as well as the installation of essential fixtures and finishes. Additionally, the project must adhere to applicable building codes and local and state regulations, ensuring safety and compliance.
 - iii) Upon achieving substantial completion, the owner assumes responsibility for the property, even if certain minor tasks or corrective work remains. This milestone triggers several important events, such as the start of occupancy permits, and the beginning of staff training on O&M of the new work.
- b) Final Completion
 - i) Final completion marks the ultimate conclusion of this construction project, and it is maximum 30 calendar days after the Substantial Completion date. It signifies that all work, including both major and minor tasks, has been finished in accordance with the contract requirements. At this stage, all punch list items, deficiencies, and outstanding obligations are expected to be addressed and rectified. The project is now considered complete, and the contractor’s scope of work is fulfilled.
 - ii) The determination of final completion (similar to substantial completion) involves a joint inspection by the owner, contractor, and other relevant parties to verify that all contractual obligations have been met. This inspection aims to identify any remaining issues or deficiencies that need to be resolved before the project can be officially considered finished. Once these matters are addressed and the owner is

satisfied, a Certificate of Final Completion is issued, signifying the formal end of the construction process.

- iii) It's important to note that final completion triggers crucial contractual events, such as the release of retainage and the final payment to the contractor. It also serves as the starting point for post-construction activities, such as facility operations and maintenance, and initiation of warranty periods.

17) SUSPENSION OF WORK

- a) The Engineer may order the Contractor in writing to suspend, delay or interrupt all or any part of the work for such period of time as he or she may determine to be appropriate. The Engineer may also suspend, delay or interrupt the work wholly or in part due to the failure of the Contractor to correct conditions unsafe for the workmen or the general public; for failure to carry out provisions of the contract; for such period of time as may deem necessary due to unsuitable weather; or for any other condition or reason deemed to be in the public and Parish's interest.
- b) No adjustment to the time of completion for the project will be made if the suspension, delay or interruption to the work is ordered due to the fault or negligence of the Contractor; however, if such suspension, delay or interruption is ordered for reasons other than the Contractor's negligence, the period of such suspension, to be determined by the Engineer, shall be added to the time specified for the completion of the work under this contract.
- c) If the work to be suspended for any reason, all materials delivered at the work but not yet placed therein shall be neatly stored so as not to constitute an obstruction.
- d) In case of suspension of work from any cause, the Contractor shall be responsible for the project and shall take such precautions as necessary to prevent damage to the project, provide for normal drainage and erect any necessary temporary structures, signs or other facilities at his expense.

18) OTHER CONTRACTS: The St. Tammany Parish has, or may undertake, or award, other contracts for other, or additional work and this Contractor must fully co-operate with such other Contractors and the Parish employees and carefully fit his/her own work to such other, or additional work, as may be directed by the Engineer. This Contractor must not commit or permit any act which will interfere with the performance of work by any other Contractor.

19) EXPLORATORY EXCAVATION

- a) Exploratory excavations or test pits are limited, and specific excavations for the purpose of verifying the location of a conflict as identified on the Plans. The contractor shall coordinate with the Engineer and/or the Parish prior to commencing any exploratory excavations or test pits to determine the location and extent of the excavation. Exploratory excavations or test pits shall be directed by the Engineer and/or the Parish. Exploratory excavations will be paid at the unit rate per the Contract, as it applies.
- b) Potholing are excavations (or hydro-excavation) required to adequately locate utilities and/or underground structures in the path of construction or at the jobsite in accordance with the "Louisiana Dig Laws". Potholing will be incidental to the work, and the cost of potholing shall be incidental to the associated bid items. There will be NO direct measurement for payment of potholing.

20) SUBMITTAL PROCEDURES

- a) Except as may otherwise be indicated, the ENGINEER will return prints of each submittal to the CONTRACTOR with comments noted thereon, within 30 Days following receipt by the ENGINEER. It is considered reasonable that the CONTRACTOR will make a complete and acceptable submittal to the ENGINEER by the first resubmittal on an item. The Parish reserves the right to withhold monies due to the CONTRACTOR

to cover additional costs of the ENGINEER's review beyond the first resubmittal. The ENGINEER'S maximum review period for each submittal or resubmittal will be 30 Days. Thus, for a submittal that requires 2 resubmittals before it is complete, the maximum review period could be 90 Days.

21) SUBSTITUTE MATERIAL

- a) Additional calcifications to Section 08, paragraphs 13.16 & 13.17 of General Conditions:
 - i) The Contract will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration of possible substitute or “or-equal” items. Whenever it is specified or described in the Bidding Documents that a substitute or “or equal” item of material or equipment may be furnished or used by Contractor if acceptable to Engineer, application for such acceptance will not be considered by Engineer until after the effective date of the contract.
 - ii) Any additional cost for the approved substitute or equal materials/equipment shall be by the Contractor.

22) SITE SECURITY

- a) The Contractor shall insure that the site is properly secured at the end of each workday. Fences shall be intact, and the gates shall be locked daily. The Contractor shall also provide and maintain all necessary flagmen, watchmen, barricades, devices as required for the protection and safety of the work and the public against personal injury and property damages. The Contractor will be responsible for any and all damages, injury or loss resulting from his failure to provide such necessary protective precautions.

V. OTHER REQUIREMENTS (as applicable)

When not otherwise specified herein, all work and materials shall conform to the requirements of the Louisiana Department of Transportation and Development hereafter called LDOTD (2016 Edition of Louisiana Standard Specifications for Roads and Bridges).

This project is federally grant funded and therefore requires the Contractor to have a Unique Entity Identification number (UEI). The Contractor should submit with their response their UEI number. If the Contractor does not have a UEI already, then they must register at the below link before an award can be made.

<https://sam.gov/content/entity-registration>

Table 3.1

Liquidated Damages	
Original Contract Amount	Daily Charge
Dollars	Dollars
0 - 250,000	500
250,000 – 1 Million	1,000
> 1 Million – 5 Million	1,500
> 5 Million – 10 Million	2,000
> 10 Million	3,000

- Parish reserves the right to increase the Daily charge rate due to additional provisions required in order to complete the project as described in the specifications

Section 04

LOUISIANA UNIFORM PUBLIC WORK BID FORM

TO: St. Tammany Parish Government
21454 Koop Dr., Suite 2F
Mandeville, La 70471

(Owner to provide name and address of owner)

BID FOR: Alton Water System Interconnection

Bid No. 25-6-2

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

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: Fairway Consulting & Engineering, LLC and dated: August 12, 2025.
(Owner to provide name of entity preparing bidding documents.)

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 *(Construct additional water main, fittings, and hydrant., North 5th Street, additive)* for the lump sum of:

_____ Dollars (\$ _____)

Alternate No. 2 *(Construct additional water main, fittings, and hydrants, North3rdth Street and upopened right of way, additive)* for the lump sum of:

_____ Dollars (\$ _____)

Alternate No. 3 *(Owner to provide description of alternate and state whether add or deduct)* for the lump sum of:

_____ N/A _____ Dollars (\$ _____ N/A _____)

NAME OF BIDDER: _____

ADDRESS OF BIDDER: _____

LOUISIANA CONTRACTOR’S LICENSE NUMBER: _____

NAME OF AUTHORIZED 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.

LOUISIANA UNIFORM PUBLIC WORK BID FORM
UNIT PRICE FORM

TO:

St. Tammany Parish Government
21454 Koop Drive, Suite 2F
Mandeville, LA. 70471
(OWNER TO PROVIDE NAME AND ADDRESS OF OWNER)

BID FOR:

Alton Water System Interconnection
Bid No, 25-6-2
(OWNER TO PROVIDE PROJECT NAME & OTHER IDENTIFYING INFO)

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

Description:		☒ BASE BID	OR	☐ ALT #	CLEARING AND GRUBBING	
REF NO.:	QUANTITY	UNIT OF MEASURE		UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
201(01)	1	LUMP SUM				
Description:		☒ BASE BID	OR	☐ ALT #	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	
REF NO.:	QUANTITY	UNIT OF MEASURE		UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
202 (01)	1	LUMP SUM				
Description:		☒ BASE BID	OR	☐ ALT #	REMOVAL OF ASPHALT CONCRETE PAVEMENT	
REF NO.:	QUANTITY	UNIT OF MEASURE		UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
202 (02)	125	SQUARE YARD				
Description:		☒ BASE BID	OR	☐ ALT #	ADDITIONAL EXCAVATION OF UNSUITABLE SUBGRADE	
REF NO.:	QUANTITY	UNIT OF MEASURE		UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
203 (01)	120	CUBIC YARD				

Wording for "description" is to be provided by the Owner. All Quantities Estimated. The Contractor will be paid based upon actual quantities as verified by the Owner.

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

Description:		☒ BASE BID	OR	☐ ALT #	TEMPORARY ENVIRONMENTAL CONTROLS	
REF NO.:	QUANTITY	UNIT OF MEASURE		UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
204 (01)	1	LUMP SUM				
Description:		☒ BASE BID	OR	☐ ALT #	CLASS II BASE COURSE (STONE)	
REF NO.:	QUANTITY	UNIT OF MEASURE		UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
302 (01)	125	SQUARE YARD				
Description:		☒ BASE BID	OR	☐ ALT #	AGGREGATE SURFACE COURSE	
REF NO.:	QUANTITY	UNIT OF MEASURE		UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
401 (01)	20	CUBIC YARD				
Description:		☒ BASE BID	OR	☐ ALT #	TRAFFIC MAINTENANCE SURFACING	
REF NO.:	QUANTITY	UNIT OF MEASURE		UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
402 (01)	125	SQUARE YARD				
Description:		☒ BASE BID	OR	☐ ALT #	SUPERPAVE ASPHALT CONCRETE-LEVEL 1	
REF NO.:	QUANTITY	UNIT OF MEASURE		UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
502 (01)	4	TONS				
Description:		☒ BASE BID	OR	☐ ALT #	MILLING ASPHALT PAVEMENT	
REF NO.:	QUANTITY	UNIT OF MEASURE		UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
509 (01)	565	SQUARE YARD				

Version 2017 Q2

Wording for "description" is to be provided by the Owner. All Quantities Estimated. The Contractor will be paid based upon actual quantities as verified by the Owner.

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

Description:		☒ BASE BID OR ☐ ALT #	TEMPORARY TRAFFIC CONTROL	
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
713 (01)	1	LUMP SUM		
Description:		☒ BASE BID OR ☐ ALT #	FOUNDATION MATERIAL	
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
726 (01)	120	CUBIC YARD		
Description:		☒ BASE BID OR ☐ ALT #	MOBILIZATION	
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
727 (01)	1	LUMP SUM		
Description:		☒ BASE BID OR ☐ ALT #	SEEDING	
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
739 (01)	1	LUMP SUM		
Description:		☒ BASE BID OR ☐ ALT #	CONSTRUCTION LAYOUT	
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
740 (01)	1	LUMP SUM		
Description:		☒ BASE BID OR ☐ ALT #	8" WATER MAIN, PVC, UNRESTRAINED, INSTALLED BY OPEN CUT	
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
741 (01)	1200	LINEAR FOOT		

Wording for "description" is to be provided by the Owner. All Quantities Estimated. The Contractor will be paid based upon actual quantities as verified by the Owner.

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

Description:		☒ BASE BID OR ☐ ALT #	8" WATER MAIN, PVC, RESTRAINED, INSTALLED BY OPEN CUT	
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
741 (02)	575	LINEAR FOOT		
Description:		☒ BASE BID OR ☐ ALT #	8" WATER MAIN, PVC, INSTALLED BY HORIZONTAL DIRECTIONAL DRILL	
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
741 (03)	100	LINEAR FOOT		
Description:		☒ BASE BID OR ☐ ALT #	8" DUCTILE IRON FITTINGS, FULLY RESTRAINED, ALL TYPES, MECHANICALJOINT	
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
741 (04)	35	EACH		
Description:		☒ BASE BID OR ☐ ALT #	8" BURIED GATE VALVE, MECHANICAL JOINT	
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
741 (05)	2	EACH		
Description:		☒ BASE BID OR ☐ ALT #	6" WATER MAIN, PVC, RESTRAINED, INSTALLED BY OPEN CUT	
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
741 (06)	20	LINEAR FOOT		
Description:		☒ BASE BID OR ☐ ALT #	6" BURIED GATE VALVE, MECHANICAL JOINT	
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
741 (07)	3	EACH		

Wording for "description" is to be provided by the Owner. All Quantities Estimated. The Contractor will be paid based upon actual quantities as verified by the Owner.

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

Description:		☒ BASE BID	OR	☐ ALT #	8" WATER MAIN, PVC, RESTRAINED, INSTALLED BY JACKING AND BORINGWITHIN STEEL CASING	
REF NO.:	QUANTITY	UNIT OF MEASURE		UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
741 (08)	280	LINEAR FOOT				
Description:		☒ BASE BID	OR	☐ ALT #	AIR RELEASE VALVE IN VAULT	
REF NO.:	QUANTITY	UNIT OF MEASURE		UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
741 (09)	6	EACH				
Description:		☒ BASE BID	OR	☐ ALT #	FIRE HYDRANT ASSEMBLY	
REF NO.:	QUANTITY	UNIT OF MEASURE		UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
741 (10)	3	EACH				
Description:		☒ BASE BID	OR	☐ ALT #	FLOW METERING AND CONTROL FACILITY	
REF NO.:	QUANTITY	UNIT OF MEASURE		UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
S-001	1	LUMP SUM				
Description:		☒ BASE BID	OR	☐ ALT #	SITE CONDITIONS SURVEYS	
REF NO.:	QUANTITY	UNIT OF MEASURE		UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
S-002	1	LUMP SUM				
Description:		☒ BASE BID	OR	☐ ALT #	JACKING AND BORING PITS	
REF NO.:	QUANTITY	UNIT OF MEASURE		UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
S-003	1	LUMP SUM				

Wording for "description" is to be provided by the Owner. All Quantities Estimated. The Contractor will be paid based upon actual quantities as verified by the Owner.

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

Description:		☒ BASE BID	OR	☐ ALT #	HORIZONTAL DIRECTIONAL DRILLING PITS		
REF NO.:	QUANTITY	UNIT OF MEASURE		UNIT PRICE		UNIT PRICE EXTENSION (Quantity times unit price)	
S-004	1	LUMP SUM					
Description:		☒ BASE BID	OR	☐ ALT #	TRACK MONITORING		
REF NO.:	QUANTITY	UNIT OF MEASURE		UNIT PRICE		UNIT PRICE EXTENSION (Quantity times unit price)	
S-005	1	LUMP SUM					
Description:		☒ BASE BID	OR	☐ ALT #	SAW CUTTING OF PAVEMENT		
REF NO.:	QUANTITY	UNIT OF MEASURE		UNIT PRICE		UNIT PRICE EXTENSION (Quantity times unit price)	
S-006	4000	IN/LF					
Description:		☒ BASE BID	OR	☐ ALT #	WATER MAIN TIE-IN NEAR LA-11 AND N 2ND AVE		
REF NO.:	QUANTITY	UNIT OF MEASURE		UNIT PRICE		UNIT PRICE EXTENSION (Quantity times unit price)	
S-007	1	LUMP SUM					
Description:		☐ BASE BID	OR	☒ ALT #	<u>1</u>	CLEARING AND GRUBBING	
REF NO.:	QUANTITY	UNIT OF MEASURE		UNIT PRICE		UNIT PRICE EXTENSION (Quantity times unit price)	
A1-201 (01)	1	LUMP SUM					
Description:		☐ BASE BID	OR	☒ ALT #	<u>1</u>	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	
REF NO.:	QUANTITY	UNIT OF MEASURE		UNIT PRICE		UNIT PRICE EXTENSION (Quantity times unit price)	
A1-202 (01)	1	LUMP SUM					

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Wording for "description" is to be provided by the Owner. All Quantities Estimated. The Contractor will be paid based upon actual quantities as verified by the Owner.

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

Description: ☐ BASE BID OR ☒ ALT # <u>1</u> REMOVAL OF ASPHALT CONCRETE PAVEMENT				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
A1-202 (02)	50	SQUARE YARD		
Description: ☐ BASE BID OR ☒ ALT # <u>1</u> ADDITIONAL EXCAVATION OF UNSUITABLE SUBGRADE				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
A1-203 (02)	50	CUBIC YARD		
Description: ☐ BASE BID OR ☒ ALT # <u>1</u> TEMPORARY ENVIRONMENTAL CONTROLS				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
A1-204 (01)	1	LUMP SUM		
Description: ☐ BASE BID OR ☒ ALT # <u>1</u> CLASS II BASE COURSE (STONE)				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
A1-302 (01)	50	SQUARE YARD		
Description: ☐ BASE BID OR ☒ ALT # <u>1</u> TRAFFIC MAINTENANCE SURFACING				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
A1-402 (01)	20	CUBIC YARD		
Description: ☐ BASE BID OR ☒ ALT # <u>1</u> SUPERPAVE ASPHALT CONCRETE-LEVEL 1				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
A1-502 (01)	20	TON		

Version 2017 Q2

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

Description: ☐ BASE BID OR ☒ ALT # <u>1</u> MILLING ASPHALT PAVEMENT				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
A1-509 (01)	50	SQUARE YARD		
Description: ☐ BASE BID OR ☒ ALT # <u>1</u> TEMPORARY TRAFFIC CONTROL				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
A1-713 (01)	1	LUMP SUM		
Description: ☐ BASE BID OR ☒ ALT # <u>1</u> FOUNDATION MATERIAL				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
A1-726 (01)	50	CUBIC YARD		
Description: ☐ BASE BID OR ☒ ALT # <u>1</u> MOBILIZATION				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
A1-727 (01)	1	LUMP SUM		
Description: ☐ BASE BID OR ☒ ALT # <u>1</u> SEEDING				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
A1-739 (01)	1	LUMP SUM		
Description: ☐ BASE BID OR ☒ ALT # <u>1</u> CONSTRUCTION LAYOUT				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
A1-740 (01)	1	LUMP SUM		

Version 2017 Q2

Wording for "description" is to be provided by the Owner. All Quantities Estimated. The Contractor will be paid based upon actual quantities as verified by the Owner.

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

Description: ☐ BASE BID OR ☒ ALT # <u>1</u> 8" WATER MAIN, PVC, RESTRAINED, INSTALLED BY OPEN CUT				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
A1-741 (02)	100	LINEAR FOOT		
Description: ☐ BASE BID OR ☒ ALT # <u>1</u> 8" DUCTILE IRON FITTINGS, FULLY RESTRAINED, ALL TYPES, MECHANICALJOINT				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
A1-741 (04)	1	EACH		
Description: ☐ BASE BID OR ☒ ALT # <u>1</u> FIRE HYDRANT AND ISOLATION VALVE				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
A1-741 (10)	1	EACH		
Description: ☐ BASE BID OR ☒ ALT # <u>1</u> SITE CONDITIONS SURVEYS				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
A1-S-001	1	LUMP SUM		
Description: ☐ BASE BID OR ☒ ALT # <u>1</u> SAW CUTTING OF PAVEMENT				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
A1-S-002	1000	IN/LF		
Description: ☐ BASE BID OR ☒ ALT # <u>2</u> CLEARING AND GRUBBING				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
A2-201 (01)	1	LUMP SUM		

Version 2017 Q2

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

Description: ☐ BASE BID OR ☒ ALT # <u>2</u> REMOVAL OF STRUCTURES AND OBSTRUCTIONS				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
A2-202 (01)	1	LUMP SUM		
Description: ☐ BASE BID OR ☒ ALT # <u>2</u> REMOVAL OF ASPHALT CONCRETE PAVEMENT				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
A2-202 (02)	100	SQUARE YARD		
Description: ☐ BASE BID OR ☒ ALT # <u>2</u> ADDITIONAL EXCAVATION OF UNSUITABLE SUBGRADE				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
A2-203 (02)	100	CUBIC YARD		
Description: ☐ BASE BID OR ☒ ALT # <u>2</u> TEMPORARY ENVIRONMENTAL CONTROLS				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
A2-204 (01)	1	LUMP SUM		
Description: ☐ BASE BID OR ☒ ALT # <u>2</u> CLASS II BASE COURSE (STONE)				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
A2-302 (01)	100	SQUARE YARD		
Description: ☐ BASE BID OR ☒ ALT # <u>2</u> TRAFFIC MAINTENANCE SURFACING				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
A2-402 (01)	50	SQUARE YARD		

Version 2017 Q2

Wording for "description" is to be provided by the Owner. All Quantities Estimated. The Contractor will be paid based upon actual quantities as verified by the Owner.

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

Description: ☐ BASE BID OR ☒ ALT # <u>2</u> SUPERPAVE ASPHALT CONCRETE-LEVEL 1				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
A2-502 (01)	40	TON		
Description: ☐ BASE BID OR ☒ ALT # <u>2</u> MILLING ASPHALT PAVEMENT				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
A2-509 (01)	100	SQUARE YARD		
Description: ☐ BASE BID OR ☐ ALT # <u>2</u> TEMPORARY TRAFFIC CONTROL				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
A2-713 (01)	1	LUMP SUM		
Description: ☐ BASE BID OR ☒ ALT # <u>2</u> FOUNDATION MATERIAL				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
A2-726 (01)	100	CUBIC YARD		
Description: ☐ BASE BID OR ☒ ALT # <u>2</u> MOBILIZATION				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
A2-727 (01)	1	LUMP SUM		
Description: ☐ BASE BID OR ☒ ALT # <u>2</u> SEEDING				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
A2-739 (01)	1	LUMP SUM		

Version 2017 Q2

Wording for "description" is to be provided by the Owner. All Quantities Estimated. The Contractor will be paid based upon actual quantities as verified by the Owner.

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

Description: ☐ BASE BID OR ☒ ALT # <u>2</u> CONSTRUCTION LAYOUT				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
A2-740 (01)	1	LUMP SUM		
Description: ☐ BASE BID OR ☒ ALT # <u>2</u> 8" WATER MAIN, PVC, RESTRAINED, INSTALLED BY OPEN CUT				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
A2-741 (02)	300	LINEAR FOOT		
Description: ☐ BASE BID OR ☒ ALT # <u>2</u> 8" DUCTILE IRON FITTINGS, FULLY RESTRAINED, ALL TYPES, MECHANICALJOINT				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
A2-741 (04)	3	EACH		
Description: ☐ BASE BID OR ☒ ALT # <u>2</u> FIRE HYDRANT AND ISOLATION VALVE				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
A2-741 (10)	3	EACH		
Description: ☐ BASE BID OR ☒ ALT # <u>2</u> SITE CONDITIONS SURVEYS				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
A2-S-001	1	LUMP SUM		
Description: ☐ BASE BID OR ☒ ALT # <u>2</u> SAW CUTTING OF PAVEMENT				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
A2-S-002	1000	IN/LF		

Version 2017 Q2

Wording for "description" is to be provided by the Owner. All Quantities Estimated. The Contractor will be paid based upon actual quantities as verified by the Owner.

Section 05

**AFFIDAVIT PURSUANT TO LSA-R.S. 38:2224 and 38:2227
FOR BIDDERS FOR PUBLIC WORKS CONTRACTS**

STATE OF _____

PARISH/COUNTY OF _____

BEFORE ME, the undersigned authority, in and for the above stated State and Parish (or County), personally came and appeared:

Print Name

who, after first being duly sworn, did depose and state:

1. That affiant is appearing on behalf of _____, who is seeking a public contract with St. Tammany Parish Government.
2. That affiant employed no person, corporation, firm, association, or other organization, either directly or indirectly, to secure the public contract under which he received payment, other than persons regularly employed by the affiant whose services in connection with the construction, alteration or demolition of the public building or project or in securing the public contract were in the regular course of their duties for affiant; and
3. That no part of the contract price received by affiant was paid or will be paid to any person, corporation, firm, association, or other organization for soliciting the contract, other than the payment of their normal compensation to persons regularly employed by the affiant whose services in connection with the construction, alteration or demolition of the public building or project were in the regular course of their duties for affiant.
4. If affiant is a sole proprietor, that after July 2, 2010, he/she has not been convicted of, or has not entered a plea of guilty or *nolo contendere* to any of the crimes or equivalent federal crimes listed in LSA-R.S. 38:2227(B).
5. If affiant is executing this affidavit on behalf of a juridical entity such as a partnership, corporation, or LLC, etc., that no individual partner, incorporator, director, manager, officer, organizer, or member, who has a minimum of a ten percent ownership in the bidding entity, has been convicted of, or has entered a plea of guilty or *nolo contendere* to any

of the crimes or equivalent federal crimes listed in LSA-R.S. 38:2227(B).

6. If affiant is a sole proprietor, that neither affiant, nor his/her immediate family is a public servant of St. Tammany Parish Government or the Contract is not under the supervision or jurisdiction of the public servant’s agency.
7. If affiant is executing this affidavit on behalf of a juridical entity such as a partnership, corporation, or LLC, etc., that no public servant of St. Tammany Parish Government, or his/her immediate family, either individually or collectively, has more than a 25% ownership interest in the entity seeking the Contract with St. Tammany Parish Government if the Contract will be under the supervision or jurisdiction of the public servant’s agency.

Printed Name: _____

Title: _____

Entity name: _____

THUS SWORN TO AND SUBSCRIBED BEFORE ME,
THIS _____, DAY OF _____, 202__.

Notary Public

Print Name: _____

Notary I.D./Bar No.: _____

My commission expires: _____

**AFFIDAVIT PURSUANT TO LSA-R.S. 38:2212.10 CONFIRMING
REGISTRATION AND PARTICIPATION IN A STATUS VERIFICATION
SYSTEM**

STATE OF _____
PARISH/COUNTY OF _____

BEFORE ME, the undersigned authority, in and for the above stated State and Parish (or County), personally came and appeared:

Print Name

who, after first being duly sworn, did depose and state:

- 1. That affiant is appearing on behalf of _____,
a private employer seeking a bid or a contract with St. Tammany Parish Government for the physical performance of services within the State of Louisiana.

- 2. That affiant is registered and participates in a status verification system to verify that all employees in the state of Louisiana are legal citizens of the United States or are legal aliens; and

- 3. That affiant shall continue, during the term of the contract, to utilize a status verification system to verify the legal status of all new employees in the state of Louisiana.

- 4. That affiant shall require all subcontractors to submit to the affiant a sworn affidavit verifying compliance with this law.

Printed Name: _____
Title: _____
Name of Entity: _____

THUS SWORN TO AND SUBSCRIBED BEFORE ME,
THIS _____, **DAY OF** _____, **202**__.

Notary Public
Print Name: _____
Notary I.D./Bar No.: _____
My commission expires: _____



INSURANCE REQUIREMENTS*

Construction Project: Alton Water System Interconnection

Bid#: 25-6-2

*****IMPORTANT – PLEASE READ*****

Prior to submitting your quote or bid, it is recommended that you review these insurance requirements with your insurance broker/agent.

These requirements modify portions of the insurance language found in the General Conditions and/or Supplementary General Conditions; however, there is no intention to remove all sections pertaining to insurance requirements and limits set forth in the General Conditions and/or Supplementary General Conditions, only to amend and specify those items particular for this Project.

- A. The Provider shall secure and maintain at its expense such insurance that will protect it and St. Tammany Parish Government (the "Parish") from claims for bodily injury, death or property damage as well as from claims under the Workers' Compensation Acts that may arise from the performance of services under this agreement. All certificates of insurance shall be furnished to the Parish and provide thirty (30) days prior notice of cancellation to the Parish, in writing, on all of the required coverage.
- B. All policies shall provide for and certificates of insurance shall indicate the following:
1. Waiver of Subrogation: The Provider's insurers will have no right of recovery or subrogation against the Parish of St. Tammany, it being the intention of the parties that all insurance policy(ies) so affected shall protect both parties and be the primary coverage for any and all losses covered by the below described insurance.
 2. Additional Insured: St. Tammany Parish Government shall be named as Additional Insured with respect to general liability, automobile liability and excess liability coverages, as well as marine liability and pollution/environmental liability, when those coverages are required or necessary.
 3. Payment of Premiums: The insurance companies issuing the policy or policies will have no recourse against St. Tammany Parish Government for payment of any premiums or for assessments under any form of policy.
 4. Project Reference: The project(s) and location(s) shall be referenced in the Comment or Description of Operations section of the Certificate of Insurance (Project ##-###, or Bid # if applicable, Type of Work, Location).
- C. Coverage must be issued by insurance companies authorized to do business in the State of Louisiana. Companies must have an A.M. Best rating of no less than A-, Category VII. St. Tammany Parish Risk Management Department may waive this requirement only for Workers Compensation coverage at their discretion.

Provider shall secure and present proof of insurance on forms acceptable to St. Tammany Parish Government, Office of Risk Management no later than the time of submission of the Contract to the Parish. However, should any work performed under this Contract by or on behalf of Provider include exposures that are not covered by those insurance coverages, Provider is not relieved of its obligation to maintain appropriate levels and types of insurance necessary to protect itself, its agents and employees, its subcontractors, St. Tammany Parish Government (Owner), and all other interested third parties, from any and all claims for damage or injury in connection with the services performed or provided throughout the duration of this Project, as well as for any subsequent periods required under this Contract.

The insurance coverages checked (✓) below are those required for this Contract.

- ☒ 1. **Commercial General Liability*** insurance – **Occurrence Form** - with a Combined Single Limit for bodily injury and property damage of at least \$1,000,000 per Occurrence / \$2,000,000 General Aggregate and \$2,000,000 Products-Completed Operations. Contracts over \$1,000,000 may require higher limits. The insurance shall provide for and the certificate(s) of insurance shall indicate the following coverages:
- a) Premises - operations;
 - b) Broad form contractual liability;
 - c) Products and completed operations;
 - d) Personal/Advertising Injury;
 - e) Broad form property damage (for Projects involving work on Parish property);
 - f) Explosion, Collapse and Damage to underground property.
 - g) Additional Insured forms CG 2010 and CG 2037 in most current edition are required.
- ☒ 2. **Business Automobile Liability*** insurance with a Combined Single Limit of \$1,000,000 per Occurrence for bodily injury and property damage, and shall include coverage for the following:
- a) Any auto;
 - or**
 - b) Owned autos; **and**
 - c) Hired autos; **and**
 - d) Non-owned autos.
- ☒ 3. **Workers' Compensation/Employers Liability insurance*** - Workers' Compensation coverage as required by State law. Employers' liability limits shall be a minimum of \$1,000,000 each accident, \$1,000,000 each disease, \$1,000,000 disease policy aggregate. When water activities are expected to be performed in connection with this project, coverage under the USL&H Act, Jones Act and/or Maritime Employers Liability (MEL) must be included. **Coverage for owners, officers and/or partners in any way engaged in the Project shall be included in the policy.** The names of any excluded individual must be shown in the Description of Operations/Comments section of the Certificate.
- ☐ 4. **Pollution Liability and Environmental Liability*** insurance in the minimum amount of \$1,000,000 per occurrence / \$2,000,000 aggregate including full contractual liability and third party claims for bodily injury and/or property damage, for all such hazardous waste, pollutants and/or environmental exposures that may be affected by this project stemming from pollution/environmental incidents as a result of Contractor's operations.

If coverage is provided on a claims-made basis, the following conditions apply:

- 1) the retroactive date must be prior to or coinciding with the effective date of the Contract, or prior to the commencement of any services provided by the Contractor on behalf of the Parish, whichever is earlier; AND
- 2) continuous coverage must be provided to the Parish with the same retro date for 24 months following acceptance or termination of the Project by the Parish either by
 - a) continued renewal certificates **OR**
 - b) a 24 month Extended Reporting Period

*The Certificate must indicate whether the policy is written on an occurrence or claims-made basis and, if claims-made, the applicable retro date must be stated.



5. **Contractor's Professional Liability/Errors and Omissions*** insurance in the sum of at least \$1,000,000 per claim / \$2,000,000 aggregate is required when work performed by Contractor or on behalf of Contractor includes professional or technical services including, but not limited to, construction administration and/or management, engineering services such as design, surveying, and/or inspection, technical services such as testing and laboratory analysis, and/or environmental assessments. An occurrence basis policy is preferred.

If coverage is provided on a claims-made basis, the following conditions apply:

- 1) the retroactive date must be prior to or coinciding with the effective date of the Contract, or prior to the commencement of any services provided by the Contractor on behalf of the Parish, whichever is earlier; AND
- 2) continuous coverage must be provided to the Parish with the same retro date for 24 months following acceptance or termination of the Project by the Parish either by
 - a) continued renewal certificates **OR**
 - b) a 24 month Extended Reporting Period

*The Certificate must indicate whether the policy is written on an occurrence or claims-made basis and, if claims-made, the applicable retro date must be stated.



6. **Marine Liability/Protection and Indemnity*** insurance is required for any and all vessel and/or marine operations in the minimum limits of \$1,000,000 per occurrence / \$2,000,000 per project general aggregate. The coverage shall include, but is not limited to, the basic coverages found in the Commercial General Liability insurance and coverage for third party liability

***Excess/Umbrella Liability** insurance may be provided to meet the limit requirements for any Liability coverage. For example: if the General Liability requirement is \$3,000,000 per occurrence, but the policy is only \$1,000,000 per occurrence, then the excess policy should be at least \$2,000,000 per occurrence thereby providing a combined per occurrence limit of \$3,000,000.)



7. **Owners Protective Liability (OPL)** shall be furnished by the Contractor and shall provide coverage in the minimum amount of \$1,000,000 CSL each occurrence / \$1,000,000 aggregate. **St. Tammany Parish Government, ATTN: Risk Management Department, P. O. Box 628, Covington, LA 70434 shall be the first named insured on the policy.**



8. **Builder's Risk Insurance** written as an "all-risk" policy providing coverage in an amount at or greater than one hundred percent (100%) of the completed value of the contracted project. Any contract modifications increasing the contract cost will require an increase in the limit of the Builder's Risk policy. Deductibles should not exceed \$5,000 and Contractor shall be responsible for all policy deductibles. This insurance shall cover materials at the site, stored off the site, and in transit. The Builder's Risk Insurance shall include the interests of the Owner, Contractor and Subcontractors and shall terminate only when the Project is accepted in writing. **St. Tammany Parish Government, ATTN: Risk Management Department, P. O. Box 628, Covington, LA 70434 shall be named as a Loss Payee on the policy.**



9. **Installation Floater Insurance**, on an "all-risk" form, shall be furnished by Contractor and carried for the full value of the materials, machinery, equipment and labor for each location. The Contractor shall be responsible for all policy deductibles. The Installation Floater Insurance shall provide coverage for property owned by others and include the interests of the Owner, Contractor and Subcontractors and shall terminate only when the Project is accepted in writing. **St. Tammany Parish Government, ATTN: Risk Management Department, P. O. Box 628, Covington, LA 70434 shall be named as a Loss Payee on the policy.**

- D. All policies of insurance shall meet the requirements of the Parish prior to the commencing of any work. The Parish has the right, but not the duty, to approve all insurance coverages prior to commencement of work. If any of the required policies are or become unsatisfactory to the Parish as to form or substance; or if a company issuing any policy is or becomes unsatisfactory to the Parish, the Provider shall promptly obtain a new policy, timely submit same to the Parish for approval, and submit a certificate thereof as provided above. The Parish agrees not to unreasonably withhold approval of any insurance carrier selected by Provider. In the event that Parish cannot agree or otherwise authorize a carrier, Provider shall have the option of selecting and submitting a new insurance carrier within 30 days of said notice by the Parish. In the event that the second submission is insufficient or is not approved, then the Parish shall have the unilateral opportunity to thereafter select a responsive and responsible insurance carrier all at the cost of Provider and thereafter deduct from Provider's fee the cost of such insurance.
- E. Upon failure of Provider to furnish, deliver and/or maintain such insurance as above provided, this contract, at the election of the Parish, may be declared suspended, discontinued or terminated. Failure of the Provider to maintain insurance shall not relieve the Provider from any liability under the contract, nor shall the insurance requirements be construed to conflict with the obligation of the Provider concerning indemnification.
- F. Provider shall maintain a current copy of all annual insurance policies and agrees to provide a certificate of insurance to the Parish on an annual basis or as may be reasonably requested for the term of the contract or any required Extended Reporting Period. Provider further shall ensure that all insurance policies are maintained in full force and effect throughout the duration of the Project and shall provide the Parish with annual renewal certificates of insurance evidencing continued coverage, without any prompting by the Parish.
- G. It shall be the responsibility of Provider to require that these insurance requirements are met by all contractors and sub-contractors performing work for and on behalf of Provider. Provider shall further ensure the Parish is named as an additional insured on all insurance policies provided by said contractor and/or sub-contractor throughout the duration of the project.
- H. Certificates of Insurance shall be issued as follows:

**St. Tammany Parish Government
Attn: Risk Management
P O Box 628
Covington, LA 70434**

To avoid contract processing delays, be certain the project name/number is included on all correspondence including Certificates of Insurance.

***NOTICE: St. Tammany Parish Government reserves the rights to remove, replace, make additions to and/or modify any and all of the insurance requirements at any time.**

Any inquiry regarding these insurance requirements should be addressed to:

**St. Tammany Parish Government
Office of Risk Management
P O Box 628
Covington, LA 70434
Telephone: 985-898-5226
Email: riskman@stpgov.org**

Section 07

Project Signs

1. General

- a. Work to include providing and installing project sign(s) at the beginning of the project. Some projects may require multiple signs. Should more than one sign be required, it will be reflected in the bidding documents.

2. Materials

- a. The printed project sign(s) shall be 3/8" primed Medium Density Overlay (MDO) **OR** 3-millimeter corrugated plastic secured to exterior plywood (4' x 4').
- b. Contractor shall not use previously provided templates and/or fonts.

3. Execution

- a. The sign(s) shall be printed on a project-by-project basis in black and white, using the template and font provided to the Contractor by the St. Tammany Parish Government Project Manager.
- b. All signage proofed and approved by State Tammany Parish Government before project sign(s) are to be produced by the Contractor.
- c. Exact placement of the project sign(s) must be coordinated with, and approved by, the St. Tammany Parish Government Project Manager prior to sign installation.
- d. The sign(s) is to be installed such that the bottom of the sign is a minimum of 5' above the existing ground elevation.
- e. Sign(s) is to be maintained throughout the period of construction. If sign(s) is damaged or destroyed, repair and/or replacement of sign(s) will be at Contractor's expense.
- f. Contractor is responsible for the removal of all project signs upon issuance of final acceptance by the St. Tammany Parish Government Project Manager at no direct pay.
- g. Cost to be included in "Temporary Signs and Barricades

Blank Template of Parish Project Sign:



MICHAEL B. COOPER
Parish President

Councilmember Name
Council District X

Total Dollar \$
amount specified here

\$XXX,XXX.XX

Project Name
Description of
Project Work

Name of Street, Bridge,
Subdivision, etc. stated here

Short Description of Project stated here
(if deemed applicable by the Parish)

Example of a Completed Parish Project Sign:



MICHAEL B. COOPER
Parish President

RYKERT O. TOLEDANO, JR
Council District 5

\$514,444.40

**Dove Park
Subdivision Drainage**
Drainage Improvements along
Swallow St., Sparrow St.,
Partridge St. and Egret St.

Section 08

General Conditions for St. Tammany Parish Government

This index is for illustrative purposes only and is not intended to be complete nor exhaustive.

All bidders/contractors are presumed to have read and understood the entire document. Some information contained in these conditions may not be applicable to all projects.

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01.00 DEFINITIONS OF TERMS

Whenever used in these General Conditions or in other Contract Documents, the following terms shall have the meanings indicated, and these shall be applicable to both the singular and plural thereof.

- 01.01 A.A.S.H.T.O American Association of State Highway and Transportation Officials. When A.A.S.H.T.O. is referred to in these Specifications it takes the meaning of the specification for materials and methods of testing specified by this association and the specification stated is considered to be a part of the Specifications as if written herein in full.
- 01.02 A.C.I American Concrete Institute. When A.C.I. is referred to in these Specifications it takes the meaning of the specification for materials and methods of testing specified by this institute and the specification stated is considered to be a part of the Specifications as if written herein in full.
- 01.03 Addenda Written or graphic instruments issued prior to the opening of bids which clarify, correct, modify or change the bidding or Contract Documents.
- 01.04 Advertisement The written instrument issued by the Owner at the request of the Owner used to notify the prospective bidder of the nature of the Work. It becomes part of the Contract Documents.
- 01.05 Agreement The written agreement or contract between the Owner and the Contractor covering the Work to be performed and the price that the Owner will pay. Other documents, including the Proposal, Addenda, Specifications, plans, surety, insurance, etc., are made a part thereof.
- 01.06 Application for Payment The form furnished by the Owner which is to be used by the Contractor in requesting incremental (progress) payments and which is to include information required by Section 28.01 and an affidavit of the Contractor. The affidavit shall stipulate that progress payments theretofore received from the Owner on account of the Work have been applied by Contractor to discharge in full of all Contractor's obligations reflected in prior applications for payment.
- 01.07 A.S.T.M. American Society of Testing Materials. When A.S.T.M. is referred to in these Specifications it takes the meaning of the specification for materials and methods of testing specified by this society and the specification stated is considered to be a part of the Specifications as if written herein in full.
- 01.08 Bid The offer or Proposal of the Bidder submitted on the prescribed form setting forth all the prices for the Work to be performed.
- 01.09 Bidder Any person, partnership, firm or corporation submitting a Bid for the Work.
- 01.10 Bonds Bid, performance and payment bonds and other instruments of security, furnished by the Contractor and its surety in accordance with the Contract Documents and Louisiana law.
- 01.11 Change Order A written order to the Contractor signed by the Owner authorizing an addition, deletion or revision in the Work, or an adjustment in the Contract Price or the Contract Time after execution of the Agreement.
- 01.12 Contract Documents The Agreement, Addenda, Contractor's Bid and any documentation accompanying or post-bid documentation when attached as an exhibit, the Bonds, these General Conditions, the Advertisement for Bid, Notice to Contractor, all supplementary conditions, the Specifications, the Drawings, together with all Modifications issued after the execution of the Agreement.
- 01.13 Contract Price The total monies payable to the Contractor under the Contract Documents.

- 01.14 Contract Time The number of consecutive calendar days stated in the Agreement for the completion of the Work.
- 01.15 Contractor The person, firm, corporation or Contractor with whom the Owner has executed the Agreement.
- 01.16 Defective Work When work which is unsatisfactory, faulty or deficient for any reason whatsoever, or does not conform to the Contract Documents, or does not meet the requirements of any inspection, test or approval referred to in the Contract Documents, or has been damaged prior to the Owner's recommendation or acceptance.
- 01.17 Drawings The Drawings and plans which show the character and scope of the Work to be performed and which have been prepared or approved by the Owner and are referred to in the Contract Documents.
- 01.18 Field Order A written order issued by the Owner or his agent which clarifies or interprets the Contract Documents.
- 01.19 Modification (a) A written amendment of the Contract Documents signed by both parties, (b) A Change Order, (c) A written clarification or interpretation issued by the Owner or his agent. Modification may only be issued after execution of the Agreement.
- 01.20 Notice of Award The written notice by Owner to the lowest responsible Bidder stating that upon compliance of the conditions enumerated in the Notice of Award, or enumerated in the Bid documents, the Owner will deliver the Contract Documents for signature. The time for the delivery of the Contract Documents can be extended in conformance with Louisiana Law.
- 01.21 Notice to Contractor Instructions, written or oral given by Owner to Contractor and deemed served if given to the Contractor's superintendent, foreman or mailed to Contractor at his last known place of business.
- 01.22 Notice to Proceed A written notice given by the Owner fixing the date on which the Contract Time will commence, and on which date the Contractor shall start to perform his obligation under the Contract Documents. Upon mutual consent by both parties, the Notice to Proceed may be extended.
- 01.23 Owner St. Tammany Parish Government, acting herein through its duly constituted and authorized representative, including but not limited to the Office of the Parish President or its designee, its Chief Administrative Officer, and/or Legal Counsel. St. Tammany Parish Government (hereinafter, the "Parish") and Owner may be used interchangeably.
- 01.24 Project The entire construction to be performed as provided in the Contract Documents.
- 01.25 Project Representative The authorized representative of the Owner who is assigned to the Project or any parts thereof.
- 01.26 Proposal The Bid submitted by the Bidder to the Owner on the Proposal form setting forth the Work to be done and the price for which the Bidder agrees to perform the Work.
- 01.27 Shop Drawings All drawings, diagrams, illustrations, brochures, schedules and other data which are prepared by the Contractor, Subcontractor, Manufacturer, Supplier or Distributor and which illustrate the equipment, material or some portion of the Work.
- 01.28 Specifications The Instructions to Bidders, these General Conditions, the Special Conditions and the Technical Provisions. All of the documents listed in the "Table of Contents."
- 01.29 Subcontractor An individual, firm or corporation having a direct Contract with the Contractor or with any other Subcontractor for the performance of a part of the Project Work.
- 01.30 Substantial Completion The date as certified by the Owner or its agent when the construction of the Project or a specified part thereof is sufficiently complete in accordance with the Contract Documents so that the Project or specified part can be utilized for the

purposes for which it was intended; or if there is no such certification, the date when final payment is due in accordance with Section 28.

- 01.31 Superintendent Contractor's site representative. The person on the site who is in full and complete charge of the Work.
- 01.32 Time Unless specifically stated otherwise, all time delays shall be calculated in calendar days.
- 01.33 Work Any and all obligations, duties and responsibilities necessary to the successful completion of the Project assigned to or undertaken by the Contractor under the Contract Documents, usually including the furnishing of all labor, materials, equipment and other incidentals.
- 01.34 The terms "he/himself" may be used interchangeably with "it/itself."

02.00 PROPOSAL

- 02.01 All papers bound with or attached to the Proposal Form are a necessary part thereof and must not be detached.
- 02.02 For submitting Bids, the only forms allowed shall be the "Louisiana Uniform Public Work Bid Form", "Louisiana Uniform Public Works Bid Form Unit Price Form" (if necessary), the Bid Bond, and written evidence of authority of person signing the bid. Necessary copies of the Louisiana Uniform Public Work Forms will be furnished for Bidding. Bound sets of the Contract Documents are for Bidder's information and should not be used in submitting Bids.
- 02.03 Proposal forms must be printed in ink or typed, unless submitted electronically. Illegibility or ambiguity therein may constitute justification for rejection of the Bid.
- 02.04 Each Bid must be submitted in a sealed envelope, unless submitted electronically. The outside of the envelope shall show the name and address of the Bidder, the State Contractor's License Number of the Bidder (if work requires contractor's license), and the Project name and number for which the Bid is submitted, along with the Bid number.
- 02.05 The price quoted for the Work shall be stated in words and figures on the Bid Form, and in numbers only on the Unit Price Form. The price in the Proposal shall include all costs necessary for the complete performance of the Work in full conformity with the conditions of the Contract Documents, and shall include all applicable Federal, State, Parish, Municipal or other taxes. The price bid for the items listed on the Unit Price Form will include the cost of all related items not listed, but which are normally required to do the type of Work bid.
- 02.06 The Bid shall be signed by the Bidder. The information required on the Louisiana Uniform Public Work Bid Form must be provided. Evidence of agency, corporate, or partnership authority is required and shall be provided in conformance with LSA-R.S. 38:2212(B).
- 02.07 Only the Contractors licensed by the State to do the type of Work involved can submit a Proposal for the Work. The envelope containing the Proposal shall have the Contractor's license number on it. Failure to be properly licensed constitutes authority by the Owner for rejection of Bid.
- 02.08 Bidders shall not attach any conditions or provisions to the Proposal. Any conditions or provisions so attached may, at the sole option of the Owner, cause rejection of the Bid or Proposal.
- 02.09 A Bid Guarantee of five percent (5%) of the amount of the total Bid, including Alternates, must accompany the Proposal and, at the option of the Bidder, may be a cashier's check, certified check or a satisfactory Bid Bond. The Bid Guarantee must be attached to the Louisiana Uniform Public Work Bid Form. No Bid will be considered unless it is so guaranteed. Cashier's check or certified check must be made payable to the order of the Owner. Cash deposits will not be accepted. The Owner reserves the right to cash or deposit the cashier's check or certified check. Such guarantees shall be made payable to the Parish

of St. Tammany. In accordance with LSA-R.S. 38:2218(C), if a bid bond is used, it shall be written by a surety or insurance company currently on the U.S. Department of the Treasury Financial Management Service list of approved bonding companies which is published annually in the Federal Register, or by a Louisiana domiciled insurance company with at least an A- rating in the latest printing of the A.M. Best's Key Rating Guide to write individual bonds up to ten percent of policyholders' surplus as shown in the A.M. Best's Key Rating Guide, or by an insurance company in good standing licensed to write bid bonds which is either domiciled in Louisiana or owned by Louisiana residents. It is **not** required to be on any AIA form.

- 02.10 Bid securities of the three (3) lowest Bidders will be retained by the Owner until the Contract is executed or until final disposition is made of the Bids submitted. Bid securities of all other Bidders will be returned promptly after the canvas of Bids. Bids shall remain binding for forty-five (45) days after the date set for Bid Opening. The Parish shall act within the forty-five (45) days to award the contract to the lowest responsible bidder or reject all bids as permitted by Public Bid Law. However, the Parish and the lowest responsible bidder, by mutual written consent, may agree to extend the deadline for award by one or more extensions of thirty (30) calendar days. In the event the Owner issued the Letter of Award during this period, or any extension thereof, the Bid accepted shall continue to remain binding until the Execution of the Contract.
- 02.11 A Proposal may be withdrawn at any time prior to the scheduled closing time for receipt of Bids, provided the request is in writing, executed by the Bidder or its duly authorized representative and is filed with the Owner prior to that time. When such a request is received, the Proposal will be returned to the Bidder unopened.
- 02.12 Written communications, over the signature of the Bidder, to modify Proposals will be accepted and the Proposal corrected in accordance therewith if received by the Owner prior to the scheduled closing time for receipt of Bids. Oral, telephonic or telegraphic Modifications will not be considered.
- 02.13 No oral interpretation obligating the Owner will be made to any Bidder as to the meaning of the Drawings, Specifications and Contract Documents. Every request for such an interpretation shall be made in writing and addressed and forwarded to the Owner. No inquiry received within seven (7) days prior to the day fixed for opening of the Bids shall be given consideration. Every interpretation made to the Bidder shall be in the form of an addendum to the Specifications. All such Addenda shall become part of the Contract Documents. Failure of Bidder to receive any such interpretation shall not relieve any Bidder from any obligation under this Bid. All Addenda shall be issued in accordance with the Public Bid Law, LSA-R.S. 38:2212(O)(2)(a) and (b).
- 02.14 The Owner reserves the right to reject any or all Bids for just cause in accordance with the Public Bid Law, LSA-R.S. 38:2214(B). Incomplete, informal or unbalanced Bids may be rejected. Reasonable grounds for belief that any one Bidder is concerned directly or indirectly with more than one Bid will cause rejection of all Bids wherein such Bidder is concerned. If required, a Bidder shall furnish satisfactory evidence of its competence and ability to perform the Work stipulated in its Proposal. Incompetence will constitute cause for rejection. If the Parish determines that the bidder is not responsive or responsible for any reason whatsoever, the bid may be rejected in accordance with State law.
- 02.15 The Contractor shall indemnify and hold harmless the Owner from any and all suits, costs, penalties or claims for infringement by reason of use or installation of any patented design, device, material or process, or any trademark and copyright in connection with the Work agreed to be performed under this Contract, and shall indemnify and hold harmless the Owner for any costs, expenses and damages which it may be obliged to pay by reason of any such infringement at any time during the prosecution or after completion of the Work.
- 02.16 Bidders shall familiarize themselves with and shall comply with all applicable Federal and State Laws, municipal ordinances and the rules and regulations of all authorities having jurisdiction over construction of the Project, which may directly or indirectly affect the Work or its prosecution. These laws and/or ordinances will be deemed to be included in the Contract, as though herein written in full.
- 02.17 Each Bidder shall visit the site of the proposed Work and fully acquaint itself with all surface and subsurface conditions as they may exist so that it may fully understand this

Contract. Bidder shall also thoroughly examine and be familiar with drawings, Specifications and Contract Documents. The failure or omission of any Bidder to receive or examine any form instrument, Drawing or document or to visit the site and acquaint itself with existing conditions, shall in no way relieve any Bidder from any obligation with respect to its Bid and the responsibility in the premises.

- 02.18 The standard contract form enclosed with the Proposal documents is a prototype. It is enclosed with the Contract Documents for the guidance of the Owner and the Contractor. It has important legal consequences in all respects and consultation with an attorney is encouraged. Contractor shall be presumed to have consulted with its own independent legal counsel.
- 02.19 When one set of Contract plans show the Work to be performed by two or more prime Contractors, it is the responsibility of each Bidder to become knowledgeable of the Work to be performed by the other where the Work upon which this bid is submitted is shown to come into close proximity or into conflict with the Work of the other. In avoiding conflicts, pressure pipe lines must be installed to avoid conflict with gravity pipe lines and the Bidder of the smaller gravity pipe line in conflict with the larger gravity pipe line must include in his Bid the cost of a conflict box at these locations. The location of and a solution to the conflicts do not have to be specifically noted as such on the plans.
- 02.20 Bidder shall execute affidavit(s) attesting compliance with LSA-R.S. 38:2212.10, 38:2224, 38:2227, each as amended, and other affidavits as required by law, prior to execution of the contract.
- 02.21 Sealed Proposals (Bid) shall be received by St. Tammany Parish Government at the office of St. Tammany Parish Government, Department of Procurement, 21454 Koop Drive, Suite 2-F, Mandeville, LA 70471, until the time and date denoted in Notice to Bidders, at which time and place the Proposals (Bids), shall be publicly opened and read aloud to those present. In accordance with LSA-R.S. 38-2212(A)(3)(c)(i), the designer's final estimated cost of construction shall be read aloud upon opening bids. Sealed Proposals (Bids) may also be mailed by certified mail to St. Tammany Parish Government, Department of Procurement, 21454 Koop Drive, Suite 2-F, Mandeville, LA 70471, and must be received before the bid opening. Bids may also be submitted electronically. Information concerning links for electronic bidding is contained in the Notice to Bidders.
- 02.22 Proposals (Bids) shall be executed on Forms furnished and placed in a sealed envelope, marked plainly and prominently as indicated in the Notice to Bidders, and these General Conditions, and addressed:

St. Tammany Parish Government
Department of Procurement
21454 Koop Drive, Suite 2-F
Mandeville, LA 70471

- 02.23 See Notice to Bidders for availability of Drawings, Specifications and Contract Documents via electronic methods.
- 02.24 The successful Bidder shall be required to post in each direction a public information sign, 4' x 4' in size, at the location of the project containing information required by the Owner. The Owner shall supply this information.

03.00 AWARD, EXECUTION OF DOCUMENTS, BONDS, ETC.

- 03.01 The award of the Contract, if it is awarded, will be to the lowest responsible Bidder, in accordance with State Law. No award will be made until the Owner has concluded such investigations as it deems necessary to establish the responsibility, qualifications and financial ability and stability of the Bidder to do the Work in accordance with the Contract Documents to the satisfaction of the Owner within the time prescribed as established by the Department based upon the amount of work to be performed and the conditions of same. The written contract and bond shall be issued in conformance with LSA-R.S. 38:2216. The Owner reserves the right to reject the Bid of any Bidder in accordance with the Public Bid Law, LSA-R.S. 38:2214. If the Contract is awarded, the Owner shall give the successful Bidder written notice of the award within forty-five (45) calendar days after

the opening of the Bids in conformance with LSA-R.S. 38:2215(A), or any extension as authorized thereunder.

- 03.02 At least three counterparts of the Agreement and of such other Contract Documents as practicable shall be signed by the Owner and the Contractor. The Owner shall identify those portions of the Contract Documents not so signed and such identification shall be binding on both parties. The Owner and the Contractor shall each receive an executed counterpart of the Contract Documents.
- 03.03 Prior to the execution of the Agreement, the Contractor shall deliver to the Owner the required Bonds.
- 03.04 Failure of the successful Bidder to execute the Agreement and deliver the required Bonds within twenty (20) days of the Notice of the Award shall be just cause for the Owner to annul the award and declare the Bid and any guarantee thereof forfeited.
- 03.05 In order to ensure the faithful performance of each and every condition, stipulation and requirement of the Contract and to indemnify and save harmless the Owner from any and all damages, either directly or indirectly arising out of any failure to perform same, the successful Bidder to whom the Contract is awarded shall furnish a surety Bond in an amount of at least equal to one hundred percent (100%) of the Contract Price. The Contract shall not be in force or binding upon the Owner until such satisfactory Bond has been provided to and approved by the Parish. The cost of the Bond shall be paid for by the Contractor unless otherwise stipulated in the Special Provisions.
- 03.06 No surety Company will be accepted as a bondsman who has no permanent agent or representative in the State upon whom notices referred to in the General Conditions of these Specifications may be served. Services of said notice on said agent or representative in the State shall be equal to service of notice on the President of the Surety Company, or such other officer as may be concerned.
- 03.07 In conformance with LSA-R.S. 38:2219(A)(1)(a), (b), and (c):

Any surety bond written for a public works project shall be written by a surety or insurance company currently on the U.S. Department of the Treasury Financial Management Service list of approved bonding companies which is published annually in the Federal Register, or by a Louisiana domiciled insurance company with at least an A- rating in the latest printing of the A.M. Best's Key Rating Guide, to write individual bonds up to ten percent of policyholders' surplus as shown in the A.M. Best's Key Rating Guide or by an insurance company that is either domiciled in Louisiana or owned by Louisiana residents and is licensed to write surety bonds.

For any public works project, no surety or insurance company shall write a bond which is in excess of the amount indicated as approved by the U.S. Department of the Treasury Financial Management Service list or by a Louisiana domiciled insurance company with an A- rating by A.M. Best up to a limit of ten percent of policyholders' surplus as shown by A.M. Best; companies authorized by this Paragraph who are not on the treasury list shall not write a bond when the penalty exceeds fifteen percent of its capital and surplus, such capital and surplus being the amount by which the company's assets exceed its liabilities as reflected by the most recent financial statements filed by the company with the Department of Insurance.

In addition, any surety bond written for a public works project shall be written by a surety or insurance company that is currently licensed to do business in the state of Louisiana. All contractors must comply with any other applicable provisions of LSA-R.S. 38:2219.

- 03.08 Should the Contractor's Surety, even though approved and accepted by the Owner, subsequently remove its agency or representative from the State or become insolvent, bankrupt, or otherwise fail, the Contractor shall immediately furnish a new Bond in another company approved by the Owner, at no cost to the Owner. The new Bond shall be executed under the same terms and conditions as the original Bond. The new bond shall be submitted within thirty (30) days of such time as the Owner notifies Contractor or from the time Contractor learns or has reason to know that the original surety is no longer financially viable or acceptable to the Parish, whichever occurs first. In the event that Contractor fails

or refuses to timely secure additional surety, then the Owner may secure such surety and thereafter deduct such cost or expense from any sum due or to become due Contractor.

- 03.09 The Contractor's bondsman shall obligate itself to all the terms and covenants of these Specifications and of contracts covering the Work executed hereunder. The Owner reserves the right to do Extra Work or make changes by altering, adding to deducting from the Work under the conditions and in the manner herein before described without notice to the Contractor's surety and without in any manner affecting the liability of bondsman or releasing it from any of its obligations hereunder.
- 03.10 The Bond shall also secure for the Owner the faithful performance of the Contract in strict accordance with plans and Specifications. It shall protect the Owner against all lien laws of the State and shall provide for payment of reasonable attorney fees for enforcement of Contract and institution or concursus proceedings, if such proceedings become necessary. Likewise, it shall provide for all additional expenses of the Owner occurring through failure of the Contractor to perform.
- 03.11 The surety of the Contractor shall be and does hereby declare and acknowledge itself by acceptance to be bound to the Owner as a guarantor, jointly and in solido, with the Contractor, for fulfillment of terms of Section 03.00.
- 03.12 The performance Bond and Labor and Material Bond forming part of this Contract shall be continued by Contractor and its Surety for a period of one (1) year from date of acceptance of this Contract by Owner to assure prompt removal and replacement of all defective material, equipment, components thereof, workmanship, etc., and to assure payment of any damage to property of Owner or others as a result of such defective materials, equipment, workmanship, etc.
- 03.13 Contractor shall pay for the cost of recording the Contract and Bond and the cost of canceling same. Contractor shall also secure and pay for all Clear Lien and Privilege Certificates (together with any updates) which will be required before any final payment is made, and that may be required before any payment, at the request of the Owner, its representative, agent, architect, engineer and the like. All recordation and Clear Lien and Privilege Certificate requirements shall be in accordance with those requirements noted herein before in contract Specifications.

04.00 SUBCONTRACTS

- 04.01 Contractor shall be fully responsible for all acts and omissions of its Subcontractors and of persons and organizations for whose acts any of them may be liable to the same extent that it is responsible for the acts and omissions of persons directly employed by it. Nothing in the Contract Documents shall create any contractual relationship between Owner and any Subcontractor or other person or organization having a direct Contract with Contractor, nor shall it create any obligation on the part of the Owner to pay or to see to the payment of any monies due any Subcontractor.
- 04.02 Nothing in the Contract Documents shall be construed to control the Contractor in dividing the Work among approved Subcontractors or delineating the Work to be performed by any trade.
- 04.03 The Contractor agrees to specifically bind every Subcontractor to all of the applicable terms and conditions of the Contract Documents prior to commencing Work. Every Subcontractor, by undertaking to perform any of the Work, shall thereby automatically be deemed bound by such terms and conditions.
- 04.04 The Contractor shall indemnify and hold harmless the Owner and their agents and employees from and against all claims, damages, losses and expenses including Attorney's fees arising out of or resulting from the Contractor's failure to bind every Subcontractor and Contractor's surety to all of the applicable terms and conditions of the Contract Documents.

05.00 ASSIGNMENT

- 05.01 Neither party to this Contract shall assign or sublet its interest in this Contract without prior written consent of the other, nor shall the Contractor assign any monies due or to become due to it under this Contract without previous written consent of the Owner, nor without the consent of the surety unless the surety has waived its right to notice of assignment.

06.00 CORRELATION, INTERPRETATION AND INTENT OF CONTRACT DOCUMENTS.

- 06.01 It is the intent of the Specifications and Drawings to describe a complete Project to be constructed in accordance with the Contract Documents. The Contract Documents comprise the entire Agreement between Owner and Contractor. Alterations, modifications and amendments shall only be in writing between these parties.
- 06.02 The Contract Documents are intended to be complimentary and to be read *in pari materii*, and what is called for by one is as binding as if called for by all. If Contractor finds a conflict, error or discrepancy in the Contract Documents, it shall call it to the Owner's attention, in writing, at once and before proceeding with the Work affected thereby; however, it shall be liable to Owner for its failure to discover any conflict, error or discrepancy in the Specifications or Drawings. In resolving such conflicts, errors and discrepancies, the documents shall be given precedence in the following order: Agreement, Modifications, Addenda, Special Conditions, General Conditions, Construction Specifications and Drawings. The general notes on the plans shall be considered special provisions. Figure dimensions on Drawings shall govern over scale dimensions and detail Drawings shall govern over general Drawings. Where sewer connections are shown to fall on a lot line between two lots, the Contractor shall determine this location by measurement not by scale. Any Work that may reasonably be inferred from the Specifications or Drawings as being required to produce the intended result shall be supplied whether or not it is specifically called for. Work, materials or equipment described herein which so applied to this Project are covered by a well-known technical meaning or specification shall be deemed to be governed by such recognized standards unless specifically excluded.
- 06.03 Unless otherwise provided in the Contract Documents, the Owner will furnish to the Contractor (free of charge not to exceed ten (10) copies) Drawings and Specifications for the execution of Work. The Drawings and Specifications are the property of the Owner and are to be returned to it when the purpose for which they are intended have been served. The Contractor shall keep one copy of all Drawings and Specifications, including revisions, Addenda, details, Shop Drawings, etc. on the Work in good order and available to the Owner or the regulatory agency of the governmental body having jurisdiction in the area of the Work.

07.00 SHOP DRAWINGS, BROCHURES AND SAMPLES

- 07.01 After checking and verifying all field measurements, Contractor shall submit to Owner for approval, five copies (or at Owner's option, one reproducible copy) of all Shop Drawings, which shall have been checked by and stamped with the approval of Contractor and identified as Owner may require. The data shown on the Shop Drawings will be complete with respect to dimensions, design criteria, materials of construction and the like to enable Owner to review the information as required.
- 07.02 Contractor shall also submit to Owner, for review with such promptness as to cause no delay in Work, all samples as required by the Contract Documents. All samples will have been checked by and stamped with the approval of Contractor identified clearly as to material, manufacturer, any pertinent catalog numbers and the use for which intended. At the time of each submission, Contractor shall in writing call Owner's attention to any deviations that the Shop Drawings or samples may have from the requirements of the Contract Documents.
- 07.03 Owner will review with reasonable promptness Shop Drawings and samples, but its review shall be only for conformance with the design concept of the Project and for compliance with the information given in the Contract Documents. The review of a separate item as such will not indicate approval of the assembly in which the item functions. Contractor shall make any corrections required by Owner and shall return the required number of

corrected copies of Shop Drawings and resubmit new samples for review. Contractor shall direct specific attention in writing or on resubmitted Shop Drawings to revisions other than the corrections called for by Owner on previous submissions. Contractor's stamp of approval on any Shop Drawing or sample shall constitute a representation to Owner that Contractor has determined and verified all quantities, dimensions, field construction criteria, materials catalog numbers and similar data and thereafter assumes full responsibility for doing so, and that it has reviewed or coordinated each Shop Drawing or sample with the requirements of the Work and the Contract Documents.

- 07.04 Where a Shop Drawing or sample submission is required by the Specifications, no related Work shall be commenced until the submission has been reviewed by Owner. A copy of each reviewed shop Drawing and each inspected sample shall be kept in good order by Contractor at the site and shall be available to Owner.
- 07.05 Owner's review of Shop Drawings or samples shall not relieve Contractor from its responsibility for any deviations from the requirements of the Contract Documents unless Contractor has in writing called Owner's attention to such deviation at the time of submission and Owner has given written approval to the specific deviation, nor shall any review by Owner relieve Contractor from responsibility for errors or omissions in the Shop Drawings. The mere submittal of shop drawings which contain deviations from the requirements of plans, specifications and/or previous submittals in itself does not satisfy this requirement.

08.00 RECORD DRAWINGS

- 08.01 The Contractor shall keep an accurate record in a manner approved by the Owner of all changes in the Contract Documents during construction. In Work concerning underground utilities, the Contractor shall keep an accurate record in a manner approved by the Owner of all valves, fittings, etc. Before the Work is accepted by the Owner, and said acceptance is recorded, the Contractor shall furnish the Owner a copy of this record.
- 08.02 Contractor shall keep an accurate drawing measured in the field to the nearest 0.1' of the location of all sewer house connections. The location shown shall be the end of the connection at the property line measured along the main line of pipe from a manhole.
- 08.03 Contractor shall keep an accurate drawing of the storm water drainage collection system. Inverts to the nearest 0.01' and top of castings shall be shown as well as location of all structures to the nearest 0.1'. Upon completion of the Work, the plan will be given to the Owner.

09.00 PROGRESS OF WORK

- 09.01 Contractor shall conduct the Work in such a professional manner and with sufficient materials, equipment and labor as is considered necessary to ensure its completion within the time limit specified.
- 09.02 The Owner shall issue a Notice to Proceed to the Contractor within twenty (20) calendar days from the date of execution of the Contract. Upon mutual consent by both parties, the Notice to Proceed may be extended. The Contractor is to commence Work under the Contract within ten (10) calendar days from the date the Notice to Proceed is issued by the Owner.
- 09.03 The Contractor, immediately after being awarded the Contract, shall prepare and submit for the Owner's approval an estimated progress schedule for the work to be performed, as well as a construction signing layout for all roads within the project area. The Contractor shall not start work or request partial payment until the work schedule has been submitted to the Owner for approval.
- 09.04 Revisions to the original schedule will be made based on extension of days granted for inclement weather or change orders issued under the contract. No other revision shall be made which affects the original completion or updated completion date, whichever is applicable.

- 09.05 Failure of the Contractor to submit an estimated progress schedule or to complete timely and on schedule the Work shown on the progress schedule negates any and all causes or claims by the Contractor for accelerated completion damages. These accelerated damage claims shall be deemed forfeited.
- 09.06 Meetings will be held as often as necessary to expedite the progress of the job. Meetings will be held during normal working hours at the jobsite and shall be mandatory for the Contractor and all Sub-Contractors working on the project. Meetings may be requested by the Owner at any time and at the discretion of the Owner.

10.00 OWNER'S RIGHT TO PROCEED WITH PORTIONS OF THE WORK

- 10.01 Upon failure of the Contractor to comply with any notice given in accordance with the provisions hereof, the Owner shall have the alternative right, instead of assuming charge of the entire Work, to place additional forces, tools, equipment and materials on parts of the Work. The cost incurred by the Owner in carrying on such parts of the Work shall be payable by the Contractor. Such Work shall be deemed to be carried on by the Owner on account of the Contractor. The Owner may retain all amounts of the cost of such Work from any sum due Contractor or those funds that may become due to Contractor under this Agreement.
- 10.02 Owner may perform additional Work related to the Project by itself or it may let any other direct contract which may contain similar General Conditions. Contractor shall afford the other contractors who are parties to such different contracts (or Owner, if it is performing the additional Work itself) reasonable opportunity for the introduction and storage of materials and equipment and the execution of Work, and shall properly connect and coordinate its Work with the subsequent work.
- 10.03 If any part of Contractor's Work depends upon proper execution or results upon the Work of any such other contractor (or Owner), Contractor shall inspect and promptly report to Owner in writing any defects or deficiencies in such Work that render it unsuitable for such proper execution and results. Failure to so report shall constitute an acceptance of the other Work as fit and proper for the relationship of its Work except as to defects and deficiencies which may appear in the other Work after the execution of its Work.
- 10.04 Whatever Work is being done by the Owner, other Contractors or by this Contractor, the parties shall respect the various interests of the other parties at all times. The Owner may, at its sole discretion, establish additional rules and regulations concerning such orderly respect of the rights of various interests.
- 10.05 Contractor shall do all cutting, fitting and patching of its Work that may be required to integrate its several parts properly and fit to receive or be received by such other Work. Contractor shall not endanger any Work of others by cutting, excavating or otherwise altering Work and will only alter Work with the written consent of Owner and of the other contractors whose Work will be affected.
- 10.06 If the performance of additional Work by other contractors or Owner is not noted in the Contract Documents, written notice thereof shall be given to Contractor prior to starting any such additional Work. If Contractor believes that the performance of such additional Work by Owner or others may cause additional expense or entitles an extension of the Contract Time, the Contractor may make a claim therefor. The claim must be in writing to the Owner within thirty (30) calendar days of receipt of notice from the Owner of the planned additional Work by others.

11.00 TIME OF COMPLETION

- 11.01 The Notice to Proceed will stipulate the date on which the Contractor shall begin work. That date shall be the beginning of the Contract Time charges.
- 11.02 Contractor shall notify the Owner through its duly authorized representative, in advance, of where Contractor's work shall commence each day. A daily log shall be maintained by Contractor to establish dates, times, persons contacted, and location of work. Specific notice shall be made to the Owner if the Contractor plans to work on Saturday, Sunday, or

a Parish approved holiday. If notice is not received, no consideration will be given for inclement weather and same shall be considered a valid work day.

- 11.03 The Work covered by the Plans, Specifications and Contract Documents must be completed sufficiently for acceptance within the number of calendar days specified in the Proposal and/or the Contract, commencing from the date specified in the Notice to Proceed. It is hereby understood and mutually agreed, by and between the Contractor and the Owner, that the time of completion is an essential condition of this Contract, and it is further mutually understood and agreed that if the Contractor shall neglect, fail or refuse to complete the Work within the time specified, or any proper extension thereof granted by the Owner, then the Contractor does hereby agree, as partial consideration for the awarding of this Contract, to pay the Owner based on **Table 3.1** as specified in the Contract, not as a penalty, but as liquidated damages for such breach of contract for each and every calendar day that the Contractor shall be in default after the time stipulated in the Contract for completing the Work. It is specifically understood that the Owner shall also be entitled to receive a reasonable attorney fee and all costs in the event that Contractor fails to adhere to this agreement and this contract is referred to counsel for any reason whatsoever. Reasonable attorney fees shall be the prevailing hourly rate of the private sector, and in no event shall the hourly rate be less than \$175.00 per hour. All attorney fees shall be paid to the operating budget of the Office of the Parish President.
- 11.04 Prior to final payment, the Contractor may, in writing to the Owner, certify that the entire Project is substantially complete and request that the Owner or its agent issue a certificate of Substantial Completion. See Section 29.00.
- 11.05 The Owner may grant an extension(s) of time to the Contractor for unusual circumstances which are beyond the control of the Contractor and could not reasonably be foreseen by the Contractor prior to Bidding. Any such request must be made in writing to the Owner within seven (7) calendar days following the event occasioning the delay. The Owner shall have the exclusive and unilateral authority to determine, grant, and/or deny the validity of any such claim.
- 11.06 Extensions of time for inclement weather shall be processed as follows:

Commencing on the start date of each job, the Parish Inspector assigned to same shall keep a weekly log, indicating on each day whether inclement weather has prohibited the Contractor from working on any project within the specific job, based upon the following:

1. Should the Contractor prepare to begin work on any day in which inclement weather, or the conditions resulting from the weather, prevent work from beginning at the usual starting time, and the crew is dismissed as a result, the Contractor will not be charged for a working day whether or not conditions change during the day and the rest of the day becomes suitable for work.
2. If weather conditions on the previous day prevent Contractor from performing work scheduled, provided that no other work can be performed on any project within the package. The Parish Inspector shall determine if it is financially reasonable to require the Contractor to deviate from the schedule and relocate to another location.
3. If the Contractor is unable to work at least 60% of the normal work day due to inclement weather, provided that a normal working force is engaged on the job.

Any dispute of weather conditions as related to a specific job shall be settled by records of the National Weather Service.

- 11.07 Extensions of time for change orders

When a change order is issued, the Owner and Contractor will agree on a reasonable time extension, if any, to implement such change. Consideration shall be given for, but not limited to, the following:

1. If material has to be ordered;
2. Remobilization and or relocation of equipment to perform task; and
3. Reasonable time frame to complete additional work.

Time extensions for change orders shall be reflected on the official document signed by the Owner and Contractor.

- 11.08 At the end of each month, the Owner or its agent will furnish to the Contractor a monthly statement which reflects the number of approved days added to the contract. The Contractor will be allowed fourteen (14) calendar days in which to file a written protest setting forth in what respect the monthly statement is incorrect; otherwise, the statement shall be considered accepted by the Contractor as correct.
- 11.09 Apart from extension of time for unavoidable delays, no payment or allowance of any kind shall be made to the Contractor as compensation for damages because of hindrance or delay for any cause in the progress of the Work, whether such delay be avoidable or unavoidable.

12.00 LIQUIDATED DAMAGES

- 12.01 In case the Work is not completed in every respect within the time that may be extended, it is understood and agreed that per diem deductions per **Table 3.1** for liquidated damages, as stipulated in the Proposal and/or Contract, shall be made from the total Contract Price for each and every calendar day after and exclusive of the day on which completion was required, and up to the completion of the Work and acceptance thereof by the Owner. It is understood and agreed that time is of the essence to this Contract, and the above sum being specifically herein agreed upon in advance as the measure of damages to the Owner on account of such delay in the completion of the Work. It is further agreed that the expiration of the term herein assigned or as may be extended for performing the Work shall, *ipso facto*, constitute a putting in default, the Contractor hereby waiving any and all notice of default. The Contractor agrees and consents that the Contract Price, reduced by the aggregate of the entire damages so deducted, shall be accepted in full satisfaction of all Work executed under this Contract. It is further understood and agreed that Contractor shall be liable for a reasonable attorney fee and all costs associated with any breach of this agreement, including but not limited to this subsection. In the event that any dispute or breach herein causes referrals to counsel, then Contractor agrees to pay a reasonable attorney fee at the prevailing hourly rate of the private sector. In no event shall the hourly rate be less than \$175.00 per hour.

13.00 LABOR, MATERIALS, EQUIPMENT, SUPERVISION, PERMITS AND TAXES

- 13.01 The Contractor shall provide and pay for all labor, materials, equipment, supervision, subcontracting, transportation, tools, fuel, power, water, sanitary facilities and all incidentals necessary for the completion of the Work in substantial conformance with the Contract Documents.
- 13.02 The Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. It shall at all times maintain good discipline and order at the site.
- 13.03 Unless otherwise specifically provided for in the Specifications, all workmanship, equipment, materials, and articles incorporated in the Work covered by this Contract are to be new and of the best grade of their respective kinds for the purpose intended. Samples of materials furnished under this Contract shall be submitted for approval to the Owner when and as directed.
- 13.04 Whenever a material or article required is specified or shown on the plans by using the name of a proprietary product or of a particular manufacturer or Contractor, any material or article which shall perform adequately the duties imposed by the general design will be considered equal, and satisfactory, providing the material or article so proposed is of equal substance and function and that all technical data concerning the proposed substitution be approved by the Owner prior to the Bidding. The Owner shall have the exclusive and unilateral discretion to determine quality and suitability in accordance with LSA-R.S. 38:2212(T)(2).

- 13.05 Materials shall be properly and securely stored so as to ensure the preservation of quality and fitness for the Work, and in a manner that leaves the material accessible to inspection. Materials or equipment may not be stored on the site in a manner such that it will interfere with the continued operation of streets and driveways or other contractors working on the site.
- 13.06 The Contractor, by entering into the Contract for this Work, sets itself forth as an expert in the field of construction and it shall supervise and direct the Work efficiently and with its best skill and attention. It shall be solely responsible for the means, methods, techniques, sequences and procedures of construction.
- 13.07 Contractor shall keep on the Work, at all times during its progress, a competent resident Superintendent, who shall not be replaced without written Notice to Owner except under extraordinary circumstances. The Superintendent will be Contractor's representative at the site and shall have authority to act on behalf of Contractor. All communications given to the Superintendent shall be as binding as if given to the Contractor. Owner specifically reserves the right to approve and/or disapprove the retention of a new superintendent, all to not be unreasonably withheld.
- 13.08 Any foreman or workman employed on this Project who disregards orders or instructions, does not perform his Work in a proper and skillful manner, or is otherwise objectionable, shall, at the written request of the Owner, be removed from the Work and shall be replaced by a suitable foreman or workman.
- 13.09 The Contractor and/or its assigned representative shall personally ensure that all subcontracts and divisions of the Work are executed in a proper and workmanlike manner, on scheduled time, and with due and proper cooperation.
- 13.10 Failure of the Contractor to keep the necessary qualified personnel on the Work shall be considered cause for termination of the Contract by the Owner.
- 13.11 Only equipment in good working order and suitable for the type of Work involved shall be brought onto the job and used by the Contractor. The Contractor is solely responsible for the proper maintenance and use of its equipment and shall hold the Owner harmless from any damages or suits for damages arising out of the improper selection or use of equipment. No piece of equipment necessary for the completion of the Work shall be removed from the job site without approval of the Owner.
- 13.12 All Federal, State and local taxes due or payable during the time of Contract on materials, equipment, labor or transportation, in connection with this Work, must be included in the amount bid by the Contractor and shall be paid to proper authorities before acceptance. The Contractor shall furnish all necessary permits and certificates and comply with all laws and ordinances applicable to the locality of the Work. The cost of all inspection fees levied by any governmental entity whatsoever shall be paid for by the Contractor.
- 13.13 In accordance with St. Tammany Police Jury Resolution 86-2672, as amended, the Contractor must provide in a form suitable to the Owner an affidavit stating that all applicable sales taxes for materials used on this project have been paid.
- 13.14 During the period that this Contract is in force, neither party to the Contract shall solicit for employment or employ an employee of the other.
- 13.15 All materials or equipment shown on the Drawings or included in these specifications shall be furnished unless written approval of a substitute is obtained from the Designer, or Owner if no separate designer.
- 13.16 If a potential supplier wishes to submit for prior approval a particular product other than a product specified in the contract documents, he shall do so no later than fourteen working days prior to the opening of bids. Within ten days, exclusive of holidays and weekends, after such submission, the prime design professional shall furnish to both the public entity and the potential supplier written approval or denial of the product submitted. The burden of proof of the equality of the proposed substitute is upon the proposer and only that information formally submitted shall be used by the Designer in making its decision.

13.17 The decision of the Designer/Owner shall be given in good faith and shall be final.

14.00 QUANTITIES OF ESTIMATE, CHANGES IN QUANTITIES, EXTRA WORK

- 14.01 Whenever the estimated quantities of Work to be done and materials to be furnished under this Contract are shown in any of the documents, including the Proposal, such are given for use in comparing Bids and the right is especially reserved, except as herein otherwise specifically limited, to increase or diminish same not to exceed twenty-five percent (25%) by the Owner to complete the Work contemplated by this Contract. Such increase or diminution shall in no way vitiate this Contract, nor shall such increase or diminution give cause for claims or liability for damages.
- 14.02 The Owner shall have the right to make alterations in the line, grade, plans, form or dimensions of the Work herein contemplated, provided such alterations do not change the total cost of the Project, based on the originally estimated quantities, and the unit prices bid by more than twenty-five percent (25%) and provided further that such alterations do not change the total cost of any major item, based on the originally estimated quantities and the unit price bid by more than twenty-five (25%). (A major item shall be construed to be any item, the total cost of which is equal to or greater than ten percent (10%) of the total Contract Price, computed on the basis of the Proposal quantity and the Contract unit price). Should it become necessary, for the best interest of the Owner, to make changes in excess of that herein specified, the same shall be covered by supplemental agreement either before or after the commencement of the Work and without notice to the sureties. If such alterations diminish the quantity of Work to be done, such shall not constitute a claim for damages for anticipated profits for the Work dispensed with, but when the reduction in amount is a material part of the Work contemplated, the Contractor shall be entitled to only reasonable compensation as determined by the Owner for overhead and equipment charges which it may have incurred in expectation of the quantity of Work originally estimated, unless specifically otherwise provided herein; if the alterations increase the amount of Work, the increase shall be paid according to the quantity of Work actually done and at the price established for such Work under this Contract except where, in the opinion of the Owner, the Contractor is clearly entitled to extra compensation.
- 14.03 Without invalidating the Contract, the Owner may order Extra Work or make changes by altering, adding to, or deducting from the Work, the Contract sum being adjusted accordingly. The consent of the surety must first be obtained when necessary or desirable, all at the exclusive discretion of the Owner. All the Work of the kind bid upon shall be paid for at the price stipulated in the Proposal, and no claims for any Extra Work or material shall be allowed unless the Work is ordered in writing by the Owner.
- 14.04 Extra Work for which there is no price or quantity included in the Contract shall be paid for at a unit price or lump sum to be agreed upon in advance in writing by the Owner and Contractor. Where such price and sum cannot be agreed upon by both parties, or where this method of payment is impracticable, the Owner may, at its exclusive and unilateral discretion, order the Contractor to do such Work on a Force Account Basis.
- 14.05 In computing the price of Extra Work on a Force Account Basis, the Contractor shall be paid for all foremen and labor actually engaged on the specific Work at the current local rate of wage for each and every hour that said foremen and labor are engaged in such Work, plus ten percent (10%) of the total for superintendence, use of tools, overhead, direct & indirect costs/expenses, pro-rata applicable payroll taxes, pro-rata applicable workman compensation benefits, pro-rata insurance premiums and pro-rata reasonable profit. The Contractor shall furnish satisfactory evidence of the rate or rates of such insurance and tax. The Contractor will not be able to collect any contribution to any retirement plans or programs.
- 14.06 For all material used, the Contractor shall receive the actual cost of such material delivered at the site of the Work, as shown by original receipted bill, to which shall be added five percent (5%). There will be absolutely no additional surcharges or additional fees attached hereto with respect to this subsection.
- 14.07 For any equipment used that is owned by the Contractor, the Contractor shall be allowed a rental based upon the latest prevailing rental price, but not to exceed a rental price as determined by the Associated Equipment Distributors (A.E.D. Green Book).

- 14.08 The Contractor shall also be paid the actual costs of transportation for any equipment which it owns and which it has to transport to the Project for the Extra Work. There will be absolutely no additional surcharges or additional fees attached hereto with respect to this subsection.
- 14.09 If the Contractor is required to rent equipment for Extra Work, but not required for Contract items, it will be paid the actual cost of rental and transportation of such equipment to which no percent shall be added. The basis upon which rental cost are to be charged shall be agreed upon in writing before the Work is started. Actual rental and transportation costs shall be obtained from receipted invoices and freight bills.
- 14.10 No compensation for expenses, fees or costs incurred in executing Extra Work, other than herein specifically mentioned herein above, will be allowed.
- 14.11 A record of Extra Work on Force Account basis shall be submitted to the Owner on the day following the execution of the Work, and no less than three copies of such record shall be made on suitable forms and signed by both the Owner or his representative on the Project and the Contractor. All bids for materials used on extra Work shall be submitted to the Owner by the Contractor upon certified statements to which will be attached original bills covering the costs of such materials.
- 14.12 Payment for Extra Work of any kind will not be allowed unless the same has been ordered in writing by the Owner.

15.00 STATUS OF THE ENGINEER (NOT APPLICABLE)

16.00 INJURIES TO PERSONS AND PROPERTY

- 16.01 The Contractor shall be held solely and exclusively responsible for all injuries to persons and for all damages to the property of the Owner or others caused by or resulting from the negligence of itself, its employees or its agents, during the progress of or in connection with the Work, whether within the limits of the Work or elsewhere under the Contract proper or as Extra Work. This requirement will apply continuously and not be limited to normal working hours or days. The Owner's construction review is for the purpose of checking the Work product produced and does not include review of the methods employed by the Contractor or to the Contractor's compliance with safety measures of any nature whatsoever. The Contractor agrees to pay a reasonable attorney fee and other reasonable attendant costs of the Owner in the event it becomes necessary for the Owner to employ an attorney to enforce this section or to protect itself against suit over the Contractor's responsibilities. Attorney fees shall be at the prevailing hourly rate of the private sector. The attorney fee hourly rate shall not be less than \$175.00 per hour. All attorney fees collected shall be paid to the operating budget of the Office of the Parish President.
- 16.02 The Contractor must protect and support all utility infrastructures or other properties which are liable to be damaged during the execution of its Work. It shall take all reasonable and proper precautions to protect persons, animals and vehicles or the public from the injury, and wherever necessary, shall erect and maintain a fence or railing around any excavation, and place a sufficient number of lights about the Work and keep same burning from twilight until sunrise, and shall employ one or more watchmen as an additional security whenever needed. The Contractor understands and agrees that the Owner may request that security be placed on the premises to ensure and secure same. The Owner shall have exclusive authority to request placement of such security. Contractor agrees to retain and place security as requested, all at the sole expense of Contractor. Additional security shall not be considered a change order or reason for additional payment by the Owner. The Contractor must, as far as practicable and consistent with good construction, permit access to private and public property and leave fire hydrants, catch basins, streets, etc., free from encumbrances. The Contractor must restore at its own expense all injured or damaged property caused by any negligent act of omission or commission on its part or on the part of its employees or subcontractors, including, but not limited to, sidewalks, curbing, sodding, pipes conduits, sewers, buildings, fences, bridges, retaining walls, tanks, power lines, levees or any other building or property whatsoever to a like condition as existed prior to such damage or injury.

- 16.03 In case of failure on the part of the Contractor to restore such property or make good such damage, the Owner may upon forty-eight (48) hours' notice proceed to repair or otherwise restore such property as may be deemed necessary, and the cost thereof will be deducted from any monies due or which may become due under its Contract.
- 16.04 Contractor agrees to protect, defend, indemnify, save, and hold harmless St. Tammany Parish Government, its elected and appointed officials, departments, agencies, boards and commissions, their officers, agents servants, employees, including volunteers, from and against any and all claims, demands, expense and liability arising out of injury or death to any person or the damage, loss or destruction of any property to the extent caused by any negligent act or omission or willful misconduct of Contractor, its agents, servants, employees, and subcontractors, or any and all costs, expense and/or attorney fees incurred by St. Tammany Parish Government as a result of any claim, demands, and/or causes of action that results from the negligent performance or non-performance by Contractor, its agents, servants, employees, and subcontractors of this contract. Contractor agrees to investigate, handle, respond to, provide defense for and defend any such claims, demand, or suit at its sole expense and agrees to bear all other costs and expenses related thereto caused by any negligent act or omission or willful misconduct of Contractor, its agents, servants, employees, and subcontractors.
- 16.05 As to any and all claims against Owner, its agents, assigns, representatives or employees by any employee of Contractor, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts as may be liable, the indemnification obligation under Paragraph 16.04 shall not be limited in any way or by any limitation on the amount or type of damages, compensation or benefits payable by or for Contractor or any Subcontractor under workmen's compensation acts, disability benefit acts or other employee benefit acts.
- 16.06 No road shall be closed by the Contractor to the public except by written permission of the Owner. If so closed, the Contractor shall maintain traffic over, through and around the Work included in his Contract, with the maximum practical convenience, for the full twenty-four hours of each day of the Contract, whether or not Work has ceased temporarily. The Contractor shall notify the Owner at the earliest possible date after the Contract has been executed and, in any case, before commencement of any construction that might in any way inconvenience or endanger traffic, in order that necessary and suitable arrangements may be determined. Any and all security, maintenance, labor or costs associated with traffic control herein shall be at the sole expense of Contractor. This expense shall be paid directly by the Contractor. This expense shall not be considered as a change order nor shall it allow the Contractor any additional cost reimbursement whatsoever. All traffic deviations herein shall be coordinated with the appropriate law enforcement officials of this Parish.
- 16.07 The convenience of the general public and residents along the Works shall be provided for in a reasonable, adequate and satisfactory manner. Where existing roads are not available as detours, and unless otherwise provided, all traffic shall be permitted to pass through the Work. In all such cases, the public shall have precedence over Contractor's vehicles insofar as the traveling public's vehicles shall not be unduly delayed for the convenience of the Contractor. In order that all unnecessary delay to the traveling public may be avoided, the Contractor shall provide and station competent flagmen whose sole duties shall consist of directing and controlling the movement of public traffic either through or around the Work. Any and all security, maintenance, labor or costs associated with traffic control herein shall be at the sole expense of Contractor. This expense shall be paid directly by the Contractor. This expense shall not be considered as a change order nor shall it allow the Contractor any additional cost reimbursement whatsoever. All traffic deviations herein shall be coordinated with the appropriate law enforcement officials of this Parish.
- 16.08 The Contractor shall arrange its Work so that no undue or prolonged blocking of business establishments will occur.
- 16.09 Material and equipment stored on the right of way or work site shall be so placed and the Work at times shall be so conducted as to ensure minimum danger and obstruction to the traveling public.
- 16.10 During grading operations when traffic is being permitted to pass through construction, the Contractor shall provide a smooth, even surface that will provide a satisfactory passageway

for use of traffic. The road bed shall be sprinkled with water if necessary to prevent a dust nuisance, provided the dust nuisance is a result of the Work.

- 16.11 Fire hydrants shall be accessible at all times to the Fire Department. No material or other obstructions shall be placed closer to a fire hydrant than permitted by ordinances, rules or regulations or within fifteen (15) feet of a fire hydrant, in the absence of such ordinance, rules or regulations.
- 16.12 The Contractor shall not, without the written permission of the Owner, do Work for a resident or property owner abutting the Work at the time that this Work is in progress.
- 16.13 No Work of any character shall be commenced on railroad right-of-way until the Railroad Company has issued a permit to the Owner and has been duly notified by the Contractor in writing (with a copy forwarded to the Owner) of the date it proposes to begin Work, and until an authorized representative of the Railroad Company is present, unless the Railroad Company waives such requirements. All Work performed by the Contractor within the right-of-way limits of the railroad shall be subject to the inspection and approval of the chief engineer of the Railroad Company or its authorized representative. Any precautions considered necessary by said chief engineer to safeguard the property, equipment, employees and passengers of the Railroad Company shall be taken by the Contractor without extra compensation. The Contractor shall, without extra compensation, take such precautions and erect and maintain such tell-tale or warning devices as the Railroad Company considers necessary to safeguard the operation of its trains. The temporary vertical and horizontal clearance specified by the chief engineer of the Railroad Company in approving these shall be maintained at all times. No steel, brick, pipe or any loose material shall be left on the ground in the immediate vicinity of the railway track. Before any Work is done within Railroad right of way, the Contractor shall provide and pay all costs of any special insurance requirements of the Railroad.
- 16.14 The Contractor, shall, without extra compensation, provide, erect, paint and maintain all necessary barricades. Also, without extra compensation, the Contractor shall provide suitable and sufficient lights, torches, reflectors or other warning or danger signals and signs, provide a sufficient number of watchmen and flagmen and take all the necessary precautions for the protection of the Work and safety of the Public.
- 16.15 The Contractor shall erect warning signs beyond the limits of the Project, in advance of any place on the Project where operations interfere with the use of the road by traffic, including all intermediate points where the new Work crosses or coincides with the existing road. All barricades and obstructions shall be kept well painted and suitable warning signs shall be placed thereon. All barricades and obstructions shall be illuminated at night and all lights or devices for this purpose shall be kept burning from sunset to sunrise.
- 16.16 Whenever traffic is maintained through or over any part of the Project, the Contractor shall clearly mark all traffic hazards. No direct payment will be made for barricades, signs and illumination therefore or for watchmen or flagmen.
- 16.17 The Contractor will be solely and completely responsible for conditions on the job site, including safety of all persons and property during performance of the Work. This requirement will apply continuously and not be limited to normal working hours. The duty of the Owner to conduct construction review of the Contractor's performance is not intended to include review of the adequacy of the Contractor's safety measures, in, or near the construction site.

17.00 SANITARY PROVISIONS

- 17.01 The Contractor shall provide and maintain in a neat, sanitary condition such accommodations for the use of its employees as may be necessary to comply with the rules and regulations of the State Health Agency or of the other authorities having jurisdiction and shall permit no public nuisance.

18.00 RIGHTS OF WAY

- 18.01 The Owner will furnish the Contractor with all necessary rights-of-way for the prosecution of the Work. The rights of way herein referred to shall be taken to mean only permission to use or pass through the locations or space in any street, highway, public or private property in which the Contractor is to prosecute the Work.
- 18.02 It is possible that all lands and rights of way may not be obtained as herein contemplated before construction begins, in which event the Contractor shall begin its Work upon such land and rights of way as the Owner may have previously acquired. Any delay in furnishing these lands by the Owner can be deemed proper cause for adjustment in the Contract amount and/or in the time of completion.

19.00 PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPE

- 19.01 The Contractor shall not enter upon private property for any purpose without first obtaining permission from the Owner, as well as the private property owner and/or and private property Lessees. The Contractor shall use every precaution necessary for the preservation of all public and private property, monuments, highway signs, telephone lines, other utilities, etc., along and adjacent to the Work; the Contractor shall use every precaution necessary to prevent damage to pipes, conduits, and other underground structures; and shall protect carefully from disturbance or damage all land monuments and property marks until an authorized agent has witnessed or otherwise referenced their location and shall not remove them until directed. The street and highway signs and markers that are to be affected by the Work shall be carefully removed when the Work begins and stored in a manner to keep them clean and dry. The Contractor must obtain all necessary information in regard to existing utilities and shall give notice in writing to the owners or the proper authorities in charge of streets, gas, water, pipes, electric, sewers and other underground structures, including conduits, railways, poles and pole lines, manholes, catch basins, fixtures, appurtenances, and all other property that may be affected by the Contractor's operations, at least forty-eight (48) hours before its operations will affect such property. The Contractor shall not hinder or interfere with any person in the protection of such Work or with the operation of utilities at any time. When property, the operation of railways, or other public utilities are endangered, the Contractor shall at its own expense, maintain flagmen or watchmen and any other necessary precautions to avoid interruption of service or damage to life or property, and it shall promptly repair, restore, or make good any injury or damage caused by its negligent operations in an acceptable manner. The Contractor must also obtain all necessary information in regard to the installation of new cables, conduits, and transformers, and make proper provisions and give proper notifications, in order that same can be installed at the proper time without delay to the Contractor or unnecessary inconvenience to the Owner.
- 19.02 The Contractor shall not remove, cut or destroy trees, shrubs, plants, or grass that are to remain in the streets or those which are privately owned, without the proper authority. Unless otherwise provided in the Special Provisions or the Proposal, the Contractor shall replace and replant all plants, shrubs, grass and restore the grounds back to its original good condition to the satisfaction of the Owner and/or the property owner. The Contractor shall assume the responsibility of replanting and guarantees that plants, shrubs, grass will be watered, fertilized and cultivated until they are in a growing condition. No direct payment will be made for removing and replanting of trees, shrubs, plants or grass unless such items are set forth in the Proposal.
- 19.03 When or where direct damage or injury is done to public or private property by or on account of any negligent act, omission, neglect or otherwise of the Contractor, it shall make good such damage or injury in an acceptable manner.

20.00 CONTRACTORS RESPONSIBILITY FOR WORK

- 20.01 Until final acceptance of the Work by the Owner as evidence by approval of the final estimate, the Work shall be in the custody and under the charge and care of the Contractor and it shall take every necessary precaution against injury or damage to any part thereof by the action of the elements or from the non-execution of the Work; unless otherwise provided for elsewhere in the Specifications or Contract. The Contractor shall rebuild, repair, restore and make good, without extra compensation, all injuries or damages to any portion of the Work occasioned by any of the above causes before its completion and

acceptance, and shall bear the expenses thereof. In case of suspension of the Work from any cause whatever, the Contractor shall be responsible for all materials and shall properly and securely store same, and if necessary, shall provide suitable shelter from damage and shall erect temporary structures where necessary. If in the exclusive discretion of the Owner, any Work or materials shall have been damaged or injured by reason of failure on the part of the Contractor or any of its Subcontractors to so protect the Work, such materials shall be removed and replaced at the sole expense of the Contractor. Such amount shall be deducted from any sum due or to be due Contractor.

- 20.02 The Contractor shall give all notice and comply with all Federal, State, and local laws, ordinances, and regulations in any manner affecting the conduct of the Work, and all such orders and decrees as exist, or may be enacted by bodies or tribunals having any jurisdiction or authority over the Work, and shall indemnify and hold harmless the Owner against any claim or liability arising from, or based on, the violation of any such law, ordinance, regulation, order or decree, whether by itself, its employees or Subcontractors.

21.00 TESTS AND INSPECTIONS CORRECTION & REMOVAL OF DEFECTIVE WORK

- 21.01 Contractor warrants and guarantees to Owner that all materials and equipment will be new unless otherwise specified and that all Work will be of good quality and free from faults or defects and in accordance with the requirements of the Contract Documents. All unsatisfactory Work, all faulty or Defective Work and all Work not conforming to the requirements of the Contract Documents at the time of acceptance shall be considered Defective. Prompt and reasonable notice of all defects shall be given to the Contractor.
- 21.02 If the Contract Documents, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any Work to specifically be inspected, tested or approved by some public body, Contractor shall assume full responsibility therefor, pay all costs in connection therewith and furnish Owner the required certificates of inspection, testing or approval. All other inspections, tests and approval required by the Contract Documents shall be performed by organizations acceptable to Owner and Contractor and the costs thereof shall be borne by the Contractor unless otherwise specified.
- 21.03 Contractor shall give Owner timely notice of readiness of the Work for all inspections, tests or approvals. If any such Work required to be inspected, tested or approved is covered without written approval of Owner, it must, if requested by Owner, be uncovered for observation, and such uncovering shall be at Contractor's expense unless Contractor has given Owner timely notice of its intention to cover such Work and Owner has not acted with reasonable promptness in response to such notice.
- 21.04 Neither observations by Owner nor inspections, tests or approvals shall relieve Contractor from its obligations to perform the Work in accordance with the requirements of the Contract Document.
- 21.05 Owner and its representatives will at reasonable times have access to the Work. Contractor shall provide proper and safe facilities for such access and observation of the Work and also for any inspection or testing thereof by others.
- 21.06 If any Work is covered contrary to the written request of Owner, it must, be uncovered for Owner's observation and replaced at Contractor's expense. If any Work has been covered which Owner has not specifically requested to observe prior to its being covered, or if Owner considers it necessary or advisable that covered Work be inspected or tested by others, the Contractor, at Owner's request, shall uncover, expose or otherwise make available for observations, inspections or testing as Owner may require, that portion of the Work in question, furnishing all necessary labor, material and equipment. If it is found that such Work is Defective, Contractor shall bear all the expenses of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction, including compensation for additional professional services, and an appropriate deductive Change Order shall be issued. If, however, such Work is not found to be Defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to such uncovering, exposure, observation, inspection, testing and reconstruction.

- 21.07 If the Work is Defective, or Contractor fails to supply sufficient skilled workmen or suitable materials or equipment, or if the Contractor fails to make prompt payments to Subcontractors or for labor, materials or equipment, Owner may order Contractor to stop the Work, or any portion thereof, until the cause of such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor or any other party.
- 21.08 Prior to approval of final payment, Contractor shall promptly, without cost to Owner and as specified by Owner, either correct any Defective Work, whether or not fabricated, installed or completed, or if the Work has been rejected by Owner, remove it from the site and replace it with non-defective Work. If Contractor does not correct such Defective Work or remove and replace such rejected Work within a reasonable time, all as specified in a written notice from Owner, Owner may have the deficiency corrected or the rejected Work removed and replaced. All direct or indirect costs of such correction or removal and replacement including compensation for additional professional services shall be paid by Contractor, and an appropriate deductive Change Order shall be issued. Contractor shall also bear the expense of making good all Work of others destroyed or damaged by its correction, removal or replacement of its Defective Work.
- 21.09 If, after the approval of final payment and prior to the expiration of one year after the date of Substantial Completion or such longer period of time as may be prescribed by law or by the terms of any applicable special guarantee required by the Contract Documents, any Work is found to be Defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions, either correct such Defective Work or if it has been rejected by Owner, remove it from the site and replace it with non-defective Work. If Contractor does not promptly comply with the terms of such instructions, Owner may have the Defective Work corrected or the rejected Work removed and replaced, and all direct and indirect costs of such removal and replacement, including compensation for additional professional services, shall be paid by Contractor. The Contractor agrees to pay a reasonable attorney fee and other reasonable attendant costs of the Owner in the event it becomes necessary for the Owner to employ an attorney to enforce this section or to protect itself against suit over the Contractor's responsibilities. Attorney fees shall be at the prevailing hourly rate of the private sector. The attorney fee hourly rate shall not be less than \$175.00 per hour. All attorney fees collected shall be paid to the operating budget of the Office of the Parish President.
- 21.10 If, instead of requiring correction or removal and replacement of Defective Work, Owner (and prior to approval of final payment) prefers to accept it, the Owner may do so. In such case, if acceptance occurs prior to approval of final payment, a Change Order shall be issued incorporating the necessary revisions in the Contract Documents, including appropriate reduction in the Contract Price, or, if the acceptance occurs after approval of final payment, an appropriate amount shall be paid by Contractor to Owner.
- 21.11 If Contractor should fail to progress the Work in accordance with the Contract Documents, including any requirements of the Progress Schedule, Owner, after seven (7) days written Notice to Contractor, may, without prejudice to any other remedy Owner may have, make good such deficiencies and the cost thereof including compensation for additional professional services shall be charged against Contractor. In such cases, a Change Order shall be issued incorporating the necessary revisions in the Contract Documents including an appropriate reduction in the Contract Price. If the payments then or thereafter due Contractor are not sufficient to cover such amount, Contractor shall pay the difference to Owner.
- 21.12 The Owner may appoint representatives to make periodic visits to the site and observe the progress and quality of the executed Work. These representatives shall be governed by the same restrictions placed on the Owner by these Specifications. The governing body of the Federal, State or local government exercising authority in the area of the Work may appoint representatives to observe the progress and quality of the Work. Contractor shall cooperate with and assist these representatives in the performance of their duties.
- 21.13 The Contractor shall be responsible for the faithful execution of its Contract and the presence or absence of the Owner's or Government's Representative is in no way or manner to be presumed or assumed to relieve in any degree the responsibility or obligation of the Contractor.

- 21.14 The Contractor shall notify the Owner and the Governmental Agency having jurisdiction as to the exact time at which it is proposed to begin Work so the Owner may provide for inspection of all materials, foundations, excavations, equipment, etc., and all or any part of the Work and to the preparation or manufacture of materials to be used whether within the limits of the Work or at any other place.
- 21.15 The Owner or its representatives shall have free access to all parts of the Work and to all places where any part of the materials to be used are procured, manufactured or prepared. The Contractor shall furnish the Owner all information relating to the Work and the material therefor, which may be deemed necessary or pertinent, and with such samples of materials as may be required. The Contractor, at its own expense, shall supply such labor and assistance as may be necessary in the handling of materials for proper inspection or for inspection of any Work done by it.
- 21.16 No verbal instructions given to the Contractor by the Owner, Project Representative or any of their agents shall change or modify the written Contract. Contractors shall make no claims for additional payments or time based upon verbal instructions.

22.00 SUBSURFACE CONDITIONS

- 22.01 It is understood and agreed that the Contractor is familiar with the subsurface conditions that will be encountered and its price bid for the Work includes all of the costs involved for Work in these conditions and it is furthermore agreed that it has taken into consideration, prior to its Bid and acceptance by Owner, all of the subsurface conditions normal or unusual that might be encountered in the location of the Work.
- 22.02 Should the Contractor encounter during the progress of the Work subsurface conditions at the site materially differing from those shown on the Drawings or indicated in the Specifications, the attention of the Owner shall be directed to such conditions before the conditions are disturbed. If the Owner finds that the conditions materially differ from those shown on the Drawings or indicated in the Specifications, it shall at once make such changes in the Drawings or Specifications as it may find necessary, and any increase or decrease in cost or extension of time resulting from such changes shall be adjusted in the same manner as provided for changes for Extra Work. The Contractor shall submit breakdowns of all costs in a manner as instructed and approved by the Owner.

23.00 REMOVAL AND DISPOSAL OF STRUCTURES AND OBSTRUCTIONS

- 23.01 Bidder shall thoroughly examine the site of the Work and shall include in its Bid the cost of removing all structures and obstructions in the way of the Work.
- 23.02 The Contractor shall remove any existing structures or part of structures, fence, building or other encumbrances or obstructions that interfere in any way with the Work. Compensations for the removal of any structure shall be made only if the item(s) to be removed was/were listed as pay item(s) on the Proposal.
- 23.03 If called for in the Special Conditions, all privately and publicly owned materials and structures removed shall be salvaged without damage and shall be piled neatly and in an acceptable manner upon the premises if it belongs to an abutting property owner, otherwise at accessible points along the improvements. Materials in structures which is the property of the Owner or property of any public body, private body or individual which is fit for use elsewhere, shall remain property of the original Owner. It shall be carefully removed without damage, in sections which may be readily transported; same shall be stored on or beyond the right of way. The Contractor will be held responsible for the care and preservation for a period of ten (10) days following the day the last or final portion of the materials stored at a particular location are placed thereon. When privately owned materials are stored beyond the right of way, the Contractor will be held responsible for such care and preservation for a period of ten (10) days responsibility period for care and preservation of the materials begins. The Contractor must furnish the Owner with evidence satisfactory that the proper owner of the materials has been duly notified by the Contractor that the said owner must assume responsibility for its materials on the date following the Contractor's ten (10) day responsibility.

24.00 INSURANCE

- 24.01 Contractor shall secure and maintain at its expense such insurance that will protect it and the Parish from claims for injuries to persons or damages to property which may arise from or in connection with the performance of Services or Work hereunder by the Contractor, his agents, representatives, employees, and/or subcontractors. The cost of such insurance shall be included in Contractor's bid.
- 24.02 The Contractor shall not commence work until it has obtained all insurance as required for the Parish Project. If the Contractor fails to furnish the Parish with the insurance protection required and begins work without first furnishing Parish with a currently dated certificate of insurance, the Parish has the right to obtain the insurance protection required and deduct the cost of insurance from the first payment due the Contractor. Further deductions are permitted from future payments as are needed to protect the interests of the Parish including, but not limited to, renewals of all policies.
- 24.03 Payment of Premiums: The insurance companies issuing the policy or policies shall have no recourse against the Parish of St. Tammany for payment of any premiums or for assessments under any form of policy.
- 24.04 Deductibles: Any and all deductibles in the described insurance policies shall be assumed by and be at the sole risk of the Contractor.
- 24.05 Authorization of Insurance Company(ies) and Rating: All insurance companies must be authorized to do business in the State of Louisiana and shall have an A.M. Best rating of no less than A-, Category VII.
- 24.06 Policy coverages and limits must be evidenced by Certificates of Insurance issued by Contractor's carrier to the Parish and shall reflect:

Date of Issue: Certificate must have current date.

Named Insured: The legal name of Contractor under contract with the Parish and its principal place of business shall be shown as the named insured on all Certificates of Liability Insurance.

Name of Certificate Holder: St. Tammany Parish Government, Office of Risk Management, P. O. Box 628, Covington, LA 70434

Project Description: A brief project description, including Project Name, Project Number and/or Contract Number, and Location.

Endorsements and Certificate Reference: All policies must be endorsed to provide, and certificates of insurance must evidence the following:

Waiver of Subrogation: The Contractor's insurers will have no right of recovery or subrogation against the Parish of St. Tammany, it being the intention of the parties that all insurance policy(ies) so affected shall protect both parties and be the primary coverage for any and all losses covered by the below described insurance. *Policy endorsements required for all coverages.*

Additional Insured: The Parish of St. Tammany shall be named as additional named insured with respect to general liability, marine liability, pollution/environmental liability, automobile liability and excess liability coverages. *Policy endorsements required.*

Hold Harmless: Contractor's liability insurers shall evidence their cognizance of the Hold Harmless and Indemnification in favor of St. Tammany Parish Government by referencing same on the face of the Certificate(s) of Insurance.

Cancellation Notice: Producer shall provide thirty (30) days prior written notice to the Parish of policy cancellation or substantive policy change.

24.07 The types of insurance coverage the Contractor is required to obtain and maintain throughout the duration of the Contract, include, but is not limited to:

1. Commercial General Liability insurance with a Combined Single Limit for bodily injury and property damage of at least \$1,000,000 per Occurrence/\$2,000,000 General Aggregate/Products-Completed Operations Per Project. The insurance shall provide for and the certificate(s) of insurance shall indicate the following coverages:
 - a) Premises - operations;
 - b) Broad form contractual liability;
 - c) Products and completed operations;
 - d) Personal Injury;
 - e) Broad form property damage;
 - f) Explosion and collapse.
2. Marine Liability/Protection and Indemnity insurance is required for any and all vessel and/or marine operations in the minimum limits of \$1,000,000 per occurrence/\$2,000,000 per project general aggregate. The coverage shall include, but is not limited to, the basic coverages found in the Commercial General Liability insurance and coverage for third party liability.
3. Contractors' Pollution Liability and Environmental Liability insurance in the minimum amount of \$1,000,000 per occurrence, \$2,000,000 general aggregate and include coverage for full contractual liability and for all such environmental and/or hazardous waste exposures affected by this project.
4. Business Automobile Liability insurance with a Combined Single Limit of \$1,000,000 per Occurrence for bodily injury and property damage, and shall include coverage for the following:
 - a) Any automobiles;
 - b) Owned automobiles;
 - c) Hired automobiles;
 - d) Non-owned automobiles;
 - e) Uninsured motorist.
5. Workers' Compensation/Employers Liability insurance: worker's compensation insurance coverage and limits as statutorily required; Employers' Liability Coverage shall be not less than \$1,000,000 each accident, \$1,000,000 each disease, \$1,000,000 disease policy aggregate, except when projects include exposures covered under the United States Longshoremen and Harbor Workers Act, Maritime and/or Jones Act and/or Maritime Employers Liability (MEL) limits shall be not less than \$1,000,000/\$1,000,000/\$1,000,000. *Coverage for owners, officers and/or partners shall be included in the policy and a statement of such shall be made by the insuring producer on the face of the certificate.*
6. Owners Protective Liability (OPL) (formerly Owners and Contractors Protective Liability (OCP) Insurance) shall be furnished by the Contractor naming St. Tammany Parish Government as the Named Insured and shall provide coverage in the minimum amount of \$1,000,000 combined single limit (CSL) each occurrence, \$2,000,000 aggregate. Any project valued in excess of \$3,000,000 shall be set by the Office of Risk Management. The policy and all endorsements shall be addressed to St. Tammany Parish Government, Office of Risk Management, P. O. Box 628, Covington, LA 70434.
7. Builder's Risk Insurance shall be required on buildings, sewage treatment plants and drainage pumping stations, and shall be written on an "all-risk" or equivalent policy form in the amount of the full value of the initial Contract sum, plus value of subsequent Contract modifications and cost of materials supplied or installed by others, comprising 100% total value for the entire project including foundations. Deductibles should not exceed \$5,000 and Contractor shall be responsible for any and all policy deductibles. This insurance shall cover portions of the work stored off the site, and also portions of the work in transit. In addition, Installation Floater

Insurance, on an “all-risk” form, will be carried on all pumps, motors, machinery and equipment on the site or installed. Both the Builder’s Risk Insurance and the Installation Floater Insurance shall include the interests of the Owner, Contractor, Subcontractors, and Sub-subcontractors and shall terminate only when the Project has been accepted. St. Tammany Parish Government, P. O. Box 628, Covington, LA 70434 shall be the first named insured on the Builder’s Risk and Installation Floater Insurance.

8. Professional Liability (errors and omissions) insurance in the sum of at least One Million Dollars (\$1,000,000) per claim with Two Million Dollars (\$2,000,000) annual aggregate.
 9. An umbrella policy or excess policy may be required and/or allowed to meet minimum coverage limits, subject to the review and approval by St. Tammany Parish Government, Office of Risk Management.
- 24.08 All policies of insurance shall meet the requirements of the Parish of St. Tammany prior to the commencing of any work. The Parish of St. Tammany has the right, but not the duty, to approve all insurance policies prior to commencing of any work. If at any time, it becomes known that any of the said policies shall be or becomes unsatisfactory to the Parish of St. Tammany as to form or substance; or if a company issuing any such policy shall be or become unsatisfactory to the Parish of St. Tammany, the Contractor shall promptly obtain a new policy, timely submit same to the Parish of St. Tammany for approval and submit a certificate thereof as provided above. The Parish agrees to not unreasonably withhold approval of any insurance carrier selected by Contractor. In the event that Parish cannot agree or otherwise authorize said carrier, Contractor shall have the option of selecting and submitting new insurance carrier within 30 days of said notice by the Parish. In the event that the second submission is insufficient or is not approved, then the Parish shall have the unilateral opportunity to thereafter select a responsive and responsible insurance carrier all at the cost of Contractor and thereafter deduct from Contractor's fee the cost of such insurance.
- 24.09 Upon failure of Contractor to furnish, deliver and/or maintain such insurance as above provided, the contract, at the election of the Parish of St. Tammany, may be forthwith declared suspended, discontinued or terminated. Failure of the Contractor to maintain insurance shall not relieve the Contractor from any liability under the contract, nor shall the insurance requirements be construed to conflict with the obligation of the Contractor concerning indemnification.
- 24.10 Contractor shall maintain a current copy of all annual insurance policies and provide same to the Parish of St. Tammany as may be reasonably requested.
- 24.11 It shall be the responsibility of Contractor to require that these insurance requirements are met by all contractors and sub-contractors performing work for and on behalf of Contractor. Contractor shall further ensure the Parish is named as additional insured on all insurance policies provided by said contractor and/or sub-contractor throughout the duration of the project, and that renewal certificates for any policies expiring prior to the Parish’s final acceptance of the project shall be furnished to St. Tammany Parish Government, Department of Legal, Office of Risk Management, without prompting.

NOTICE:

These are only an indication of the coverages that are generally required. Additional coverages and/or limits may be required for projects identified as having additional risks or exposures. Please note that some requirements listed may not necessarily apply to your specific services. St. Tammany Parish Government reserves the right to remove, replace, make additions to and/or modify any and all of the insurance requirement language upon review of the final scope of services presented to Office of Risk Management prior to execution of a contract for services.

For inquiries regarding insurance requirements, please contact:

**St. Tammany Parish Government
Office of Risk Management
P. O. Box 628
Covington, LA 70434
Telephone: 985-898-5226
Email: riskman@stpgov.org**

- 24.12 Nothing contained in these insurance requirements is to be construed as limiting the extent of the Contractor's Responsibility for payment of damages resulting from its operations under this Contract.

25.00 OWNER'S RIGHT TO OCCUPANCY

- 25.01 The Owner shall have the right to use, at any time, any and all portions of the Work that have reached such a stage of completion as to permit such occupancy, provided such occupancy does not hamper the Contractor or prevent its efficient completion of the Contract or be construed as constituting an acceptance of any part of the Work.

- 25.02 The Owner shall have the right to start the construction of houses, structures or any other building concurrent with the Contractor's Work.

26.00 SURVEY HORIZONTAL AND VERTICAL CONTROL

- 26.01 The Owner shall provide surveys for construction to establish reference points which in its judgment are necessary to enable Contractor to layout and proceed with its Work. Contractor shall be responsible for surveying and laying out the Work and shall protect and preserve the established reference points and shall make no changes or relocations without the prior written approval of the Owner. Contractor shall report to Owner whenever any reference point is lost or destroyed and the Owner shall decide if the reference point shall be replaced by its or the Contractor's forces.

- 26.02 The Contractor shall establish lines and grades with its own forces in sufficient number and location for the proper execution of the Work.

- 26.03 If the Contractor, during the construction, damages the established property corners and/or other markers and thereafter requests the Owner to re-stake same in order to complete the project, this expense will be borne solely by the Contractor.

27.00 TERMINATION OF THE CONTRACT, OWNER'S AND CONTRACTORS RIGHT TO STOP WORK.

- 27.01 If the Contractor should be adjudged bankrupt (voluntarily or involuntarily) or if it should make a general assignment for the benefit of its creditors, or if a receiver should be appointed on account of its insolvency, or if it should persistently or repeatedly refuse or should fail (except in cases for which extension of time is provided) to supply enough properly skilled workmen or proper materials, or if it should fail to make prompt payment to Subcontractors or for material or labor, or persistently disregard laws, ordinances or the instructions of the Owner, or otherwise be guilty of a substantial violation of any provision of the Contract, then the Owner, upon the certificate of the Owner that, in its unilateral discretion and judgment, believes sufficient cause exists to justify such action, may,

without prejudice to any other right or remedy and after giving the Contractor ten (10) calendar days written notice, terminate the employment of the Contractor and take possession of the premises and of all materials, tools and appliances thereon and finish the Work by whatever method the Owner may deem expedient.

- 27.02 Failure of the Contractor to start the Work within the time limit specified herein or substantial evidence that the progress being made by the Contractor is sufficient to complete the Work within the specified time shall be grounds for termination of the Contract by the Owner.
- 27.03 Before the Contract is terminated, the Contractor and its surety will first be notified in writing by the Owner of the conditions which make termination of the Contract imminent. When after ten (10) calendar days' notice is given and if satisfactory effort has not been made by the Contractor or its surety to correct the conditions, the Owner may declare, in its exclusive discretion, that the Contract is terminated and so notify the Contractor and its surety accordingly.
- 27.04 Upon receipt of notice from the Owner that the Contract has been terminated, the Contractor shall immediately discontinue all operations. The Owner may then proceed with the Work in any lawful manner that it may elect until Work is finally completed.
- 27.05 The exclusive right is reserved to the Owner to take possession of any machinery, implements, tools or materials of any description that shall be found upon the Work, to account for said equipment and materials, and to use same to complete the Project. When the Work is finally completed, the total cost of same will be computed. If the total cost is less than the Contract Price, the difference will not be paid to the Contractor or its surety.
- 27.06 In case of termination, all expenses incident to ascertaining and collecting losses under the Bond, including legal services, shall be assessed against the Bond.
- 27.07 If the Work should be stopped under any order of any court or public authority for period of sixty (60) calendar days, through no act or fault of the Contractor or anyone employed by it, or if the Owner shall fail to pay the Contractor within a reasonable time any sum certified by the Owner, then the Contractor may, upon ten (10) calendar days written notice to the Owner, stop Work or terminate this Contract and recover from the Owner payment for all Work properly and professionally executed in a workmanlike manner. This loss specifically includes actual cost of materials and equipment, together with all wages inclusive of all federal, state, and local tax obligations. This loss specifically includes reimbursement of all insurances on a pro-rata basis from the date of termination to date of policy period. This loss excludes and specifically does not include recovery by the Contractor for lost profit, indirect & direct expenses, overhead, and the like.

28.00 PAYMENTS TO THE CONTRACTOR

- 28.01 Monthly certificates for partial payment, in a form approved by the Owner, shall be transmitted to the Owner upon receipt from the Contractor and acceptance by the Owner. In accordance with LSA-R.S. 38:2248(A), when the Contract Price is less than five hundred thousand dollars, these certificates shall be equal to ninety percent (90%) of both the Work performed and materials stored at the site; and when the Contract Price is five hundred thousand dollars or more, these certificates shall be equal to ninety-five percent (95%) of both the Work performed and materials stored at the site. Partial payment certificates shall include only Work, materials and equipment that are included in official Work Order and which meet the requirements of plans, Specifications and Contract Documents. These monthly estimates shall show the amount of the original estimate for each item, the amount due on each item, the gross total, the retained percentage, the amount previously paid and the net amount of payment due.
- 28.02 After final completion and acceptance by the Owner of the entire Work, and when the Contract Price is less than five hundred thousand dollars, the Owner shall issue to the Contractor Certificate of Payment in sum sufficient to increase total payments to ninety percent (90%) of the Contract Price. After final completion and acceptance by the Owner of the entire Work, and when the Contract Price is five hundred thousand dollars or more, the Owner shall issue to the Contractor Certificate of Payment in sum sufficient to increase total payments to ninety-five percent (95%) of the Contract Price.

- 28.03 When the Contract Price is less than five hundred thousand dollars, the final payment certificate of the remaining ten percent (10%) of the Contract Price, minus any deduction for deficient or Defective Work or other applicable deductions, will be issued by the Owner forty-five (45) days after filing acceptance in the Mortgage Office of the Parish and a Clear Liens and Privilege Certificate has been secured. When the Contract Price is five hundred thousand dollars or more, the final payment certificate of the remaining five percent (5%) of the Contract Price, minus any deduction for deficient or Defective Work or other applicable deductions, will be issued by the Owner forty-five (45) days after filing acceptance in the Mortgage Office of the Parish and a Clear Liens and Privilege Certificate has been secured. Before issuance of the final payment certificate, the Contractor shall deposit with the Owner a certificate from the Clerk of Court and Ex-Officio Recorder of Mortgages from the Parish in which the Work is performed to the effect that no liens have been registered against Contract Work.
- 28.04 When, in the opinion of the Contractor, the Work provided for and contemplated by the Contract Documents has been substantially completed, the Contractor shall notify the Owner in writing that the Work is substantially complete and request a final inspection. The Owner shall proceed to perform such final inspection accompanied by the Contractor. Any and all Work found by this inspection to be Defective or otherwise not in accordance with the plans and Specifications shall be corrected to the entire satisfaction of the Owner and at the sole expense of the Contractor. If the Contract is found to be incomplete in any of its details, the Contractor shall at once remedy such defects, and payments shall be withheld and formal acceptance delayed until such Work has been satisfactorily completed.
- 28.05 If payment is requested on the basis of materials and equipment not incorporated in the Work, but delivered and suitably stored and protected from damage and theft at the site, the Request for Payment shall also be accompanied by such data, satisfactory to the Owner, as will establish Owner's title to the material and equipment and protect its interest therein, including applicable insurance.
- 28.06 Each subsequent Request for Payment shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied to discharge in full all of Contractor's obligations reflected in prior Request for Payment.
- 28.07 Each subsequent request for payment shall include an affidavit by Contractor that Contractor, all subcontractors, agents, material suppliers and all other persons supplying material to the project upon which State of Louisiana and/or St. Tammany sales taxes are lawfully due have paid these taxes and that all supplies and materials purchased for this project and for which Contractor has been paid have had all lawfully due State and/or St. Tammany sales taxes paid.
- 28.08 The Bid Proposal, unless otherwise modified in writing, and the Contract constitute the complete Project. The Contract Prices constitute the total compensation payable to Contractor and the cost of all of the Work and materials, taxes, permits and incidentals must be included into the Bid submitted by the Contractor and included into those items listed on the Proposal.
- 28.09 Any additional supporting data required by the Owner in order to substantiate Contractor's request for payment shall be furnished by Contractor at no cost to the Owner.
- 28.10 Owner may withhold from payment to Contractor as may be necessary to protect itself from loss on account of:
- (1) Defective and/or inferior work;
 - (2) Damage to the property of Owner or others caused by Contractor;
 - (3) Failure by Contractor to make payments properly to sub-contractors or to pay for labor, materials or equipment used on this project;
 - (4) Failure by Contractor to pay taxes due on materials used on this project;
 - (5) Damage by Contractor to another Contractor;
 - (6) Insolvency;
 - (7) Bankruptcy, voluntary or involuntary;
 - (8) Revocation of corporate status;
 - (9) Failure to follow corporate formalities;
 - (10) Unprofessional activities;

- (11) Unworkmanlike performance;
- (12) Fraud and/or misrepresentation of any kind.

29.00 ACCEPTANCE AND FINAL PAYMENT(S)

- 29.01 Upon receipt of written notice from Contractor that the work is substantially complete and usable by Owner or the Public in suitable manner, the Owner and the Contractor shall jointly inspect the work.
- 29.02 If the Owner by inspection determines that the work is not substantially complete in a suitable manner for use by the Owner or the Public, then the Owner shall so notify the Contractor in writing stating such reason. All reasons need not be disclosed unless actually known. The Owner is afforded an opportunity to amend said notices as are reasonably possible.
- 29.03 If the Owner by its inspection determines that the work is substantially complete, it shall prepare a list of all items not satisfactorily completed and shall notify the Contractor and Owner in writing that the work is substantially complete and subject to satisfactory resolution of those items on the list (punch list). Punch lists may be amended from time to time by Owner in the event that additional deficiencies are discovered. In accordance with LSA-R.S. 38:2248(B), any punch list generated during a construction project shall include the cost estimates for the particular items of work the design professional has developed based on the mobilization, labor, material, and equipment costs of correcting each punch list item. The design professional shall retain his working papers used to determine the punch list items cost estimates should the matter be disputed later. The contract agency shall not withhold from payment more than the value of the punch list. Punch list items completed shall be paid upon the expiration of the forty-five (45) day lien period. The provisions of this Section shall not be subject to waiver.
- 29.04 Upon determination of substantial completeness with the punch list, the Contract Time is interrupted and the Contractor is given a reasonable time not to exceed thirty (30) consecutive calendar days to effect final completion by correcting or completing all of those items listed on the punch list. If the items on the punch list are not completed in a satisfactory manner within the thirty day period, then the Contract Time will begin to run again and will include for purposes of determining liquidated damages the thirty day period the grace period being withdrawn.
- 29.05 Upon receipt by Owner of written determination that all work embraced by the contract has been completed in a satisfactory manner, the Owner shall provide a written acceptance to Contractor who shall record Owner's written acceptance with the recorder of Mortgages, St. Tammany Parish. The Contractor shall properly prepare, submit and pay for all costs associated with said Acceptance. The Contractor is also responsible for preparation, re-submission and payment of any and all updated certificates.
- 29.06 Retainage monies, minus those funds deducted in accordance to the requirements of this agreement including but not limited to Paragraph 28.10, shall be due Contractor not earlier than forty-six (46) calendar days after recordation of certificate of Owner's acceptance provided the following:
 - (1) Contractor shall prepare, secure, pay for and submit clear lien and privilege certificate, signed and sealed by Clerk of Court or Recorder of Mortgages, Parish of St. Tammany and dated at least forty-six (46) days after recordation of certificate of acceptance;
 - (2) Ensure that the official representative of the Owner has accepted as per LSA-R.S. 38:2241.1, *et seq.* and that all following sub-sections have been properly satisfied as per law;
 - (3) Ensure that all signatures are affixed and that there exists the requisite authority for all signatures;
 - (4) Ensure accurate and proper legal descriptions;
 - (5) Properly identify all parties and/or signatories;

- (6) Properly identify all mailing addresses;
- (7) Correctly set for the amount of the contract, together with all change orders;
- (8) Set out a brief description of the work performed;
- (9) Reference to any previously recorded contract, lien or judgment inscription that may affect the property;
- (10) Certification that substantial completion has occurred, together with any applicable date(s);
- (11) Certification that no party is in default and/or that the project has been abandoned.

29.07 After securing the clear lien and privilege certificate the Contractor shall prepare its final application for payment and submit to Owner. The Owner shall approve application for payment, or state its objections in writing and forward to Contractor for resolution.

30.00 NOTICE AND SERVICE THEREOF

30.01 Any Notice to Contractor from the Owner relative to any part of this Contract shall be in writing and shall be considered delivered and the service thereof completed when said notice is posted; by certified mail, return receipt requested to the said Contractor at its last given address, or delivered in person to said Contractor or its authorized representative on the Work.

31.00 INTENTION OF THESE GENERAL CONDITIONS

31.01 These General Conditions shall be applicable to all contracts entered into by and between the Owner and Contractors, except as may be altered or amended with the consent of the Owner, and/or provided for in the Special Conditions of each contract. Contractor shall be presumed to have full knowledge of these General Conditions which shall be applicable to all contracts containing these General Conditions, whether Contractor has obtained a copy thereof or not.

32.00 SEVERABILITY

32.01 If any one or more or part of any of the provisions contained herein and/or in the Specifications and Contract for the Work shall for any reason be held invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability shall not affect any other provisions of this Agreement or attachment, but it shall be construed as if such invalid, illegal, or unenforceable provision or part of a provision had never been contained herein.

32.02 CHANGING THESE CONDITIONS: Owner reserves the right to change or modify these General Conditions as it deems best, or as required by law. The General Conditions may also be modified for a particular project by the use of Special Conditions prior to the issuance of the Advertisement for Bid. However, once an advertisement for bid is made for any specific project, any changes to the General Conditions as they affect that specific project must be made in writing and issued via an addendum in accordance with State Law.

33.00 LAW OF THE STATE OF LOUISIANA

33.01 The Contract Documents shall be governed by the Law of the State of Louisiana.

33.02 The Contractor agrees to pay reasonable attorney's fees and other reasonable attendant costs, in the event that it becomes necessary for the Owner to employ an attorney in order to enforce compliance with or any remedy relating to any covenants, obligations, or conditions imposed upon the Contractor by this Agreement. Attorney fees shall be based upon the prevailing hourly rate of attorney rates in the private sector. In no case shall the

hourly rate be less than \$175.00 per hour. All attorney fees collected shall be paid the operating budget of the Office of the Parish President.

- 33.03 The jurisdiction and venue provisions shall apply to all contractors, sureties, and subcontractors. The 22nd Judicial District for the Parish of St. Tammany shall be the court of exclusive jurisdiction and venue for any dispute arising from these General Conditions and/or any contract executed in conjunction with these General Conditions. All parties specifically waive any rights they have or may have for removal of any disputes to Federal Court, or transfers to different State District Court.
- 33.04 Contractor warrants that it has and/or had received a copy of these General Conditions at all times material hereto; Contractor further agrees that it has read and fully and completely understands each and every condition herein.
- 33.05 The property description will be more fully set out by an attached exhibit.
- 33.06 The Contractor warrants that it has the requisite authority to sign and enter this agreement.
- 33.07 It is specifically understood and agreed that in the event Contractor seeks contribution from the Parish or pursues its legal remedies for any alleged breach of this agreement by the Parish, then the following list of damages SHALL NOT BE RECOVERABLE BY CONTRACTOR. This list includes, but is not limited to:
1. indirect costs and/or expenses;
 2. direct costs and/or expenses;
 3. time-related costs and/or expenses;
 4. award of extra days;
 5. costs of salaries or other compensation of Contractor's personnel at Contractor's principal office and branch offices;
 6. expenses of Contractor's principal, branch and/or field offices;
 7. any part of Contractor's capital expenses, including any interest on Contractor's capital employed for the work;
 8. any other charges related to change orders;
 9. overhead and general expenses of any kind or the cost of any item not specifically and expressly included in Cost of Work.

33.08 DEFAULT AND WAIVERS

It is understood that time is of the essence. It is specifically understood between the parties that Contractor waives any and all notice to be placed in default by the Owner. This subsection shall supersede and prime any other subsection herein above that is in conflict. The Owner specifically reserves its right and specifically does not waive the requirement to be placed in default by the Contractor as per law.

- 33.09 St. Tammany Parish Government contracts to be awarded are dependent on the available funding and/or approval by members designated and/or acknowledged by St. Tammany Parish Government. At any time St. Tammany Parish Government reserves the right to cancel the award of a contract if either or both of these factors is deficient.
- 33.10 It is the Parish's policy to provide a method to protest exclusion from a competition or from the award of a contract, or to challenge an alleged solicitation irregularity. It is always better to seek a resolution within the Parish system before resorting to outside agencies and/or litigation to resolve differences. All protests must be made in writing, and shall be concise and logically presented to facilitate review by the Parish. The written protest shall include:
1. The protester's name, address, and fax and telephone numbers and the solicitation, bid, or contract number;
 2. A detailed statement of its legal and factual grounds, including a description of the resulting prejudice to the protester;
 3. Copies of relevant documents;

4. All information establishing that the protester is an interested party and that the protest is timely; and
5. A request for a ruling by the agency; and a statement of the form of relief requested.

The protest shall be addressed to Director of Procurement, St. Tammany Parish Government, P.O. Box 628, Covington, LA 70434.

The protest review shall be conducted by the Parish Procurement Department.

Only protests from interested parties will be allowed. Protests based on alleged solicitation improprieties that are apparent before bid opening, or the time set for receipt of initial proposals must be filed with and received by the Procurement Department BEFORE those deadlines.

Any other protest shall be filed no later than ten (10) calendar days after the basis of the protest is known, or should have been known (whichever is earlier).

The Parish will use its best efforts to resolve the protest within thirty (30) days of the date that it is received by the Parish. The written response will be sent to the protestor via mail and, fax, if a fax number has been provided by the protestor. The protester can request additional methods of notification.

CORPORATE RESOLUTION

EXCERPT FROM MINUTES OF MEETING OF THE BOARD OF DIRECTORS OF INCORPORATED.

AT THE MEETING OF DIRECTORS OF _____,
INCORPORATED, DULY NOTICED AND HELD ON _____,
A QUORUM BEING THERE PRESENT, ON MOTION DULY MADE AND SECONDED. IT
WAS:

RESOLVED THAT _____, BE AND IS HEREBY
APPOINTED, CONSTITUTED AND DESIGNATED AS AGENT AND ATTORNEY-IN-
FACT OF THE CORPORATION WITH FULL POWER AND AUTHORITY TO ACT ON
BEHALF OF THIS CORPORATION IN ALL NEGOTIATIONS, BIDDING, CONCERNS
AND TRANSACTIONS WITH THE PARISH OF ST. TAMMANY OR ANY OF ITS
AGENCIES, DEPARTMENTS, EMPLOYEES OR AGENTS, INCLUDING BUT NOT
LIMITED TO, THE EXECUTION OF ALL BIDS, PAPERS, DOCUMENTS, AFFIDAVITS,
BONDS, SURETIES, CONTRACTS AND ACTS AND TO RECEIVE ALL PURCHASE
ORDERS AND NOTICES ISSUED PURSUANT TO THE PROVISIONS OF ANY SUCH BID
OR CONTRACT, THIS CORPORATION HEREBY RATIFYING, APPROVING,
CONFIRMING, AND ACCEPTING EACH AND EVERY SUCH ACT PERFORMED BY
SAID AGENT AND ATTORNEY-IN-FACT.

I HEREBY CERTIFY THE FOREGOING TO BE
A TRUE AND CORRECT COPY OF AN
EXCERPT OF THE MINUTES OF THE ABOVE
DATED MEETING OF THE BOARD OF
DIRECTORS OF SAID CORPORATION, AND
THE SAME HAS NOT BEEN REVOKED OR
RESCINDED.

SECRETARY-TREASURER

DATE

Certificate of Insurance Instructions

The below information is intended to guide Contractors on what information is needed to be listed on the Certificate of Insurance. All Insurance limit requirements can be found in Section 06.

- **Certificate Holder** – STPG must be listed as the certificate holder, and it must include our address of: P.O. Box 628, Covington, LA 70434
 - Reason: the certificate holder is where cancellations of coverage, or updated certificates are mailed. If a vendor terminates a policy, we will be notified.
- **Additional Insured** – We must be named as an additional insured so that if there is a lawsuit against the vendor for a project, their coverage will cover STPG as well if we are named in the lawsuit.
 - We must be named in the Description of Operations box – reason: there could be other additional insureds, and we want to have no doubt that we are one of the additional insureds.
 - We must be named as additional insured on the following coverages: General liability, Auto Liability, Umbrella/Excess Liability, Environmental/Pollution Liability.
 - Professional Liability policies do not allow for an additional insured by most carriers.
- **Project Name & Contract #** - We need this listed in the Description of Operations, again so that if there is a lawsuit, we have proof that coverage was active for that project.
- **Waiver of Subrogation** – This can either be listed in the Description of Operations or checked off in the appropriate columns.

From the Insurance Requirement form:

Waiver of Subrogation: The Provider's insurers will have no right of recovery or subrogation against the Parish of St. Tammany, it being the intention of the parties that all insurance policy(ies) so affected shall protect both parties and be the primary coverage for any and all losses covered by the below described insurance.

- **Owners Protective Liability (OPL) or (OCP)** – Certificate of Insurance for OCP names St. Tammany Parish Government as the Insured and the Certificate Holder.
- Sample of Certificate of Insurance (COI) can be found on page 2.
- Please refer to this section in the package labeled “Insurance Requirements” for limits required for this project

Any questions regarding insurance requirements please contact the Risk Department at 985-898-5226 or email riskman@stpgov.org



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME:		FAX (A/C, No):	
	PHONE (A/C, No, Ext):			
INSURED	E-MAIL ADDRESS:			
	INSURER(S) AFFORDING COVERAGE			NAIC #
	INSURER A :			
	INSURER B :			
	INSURER C :			
	INSURER D :			
INSURER E :				
INSURER F :				

COVERAGES**CERTIFICATE NUMBER:****REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
	GENERAL LIABILITY						EACH OCCURRENCE \$
	☐ COMMERCIAL GENERAL LIABILITY						DAMAGE TO RENTED PREMISES (Ea occurrence) \$
	☐ CLAIMS-MADE ☐ OCCUR						MED EXP (Any one person) \$
							PERSONAL & ADV INJURY \$
							GENERAL AGGREGATE \$
	GEN'L AGGREGATE LIMIT APPLIES PER:						PRODUCTS - COMP/OP AGG \$
	☐ POLICY ☐ PRO-JECT ☐ LOC						\$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident) \$
	☐ ANY AUTO						BODILY INJURY (Per person) \$
	☐ ALL OWNED AUTOS						BODILY INJURY (Per accident) \$
	☐ HIRED AUTOS						PROPERTY DAMAGE (Per accident) \$
	☐ SCHEDULED AUTOS						\$
	☐ NON-OWNED AUTOS						
	UMBRELLA LIAB						EACH OCCURRENCE \$
	☐ EXCESS LIAB						AGGREGATE \$
	☐ OCCUR						\$
	☐ CLAIMS-MADE						
	DED ☐ RETENTION \$						
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY						WC STATUTORY LIMITS ☐ OTH-ER ☐
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH)	Y / N ☐	N / A ☐				E.L. EACH ACCIDENT \$
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE \$
							E.L. DISEASE - POLICY LIMIT \$

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

Project Name:

Contract #:

(Name St. Tammany Parish Government as an additional insured).

CERTIFICATE HOLDER**CANCELLATION**

St. Tammany Parish Government
P.O. Box 628
Covington, LA 70434

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Bond No.: _____

**CONTRACT AGREEMENT
BETWEEN PARISH AND CONTRACTOR**

BY: ST. TAMMANY PARISH GOVERNMENT

**UNITED STATES OF
AMERICA**

WITH:

**STATE OF LOUISIANA
ST. TAMMANY PARISH**

This agreement is entered into this _____ day of _____,
20____, by and between: «txtREQCompanyName», hereinafter called the "Contractor", whose
business address is «txtREQAddress», «txtREQCity», «txtREQState» «txtREQZip» and the St.
Tammany Parish Government, hereinafter called the "Parish", whose business address is P.O.
Box 628, Covington, LA 70434 (collectively, the "Parties") for «txtPROJECTNAME» project.
Witnessed that the Contractor and the Parish, in consideration of premises and the mutual
covenants, consideration and agreement herein contained, agree as follows:

1. SCOPE OF SERVICES

The Contractor shall furnish all labor and materials and perform all of the work required to build, construct and/or complete in a thorough and workmanlike manner:

«txtScopeSummary»

2. CONSTRUCTION DOCUMENTS

It is recognized by the Parties herein that said Construction Documents, including by way of example and not of limitation, the plans and Specifications, General Conditions, Supplementary General Conditions, any addenda thereto, the drawings (if any), and the bid, quote or other procurement documents impose duties and obligations upon the Parties herein, and said Parties thereby agree that they shall be bound by said duties and obligations. For these purposes, all of the provisions contained in the aforementioned Construction Documents are incorporated herein by reference with the same force and effect as though said Construction Documents were herein set out in full. Copies of the aforementioned Construction Documents are in the possession of both the Contractor and the Parish for reference.

3. TIME FOR COMPLETION

The work shall be commenced on a date to be specified in a written order of the Parish and shall be completed within «intCompletionTime» calendar days from and after said date.

4. COMPENSATION TO BE PAID TO THE CONTRACTOR

The Parish will pay and the Contractor will accept in full consideration for the performance of the Contract the sum of «curREQGrandTotal» dollars.

5. PERFORMANCE AND PAYMENT BOND

To these presents personally came and intervened _____,
(Name of Attorney in Fact)
herein acting for _____, a corporation organized
(Surety)
and existing under the laws of the State of _____, and duly authorized to transact business in the State of Louisiana, as surety, who declared that having taken cognizance of this Contract and of the Construction Documents mentioned herein, he hereby in his capacity as its Attorney in Fact obligates his company, as surety for the said Contractor, unto the said Parish, up to the sum of «curREQGrandTotal». The condition of this performance and payment bond

shall be that should the Contractor herein not perform the Contract in accordance with the terms and conditions hereof, or should said Contractor not fully indemnify and save harmless the Parish from all costs and damages which he may suffer by said Contractor's non-performance or should said Contractor not pay all persons who have fulfilled obligations to perform labor and/or furnish materials in the prosecution of the work provided for herein, including by way of example, workmen, laborers, mechanics, and furnishers of materials, machinery, equipment and fixtures, then said surety agrees and is bound to so perform the Contract and make said payment(s).

Contractor and Parish specifically agree to and recognize (1) the statutory employer relationship existing between the Parish and any employees performing work under this Contract as employees of the Contractor or employees of the "Sub-Contractor", and (2) that the work performed by the employees of the Contractor and the employees of the "Sub-Contractor" is part of the Parish's business, occupation or trade and is essential to the ability of the Parish to generate their products or services, all of which is in accordance with LSA-R.S. 23:1061, and as may be amended.

6. LIABILITY AND INDEMNIFICATION

A. Duty to Defend

Upon notice of any claim, demand, suit, or cause of action against the Parish, alleged to arise out of or be related to this Contract, Contractor shall investigate, handle, respond to, provide defense for, and defend at its sole expense, even if the claim, demand, suit, or cause of action is groundless, false, or fraudulent. The Parish may, but is not required to, consult with or assist the Contractor, but this assistance shall not affect the Contractor's obligations, duties, and responsibilities under this section. Contractor shall obtain the Parish's written consent before entering into any settlement or dismissal.

B. Contractor Liability

Contractor shall be liable without limitation to the Parish for any and all injury, death, damage, loss, destruction, damages, costs, fines, penalties, judgments, forfeitures, assessments, expenses (including attorney fees), obligations, and other liabilities of every name and description, which may occur or in any way arise out of any act or omission of Contractor, its owners, agents, employees, partners or subcontractors.

C. Force Majeure

It is understood and agreed that neither party can foresee the exigencies beyond the control of each party which arise by reason of an Act of God or force majeure; therefore, neither party shall be liable for any delay or failure in performance beyond its control resulting from an Act of God or force majeure. The Parish shall determine whether a delay or failure results from an Act of God or force majeure based on its review of all facts and circumstances. The parties shall use reasonable efforts, including but not limited to, use of continuation of operations plans (COOP), business continuity plans, and disaster recovery plans, to eliminate or minimize the effect of such events upon the performance of their respective duties under this Contract.

D. Indemnification

Contractor shall fully indemnify and hold harmless the Parish, without limitation, for any and all injury, death, damage, loss, destruction, damages, costs, fines, penalties, judgments, forfeitures, assessments, expenses (including attorney fees), obligations, and other liabilities of every name and description, which may occur or in any way arise out of any act or omission of Contractor, its

owners, agents, employees, partners or subcontractors. The Contractor shall not indemnify for the portion of any loss or damage arising from the Parish's act or failure to act.

E. Intellectual Property Indemnification

Contractor shall fully indemnify and hold harmless the Parish, without limitation, from and against damages, costs, fines, penalties, judgments, forfeitures, assessments, expenses (including attorney fees), obligations, and other liabilities in any action for infringement of any intellectual property right, including but not limited to, trademark, trade-secret, copyright, and patent rights.

When a dispute or claim arises relative to a real or anticipated infringement, the Contractor, at its sole expense, shall submit information and documentation, including formal patent attorney opinions, as required by the Parish.

If the use of the product, material, service, or any component thereof is enjoined for any reason or if the Contractor believes that it may be enjoined, Contractor, while ensuring appropriate migration and implementation, data integrity, and

minimal delays of performance, shall at its sole expense and in the following order of precedence: (i) obtain for the Parish the right to continue using such product, material, service, or component thereof; (ii) modify the product, material, service, or component thereof so that it becomes a non-infringing product, material, or service of at least equal quality and performance; (iii) replace the product, material, service, or component thereof so that it becomes a non-infringing product, material, or service of at least equal quality and performance; or, (iv) provide the Parish monetary compensation for all payments made under the Contract related to the infringing product, material, service, or component, plus for all costs incurred to procure and implement a non-infringing product, material, or service of at least equal quality and performance. Until this obligation has been satisfied, the Contractor remains in default.

The Contractor shall not be obligated to indemnify that portion of a claim or dispute based upon the Parish's unauthorized: i) modification or alteration of the product, material or service; ii) use of the product, material or service in combination with other products not furnished by Contractor; or, iii) use of the

product, material or service in other than the specified operating conditions and environment.

7. MODIFICATION OF CONTRACT TERMS

Provided that any alterations which may be made in the terms of the Contract or in the work to be done under it, or the giving by the Parish of any extensions of time for the performance of the Contract, or any other forbearance on the part of either the Parish or the Contractor to the other shall not in any way release the Contractor or the Surety from their liability hereunder, notice to the Surety of any such alterations, extensions or other forbearance being hereby waived.

8. TERMINATION, CANCELLATION, AND SUSPENSION

A. Termination

The term of this Contract shall be binding upon the Parties hereto until the work has been completed by the Provider and accepted by the Parish, and all payments required to be made to the Provider have been made. But, this Contract may be terminated upon thirty (30) days written notice under any or all of the following conditions:

- 1) By mutual agreement and consent of the Parties hereto;
- 2) By the Parish as a consequence of the failure of the Provider to comply with the terms, progress, or quality of the work in a satisfactory manner, proper allowances being made for circumstances beyond the control of the Provider;
- 3) By either party upon failure of the other party to fulfill its obligations as set forth in this Contract;
- 4) By the Parish with less than thirty (30) days' notice due to budgetary reductions and changes in funding priorities by the Parish;
- 5) In the event of the abandonment of the project by the Parish.

Upon termination, the Provider shall be paid for actual work performed prior to the Notice of Termination, either based upon the established hourly rate for services actually performed, or on a pro-rata share of the basic fee based upon the phase or percentage of work actually completed, depending on the type of compensation previously established under this Contract.

Upon Termination, the Provider shall deliver to the Parish all original documents, notes, drawings, tracings, computer files, and other files pertaining to this Contract or the Work performed, except for the Provider's personal and administrative files.

B. Cancellation

The continuation of this Contract is contingent upon the appropriation of funds to fulfill the requirements of the Contract by the Parish. If the Parish fails to appropriate sufficient monies to provide for the continuation of this or any other Contract, or if such appropriation is reduced by the veto of Parish President by any means provided in the appropriations Ordinance to prevent the total appropriation for the year from exceeding revenues for that year, or for any other lawful purpose, and the effect of such reduction is to provide insufficient monies for the continuation of the Contract, the Contract shall terminate on the date of the beginning of the first fiscal year for which funds are not appropriated. It is understood and agreed that paragraph (9)(C) below may preempt this paragraph, all at the exclusive and unilateral option of the Parish.

C. Suspension

Should the Parish desire to suspend the work, but not definitely terminate the Contract, the Parish shall supply the Provider with thirty (30) days' notice. The Parish will also

supply Provider thirty (30) days' notice that the work is to be reinstated and resumed in full force. Provider shall receive no additional compensation during the suspension period. The Parties may revisit the terms of this Contract during the suspension period. The suspension shall not exceed six (6) months, unless mutually agreed upon between the Parties.

- D.** Failure to complete or deliver within the time specified or to provide the services as specified in the bid or response will constitute a default and may cause cancellation of the contract. Where the Parish has determined the contractor to be in default. The Parish reserves the right to purchase any or all products or services covered by the contract on the open market and to charge the contractor with the cost in excess of the contract price. Until such assessed charges have been paid, no subsequent bid or response from the defaulting contractor will be considered.
- E.** In the event of a default and/or breach of this agreement and this matter is forwarded to legal counsel, then the prevailing party may be entitled to collect a reasonable attorney fees and all costs associated therewith whether or not litigation is initiated. Attorney fees shall be based upon the current, reasonable prevailing rate for counsel in the private

sector. The Parties agree to be responsible for such attorney fees, together for all with legal interest from date of agreement breach, plus all costs of collection.

- F.** Termination or cancellation of this agreement will not affect any rights or duties arising under any term or condition herein.
- G.** As to the filing of voluntary or involuntary bankruptcy by Provider, Provider agrees that if any execution or legal process is levied upon its interest in this Contract, or if any liens or privileges are filed against its interest, or if a petition in bankruptcy is filed against it, or if it is adjudicated bankrupt in involuntary proceedings, or if it should breach this Contract in any material respect, the Parish shall have the right, at its unilateral option, to immediately cancel and terminate this Contract. In the event that Provider is placed in any chapter of bankruptcy, voluntarily or involuntarily, or otherwise triggers any provision of the preceding sentence herein, it is understood and agreed that all materials, goods and/or services provided shall be and remain the property of the Parish. All rights of Provider as to goods, wares, products, services, materials and the like supplied to Parish shall be deemed forfeited.

9. RECORDATION OF CONTRACT

Contractor authorizes Parish to deduct from any payment due herein costs and service fees for recordation of this Contract in full or an excerpt hereof, or any revisions or modifications thereof as required by law.

10. AUTHORITY TO ENTER CONTRACT

The undersigned representative of Contractor warrants and personally guarantees that he/she has the requisite and necessary authority to enter and sign this Contract on behalf of the corporate entity, partnership, etc. The undersigned Parties warrant and represent that they each have the respective authority and permission to enter this Contract. In the event that Contractor is a member of a corporation, partnership, L.L.C., L.L.P., or any other juridical entity, the Parish requires, as an additional provision, that Contractor supply a certified copy of a corporate resolution authorizing the undersigned to enter and sign this Contract. Another option to fulfill this additional provision he/she can supply Louisiana Secretary of State Business filings confirming that he/she is a managing member of a

Bond No.: _____

corporation, partnership, L.L.C., L.L.P., or any other juridical entity which
authorizes the undersigned to enter and sign this Contract.

In Witness thereof, the Parties hereto on the day and year first above written have
executed this Contract in **One (1)** counterparts, each of which shall, without proof or
accountancy for the other counterparts, be deemed an original thereof.

WITNESSES:

CONTRACTOR:

Signature

Signature

Print Name

Print Name

Signature

Title

Print Name

Date

Bond No.: _____

WITNESSES:

**ST. TAMMANY PARISH
GOVERNMENT:**

Signature

Print Name

Signature

Print Name

Michael B. Cooper
Parish President

Date

APPROVED BY:

**Assistant District Attorney- Civil
Division**

(Surety)

Signature

Date

Print Name

Section 12

CDBG Contract Provisions

1. **Definitions:** For purposes of this Contract, the following terms shall have the meanings set forth below:
 - (a) **"Assistance"** means the CDBG grant funds provided, or to be provided, to the Grantee by the State, pursuant to the Grant Award Agreement.
 - (b) **"CDBG"** means Community Development Block Grant.
 - (c) **"Contract"** means the contractual agreement between the Owner and the Contractor to which these Contract Special Provisions have been incorporated and made a part thereof.
 - (d) **"Contractor"** means the contractor whose services are retained pursuant to the Contract.
 - (e) **"Grantee"** means the unit of local government designated as the recipient of CDBG Assistance in a party to the Grant Award contract with St. Tammany Parish Government.
 - (f) **"HUD"** means U.S. Department of Housing and Urban Development, which is the federal agency that awards and has authority over CDBG funding to the parish.
 - (g) **"Owner"** means the Grantee or Subrecipient, as applicable.
 - (h) **"Project"** means the project for which the services of the Contractor have been retained pursuant to the Contract which are funded, in whole or in part, with CDBG funds.
 - (i) **"Parish"** means St. Tammany Parish Government which has been delegated the responsibility for administering the CDBG program.
 - (j) **"Subrecipient"** means the agent of the unit of local government as designated by an agreement.
2. **Prime Contractor Responsibilities:** The Contractor is required to assume sole responsibility for the complete effort and enforcement of laws and regulations under this Contract. The Owner will consider the Contractor to be the sole point of contact with regard to contractual matters. All contractors must be registered in the federal System for Award Management (SAM) and be eligible to receive federal contracts.
3. **Federal, State and Parish Laws:** The Contractor agrees to comply with all CDBG requirements as well as other federal laws, state laws, parish laws, regulations, or Executive Orders. The Parish reserves the right to add or delete terms and conditions of this Contract as may be required by revisions and additions or changes in the requirements, regulations, and laws governing the CDBG Program.
4. **Procurement and Contracting:** In accordance with 2 CFR Part 200, the cost plus a percentage of cost and percentage of construction cost methods of contracting shall not be used. This provision shall supersede any conflicting provision in an executed contract document or agreement funded in whole or in part with CDBG funds.

5. **Domestic Preferences for Procurements:** In the performance of this Agreement, Contractor shall, as appropriate and to the greatest extent practicable, purchase, acquire, and/or use goods, products, and materials produced in the United States (including but not limited to iron, aluminum, steel, cement, and other manufactured products). The requirements of this section must be included in all subcontracts. For purposes of this section:
 - a. "Produced in the United States" means, for iron and steel products, that all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States.
 - b. "Manufactured products" means items and construction materials composed in whole or in part of nonferrous metals such as aluminum; plastics and polymer-based products such as polyvinyl chloride pipe; aggregates such as concrete; glass, including optical fiber; and lumber.
6. **Build America, Buy America:** This agreement is for a project that is subject to the Build America, Buy America Act (BABAA) requirements under Title IX of the Infrastructure Investment and Jobs Act ("IIJA"), Pub. L. 117-58. Absent an approved waiver, all iron, steel, manufactured products, and construction materials used in this project must be produced in the United States, as further outlined by the Office of Management and Budget's Memorandum M-22-11, Initial Implementation Guidance on Application of Buy America Preference in Federal Financial Assistance Programs for Infrastructure, April 18, 2022.
7. **Rights to Inventions, Copyrights, and Rights in Data:** The contractor agrees to comply with requirements and regulations pertaining to copyrights and rights in data.
8. **Reporting Requirements:** The Contractor agrees to complete and submit all reports, in such form and according to such schedule, as may be required by the Parish or HUD. Further, the Contractor agrees to require any subcontractors to submit reports that may be required and to incorporate such language in its agreements. Failure to meet deadlines with the required information could result in sanctions.
9. **Access to Records:** The Contractor shall grant access to the Parish, State or any other passthrough entity, the Federal Agency, Inspectors General, and/or the Comptroller General of the United States, or any of their duly authorized representatives, to any books, documents, papers, and/or records of the Contractor that are pertinent to the Contract for the purpose of making audits, examinations, excerpts, and transcripts. The right also includes timely and reasonable access to the Contractor's personnel for the purpose of interview and discussion related to such documents. The rights of access in this section are not limited to the required retention period but last as long as the records are retained.
10. **Maintenance of Records:** Contractor will keep adequate records and supporting documentation, which concern or reflect its services rendered under this agreement. All records and documentation will be retained by selected firm until five years after project completion. However, if any litigation, claim, or audit is started before the expiration of the five-year period, then records must be retained for five years after the litigation, claim or audit is resolved.

11. **Confidential Information:** Any reports, information, data, etc., given to, prepared by, or assembled by the Contractor under this Contract, which the Grantee or the Parish requests to be kept confidential, shall not be made available to any individual or organization by the Contractor without prior written approval of the Grantee or the Parish, as applicable.
12. **Reporting of Fraudulent Activity:** If at any time during the term of this Contract anyone has reason to believe by whatever means that, under this or any other program administered by the Parish, a recipient of funds has improperly or fraudulently applied for or received benefits, monies or services pursuant to this Contract or any other contract, such information shall be reported immediately to the appropriate authorities.
13. **Conflicts of Interest:** Regulations at [2 CFR 200.112](#) and [24 CFR 570.489\(h\)](#) regarding conflicts of interest apply to the use and expenditure of CDBG funds by the Grantee and its subrecipients, including the Contractor.

No member, officer, or employee of the recipient, subrecipient, or its agents, no member of the governing body of the locality in which the program is situated, and no other public official of such locality or localities who exercise any functions or responsibilities with respect to the program during his/her tenure or for one year thereafter, shall have any financial interest, direct or indirect, in any contract or subcontract, or the proceeds thereof, for work to be performed in connection with the program assisted under this agreement. Immediate family members of said members, officers, employees, and officials are similarly barred from having any financial interest in the program. This provision shall be incorporated in all such contracts or subcontracts.

14. **Applicable Law:** In addition to the applicable Federal laws and regulations, this Contract is also made under and shall be construed in accordance with the laws of the Parish and State. By execution of this Contract, the Contractor agrees to submit to the jurisdiction of the Parish for all matters arising or to arise hereunder, including but not limited to performance of said Contract and payment of all licenses and taxes of whatever kind or nature applicable hereto.
15. **Debarment and Suspension:** A contract award (2 C.F.R. § 180.220) must not be made to parties listed on the government wide exclusions in the System for Award Management (SAM), in accordance with the OMB guidelines at 2 C.F.R. § 180 that implement Executive Orders 12549 (3 C.F.R. § 1986 Comp., p. 189) and 12689 (3 C.F.R. § 1989 Comp., p. 235), "Debarment and Suspension." SAM Exclusions contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549.

By entering into this contract, the contractor certifies that neither it nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of 40 U.S.C. 3144(b) or 29 CFR 5.12(a).

No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of 40 U.S.C. 3144(b) or 29 CFR 5.12(a).

If any part of the work covered by this Contract is to be subcontracted, the Contractor is responsible for making sure subcontractor is not debarred, suspended, excluded by agencies, or declared ineligible.

16. The penalty for making false statements is prescribed in the U.S. Code, Title 18 Crimes and Criminal Procedure, 18 U.S.C. 1001. **Contracting with small and minority businesses and women's business enterprises:** Federal regulations require Contractors to take all necessary affirmative steps to assure that minority businesses and women's business enterprises are used when possible. Accordingly, affirmative steps must be taken to assure that MBEs and WBEs are utilized when possible as sources of supplies, equipment, construction and services. Affirmative steps shall include the following:
- a. Including qualified MBEs and WBEs on solicitation lists;
 - b. Assuring that MBEs and WBEs are solicited whenever they are potential sources;
 - c. Whenever economically feasible, dividing total requirements into smaller tasks or quantities so as to permit maximum participation by MBEs and WBEs;
 - d. Where the requirement permits, establishing delivery schedules which will encourage participation by MBEs and WBEs;
 - e. Requiring the subcontractor, if any, to take the affirmative actions outlined in (a) – (d) above.
17. **Federal Lobbying Restrictions:** The Contractor certifies, to the best of its knowledge and belief, that:
- a. No Federal appropriated funds have been paid or will be paid, by or on behalf of it, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement;
 - b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, it will complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," (which is available on the HUD website or here: <https://www.hudexchange.info/resources/documents/HUD-Form-Sflll.pdf>) in accordance with its instructions; and
 - c. It will require that the language of this Section be included in the award documents for all subcontracts at all tiers.
 - d. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. § 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

18. **Equal Employment Opportunity**: The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Parish.

During the performance of this contract, the contractor agrees as follows:

- a. The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without discrimination based on their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
- b. The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without discrimination based on race, color, religion, sex, sexual orientation, gender identity, or national origin.
- c. The contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.
- d. The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- e. The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
- f. The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
- g. In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with

procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

- h. The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance.

Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

19. Copeland Anti-Kickback Act

The Contractor agrees to comply with the Copeland “Anti-Kickback” Act (18 U.S.C. 874) as supplemented in Department of Labor regulations (29 CFR Part 3). These regulations are herein incorporated by reference in this contract.

20. Davis-Bacon and Related Acts

The Contractor agrees to comply with the Davis-Bacon Act (40 U.S.C. 276a to 276a-7) as supplemented by Department of Labor regulations (29 CFR Part 5). These regulations are herein incorporated by reference in this contract. (Construction contracts in excess of \$2,000 awarded by grantees and subgrantees when required by Federal grant program legislation). Please see HUD 4010 below.

21. Contract Work Hours and Safety Standards Act

The contract agrees to comply with Sections 103 and 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 327-330) as supplemented by Department of Labor regulations (29 CFR Part 5). These regulations are herein incorporated by reference in this contract.

- 22. Drug Free Workplace:** By signing this agreement, the contractor hereby certifies that it shall provide a drug-free workplace in compliance with the Drug-Free Workplace Act of 1988, as amended. This requirement is applicable to all Contracts and Subcontracts of \$100,000 or more.

- 23. Non-Discrimination:** The Contractor shall conform with requirements of Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d et seq.) and HUD regulations issued pursuant thereto contained in 24 CFR Part 1. No person in the United States shall, on the basis of race, color, national origin, sex or religion or religious affiliation, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity funded in whole or in part with funds made available through this Contract. Any prohibition against discrimination on the basis of age under the Age Discrimination Act of 1975 (42 U.S.C. 6101 et seq.) or with respect to an otherwise qualified individual with a disability as provided in the Americans with Disabilities Act, as applicable, (P.L. 101-336, 42 U.S.C. 12101-12213) or Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. Section 794) shall also apply to any such program or Project

- 24. Certification of Nonsegregated Facilities:** The contractor certifies that the entity does not maintain or provide for employees any segregated facility at any of its establishments, and those under the

contractors control. Contractor further certifies that they will not maintain or provide for employment segregated facilities at any of the Contractor's establishments, and Contractor will not permit employees to perform their services at any location under its control where segregated facilities are maintained. The contractor agrees that a breach of this certification is a violation of the Equal Opportunity Clause of the contract. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, rest rooms and washrooms, restaurants and other eating areas, parking lots, drinking fountains, recreation or entertainment areas, transportation and housing facilities provided for employees which are segregated by explicit directive or in fact segregated on the basis of race, color, religion or national origin because of habit, local custom, or otherwise. Contractor further agrees they will obtain identical certification from proposed subcontractors prior to the awards of subcontracts exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity Clause; that Contractor will retain such certification in their files; and that they will forward this notice to such proposed subcontractors.

25. **Architectural Barriers Act and Americans with Disabilities Act:** The Architectural Barriers Act of 1968 (42 U.S.C. 4151-4157) requires certain Federal and Federally funded buildings and other facilities to be designed, constructed, or altered in accordance with standards that ensure accessibility to, and use by, people with physical disabilities. A building or facility designed, constructed, or altered with funds allocated or reallocated under this subpart after November 21, 1996, and that meets the definition of residential structure as defined in 24 CFR 40.2, or the definition of building as defined in 41 CFR 101-19.602(a), is subject to the requirements of the Architectural Barriers Act of 1968 and shall comply with the Uniform Federal Accessibility Standards. For general type buildings, these standards are in appendix A to 41 CFR part 101-19.6. For residential structures, these standards are available from the Department of Housing and Urban Development, Office of Fair Housing and Equal Opportunity, Disability Rights Division, Room 5240, 451 Seventh Street, SW, Washington, DC 20410; telephone (202) 708-2333 (voice) or (202) 708-1734 (TTY).
26. **Section 109 of the Housing and Community Development Act of 1974:** No person in the United States shall on the grounds of race, color, national origin, or sex be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity funded in whole or in part with funds made available under the CDBG program of the Parish.
27. **Section 504 of the Rehabilitation Act of 1973, as amended:** The Contractor agrees that no otherwise qualified individual with disabilities shall, solely by reason of his disability, be denied the benefits, or be subjected to discrimination including discrimination in employment, any program or activity that receives the benefits from the Assistance.
28. **Section 3, Compliance and Provision of Training, Employment and Business Opportunities:** The work to be performed under this Contract is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, (12 USC § 1701u). Contractors and subcontractors must address the Section 3 employment work hours benchmarks for Section 3 Workers and Targeted Section 3 Workers as established by the U.S. Department of Housing and Urban Development at 24 CFR Part 75.
 - a. Section 3 projects mean housing rehabilitation, housing construction, and other public construction projects assisted under HUD programs that provide housing and community development financial assistance when the total amount of assistance to the project exceeds \$200,000. The project is the site or sites together with any building(s) and improvements located on the site(s) that are under common ownership, management, and financing.
 - b. The work to be performed under this contract is subject to the requirements of Section 3 of the

Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (Section 3). The purpose of Section 3 is to ensure that employment and other economic opportunities generated by the U.S. Department of Housing and Urban Development (HUD) assistance or HUD assisted projects covered by Section 3, shall, to the greatest extent feasible, be directed to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing.

- c. The parties to this contract will comply with HUD's regulations as set forth in 24 CFR Part 75, which implement Section 3. As evidenced by their execution of this contract, the parties to this contract certify that they are under no contractual or other impediment that would prevent them from complying with the Part 75 regulations.
 - d. The Section 3 requirements apply to all contractors and subcontractors performing work in connection with a Section 3 covered project. Contractor means any entity entering into a contract with (a) a recipient to perform work in connection with work in connection with a Section 3 project; or (b) a subrecipient for work in connection with a Section 3 project. Subcontractor means any entity that has a contract with a Contractor to undertake a portion of the contractor's obligation to perform work in connection with a Section 3 project.
 - e. The contractor agrees to include this Section 3 Clause in every subcontract subject to compliance with regulations in 24 CFR Part 75, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this Section 3 Clause, upon a finding that the subcontractor is in violation of the regulations in 24 CFR Part 75. The contractor will not subcontract with any subcontractor where the contractor has notice or knowledge that the subcontractor has been found in violation of regulations under 24 CFR Part 75.
 - f. The contractor will certify that any vacant employment positions, including training positions, that are filled (1) after the contractor is selected, but before the contract is executed, and (2) with persons other than those to whom the regulations of 24 CFR Part 75 require employment opportunities to be directed, were not filled to circumvent the contractor's obligations under 24 CFR Part 75.
 - g. Noncompliance with HUD's regulations in 24 CFR Part 75 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD assisted contracts.
29. **Lead-Based Paint:** Contractor shall carry out all work within the procedures established by the Grantee with respect to CDBG assistance that fulfill the objectives and requirements of the Lead-Based Paint Poisoning Prevention Act ([42 U.S.C. 4821-4846](#)), the Residential Lead-Based Paint Hazard Reduction Act of 1992 ([42 U.S.C. 4851- 4856](#)), and implementing regulations at [24 CFR Part 35](#).
30. **Energy and Environmental Conversion**
The contractor agrees to comply with mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act.
31. **Compliance with Clean Air and Water Acts:**
During the performance of this contract, the contractor and all subcontractors shall comply with the requirements of the Clean Air Act, as amended, 42 USC 1857 et seq., the Federal Water Pollution Control Act, as amended, 33 USC 1251 et seq., and the regulations of the Environmental Protection Agency with respect thereto, at 40 CFR Part 15, as amended.

In addition to the foregoing requirements, all nonexempt contractors and subcontractors shall furnish to the owner, the following:

- a. A stipulation by the contractor or subcontractors, that any facility to be utilized in the performance of any non-exempt contract or subcontract, is not listed on the List of Violating Facilities issued by the Environmental Protection Agency (EPA) pursuant to 40 CFR 15.20.
- b. Agreement by the contractor to comply with all applicable standards, orders, or requirements issued under section 306 of the Clean Air Act (42 U.S.C. 1847(h), section 508 of the Clean Water Act (33 U.S.C. 1368), Executive Order 11738, and Environmental Protection Agency Regulations (40 CFR Part 15).
- c. A stipulation that as a condition for the award of the contract, prompt notice will be given of any notification received from the Director, Office of Federal Activities, EPA, indicating that a facility utilized, or to be utilized for the contract, is under consideration to be listed on the EPA List of Violating Facilities.
- d. Agreement by the contractor that they will include, or cause to be included, the criteria and requirements in paragraph (1) through (4) of this section in every nonexempt subcontract and requiring that the contractor will take such action as the government may direct as a means of enforcing such provisions.

In no event shall any amount of the Assistance be utilized with respect to a facility which has given rise to a conviction under section 113(c)(1) of the Clean Air Act or Section 309(c) of the Federal Water Pollution Control Act.

32. **Legal Remedies**

Contracts must include administrative, contractual, and legal remedies for use in cases in which contractors violate or breach contract terms. The contract must also make clear the remedial actions which you may take.

33. **Termination**

Contracts in excess of \$10,000 must explain the conditions under which you may terminate them for cause or your convenience, including the process for bringing about the termination and the basis for settlement.

A. APPLICABILITY

The Project or Program to which the construction work covered by this Contract pertains is being assisted by the United States of America, and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

1. Minimum wages and fringe benefits

- i. All laborers and mechanics employed or working upon the site of the work (or otherwise working in construction or development of the project under a development statute), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of basic hourly wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. As provided in 29 CFR 5.5(d) and (e), the appropriate wage determinations are effective by operation of law even if they have not been attached to the contract. Contributions made or costs reasonably anticipated for bona fide fringe benefits under the Davis-Bacon Act (40 U.S.C. 3141(2)(B)) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (a)(1)(v) of these contract clauses; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics must be paid the appropriate wage rate and fringe benefits on the wage determination for the classification(s) of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided*, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classifications and wage rates conformed under 29 CFR 5.5(a)(1)(iii)) and the Davis-Bacon poster (WH-1321) must be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

ii. Frequently recurring classifications

A. In addition to wage and fringe benefit rates that have been determined to be prevailing under the procedures set forth in 29 CFR part 1, a wage determination may contain, pursuant to § 1.3(f), wage and fringe benefit rates for classifications of laborers and mechanics for which conformance requests are regularly submitted pursuant to 29 CFR 5.5(a)(1)(iii), provided that:

1. The work performed by the classification is not performed by a classification in the wage determination for which a prevailing wage rate has been determined;
 2. The classification is used in the area by the construction industry; and
 3. The wage rate for the classification bears a reasonable relationship to the prevailing wage rates contained in the wage determination.
- B.** The Administrator will establish wage rates for such classifications in accordance with 29 CFR 5.5(a)(1)(iii)(A)(3). Work performed in such a classification must be paid at no less than the wage and fringe benefit rate listed on the wage determination for such classification.

iii. Conformance

A. The contracting officer must require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract be

classified in conformance with the wage determination. Conformance of an additional classification and wage rate and fringe benefits is appropriate only when the following criteria have been met:

1. The work to be performed by the classification requested is not performed by a classification in the wage determination; and
2. The classification is used in the area by the construction industry; and
3. The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.
- B. The conformance process may not be used to split, subdivide, or otherwise avoid application of classifications listed in the wage determination.
- C. If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken will be sent by the contracting officer by email to DBAconformance@dol.gov. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.
- D. In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer will, by email to DBAconformance@dol.gov, refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.
- E. The contracting officer must promptly notify the contractor of the action taken by the Wage and Hour Division under 29 CFR 5.5 (a)(1)(iii)(C) and (D). The contractor must furnish a written copy of such determination to each affected worker or it must be posted as a part of the wage determination. The wage rate (including fringe benefits where appropriate) determined pursuant to 29 CFR 5.5 (a)(1)(iii)(C) or (D) must be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

iv. Fringe benefits not expressed as an hourly rate

Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor may either pay the benefit as stated in the wage determination or may pay another bona fide fringe benefit or an hourly cash equivalent thereof.

v. Unfunded plans

If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, *Provided*, That the Secretary of Labor has found, upon the written request of the contractor, in accordance with the criteria set forth in 29 CFR 5.28, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

- vi. Interest** In the event of a failure to pay all or part of the wages required by the contract, the contractor will be required to pay interest on any underpayment of wages.

2. Withholding

i. Withholding requirements

The U. S. Department of Housing and Urban Development may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for the full amount of wages and monetary relief, including interest, required by the clauses set forth in 29 CFR 5.5(a) for violations of this contract, or to satisfy any such liabilities required by any other Federal contract, or federally assisted contract subject to Davis-Bacon labor standards, that is held by the same prime contractor (as defined in 29 CFR 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to Davis-Bacon labor standards requirements and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld. In the event of a contractor's failure to pay any laborer or mechanic, including any apprentice or helper working on the site of the work (or otherwise working in construction or development of the project under a development statute) all or part of the wages required by the contract, or upon the contractor's failure to submit the required records as discussed in 29 CFR 5.5(a)(3)(iv), HUD may on its own initiative and after written notice to the contractor, sponsor, applicant, owner, or other entity, as the case may be, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

ii. Priority to withheld funds

The Department has priority to funds withheld or to be withheld in accordance with 29 CFR 5.5(a)(2)(i) or (b)(3)(i), or both, over claims to those funds by:

- A.** A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;
- B.** A contracting agency for its procurement costs;
- C.** A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;
- D.** A contractor's assignee(s);
- E.** A contractor's successor(s); or
- F.** A claim asserted under the Prompt Payment Act, 31 U.S.C. 3901-3907.

3. Records and certified payrolls

i. Basic record requirements

- A. Length of record retention.** All regular payrolls and other basic records must be maintained by the contractor and any subcontractor during the course of the work and preserved for all laborers and mechanics working at the site of the work (or otherwise working in construction or development of the project under a development statute) for a period of at least 3 years after all the work on the prime contract is completed.
- B. Information required** Such records must contain the name; Social Security number; last known address, telephone number, and email address of each such worker; each worker's correct classification(s) of work actually performed; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in 40 U.S.C. 3141(2)(B) of the Davis-Bacon Act); daily and weekly number of hours actually worked in total and on each covered contract; deductions made; and actual wages paid.
- C. Additional records relating to fringe benefits.** Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(v) that the wages of any laborer or mechanic include the amount of any

costs reasonably anticipated in providing benefits under a plan or program described in 40 U.S.C. 3141(2)(B) of the Davis-Bacon Act, the contractor must maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits.

D. Additional records relating to apprenticeship Contractors with apprentices working under approved programs must maintain written evidence of the registration of apprenticeship programs, the registration of the apprentices, and the ratios and wage rates prescribed in the applicable programs.

ii. Certified payroll requirements

A. Frequency and method of submission The contractor or subcontractor must submit weekly, for each week in which any DBA- or Related Acts-covered work is performed, certified payrolls to HUD if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the certified payrolls to the applicant, sponsor, owner, or other entity, as the case may be, that maintains such records, for transmission to HUD. The prime contractor is responsible for the submission of all certified payrolls by all subcontractors. A contracting agency or prime contractor may permit or require contractors to submit certified payrolls through an electronic system, as long as the electronic system requires a legally valid electronic signature; the system allows the contractor, the contracting agency, and the Department of Labor to access the certified payrolls upon request for at least 3 years after the work on the prime contract has been completed; and the contracting agency or prime contractor permits other methods of submission in situations where the contractor is unable or limited in its ability to use or access the electronic system

B. Information required The certified payrolls submitted must set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i)(B), except that full Social Security numbers and last known addresses, telephone numbers, and email addresses must not be included on weekly transmittals. Instead, the certified payrolls need only include an individually identifying number for each worker (e.g., the last four digits of the worker's Social Security number). The required weekly certified payroll information may be submitted using Optional Form WH-347 or in any other format desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <https://www.dol.gov/sites/dolgov/files/WHD/legacy/files/wh347.pdf> or its successor website. It is not a violation of this section for a prime contractor to require a subcontractor to provide full Social Security numbers and last known addresses, telephone numbers, and email addresses to the prime contractor for its own records, without weekly submission by the subcontractor to the sponsoring government agency (or the applicant, sponsor, owner, or other entity, as the case may be, that maintains such records).

C. Statement of Compliance Each certified payroll submitted must be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor, or the contractor's or subcontractor's agent who pays or supervises the payment of the persons working on the contract, and must certify the following:

1. That the certified payroll for the payroll period contains the information required to be provided under 29 CFR 5.5(a)(3)(ii), the appropriate information and basic records are being maintained under 29 CFR 5.5 (a)(3)(i), and such information and records are correct and complete;
2. That each laborer or mechanic (including each helper and apprentice) working on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly

from the full wages earned, other than permissible deductions as set forth in 29 CFR part 3; and

3. That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification(s) of work actually performed, as specified in the applicable wage determination incorporated into the contract.
 - D. **Use of Optional Form WH-347** The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 will satisfy the requirement for submission of the “Statement of Compliance” required by 29 CFR 5.5(a)(3)(ii)(C).
 - E. **Signature** The signature by the contractor, subcontractor, or the contractor’s or subcontractor’s agent must be an original handwritten signature or a legally valid electronic signature.
 - F. **Falsification** The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under 18 U.S.C. 1001 and 31 U.S.C. 3729.
 - G. **Length of certified payroll retention** The contractor or subcontractor must preserve all certified payrolls during the course of the work and for a period of 3 years after all the work on the prime contract is completed.
- iii. **Contracts, subcontracts, and related documents** The contractor or subcontractor must maintain this contract or subcontract and related documents including, without limitation, bids, proposals, amendments, modifications, and extensions. The contractor or subcontractor must preserve these contracts, subcontracts, and related documents during the course of the work and for a period of 3 years after all the work on the prime contract is completed.
- iv **Required disclosures and access**
- A. **Required record disclosures and access to workers** The contractor or subcontractor must make the records required under 29 CFR 5.5(a)(3)(i)–(iii), and any other documents that HUD or the Department of Labor deems necessary to determine compliance with the labor standards provisions of any of the applicable statutes referenced by 29 CFR 5.1, available for inspection, copying, or transcription by authorized representatives of HUD or the Department of Labor, and must permit such representatives to interview workers during working hours on the job.
 - B. **Sanctions for non-compliance with records and worker access requirements** If the contractor or subcontractor fails to submit the required records or to make them available, or refuses to permit worker interviews during working hours on the job, the Federal agency may, after written notice to the contractor, sponsor, applicant, owner, or other entity, as the case may be, that maintains such records or that employs such workers, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available, or to permit worker interviews during working hours on the job, may be grounds for debarment action pursuant to 29 CFR 5.12. In addition, any contractor or other person that fails to submit the required records or make those records available to WHD within the time WHD requests that the records be produced will be precluded from introducing as evidence in an administrative proceeding under 29 CFR part 6 any of the required records that were not provided or made available to WHD. WHD will take into consideration a reasonable request from the contractor or person for an extension of the time for submission of records. WHD will determine the reasonableness of the request and may consider, among other things, the location of the records and the volume of production.
 - C. **Required information disclosures** Contractors and subcontractors must maintain the full Social Security number and last known address, telephone number, and email address of each covered worker, and must provide them upon request to HUD if the agency is a party to

the contract, or to the Wage and Hour Division of the Department of Labor. If the Federal agency is not such a party to the contract, the contractor, subcontractor, or both, must, upon request, provide the full Social Security number and last known address, telephone number, and email address of each covered worker to the applicant, sponsor, owner, or other entity, as the case may be, that maintains such records, for transmission to HUD, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or other compliance action.

4. Apprentices and equal employment opportunity

i. Apprentices

- A. Rate of pay** Apprentices will be permitted to work at less than the predetermined rate for the work they perform when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship (OA), or with a State Apprenticeship Agency recognized by the OA. A person who is not individually registered in the program, but who has been certified by the OA or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice, will be permitted to work at less than the predetermined rate for the work they perform in the first 90 days of probationary employment as an apprentice in such a program. In the event the OA or a State Apprenticeship Agency recognized by the OA withdraws approval of an apprenticeship program, the contractor will no longer be permitted to use apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.
- B. Fringe benefits** Apprentices must be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringe benefits must be paid in accordance with that determination.
- C. Apprenticeship ratio** The allowable ratio of apprentices to journeymen on the job site in any craft classification must not be greater than the ratio permitted to the contractor as to the entire work force under the registered program or the ratio applicable to the locality of the project pursuant to 29 CFR 5.5(a)(4)(i)(D). Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in 29 CFR 5.5(a)(4)(i)(A), must be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under this section must be paid not less than the applicable wage rate on the wage determination for the work actually performed.
- D. Reciprocity of ratios and wage rates** Where a contractor is performing construction on a project in a locality other than the locality in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyworker's hourly rate) applicable within the locality in which the construction is being performed must be observed. If there is no applicable ratio or wage rate for the locality of the project, the ratio and wage rate specified in the contractor's registered program must be observed.

- ii Equal employment opportunity** The use of apprentices and journeymen under this part must be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

5 Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

6 Subcontracts. The contractor or subcontractor must insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (11), along with the applicable wage determination(s) and such other clauses or contract modifications as the U.S. Department of Housing and Urban Development may by appropriate instructions require, and a clause requiring the subcontractors to include these clauses and wage determination(s) in any lower tier subcontracts. The prime contractor is responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this section. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and may be subject to debarment, as appropriate.

7 Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8 Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

9 Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility.

i. By entering into this contract, the contractor certifies that neither it nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of 40 U.S.C. 3144(b) or 29 CFR 5.12(a).

ii. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of 40 U.S.C. 3144(b) or 29 CFR 5.12(a).

iii. The penalty for making false statements is prescribed in the U.S. Code, Title 18 Crimes and Criminal Procedure, 18 U.S.C. 1001.

11 Anti-retaliation It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

i. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the DBA, Related Acts, or 29 CFR parts 1, 3, or 5;

ii. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under the DBA, Related Acts, or 29 CFR parts 1, 3, or 5;

iii. Cooperating in any investigation or other compliance action, or testifying in any proceeding under the DBA, Related Acts, or 29 CFR parts 1, 3, or 5; or

iv. Informing any other person about their rights under the DBA, Related Acts, or 29 CFR parts 1, 3, or 5.

B. Contract Work Hours and Safety Standards Act (CWHSSA)

The Agency Head must cause or require the contracting officer to insert the following clauses set forth in 29 CFR 5.5(b)(1), (2), (3), (4), and (5) in full, or (for contracts covered by the Federal Acquisition Regulation) by reference, in any contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses must

be inserted in addition to the clauses required by 29 CFR 5.5(a) or 4.6. As used in this paragraph, the terms “laborers and mechanics” include watchpersons and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in 29 CFR 5.5(b)(1) the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages and interest from the date of the underpayment. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchpersons and guards, employed in violation of the clause set forth in 29 CFR 5.5(b)(1), in the sum of \$31 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in 29 CFR 5.5(b)(1).

3. Withholding for unpaid wages and liquidated damages

i. Withholding process The U.S Department of Housing and Urban Development or the recipient of Federal assistance may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for any unpaid wages; monetary relief, including interest; and liquidated damages required by the clauses set forth in 29 CFR 5.5(b) on this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract subject to the Contract Work Hours and Safety Standards Act that is held by the same prime contractor (as defined in 29 CFR 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to the Contract Work Hours and Safety Standards Act and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld.

ii Priority to withheld funds The Department has priority to funds withheld or to be withheld in accordance with 29 CFR 5.5(a)(2)(i) or (b)(3)(i), or both, over claims to those funds by:

- A.** A contractor’s surety(ies), including without limitation performance bond sureties and payment bond sureties;
- B.** A contracting agency for its procurement costs;
- C.** A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor’s bankruptcy estate;
- D.** A contractor’s assignee(s);
- E.** A contractor’s successor(s); or
- F.** A claim asserted under the Prompt Payment Act, 31 U.S.C. 3901-3907.

4. Subcontracts. The contractor or subcontractor must insert in any subcontracts the clauses set forth in 29 CFR 5.5(b)(1) through (5) and a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor is responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in 29 CFR 5.5(b)(1) through (5). In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss,

due to any workers of lower-tier subcontractors, and associated liquidated damages and may be subject to debarment, as appropriate.

- 5 Anti-retaliation** It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:
- i. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the Contract Work Hours and Safety Standards Act (CWHSSA) or its implementing regulations in 29 CFR part 5;
 - ii. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under CWHSSA or 29 CFR part 5;
 - iii. Cooperating in any investigation or other compliance action, or testifying in any proceeding under CWHSSA or 29 CFR part 5; or
 - iv. Informing any other person about their rights under CWHSSA or 29 CFR part 5.
- C. CWHSSA required records clause** In addition to the clauses contained in 29 CFR 5.5(b), in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other laws referenced by 29 CFR 5.1, the Agency Head must cause or require the contracting officer to insert a clause requiring that the contractor or subcontractor must maintain regular payrolls and other basic records during the course of the work and must preserve them for a period of 3 years after all the work on the prime contract is completed for all laborers and mechanics, including guards and watchpersons, working on the contract. Such records must contain the name; last known address, telephone number, and email address; and social security number of each such worker; each worker's correct classification(s) of work actually performed; hourly rates of wages paid; daily and weekly number of hours actually worked; deductions made and actual wages paid. Further, the Agency Head must cause or require the contracting officer to insert in any such contract a clause providing that the records to be maintained under this paragraph must be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the (write the name of agency) and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview workers during working hours on the job.
- D. Incorporation of contract clauses and wage determinations by reference** Although agencies are required to insert the contract clauses set forth in this section, along with appropriate wage determinations, in full into covered contracts, and contractors and subcontractors are required to insert them in any lower-tier subcontracts, the incorporation by reference of the required contract clauses and appropriate wage determinations will be given the same force and effect as if they were inserted in full text.
- E. Incorporation by operation of law** The contract clauses set forth in this section (or their equivalent under the Federal Acquisition Regulation), along with the correct wage determinations, will be considered to be a part of every prime contract required by the applicable statutes referenced by 29 CFR 5.1 to include such clauses, and will be effective by operation of law, whether or not they are included or incorporated by reference into such contract, unless the Administrator grants a variance, tolerance, or exemption from the application of this paragraph. Where the clauses and applicable wage determinations are effective by operation of law under this paragraph, the prime contractor must be compensated for any resulting increase in wages in accordance with applicable law.

F. HEALTH AND SAFETY

The provisions of this paragraph (F) are applicable where the amount of the prime contract exceeds **\$100,000**.

- 1.** No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his or her health and safety, as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.
- 2.** The contractor shall comply with all regulations issued by the Secretary of Labor pursuant to 29 CFR Part 1926 and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act, (Public Law 91-54, 83 Stat 96), 40 U.S.C. § 3701 et seq.
- 3.** The contractor shall include the provisions of this paragraph in every subcontract, so that such provisions will be binding on each subcontractor. The contractor shall take such action with respect to any subcontractor as the Secretary of Housing and Urban Development or the Secretary of Labor shall direct as a means of enforcing such provisions.

Project: _____

**CERTIFICATION OF COMPLIANCE
WITH FEDERAL LABOR STANDARDS PROVISIONS**

I, the undersigned _____, the duly authorized representative of _____ (Hereinafter referred to as the contractor), do hereby certify that I have examined the Federal Labor Standards Provisions (HUD-4010) with related certificates and documents, and all of the conditions surrounding these provisions. The contractor understands that:

1. The contractor is responsible for employing only eligible subcontractors who have certified eligibility in written contracts containing Federal Labor Standards Provisions.
2. The contractor is responsible for the payment of Federal Prevailing Wage Rates by its subcontractors while performing work under this contract. If the subcontractor fails to pay the prevailing wages as specified in this contract, the prime contractor may be required to make appropriate restitution to the underpaid workers.
3. The contractor is responsible for collecting weekly certified payrolls from its subcontractors, review said payrolls for compliance with the federal wage rates, and forward same to the local government contract authority.
4. The contractor also understands that only those classifications listed in the original bid documents are applicable to this job, and no special classifications may be incorporated after contract award.

The contractor hereby agrees to perform all of its responsibilities in conformance with the Federal Labor Standards Provisions both diligently and effectively.

BY: _____

TITLE: _____

DATE: _____

**CERTIFICATION OF COMPLIANCE
WITH SECTION 3 REQUIREMENTS**
(To be returned with all submitted bids)

Section 3 of the Housing and Urban Development (HUD) Act of 1968 (12 U.S.C. 1701u) ensures that employment and other economic opportunities generated by certain HUD financial assistance shall, to the greatest extent feasible, be directed to low- and very low-income persons and to business concerns which provide economic opportunities to low- and very low-income persons. Contractors and subcontractors are required to demonstrate good faith efforts to comply with the Section 3 regulations.

A Section 3 Worker means:

Any worker who currently fits or when hired within the past five years fit at least one of the following categories, as documented:

- (1) The worker's income for the previous or annualized calendar year is below the income limit established by HUD.
- (2) The worker is employed by a Section 3 business concern.
- (3) The worker is a YouthBuild participant.

A Targeted Section 3 Worker means:

Any worker who currently fits, or when hired within the past five years fit, at least one of the following categories, as documented

- (1) A worker employed by a Section 3 business concern; or
- (2) Currently fits or when hired fit at least one of the following categories, as documented within the past five years:
 - (i) Low- or very low-income workers residing within service area or neighborhood of project.
 - (ii) A YouthBuild participant.

A Section 3 Business means:

A business that meeting at least one of the following criteria, documented within the last six-month period:

- (1) It is at least 51 percent owned and controlled by low- or very low-income persons;
- (2) Over 75 percent of the labor hours performed for the business over the prior three-month period are performed by Section 3 workers; or
- (3) It is a business at least 51 percent owned and controlled by current public housing residents or residents who currently live in Section 8-assisted housing.

NOTE: If your business meets the definition of a Section 3 business, you must register as a Section 3 Business through HUD's website here: <https://portalapps.hud.gov/Sec3BusReg/BRegistry/RegisterBusiness>

Businesses who self-certify that they meet one of the regulatory definitions of a Section 3 business will be included in a searchable online database. The database can be used by agencies that receive HUD funds, developers, contractors, and others to facilitate the award of covered construction and non-construction contracts to Section 3 businesses.

Please complete the following:

1. If awarded a contract, do you agree to insert the HUD Section 3 Clause into all Section 3 covered sub-contracts? Yes ☐ No ☐

2. If awarded a contract for this CDBG funded project, do you anticipate hiring new employees to complete the project? (Hiring would be specific to this project)

Yes ☐ No ☐

If yes, please estimate the number of employees to be hired: _____

3. Is your business a Section 3 Business? Yes ☐ No ☐

4. Is the bidder willing to consider hiring Section 3 residents for future employment opportunities that are a direct result of this CDBG funded project?

Yes ☐ No ☐

5. Is the bidder willing to consider subcontracting with Section 3 Businesses for this project?

Yes ☐ No ☐

To demonstrate compliance with Section 3, contractors and subcontractors are required to meet or exceed the applicable benchmarks below:

- (1) Twenty-five (25) percent or more of the total number of labor hours worked by all workers on a Section 3 project must be done by Section 3 workers.
- (2) Five (5) percent or more of the total number of labor hours worked by all workers on a Section 3 project must be done by Targeted Section 3 workers

Contractor Responsibilities

- (1) Provide documentation to St. Tammany Parish Government including Section 3 Worker Self-Certification (HUD FORM 47362), Section 3 Labor Hours Verification, Labor Hours Summary Report, Subcontracting Plan.
- (2) If contractor is unable to meet benchmarks, the contractor must provide an explanation and submit documented evidence of good faith efforts. Documented evidence of the contractor's good faith efforts (e.g. copies of advertisements, pictures of flyers or posters, letter or email correspondence with Section 3 businesses, etc.) will be monitored throughout the project.

Indicate the efforts that will be made to direct any employment and other economic opportunities generated by this CDBG funded project, to the greatest extent feasible, to low-and very low-income persons.

(Check all that apply.)

- ☐ Engage in outreach efforts to generate job applicants who are Section 3 workers. Attempt to recruit from the project area through local advertising media, community-based organizations, and public/private agencies operating within or serving the project area.
- ☐ Post job opportunities at the project site and in the project area.
- ☐ Provide training or apprenticeship opportunities.
- ☐ Provide assistance to apply for/or attend community college, a four-year educational institution, or vocational/technical training.
- ☐ Engage in outreach efforts to identify and secure bids from Section 3 business concerns.
- ☐ Provide technical assistance to help Section 3 business concerns understand and bid on contracts.
- ☐ Divide contracts into smaller jobs to facilitate participation by Section 3 business concerns.
- ☐ Other: (Explain)

I understand that this contracting opportunity is subject to HUD Section 3 requirements (24 CFR Part 75). I have read and understand the Section 3 requirements as generally described above and presented in the Section 3 contract language included in the procurement documents for this project. If awarded a contract, the business commits to following Section 3 requirements, as they apply to this project. If awarded a contract for this project, the business agrees to provide reports to St. Tammany Parish Department of Grants on Section 3 efforts and accomplishments.

Contractor/Subcontract

Address

Print Name

Title

Signature

Date

Superseded General Decision Number: LA20240005

State: Louisiana

Construction Type: Heavy

Counties: Jefferson, Orleans, Plaquemines, St Bernard, St Charles, St James, St John the Baptist and St Tammany Counties in Louisiana.

HEAVY CONSTRUCTION PROJECTS (Includes flood control, water & sewer lines, and water wells. Also includes elevated storage tanks in all listed parishes except Plaquemines and St. James. Excludes industrial construction-chemical processing, power plants, and refineries.)

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	. Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least \$17.75 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2025.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	. Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least \$13.30 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2025.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at

<http://www.dol.gov/whd/govcontracts>.

Modification Number	Publication Date
0	01/03/2025
1	04/04/2025
2	06/20/2025
3	07/04/2025

* CARP0729-001 01/01/2025

	Rates	Fringes
MILLWRIGHT.....	\$ 40.34	14.16

* CARP1846-006 07/01/2024

	Rates	Fringes
CARPENTER (formbuilding/formsetting and Piledrivers).....	\$ 32.59	10.52

ELEC0130-005 12/02/2024

JEFFERSON, ORLEANS, PLAQUEMINES, ST. BERNARD, ST. CHARLES, ST.
JAMES, AND ST. JOHN THE BAPTIST PARISHES

	Rates	Fringes
ELECTRICIAN (including low voltage wiring).....	\$ 35.00	16.03

ELEC1077-002 05/26/2025

ST. TAMMANY PARISH

	Rates	Fringes
ELECTRICIAN (including low voltage wiring).....	\$ 30.35	3%+11.55

ENGI0406-018 07/01/2009

	Rates	Fringes
OPERATOR: Power Equipment Bulldozer.....	\$ 21.26	6.70
Mechanic.....	\$ 23.31	6.70

PLAS0567-003 08/01/2022

JEFFERSON, ORLEANS, PLAQUEMINES, ST. BERNARD, ST. CHARLES, ST.
JOHN THE BAPTIST, and ST. TAMMANY PARISHES

	Rates	Fringes
Cement Mason/Concrete Finisher...	\$ 30.47	7.97

PLAS0812-003 01/01/2022

ST. JAMES PARISH

	Rates	Fringes
Cement Mason/Concrete Finisher...	\$ 31.83	5.90

PLUM0060-002 06/05/2023		

JEFFERSON, ORLEANS, PLAQUEMINES, ST. BERNARD, ST. CHARLES, ST. JAMES (Southeastern Portion), ST. JOHN THE BAPTIST, and ST. TAMMANY PARISHES

	Rates	Fringes
Plumbers (excluding pipe laying).....	\$ 31.70	13.85

PLUM0198-005 12/08/2022		

ST. JAMES PARISH (Northwestern Portion)

	Rates	Fringes
PLUMBER (excluding pipe laying).....	\$ 32.42	16.50

* SULA2004-007 05/13/2004		

	Rates	Fringes
CARPENTER (all other work).....	\$ 13.75 **	2.60
Laborers:		
Common/Landscape.....	\$ 9.88 **	0.00
Fence.....	\$ 11.24 **	0.00
Flagger.....	\$ 8.58 **	0.00
Mason Tender.....	\$ 7.25 **	0.00
Pipelayer.....	\$ 9.84 **	0.00
PIPEFITTER (excluding pipelaying).....	\$ 17.52 **	4.51
Power equipment operators:		
Backhoe/Excavator.....	\$ 14.42 **	0.00
Crane.....	\$ 16.34 **	3.30
Dragline.....	\$ 16.50 **	0.00
Front End Loader.....	\$ 13.89 **	0.00
Oiler.....	\$ 10.03 **	0.00
Truck drivers:		
Dump.....	\$ 11.01 **	0.00
Pickup.....	\$ 12.25 **	0.00

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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** Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 (\$17.75) or 13658 (\$13.30). Please see the Note at the top of the wage determination for more information. Please also note that the minimum wage requirements of Executive Order 14026 are not currently being enforced as to any contract or subcontract to which the states of Texas, Louisiana, or Mississippi, including

their agencies, are a party.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (iii)).

The body of each wage determination lists the classifications and wage rates that have been found to be prevailing for the type(s) of construction and geographic area covered by the wage determination. The classifications are listed in alphabetical order under rate identifiers indicating whether the particular rate is a union rate (current union negotiated rate), a survey rate, a weighted union average rate, a state adopted rate, or a supplemental classification rate.

Union Rate Identifiers

A four-letter identifier beginning with characters other than ""SU"", ""UAVG"", ?SA?, or ?SC? denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union whose collectively bargained rate prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE: UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio.

The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The ""SU"" identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

?SU? wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The ""SA"" identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the ?SA? identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

1) Has there been an initial decision in the matter? This can be:

- a) a survey underlying a wage determination
- b) an existing published wage determination
- c) an initial WHD letter setting forth a position on a wage determination matter
- d) an initial conformance (additional classification and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to davisbaconinfo@dol.gov or by mail to:

Branch of Wage Surveys
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2) If an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210.

=====

END OF GENERAL DECISION"

SECTION 01 10 00 - SUMMARY OF WORK

PART 1 -- GENERAL

1.1 THE REQUIREMENT

- A.** Furnish all plant, tools, equipment, materials, supplies, and manufactured articles, labor, transportation, and services, including fuel, power, water, and essential communications, and performing all work or other operations required for the fulfillment of the Contract in strict accordance with the Contract Documents. Furnish all work, materials, and services not expressly indicated or called for in the Contract Documents which may be necessary for the complete and proper construction of the WORK in good faith as though originally so indicated, at no increase in cost to the OWNER. These actions constitute the WORK of this Contract.
- B. Instructions to the CONTRACTOR:** Throughout these Technical Specifications, Instructions to the CONTRACTOR are generally written in active voice, imperative mood. The subject of imperative sentences is understood to be "the CONTRACTOR." The ENGINEER and OWNER's responsibilities are generally written in passive voice, indicative mood. Phrases such as "as approved," "unless otherwise approved," "upon approval," "as directed," "as verified," "as ordered," and "as determined" refer to actions of the ENGINEER or OWNER unless otherwise stated, and it is understood that the directions, orders, or instructions to which they relate are within the limitations of and authorized by the Contract Documents.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

- A.** The WORK of this Contract comprises the construction of an interconnecting pipeline to connect the Alton water system to a neighboring privately owned utility. Major items of the WORK include, but are not limited to the following:
 - 1.** Construction of an interconnecting potable water main between the Alton water system to a neighboring privately owned utility;
 - 2.** Construction and backfill of jacking and boring pits;
 - 3.** Pressure testing and disinfection of the new potable water main;
 - 4.** Connections of the new potable water main with the existing water mains at Alton water system and a neighboring privately owned utility.
- B.** The WORK is located in eastern St. Tammany Parish, Louisiana near the intersection of US Highway 11 at n. 2ND Ave. to Haas Road at Ashton Parc. A project vicinity map is provided within the design drawings.
- C. Rail Rights – of – Way:** The CONTRACTOR's attention is directed to the fact that a portion of the work is to be constructed within the right – of – way of a federally recognized railroad. At no time may the Contractor encroach upon the railroad rights – of – way except as specifically permitted by the Railroad License Agreement.



- D. State Rights – of – Way:** The CONTRACTOR's attention is directed to the fact that a portion of the work is to be constructed within the right – of – way of a federally recognized highway owned and maintained by the State of Louisiana Department of Transportation and Development, and which is eligible for the receipt of Federal Aid as a part of the National Highway System (NHS). At no time may the Contractor encroach upon the highway except as specifically permitted by the Utility Permit.

1.3 CONTRACT METHOD

- A.** The WORK here under will be constructed under a single unit-price contract.

1.4 EXPLANATION OF ALTERNATES

- A.** Two additive alternates will be considered as described herein and as depicted on the Bid Form and Drawings.
- B.** If awarded, Additive Alternate No. 1 consists of the additional cost, over and above the base bid, to construct potable water pipelines, reducers, valves and hydrants within the rights of way of North 5th street proceeding northward from the required tee fitting located at Station 105+07.37 9.00 R for a distance of 100 linear feet. On the Bid Form, Additive Alternate No. 1 is comprised of Reference No.'s A1-201(01) through A1-741(08), inclusive.
- C.** If awarded, Additive Alternate No. 2 consists of the additional cost, over and above the base bid plus Additive Alternate No. 1 to construct potable water pipelines, reducers, valves and hydrants within the rights of way at the following locations:
- 1.** Within the rights – of – way of North 5th Street proceeding southward from the required tee fitting located at 105+07.37 13.70 R for a distance of 100 linear feet;
 - 2.** Within the unopened rights-of-way between North 5th Street and North 3rd street proceeding northward from the required tee fitting located at 107+15.62 20.44 R for a distance of 100 linear feet;
 - 3.** Within the unopened rights – of – way of North 3rd Street, street proceeding southward from the required tee fitting located at 107+15.62 20.44 R for a distance of 100 linear feet;
- D.** On the Unit Price Form, Additive Alternate 2 is comprised of Reference No.'s A2-201(01) through A2-741(08), inclusive.

1.5 WORK BY OTHERS

- A.** Where 2 or more contracts are being performed at one time on the same Site or adjacent land in such manner that work under one contract may interfere with work under another, the OWNER will determine the sequence and order of the Work in either or both contracts. When the Site of one contract is the necessary or convenient means of access for performance of work under another, the OWNER may grant privilege of access or other reasonable privilege to the contractor so desiring, to the extent, amount, and in manner and at time that



the OWNER may determine. No OWNER determination of method or time or sequence or order of the work or access privilege will be the basis for a claim for delay or damage except under provisions of the General Conditions for temporary suspensions of the work.

- B. Conduct operations so as to cause a minimum of interference with the work of such other contractors and cooperate fully with such contractors to allow continued safe access to their respective portions of the Site, as required to perform work under their respective contracts.

1.6 INTERFERENCE WITH WORK ON UTILITIES

- A. Cooperate fully with all utility forces of the OWNER or forces of other public or private agencies engaged in the relocation, altering, or otherwise rearranging of any facilities which interfere with the progress of the WORK.
- B. Schedule the WORK so as to minimize interference with said relocation, altering, or other rearranging of facilities.

1.7 CONTRACTOR USE OF SITE

- A. Limit use of the site to construction operations, including on-Site storage of materials, on-Site fabrication facilities, and field offices.

1.8 ROADWAY CLOSURE REQUESTS

- A. Modifications to existing facilities, the construction of new facilities, and the connection of new to existing facilities may require the temporary closure of existing roadways and driveways. In such cases, coordinate the WORK with the ENGINEER as described below. Submit a detailed closure request and time schedule for all construction activities which will make it necessary to completely or partially close a roadway, driveway, or walkway to the public.
- B. Submit the closure request to the ENGINEER a minimum of two (2) weeks in advance of the time that such closure is required. Coordinate the closure request with the construction schedule and the restrictions and conditions of these specifications. Within the closure request, describe the CONTRACTOR's temporary traffic control plan, the length of time to complete the operation, and the manpower, plant, and equipment to ensure that WORK requiring the closure is completed within the scheduled time for the closure. Assume and pay for all costs for preparing, implementing, maintaining, and removing the closure plan as part of the WORK.
- C. Do not enact a roadway, driveway, or sidewalk closure until written approval has been granted by the ENGINEER in each case. Should the CONTRACTOR enact a closure without approval of the ENGINEER, the ENGINEER will direct the CONTRACTOR to take whatever measures are necessary to re – open the affected roadway, driveway, or sidewalk closure at the CONTRACTOR's expense. Should the CONTRACTOR refuse, the OWNER may take required measures and such costs will be withheld from future progress payments to the CONTRACTOR.



- D. The ENGINEER will coordinate the CONTRACTOR's planned closure with the OWNER's personnel. The ENGINEER has the authority to modify any proposed closure plans should the closure unnecessarily adversely impact the public.
- E. Notify the ENGINEER in writing at least one week in advance of the required closure if the schedule for performing the work has changed or if revisions to the closure plan are required. Provide written confirmation of the closure date and time 2 working days prior to the actual closure.

1.9 UTILITY OUTAGE PLAN AND REQUESTS

- A. Unless the Contract Documents indicate otherwise, do not remove from service, de-energize, or modify settings for any existing operating pipeline, valve, fire hydrant, equipment, structures, roads, or any other facility without permission from the ENGINEER. Night work or work outside of normal operating hours may be required to perform tie ins to the existing system.
 - 1. The maximum duration of any outage is 4 hours.
- B. Where the WORK requires modifications to existing facilities or construction of new facilities and connection of new facilities to existing facilities, submit a detailed outage plan and schedule for the ENGINEER'S approval a minimum of 2 weeks in advance of the time that such outage is planned.
- C. Coordinated the outage plan with the construction schedule and meet the restrictions and conditions of the Contract Documents. Describe the CONTRACTOR's method for connection to the existing system the length of time required to complete said operation; any necessary temporary utilities; manpower, and equipment which the CONTRACTOR will furnish for proper switchover. Include all costs for preparing and implementing the outage plans in the Bid Price.
- D. Notify the ENGINEER in writing at least one week in advance of the required outage if the schedule for performing the work has changed or if revisions to the outage plan are required.
- E. Provide written confirmation of the shutdown date and time 2 working days prior to the actual shutdown.

1.10 OWNER USE OF THE SITE

- A. The OWNER will utilize all or part of the existing facilities during the entire period of construction for the conduct of the OWNER's normal operations and service to customers. Cooperate and coordinate with the OWNER to facilitate the OWNER's operations and to minimize interference with the CONTRACTOR's operations at the same time. In any event, allow the OWNER access to the Site during the period of construction.

1.11 PROJECT MEETINGS

A. Preconstruction Conference:



1. Prior to the commencement of WORK at the Site, a preconstruction conference will be held at a mutually agreed time and place. Ensure that the conference is attended by the CONTRACTOR'S Project Manager, its superintendent, and its subcontractors as the CONTRACTOR deems appropriate. Other attendees will be:
 - a. ENGINEER and the Resident Project Representative.
 - b. Representatives of OWNER.
 - c. Governmental representatives as appropriate.
 - d. Others as requested by CONTRACTOR, OWNER, or ENGINEER.
2. The purpose of the conference is to designate responsible personnel and establish a working relationship. Matters requiring coordination will be discussed and procedures for handling such matters established. The complete agenda will be furnished to the CONTRACTOR prior to the meeting date. However, the CONTRACTOR should be prepared to discuss all of the items listed below.
 - a. Status of CONTRACTOR's insurance and bonds.
 - b. CONTRACTOR's tentative schedules.
 - c. Transmittal, review, and distribution of CONTRACTOR's submittals.
 - d. Processing applications for payment.
 - e. Maintaining record documents.
 - f. Critical work sequencing.
 - g. Field decisions and Change Orders.
 - h. Use of Site, office and storage areas, security, housekeeping, and OWNER's needs.
 - i. Major equipment deliveries and priorities.
3. The ENGINEER will preside at the preconstruction conference and will arrange for keeping and distributing the minutes to all persons in attendance.
4. The CONTRACTOR and its subcontractors should plan on the conference taking no less than one half of one full working day.

B. Progress Meetings:

1. The ENGINEER will schedule and hold regular on-Site progress meetings as requested by CONTRACTOR or OWNER or as required by progress of the WORK. Ensure that the CONTRACTOR's Project Manager, superintendent, and pertinent subcontractors attend each meeting. CONTRACTOR may, at



its discretion, request attendance by representatives of its suppliers, manufacturers, and other subcontractors.

2. The ENGINEER will preside at the progress meetings and will arrange for keeping and distributing the minutes. The purpose of the meetings is to review the progress of the WORK, maintain coordination of efforts, discuss changes in scheduling, and resolve other problems which may develop. During each meeting, present any issues that may impact its progress with a view to resolve these issues expeditiously.

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION (NOT USED)

END OF SECTION



SECTION 01 14 00 – CONSTRUCTION CONSTRAINTS

PART 1 -- GENERAL

1.1 THE REQUIREMENT

- A.** Schedule, sequence, and perform the WORK in a manner which minimizes disruption to the public and to the operation and maintenance of existing facilities along the pipeline alignment.
- B.** Incorporate the construction and schedule constraints of this Section in preparing the construction schedules required under Section 01 32 14 – Bar chart Construction Schedule.
- C.** Refer to Section 01 10 00 for requirements related to access to the state right of way.

1.2 OPERATION OF OWNER'S FACILITIES

- A.** Operational functions or shutdown of existing facilities required to facilitate CONTRACTOR's operation will be done by the OWNER's personnel only.
- B.** The plant operation and maintenance personnel will cooperate in every way that is practical in order to facilitate CONTRACTOR's operation. However, certain shutdown and connections may only be permissible at times other than normal working hours such as nights or weekends. No additional payment will be made to the CONTRACTOR for any night, weekend, or holiday premium or overtime payments.
- C.** If it becomes necessary for the proper operation or maintenance of portions of the existing systems, the OWNER may require the CONTRACTOR to reschedule an approved shutdown. Reschedule operations so there will be no conflict with necessary operations or maintenance. Within 2 Days, furnish the ENGINEER a revised outage request and a plan for rescheduling the shutdown in accordance with the requirements of the construction schedule.

1.3 OUTAGE REQUESTS

- A.** Modifications to existing facilities, the construction of new facilities, and the connection of new to existing facilities may require the temporary outage of pipelines. In such cases, coordinate WORK with the ENGINEER as described below. Submit a detailed outage plan and time schedule for construction activities which will make it necessary to remove any facility from service.
- B.** Submit outage plans to the ENGINEER for acceptance a minimum of 2 weeks in advance of the time that such outages are required. Coordinate the outage plans with the construction schedule and ensure that the outage plans meet the restrictions and conditions of this Section. Describe the length of time required to complete the operation; and the manpower, plant, and equipment which the CONTRACTOR will provide. Costs for preparing and implementing the outage plans are responsibility of the CONTRACTOR as part of the WORK.



- C. Do not begin an alteration affecting existing facilities until specific written approval has been granted by the ENGINEER in each case.
- D. The ENGINEER will coordinate the CONTRACTOR's planned procedure with the operations personnel. The ENGINEER has the authority to modify any proposed shutdown procedures if such procedures would adversely impact the distribution system.
- E. Notify the ENGINEER in writing at least one week in advance of the required outage if the schedule for performing the WORK has changed or if revisions to the outage plan are required. Provide written confirmation of the shutdown date and time 2 Days prior to the actual shutdown.

1.4 CONSTRUCTION SEQUENCING

- A. Schedule construction activities to ensure continuous operation of the existing water systems.

1.5 PERMITS

- A. Abide by the conditions of all permits and obtain proof of satisfaction of conditions from issuers of permits, where so required, prior to acceptance of the WORK by the OWNER.
- B. Conditions affecting the CONTRACTOR are found in the following permits. Copies of permit conditions are included as attachments to these specifications.
 - 1. Louisiana Department of Transportation and Development Utility Permit No. **62035136**.
 - 2. Norfolk Southern Railway License Agreement No. **1319189**.
 - 3. Louisiana Department of Health Permit No. **P24-09-103-113**.

1.6 SCHEDULE CONSTRAINTS

- A. General: It is the CONTRACTOR's responsibility to coordinate and plan the construction activities to integrate each schedule constraint into performance of the overall WORK.
- B. The listing of schedule constraints below does not mean that every constraint or special condition has been identified. The list does not substitute for the CONTRACTOR's coordination and planning for completion of the WORK within the Contract Times.
- C. The following constraints affect the construction schedule.
 - 1. Do not perform work on holidays observed by the OWNER.
 - 2. Testing/sampling is performed by the Louisiana Department of Health on Mondays through Thursdays only.



3. Do not connect any new water distribution pipeline to any existing water distribution pipeline until the new water distribution pipeline has been constructed, pressure tested, disinfected, and accepted by the OWNER.
4. Do not initiate work on any public road prior to the initial installation of temporary traffic control devices.
5. Do not initiate work on the railroad right of way until track monitoring is in place.

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION (NOT USED)

END OF SECTION



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SECTION 01 29 00 - MEASUREMENT AND PAYMENT

PART 1 -- GENERAL

1.1 THE REQUIREMENT

- A. Payment for the various items on the Bid Form, as further specified herein, will include all compensation to be received by the CONTRACTOR for furnishing all tools, equipment, supplies, and manufactured articles, and for all labor, operations, and incidentals appurtenant to the items of work being described, as necessary to complete the various items of the WORK all in accordance with the requirements of the Contract Documents, including all appurtenances thereto, and including all costs of permits and cost of compliance with the regulations of public agencies having jurisdiction, including Safety and Health Requirements of the Occupational Safety and Health Administration of the U.S. Department of Labor (OSHA). No separate payment will be made for any item that is not specifically set forth in the Bid Schedule. therefore, include all costs of the WORK in the prices named in the Bid Schedule for the various appurtenant items of WORK.

1.2 ACCURACY

- A. The ENGINEER will be the judge of the accuracy of measurements, or approximations made in lieu of accurate determinations, and these decisions will be binding upon both the CONTRACTOR and the OWNER.
- B. The ENGINEER will utilize the accepted Schedule of Values for the purpose of estimating the value of WORK completed for the evaluation of requests for payment.
- C. The terms "lump sum, each, or unit" when used as a unit of measure for payment will mean complete payment for the work described in the contract. Portions of lump sum items may be paid where deemed acceptable by the ENGINEER and OWNER based upon an estimate of the proportion of the WORK of the lump sum item acceptably completed in accordance with the Contract Documents. The ENGINEER may utilize an accepted Schedule of Values to make such determinations. Provide all supporting documentation requested by the ENGINEER in this regard.

1.3 CLEARING AND GRUBBING - UNIT PRICE FORM REF. NO. 201 (01).

- A. **Explanation:** This item is part of the Base Bid.
- B. **Measurement:** No Measurement will be made for this item.
- C. **Payment:** Payment for this item will be made in portions of the lump sum price named in the Bid Form in accordance with the following table. Payment of the lump sum price listed in the Bid Form shall constitute full compensation for all equipment, materials, tools, labor, and incidentals necessary for construction layout associated with the WORK in accordance with the requirements of the Contract Documents.



Table 01 29 00 – 1 – Allowable Percent of Lump Sum Price for Clearing and Grubbing	
Percent of Total Contract Amount Earned:	Allowable Percent of Lump Sum Price for Site Preparation:
First Application for Payment	40
25	60
50	80
75	95
100	100

1.4 REMOVAL OF STRUCTURES AND OBSTRUCTIONS - UNIT PRICE FORM REF. NO. 202 (01).

- A. Explanation:** This item is part of the Base Bid.
- B. Measurement:** No Measurement will be made for this item.
- C. Payment:** Payment for this item will be made at, or in portions thereof based upon the estimated amount of the WORK completed, of the lump sum bid price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the removal of structures and obstructions, including but not limited to disposal of debris, all in accordance with the requirements of the Contract Documents.

1.5 REMOVAL OF ASPHALT CONCRETE PAVEMENT – UNIT PRICE FORM REF. NO. 202 (02).

- A. Explanation:** This item is part of the Base Bid.
- B. Measurement:** Measurement for payment for this item will be based upon the number of square yards of asphalt concrete pavement removed as determined by field measurement.
- C. Payment:** Payment for this item will be made at the unit price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the removal of asphalt concrete pavement, inclusive but not limited to breaking, removal and disposal of asphalt concrete pavement, all in accordance with the requirements of the Contract Documents.



1.6 ADDITIONAL EXCAVATION OF UNSUITABLE SUBGRADE– UNIT PRICE FORM REF. NO. 203 (01).

- A. Explanation:** This item is part of the Base Bid.
- B. Measurement:** Measurement for payment for this item will be based upon the number of cubic yards of materials excavated as based on theoretical volume as determined by field measurement.
- C. Payment:** Payment for this item will be made at the unit price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR which provides full compensation for excavation, removal and disposal of excavated material all in accordance with contract documents.

1.7 TEMPORARY ENVIRONMENTAL CONTROLS – UNIT PRICE FORM REF. NO. 204 (01).

- A. Explanation:** This item is part of the Base Bid.
- B. Measurement:** No measurement will be made for this item.
- C. Payment:** Payment for this item will be made at the lump sum price on the Bid Form, or in portions thereof in accordance with the table below. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the complete provision of all temporary environmental controls required by the Contract Documents and local, State, and Federal laws, including, but not limited to the installation and maintenance of temporary environmental controls, development and maintenance of all required pollution prevention plans and associated permit fees, and all other temporary environmental controls all in accordance with the requirements of the Contract Documents.

Table 01 29 00 – 2 – Allowable Percent of Lump Sum Price for Temporary Environmental Controls – Base Bid	
Percent of Total Contract Amount Earned:	Allowable Percent of Lump Sum Price for Temporary Environmental Controls:
<i>First Application for Payment</i>	40
25	60
50	80
75	95
100	100



1.8 CLASS II BASE COURSE (STONE) – UNIT PRICE FORM REF. NO. 302 (01).

- A. Explanation:** This item is part of the Base Bid.
- B. Measurement:** Measurement for payment for this item will be based upon the number of square yards of base course installed as determined by field measurement along neat lines.
- C. Payment:** Payment for this item will be made at the unit price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the installation of Class II Base Course, inclusive but not limited to excavation to required line and grade, disposal of excavated material, placement of geotextile fabric, geogrid, placement and compaction of base course material and placement of asphalt prime coat all in accordance with the requirements of the Contract Documents.

1.9 AGGREGATE SURFACE COURSE – UNIT PRICE FORM REF. NO. 401(01)

- A. Explanation:** This item is part of the Base Bid.
- B. Measurement:** Measurement for payment for this item will be based upon the number of cubic yards of aggregate surface course provided and acceptably placed.
- C. Payment:** Payment for this item will be made at the unit price listed on the Bid Form. payment for the production of mixtures for aggregate surface course, surfacing, placement and compaction of aggregate surface course, all in accordance with the requirements of the Contract Documents.

1.10 TRAFFIC MAINTENANCE SURFACING – UNIT PRICE FORM REF. NO. 402 (01)

- A. Explanation:** This item is part of the Base Bid.
- B. Measurement:** Measurement for payment for this item shall be the square yard traffic maintenance surfacing placed, maintained, and removed, as determined by field measurements along neat lines.
- C. Payment:** Payment for traffic maintenance surfacing at the unit price listed in the Bid Form. Payment of the price listed on the Bid Form shall constitute full payment for the production of mixtures for traffic maintenance surfacing, placement and compaction of mixtures for traffic maintenance surfacing, maintenance, and removal and disposal of traffic maintenance surfacing all in accordance with the requirements of the Contract Documents.

1.11 SUPERPAVE ASPHALT CONCRETE – LEVEL 1 – UNIT PRICE FORM REF. NO. 502 (01).

- A. Explanation:** This item is part of the Base Bid.
- B. Measurement:** Measurement for payment for asphalt concrete wearing course will be made by the ton of 2,000 pounds from printed tickets provided as specified within the Contract Documents. Approved tickets will be issued



for each truckload of material delivered. Material lost, wasted, rejected, or applied contrary to the Contract Documents will not be measured for payment.

- C. Payment:** Payment for this item will be made at the unit price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the furnishing of all required materials, production of the mixtures, preparation of the surfaces on which the mixture are to be placed inclusive of tack coats, hauling the mixtures to the work site, placing and compacting the mixtures, and correcting deficiencies in surface tolerances all in accordance with the requirements of the Contract Documents.

1.12 MILLING ASPHALT PAVEMENT – UNIT PRICE FORM REF NO. 509 (01).

- A. Explanation:** This item is part of the Base Bid.
- B. Measurement:** Measurement for payment for this item will be based upon the square yard of asphalt concrete surfacing acceptably removed as determined by field measurement along neat lines. No additional measurement will be made for multiple passes required to achieve total milling depth shown on the drawings.
- C. Payment:** Payment for this item will be made at the unit price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for milling asphalt pavement, inclusive of but not limited to removing, hauling, stockpiling and disposing of millings, all in accordance with the requirements of the Contract Documents.

1.13 TEMPORARY TRAFFIC CONTROL – UNIT PRICE BID FORM REF. NO. 713 (01)

- A. Explanation:** This item is part of the Base Bid.
- B. Measurement:** No measurement will be made for this item.
- C. Payment:** Payment for this item will be made at the lump sum price on the Bid Form, or in portions thereof in accordance with the table below. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the development, implementation, maintenance, adjustment, and removal of all temporary traffic controls, all in accordance with the requirements of the Contract Documents.



Table 01 29 00 – 3 – Allowable Percent of Lump Sum Price for Temporary Traffic Controls – Base Bid	
Percent of Total Contract Amount Earned:	Allowable Percent of Lump Sum Price for Temporary Traffic Controls
Initial Erection	40
25	60
50	80
75	95
100	100

1.14 FOUNDATION MATERIAL – UNIT PRICE BID FORM REF. NO. 726 (01).

- A. Explanation:** This item is part of the Base Bid.
- B. Measurement:** Measurement for payment for this item will be based upon the number of cubic yards of materials, compacted and in place, placed as based on theoretical volume as determined by field measurement.
- C. Payment:** Payment for this item will be made at the unit price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR which provides full compensation for furnish, placing foundation material and compacting to the proper relative density, furnishing and placing geotextile in accordance with plan details, furnishing and placing geogrid in accordance with plan details, and all other items necessary for furnishing foundation material in accordance with the requirements of the Contract Documents.

1.15 MOBILIZATION – UNIT PRICE BID FORM REF. NO. 727 (01)

- A. Explanation:** This item is part of the Base Bid.
- B. Measurement:** No measurement will be made for this item.
- C. Payment:** Payment for this item will be made at the lump sum price on the Bid Form, or in portions thereof in accordance with the table below. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the successful mobilization and de – mobilization to and from the site, all in accordance with the requirements of the Contract Documents.



Table 01 29 00 – 4 – Allowable Percent of Lump Sum Price for Mobilization – Base Bid	
Percent of Total Contract Amount Earned	Allowable Percent of Lump Sum Price for Mobilization
<i>1st Application for Payment</i>	25
10	50
25	75
50	100

1.16 SEEDING – UNIT PRICE BID FORM REF. NO. 739 (01).

- A. Explanation:** This item is part of the Base Bid.
- B. Measurement:** No measurement will be made for this item.
- C. Payment:** Payment for this item will be made at, or in portions thereof based upon the estimated amount of the WORK completed, of the lump sum bid price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the seeding of all lawn areas affected by construction, including but not limited to surface preparation, placement of seed, establishment, watering, and correction of deficient areas in accordance with the requirements of the Contract Documents. .

1.17 CONSTRUCTION LAYOUT – UNIT PRICE BID FORM REF. NO. 740 (01).

- A. Explanation:** This item is part of the Base Bid.
- B. Measurement:** No measurement will be made for this item.
- C. Payment:** Payment for this item will be made at the lump sum price on the Bid Form, or in portions thereof in accordance with the table below. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the complete and accurate layout of all WORK, including but not limited to the recovery and establishment of baselines, elevations, traverses, and measurements all in accordance with the Requirements of the Contract Documents.



Table 01 29 00 – 5 – Allowable Percent of Lump Sum Price for Construction Layout – Base Bid	
Percent of Total Contract Amount Earned:	Allowable Percent of Lump Sum Price for Construction Layout:
<i>First Application for Payment</i>	40
25	60
50	80
75	95
100	100

1.18 8" WATER MAIN, PVC, UNRESTRAINED, INSTALLED BY OPEN CUT – UNIT PRICE FORM REF. NO. 741 (01).

- A. Explanation:** This item is part of the Base Bid.
- B. Measurement:** Measurement for payment for this item will be based upon the number of linear feet of such pipe placed as determined by measurement along the centerline of such pipe as measured between outside of structures, not inclusive of the length of fittings and valves.
- C. Payment:** Payment for this item will be made at the unit price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the installation of the unrestrained water main pipeline, inclusive but not limited to excavation, shoring for excavation safety, exclusion of water, provision and placement of bedding material, provision, placement and joining of pipe, pressure testing and disinfection of pipe, joining of pipe to structures, valves, and fittings, tracer wire and locator tape, and backfilling all in accordance with the requirements of the Contract Documents.

1.19 8" WATER MAIN, PVC, RESTRAINED, INSTALLED BY OPEN CUT – UNIT PRICE FROM REF. NO. 741 (02).

- A. Explanation:** This item is part of the Base Bid.
- B. Measurement:** Measurement for payment for this item will be based upon the number of linear feet of such pipe placed as determined by measurement along the centerline of such pipe as measured between outside of structures, not inclusive of the length of fittings and valves.
- C. Payment:** Payment for this item will be made at the unit price named on the



bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the installation of the restrained water main pipeline, inclusive but not limited to excavation, shoring for excavation safety, exclusion of water, provision and placement of bedding material, provision, placement and joining of pipe, pressure testing and disinfection of pipe, pipe restraints, joining of pipe to structures, valves, and fittings, tracer wire and locator tape, and backfilling all in accordance with the requirements of the Contract Documents.

1.20 8" WATER MAIN, PVC, INSTALLED BY HORIZONTAL DIRECTIONAL DRILL – UNIT PRICE FORM REF. NO. 741 (03).

- A. Explanation:** This item is part of the Base Bid.
- B. Measurement:** Measurement for payment for this item will be based upon the number of linear feet of such pipe actually placed as determined by measurement along the centerline of such pipe as measured between outside of structures, not inclusive of the length of fittings and valves. The ENGINEER may also utilize the approved record drawings to validate the installed quantity.
- C. Payment:** Payment for this item will be made at the unit price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the installation of the pipeline via horizontal directional drill, inclusive of furnishing and placing pipe, preparation of reports, surface monitoring, joining of pipe to structures, valves, and fittings, tracer wire, and all other work all in accordance with the requirements of the Contract Documents.

1.21 8" DUCTILE IRON FITTINGS, FULLY RESTRAINED, ALL TYPES, MECHANICAL JOINT BY MECHANICAL JOINT – UNIT PRICE FORM REF. NO. 741 (04).

- A. Explanation:** This item is part of the Base Bid.
- B. Measurement:** Measurement for payment for this item will be based upon the number of such fittings furnished and installed in place.
- C. Payment:** Payment for this item will be made at the unit price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the installation of fittings within the water main pipeline, inclusive but not limited to excavation, shoring for excavation safety, provision and placement of bedding material, provision, placement and joining of fittings, retainer glands, tracer wire and locator tape, and backfilling and all other work all in accordance with the requirements of the Contract Documents.

1.22 8" BURIED GATE VALVE, MECHANICAL JOINT – UNIT PRICE FORM REF. NO. 741 (05).

- A. Measurement:** Measurement for payment for this item will be based upon the



number of such valves furnished and installed in place.

- B. Payment:** Payment for this item will be made at the unit price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the installation of the sewer force main pipeline, inclusive but not limited to excavation, shoring for excavation safety, provision and placement of bedding material, provision and installation of the valve including retainer glands for full restraint of the valve, valve actuator, extension stem, soil pipe, valve casting, and concrete pad (or manhole cover for buried valves in pavement), and backfilling all in accordance with the requirements of the Contract Documents.

1.23 6" WATER MAIN, PVC, RESTRAINED, INSTALLED BY OPEN CUT – UNIT PRICE FROM REF. NO. 741 (06).

- A. Explanation:** This item is part of the Base Bid.
- B. Measurement:** Measurement for payment for this item will be based upon the number of linear feet of such pipe placed as determined by measurement along the centerline of such pipe as measured between outside of structures, not inclusive of the length of fittings and valves.
- C. Payment:** Payment for this item will be made at the unit price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the installation of the restrained water main pipeline, inclusive but not limited to excavation, shoring for excavation safety, exclusion of water, provision and placement of bedding material, provision, placement and joining of pipe, pressure testing and disinfection of pipe, pipe restraints, joining of pipe to structures, valves, and fittings, tracer wire and locator tape, and backfilling all in accordance with the requirements of the Contract Documents.

1.24 6" BURIED GATE VALVE, MECHANICAL JOINT – UNIT PRICE FORM REF. NO. 741 (07).

- A. Measurement:** Measurement for payment for this item will be based upon the number of such valves furnished and installed in place.
- B. Payment:** Payment for this item will be made at the unit price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the installation of the sewer force main pipeline, inclusive but not limited to excavation, shoring for excavation safety, provision and placement of bedding material, provision and installation of the valve including retainer glands for full restraint of the valve, valve actuator, extension stem, soil pipe, valve casting, and concrete pad (or manhole cover for buried valves in pavement), and backfilling all in accordance with the requirements of the Contract Documents.



1.25 8" WATER MAIN, PVC, RESTRAINED, INSTALLED BY JACKING AND BORING WITHIN STEEL CASING – UNIT PRICE FORM REF. NO. 741 (08).

- A. Explanation:** This item is part of the Base Bid.
- B. Measurement:** Measurement for payment for this item will be based upon the number of linear feet of such pipe actually placed as determined by measurement along the centerline of such pipe as measured between outside of structures, not inclusive of the length of fittings and valves.
- C. Payment:** Payment for this item will be made at the unit price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the installation of the restrained water main pipeline by jacking and boring, inclusive of but not limited to provision, placement and joining of casing, casing spacers, casing end seals, provision, placement and joining of pipe, provision and installation of pipe restraints, pressure testing and disinfection of pipe, joining of pipe to structures, valves, and fittings, and backfilling and all other work all in accordance with the requirements of the Contract Documents.

1.26 AIR RELEASE VALVE IN VAULT – UNIT PRICE FORM REF. NO. 741 (09).

- A. Explanation:** This item is part of the Base Bid.
- B. Measurement:** Measurement for payment for this item will be based upon the number of such valves furnished and installed in place.
- C. Payment:** Payment for this item will be made at the unit price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the installation of the valve inclusive but not limited to excavation, shoring for excavation safety, provision and placement of bedding material, provision and installation of the valve, outlet piping, concrete box and lid, air release piping, concrete pad, snorkel tubing within the manhole, snorkel vent, mesh screen, and backfilling all in accordance with the requirements of the Contract Documents.

1.27 FIRE HYDRANT ASSEMBLY – UNIT PRICE FORM REF. NO. 741 (10).

- A. Explanation:** This item is part of the Base Bid.
- B. Measurement:** Measurement for fire hydrant assemblies will be based upon the number of such hydrant assemblies furnished and installed in place.
- C. Payment:** Payment will constitute full compensation for installing fire hydrant assemblies during construction including furnishing all materials, equipment, tools, labor and incidentals required to install the fire hydrant assemblies. Excavation, geotextile fabric, backfill, joint restraints, bedding material, shoring, necessary vertical hydrant extensions and any materials required for



installation of the hydrants shall be considered incidental to the unit price.

1.28 FLOW METERING AND CONTROL FACILITY – UNIT PRICE FORM REF. NO. S-001.

- A. Explanation:** This item is part of the Base Bid.
- B. Measurement:** No measurement will be made for this item.
- C. Payment:** Payment for this item will be made at the lump sum price on the Bid Form, or in portions thereof in accordance with the estimated amount of the WORK satisfactorily completed. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the construction and placing into service the flow control facility near Ashton Parc, including but not limited to ductile iron riser pipe, flanged fittings above grade, backflow preventers, above grade air release valves, above grade gate valves, insulation, Portland cement concrete support slab, reinforcing for Portland cement concrete support slab, and other equipment necessary for the construction and placing into service the flow control and metering facility all in accordance with the requirements of the Contract Documents.

1.29 SITE CONDITIONS SURVEY – UNIT PRICE FORM REF. NO. S-002.

- A. Explanation:** This item is part of the Base Bid.
- B. Measurement:** No measurement will be made for this item.
- C. Payment:** Payment for this item will be made at the lump sum price on the Bid Form, or in portions thereof in accordance with the estimated amount of the WORK satisfactorily completed. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the pre – construction photo and video survey, inclusive of all attempts to gain access necessary for the survey, all in accordance with the requirements of the Contract Documents.

1.30 JACKING AND BORING PITS – UNIT PRICE FORM REF. NO. S-003.

- A. Explanation:** This item is part of the Base Bid.
- B. Measurement:** No measurement will be made for this item.
- C. Payment:** Payment for this item will be made at the lump price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the installation of the drilling pits, inclusive but not limited to excavation, shoring necessary for excavation safety, setup and removal of the drilling rig, backfilling, bedding material and connections to other pipes, and all other work necessary, all in accordance with the requirements of the Contract Documents.



1.31 HORIZONTAL DIRECTIONAL DRILLING PITS – UNIT PRICE FORM REF. NO. S-004.

- A. **Explanation:** This item is part of the Base Bid.
- B. **Measurement:** Measurement for payment for this item will be based upon the number of drilling pits, each.
- C. **Payment:** Payment for this item will be made at the unit price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the installation of the drilling pits, inclusive but not limited to excavation, shoring necessary for excavation safety, setup and removal of the drilling rig, backfilling, bedding material and connections to other pipes, and all other work necessary, all in accordance with the requirements of the Contract Documents.

1.32 TRACK MONITORING – UNIT PRICE FORM REF. NO. S-005.

- A. **Explanation:** This item is part of the Base Bid.
- B. **Measurement:** No measurement will be made for this item.
- C. **Payment:** Payment for this item will be made at the unit price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for track monitoring as required, including installation and maintenance of targets, monitoring, retention of records, and delivery of monitoring results as specified, all in accordance with the requirements of the Contract Documents.

1.33 SAW CUTTING OF PAVEMENT – UNIT PRICE FORM REF. NO. S-006.

- A. **Explanation:** This item is part of the Base Bid.
- B. **Measurement:** Measurement for payment for this item will be based upon the linear feet of full depth saw cutting satisfactorily completed multiplied by the number of inches in thickness of the pavement saw cut. For instance, 1 linear foot of saw cut through 6" thick pavement will be measured as 6 inch – linear feet.
- C. **Payment:** Payment for this item will be made at the unit price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the full depth saw cutting of pavement, all in accordance with the requirements of the Contract Documents.

1.34 WATER MAIN TIE-IN NEAR LA-11 AND N. 2ND AVE – UNIT PRICE FORM REF. NO. S-007.

- A. **Explanation:** This item is part of the Base Bid.



B. Measurement: No Measurement will be made for this item.

C. Payment: Payment for this item will be made at, or in portions thereof based upon the estimated amount of the WORK completed, of the lump sum bid price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the removal and disposal of existing pavement and base course, sheeting, shoring, and bracing, excavation, cutting of existing pipe, installation of new tee connecting the new and existing pipelines, one valve as indicated on the drawings, pressure testing, disinfection, and backfilling, all in accordance with the requirements of the Contract Documents.

1.35 CLEARING AND GRUBBING - UNIT PRICE FORM REF. NO. A1-201 (01).

A. Explanation: This item is part of Additive Alternate No. 1 (if awarded).

B. Measurement: No Measurement will be made for this item.

C. Payment: Payment for this item will be made in portions of the lump sum price named in the Bid Form in accordance with the following table. Payment of the lump sum price listed in the Bid Form shall constitute full compensation for all equipment, materials, tools, labor, and incidentals necessary for construction layout associated with the WORK of Additive Alternate No. 1, over and above the Base Bid, in accordance with the requirements of the Contract Documents.

Table 01 29 00 – 6 – Allowable Percent of Lump Sum Price for Clearing and Grubbing – Additive Alternate No. 1.	
Percent of Total Contract Amount Earned:	Allowable Percent of Lump Sum Price for Site Preparation:
First Application for Payment	40
25	60
50	80
75	95
100	100

1.36 REMOVAL OF STRUCTURES AND OBSTRUCTIONS - UNIT PRICE FORM REF. NO. A1-202 (01).

A. Explanation: This item is part of Additive Alternate No. 1 (if awarded).

B. Measurement: No Measurement will be made for this item.

C. Payment: Payment for this item will be made at, or in portions thereof based upon the estimated amount of the WORK completed, of the lump sum bid



price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the removal of structures and obstructions, including but not limited to disposal of debris, all associated with the WORK of Additive Alternate No. 1, over and above the Base Bid, all in accordance with the requirements of the Contract Documents.

1.37 REMOVAL OF ASPHALT CONCRETE PAVEMENT – UNIT PRICE FORM REF. NO. A1-202 (02).

- A. Explanation:** This item is part of Additive Alternate No. 1 (if awarded).
- B. Measurement:** Measurement for payment for this item will be based upon the number of square yards of asphalt concrete pavement removed as determined by field measurement.
- C. Payment:** Payment for this item will be made at the unit price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the removal of asphalt concrete pavement, inclusive but not limited to breaking, removal and disposal of asphalt concrete pavement, all in accordance with the requirements of the Contract Documents.

1.38 ADDITIONAL EXCAVATION OF UNSUITABLE SUBGRADE– UNIT PRICE FORM REF. NO. A1-203 (01).

- A. Explanation:** This item is part of Additive Alternate No. 1 (if awarded).
- B. Measurement:** Measurement for payment for this item will be based upon the number of cubic yards of materials excavated as based on theoretical volume as determined by field measurement.
- C. Payment:** Payment for this item will be made at the unit price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR which provides full compensation for excavation, removal and disposal of excavated material all in accordance with contract documents.

1.39 TEMPORARY ENVIRONMENTAL CONTROLS – UNIT PRICE FORM REF. NO. A1-204 (01).

- A. Explanation:** This item is part of Additive Alternate No. 1 (if awarded).
- B. Measurement:** No measurement will be made for this item.
- C. Payment:** Payment for this item will be made at the lump sum price on the Bid Form, or in portions thereof in accordance with the table below. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the complete provision of all temporary environmental controls required by the Contract Documents and local, State, and Federal laws, including, but not limited to the installation and



maintenance of temporary environmental controls, development and maintenance of all required pollution prevention plans and associated permit fees, and all other temporary environmental controls all in accordance with the requirements of the Contract Documents.

Table 01 29 00 – 7 – Allowable Percent of Lump Sum Price for Temporary Environmental Controls – Additive Alternate No. 1.	
Percent of Total Contract Amount Earned:	Allowable Percent of Lump Sum Price for Temporary Environmental Controls:
<i>First Application for Payment</i>	40
25	60
50	80
75	95
100	100

1.40 CLASS II BASE COURSE (STONE) – UNIT PRICE FORM REF. NO. A1-302 (01).

- A. Explanation:** This item is part of Additive Alternate No. 1 (if awarded).
- B. Measurement:** Measurement for payment for this item will be based upon the number of square yards of base course installed as determined by field measurement along neat lines.
- C. Payment:** Payment for this item will be made at the unit price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the installation of Class II Base Course, inclusive but not limited to excavation to required line and grade, disposal of excavated material, placement of geotextile fabric, geogrid, placement and compaction of base course material and placement of asphalt prime coat all in accordance with the requirements of the Contract Documents.

1.41 TRAFFIC MAINTENANCE SURFACING – UNIT PRICE FORM REF. NO. A1-402 (01)

- A. Explanation:** This item is part of Additive Alternate No. 1 (if awarded).
- B. Measurement:** Measurement for payment for this item shall be the square yard traffic maintenance surfacing placed, maintained, and removed, as determined by field measurements along neat lines.
- C. Payment:** Payment for traffic maintenance surfacing at the unit price listed in



the Bid Form. Payment of the price listed on the Bid Form shall constitute full payment for the production of mixtures for traffic maintenance surfacing, placement and compaction of mixtures for traffic maintenance surfacing, maintenance, and removal and disposal of traffic maintenance surfacing all in accordance with the requirements of the Contract Documents.

1.42 SUPERPAVE ASPHALT CONCRETE – LEVEL 1 – UNIT PRICE FORM REF. NO. A1-502 (01).

- A. Explanation:** This item is part of Additive Alternate No. 1 (if awarded).
- B. Measurement:** Measurement for payment for asphalt concrete wearing course will be made by the ton of 2,000 pounds from printed tickets provided as specified within the Contract Documents. Approved tickets will be issued for each truckload of material delivered. Material lost, wasted, rejected, or applied contrary to the Contract Documents will not be measured for payment.
- C. Payment:** Payment for this item will be made at the unit price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the furnishing of all required materials, production of the mixtures, preparation of the surfaces on which the mixture are to be placed inclusive of tack coats, hauling the mixtures to the work site, placing and compacting the mixtures, and correcting deficiencies in surface tolerances all in accordance with the requirements of the Contract Documents.

1.43 MILLING ASPHALT PAVEMENT – UNIT PRICE FORM REF NO. A1-509 (01).

- A. Explanation:** This item is part of Additive Alternate No. 1 (if awarded).
- B. Measurement:** Measurement for payment for this item will be based upon the square yard of asphalt concrete surfacing acceptably removed as determined by field measurement along neat lines. No additional measurement will be made for multiple passes required to achieve total milling depth shown on the drawings.
- C. Payment:** Payment for this item will be made at the unit price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for milling asphalt pavement, inclusive of but not limited to removing, hauling, stockpiling and disposing of millings, all in accordance with the requirements of the Contract Documents.

1.44 TEMPORARY TRAFFIC CONTROL – UNIT PRICE BID FORM REF. NO. A1-713 (01)



- A. **Explanation:** This item is part of Additive Alternate No. 1 (if awarded).
- B. **Measurement:** No measurement will be made for this item.
- C. **Payment:** Payment for this item will be made at the lump sum price on the Bid Form, or in portions thereof in accordance with the table below. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the development, implementation, maintenance, adjustment, and removal of all temporary traffic controls, all in accordance with the requirements of the Contract Documents.

Table 01 29 00 – 8 – Allowable Percent of Lump Sum Price for Temporary Traffic Controls – Additive Alternate No.1.	
Percent of Total Contract Amount Earned:	Allowable Percent of Lump Sum Price for Temporary Traffic Controls
Initial Erection	40
25	60
50	80
75	95
100	100

1.45 FOUNDATION MATERIAL – UNIT PRICE BID FORM REF. NO. A1-726 (01).

- A. **Explanation:** This item is part of Additive Alternate No. 1 (if awarded).
- B. **Measurement:** Measurement for payment for this item will be based upon the number of cubic yards of materials, compacted and in place, placed as based on theoretical volume as determined by field measurement.
- C. **Payment:** Payment for this item will be made at the unit price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR which provides full compensation for furnish, placing foundation material and compacting to the proper relative density, furnishing and placing geotextile in accordance with plan details, furnishing and placing geogrid in accordance with plan details, and all other items necessary for furnishing foundation material in accordance with the requirements of the Contract Documents.

1.46 MOBILIZATION – UNIT PRICE BID FORM REF. NO. A1-727 (01)



- A. Explanation:** This item is part of Additive Alternate No. 1 (if awarded).
- B. Measurement:** No measurement will be made for this item.
- C. Payment:** Payment for this item will be made at the lump sum price on the Bid Form, or in portions thereof in accordance with the table below. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the successful mobilization and de – mobilization to and from the site, all in accordance with the requirements of the Contract Documents.

Table 01 29 00 – 9 – Allowable Percent of Lump Sum Price for Mobilization – Additive Alternate No. 1.	
Percent of Total Contract Amount Earned	Allowable Percent of Lump Sum Price for Mobilization
<i>1st Application for Payment</i>	25
10	50
25	75
50	100

1.47 SEEDING – UNIT PRICE BID FORM REF. NO. A1-739 (01).

- A. Explanation:** This item is part of Additive Alternate No. 1 (if awarded).
- B. Measurement:** No measurement will be made for this item.
- C. Payment:** Payment for this item will be made at, or in portions thereof based upon the estimated amount of the WORK completed, of the lump sum bid price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the seeding of all lawn areas affected by construction, including but not limited to surface preparation, placement of seed, establishment, watering, and correction of deficient areas in accordance with the requirements of the Contract Documents.

1.48 CONSTRUCTION LAYOUT – UNIT PRICE BID FORM REF. NO. A1-740 (01).

- A. Explanation:** This item is part of Additive Alternate No. 1 (if awarded)
- B. Measurement:** No measurement will be made for this item.
- C. Payment:** Payment for this item will be made at the lump sum price on the Bid Form, or in portions thereof in accordance with the table below. Payment of



said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the complete and accurate layout of all WORK, including but not limited to the recovery and establishment of baselines, elevations, traverses, and measurements all in accordance with the Requirements of the Contract Documents.

Table 01 29 00 – 10 – Allowable Percent of Lump Sum Price for Construction Layout – Additive Alternate No. 1.	
Percent of Total Contract Amount Earned:	Allowable Percent of Lump Sum Price for Construction Layout:
<i>First Application for Payment</i>	40
25	60
50	80
75	95
100	100

1.49 8" WATER MAIN, PVC, RESTRAINED, INSTALLED BY OPEN CUT – UNIT PRICE FROM REF. NO. A1-741 (02).

- A. Explanation:** This item is part of Additive Alternate No. 1 (if awarded).
- B. Measurement:** Measurement for payment for this item will be based upon the number of linear feet of such pipe placed as determined by measurement along the centerline of such pipe as measured between outside of structures, not inclusive of the length of fittings and valves.
- C. Payment:** Payment for this item will be made at the unit price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the installation of the restrained water main pipeline, inclusive but not limited to excavation, shoring for excavation safety, exclusion of water, provision and placement of bedding material, provision, placement and joining of pipe, pressure testing and disinfection of pipe, pipe restraints, joining of pipe to structures, valves, and fittings, tracer wire and locator tape, and backfilling all in accordance with the requirements of the Contract Documents.

1.50 8" DUCTILE IRON FITTINGS, FULLY RESTRAINED, ALL TYPES, MECHANICAL JOINT BY MECHANICAL JOINT – UNIT PRICE FORM A1-REF. NO. 741 (04).



- A. Explanation:** This item is part of Additive Alternate No. 1 (if awarded).
- B. Measurement:** Measurement for payment for this item will be based upon the number of such fittings furnished and installed in place.
- C. Payment:** Payment for this item will be made at the unit price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the installation of fittings within the water main pipeline, inclusive but not limited to excavation, shoring for excavation safety, provision and placement of bedding material, provision, placement and joining of fittings, retainer glands, tracer wire and locator tape, and backfilling and all other work all in accordance with the requirements of the Contract Documents.

1.51 FIRE HYDRANT AND ISOLATION VALVE – UNIT PRICE FORM REF. NO. A1-741 (10).

- A. Explanation:** This item is part of Additive Alternate No. 1 (if awarded).
- B. Measurement:** Measurement for fire hydrant assemblies will be based upon the number of such hydrant assemblies furnished and installed in place.
- C. Payment:** Payment will constitute full compensation for installing fire hydrant assemblies during construction including furnishing all materials, equipment, tools, labor and incidentals required to install the fire hydrant assemblies. Excavation, geotextile fabric, backfill, joint restraints, bedding material, valves, valve boxes, shoring, necessary vertical hydrant extensions and any materials required for installation of the hydrants shall be considered incidental to the unit price.

1.52 SITE CONDITIONS SURVEYS – UNIT PRICE FORM REF. NO. A1-S-001.

- A. Explanation:** This item is part of Additive Alternate No. 1 (if awarded).
- B. Measurement:** No measurement will be made for this item.
- C. Payment:** Payment for this item will be made at the lump sum price on the Bid Form, or in portions thereof in accordance with the estimated amount of the WORK satisfactorily completed. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the pre – construction photo and video survey, inclusive of all attempts to gain access necessary for the survey, all in accordance with the requirements of the Contract Documents.

1.53 SAW CUTTING OF PAVEMENT – UNIT PRICE FORM REF. NO. A1-S-002.

- A. Explanation:** This item is part of Additive Alternate No. 1 (if awarded).
- B. Measurement:** Measurement for payment for this item will be based upon the linear feet of full depth saw cutting satisfactorily completed multiplied by the number of inches in thickness of the pavement saw cut. For instance, 1 linear foot of saw cut through 6" thick pavement will be measured as 6 inch – linear



feet.

- C. **Payment:** Payment for this item will be made at the unit price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the full depth saw cutting of pavement, all in accordance with the requirements of the Contract Documents.

1.54 CLEARING AND GRUBBING - UNIT PRICE FORM REF. NO. A2-201 (01).

- A. **Explanation:** This item is part of Additive Alternate 2 (if awarded).
- B. **Measurement:** No Measurement will be made for this item.
- C. **Payment:** Payment for this item will be made in portions of the lump sum price named in the Bid Form in accordance with the following table. Payment of the lump sum price listed in the Bid Form shall constitute full compensation for all equipment, materials, tools, labor, and incidentals necessary for construction layout associated with the WORK of Additive Alternate No. 1, over and above the Base Bid, in accordance with the requirements of the Contract Documents.

Table 01 29 00 – 11 – Allowable Percent of Lump Sum Price for Clearing and Grubbing – Additive Alternate No. 2.	
Percent of Total Contract Amount Earned:	Allowable Percent of Lump Sum Price for Site Preparation:
First Application for Payment	40
25	60
50	80
75	95
100	100

1.55 REMOVAL OF STRUCTURES AND OBSTRUCTIONS - UNIT PRICE FORM REF. NO. A2-202 (01).

- A. **Explanation:** This item is part of Additive Alternate 2 (if awarded).
- B. **Measurement:** No Measurement will be made for this item.
- C. **Payment:** Payment for this item will be made at, or in portions thereof based upon the estimated amount of the WORK completed, of the lump sum bid price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the removal of structures and obstructions, including but not



limited to disposal of debris, all associated with the WORK of Additive Alternate No. 1, over and above the Base Bid, all in accordance with the requirements of the Contract Documents.

1.56 REMOVAL OF ASPHALT CONCRETE PAVEMENT – UNIT PRICE FORM REF. NO. A2-202 (02).

- A. Explanation:** This item is part of Additive Alternate No. 2 (if awarded).
- B. Measurement:** Measurement for payment for this item will be based upon the number of square yards of asphalt concrete pavement removed as determined by field measurement.
- C. Payment:** Payment for this item will be made at the unit price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the removal of asphalt concrete pavement, inclusive but not limited to breaking, removal and disposal of asphalt concrete pavement, all in accordance with the requirements of the Contract Documents.

1.57 ADDITIONAL EXCAVATION OF UNSUITABLE SUBGRADE– UNIT PRICE FORM REF. NO. A2-203 (01).

- A. Explanation:** This item is part of the Additive Alternate No. 2 (if awarded).
- B. Measurement:** Measurement for payment for this item will be based upon the number of cubic yards of materials excavated as based on theoretical volume as determined by field measurement.
- C. Payment:** Payment for this item will be made at the unit price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR which provides full compensation for excavation, removal and disposal of excavated material all in accordance with contract documents.

1.58 TEMPORARY ENVIRONMENTAL CONTROLS – UNIT PRICE FORM REF. NO. A2-204 (01).

- A. Explanation:** This item is part of Additive Alternate No. 2 (if awarded).
- B. Measurement:** No measurement will be made for this item.
- C. Payment:** Payment for this item will be made at the lump sum price on the Bid Form, or in portions thereof in accordance with the table below. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the complete provision of all temporary environmental controls required by the Contract Documents and local, State, and Federal laws, including, but not limited to the installation and maintenance of temporary environmental controls, development and maintenance of all required pollution prevention plans and associated permit fees, and all other temporary environmental controls all in accordance with



the requirements of the Contract Documents.

Table 01 29 00 – 12 – Allowable Percent of Lump Sum Price for Temporary Environmental Controls – Additive Alternate No. 2.	
Percent of Total Contract Amount Earned:	Allowable Percent of Lump Sum Price for Temporary Environmental Controls:
<i>First Application for Payment</i>	40
25	60
50	80
75	95
100	100

1.59 CLASS II BASE COURSE (STONE) – UNIT PRICE FORM REF. NO. A2-302 (01).

- A. Explanation:** This item is part of Additive Alternate No. 2 (if awarded).
- B. Measurement:** Measurement for payment for this item will be based upon the number of square yards of base course installed as determined by field measurement along neat lines.
- C. Payment:** Payment for this item will be made at the unit price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the installation of Class II Base Course, inclusive but not limited to excavation to required line and grade, disposal of excavated material, placement of geotextile fabric, geogrid, placement and compaction of base course material and placement of asphalt prime coat all in accordance with the requirements of the Contract Documents.

1.60 TRAFFIC MAINTENANCE SURFACING – UNIT PRICE FORM REF. NO. A2-402 (01)

- A. Explanation:** This item is part of Additive Alternate No. 2 (if awarded).
- B. Measurement:** Measurement for payment for this item shall be the square yard traffic maintenance surfacing placed, maintained, and removed, as determined by field measurements along neat lines.
- C. Payment:** Payment for traffic maintenance surfacing at the unit price listed in the Bid Form. Payment of the price listed on the Bid Form shall constitute full payment for the production of mixtures for traffic maintenance surfacing, placement and compaction of mixtures for traffic maintenance surfacing,



maintenance, and removal and disposal of traffic maintenance surfacing all in accordance with the requirements of the Contract Documents.

1.61 SUPERPAVE ASPHALT CONCRETE – LEVEL 1 – UNIT PRICE FORM REF. NO. A2-502 (01).

- A. Explanation:** This item is part of Additive Alternate No. 2 (if awarded).
- B. Measurement:** Measurement for payment for asphalt concrete wearing course will be made by the ton of 2,000 pounds from printed tickets provided as specified within the Contract Documents. Approved tickets will be issued for each truckload of material delivered. Material lost, wasted, rejected, or applied contrary to the Contract Documents will not be measured for payment.
- C. Payment:** Payment for this item will be made at the unit price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the furnishing of all required materials, production of the mixtures, preparation of the surfaces on which the mixture are to be placed inclusive of tack coats, hauling the mixtures to the work site, placing and compacting the mixtures, and correcting deficiencies in surface tolerances all in accordance with the requirements of the Contract Documents.

1.62 MILLING ASPHALT PAVEMENT – UNIT PRICE FORM REF NO. A2-509 (01).

- A. Explanation:** This item is part of Additive Alternate No. 2 (if awarded).
- B. Measurement:** Measurement for payment for this item will be based upon the square yard of asphalt concrete surfacing acceptably removed as determined by field measurement along neat lines. No additional measurement will be made for multiple passes required to achieve total milling depth shown on the drawings.
- C. Payment:** Payment for this item will be made at the unit price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for milling asphalt pavement, inclusive of but not limited to removing, hauling, stockpiling and disposing of millings, all in accordance with the requirements of the Contract Documents.

1.63 TEMPORARY TRAFFIC CONTROL – UNIT PRICE BID FORM REF. NO. A2-713 (01)

- A. Explanation:** This item is part of Additive Alternate No. 2 (if awarded).
- B. Measurement:** No measurement will be made for this item.
- C. Payment:** Payment for this item will be made at the lump sum price on the Bid Form, or in portions thereof in accordance with the table below. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials,



equipment, and services necessary for the development, implementation, maintenance, adjustment, and removal of all temporary traffic controls, all in accordance with the requirements of the Contract Documents.

Table 01 29 00 – 13 – Allowable Percent of Lump Sum Price for Temporary Traffic Controls – Additive Alternate No. 2.	
Percent of Total Contract Amount Earned:	Allowable Percent of Lump Sum Price for Temporary Traffic Controls
Initial Erection	40
25	60
50	80
75	95
100	100

1.64 FOUNDATION MATERIAL – UNIT PRICE BID FORM REF. NO. A2-726 (01).

- A. Explanation:** This item is part of Additive Alternate No. 2 (if awarded).
- B. Measurement:** Measurement for payment for this item will be based upon the number of cubic yards of materials, compacted and in place, placed as based on theoretical volume as determined by field measurement.
- C. Payment:** Payment for this item will be made at the unit price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR which provides full compensation for furnish, placing foundation material and compacting to the proper relative density, furnishing and placing geotextile in accordance with plan details, furnishing and placing geogrid in accordance with plan details, and all other items necessary for furnishing foundation material in accordance with the requirements of the Contract Documents.

1.65 MOBILIZATION – UNIT PRICE BID FORM REF. NO. A2-727 (01)

- A. Explanation:** This item is part of Additive Alternate No 2 (if awarded).
- B. Measurement:** No measurement will be made for this item.
- C. Payment:** Payment for this item will be made at the lump sum price on the Bid Form, or in portions thereof in accordance with the table below. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the successful mobilization and de –



mobilization to and from the site, all in accordance with the requirements of the Contract Documents.

Table 01 29 00 – 14 – Allowable Percent of Lump Sum Price for Mobilization – Additive Alternate No. 2.	
Percent of Total Contract Amount Earned	Allowable Percent of Lump Sum Price for Mobilization
<i>1st Application for Payment</i>	25
10	50
25	75
50	100

1.66 SEEDING – UNIT PRICE BID FORM REF. NO. A2-739 (01).

- A. Explanation:** This item is part of Additive Alternate No. 2 (if awarded).
- B. Measurement:** No measurement will be made for this item.
- C. Payment:** Payment for this item will be made at, or in portions thereof based upon the estimated amount of the WORK completed, of the lump sum bid price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the seeding of all lawn areas affected by construction, including but not limited to surface preparation, placement of seed, establishment, watering, and correction of deficient areas in accordance with the requirements of the Contract Documents.

1.67 CONSTRUCTION LAYOUT – UNIT PRICE BID FORM REF. NO. A2-740 (01).

- A. Explanation:** This item is part of Additive Alternate No. 2 (if awarded).
- B. Measurement:** No measurement will be made for this item.
- C. Payment:** Payment for this item will be made at the lump sum price on the Bid Form, or in portions thereof in accordance with the table below. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the complete and accurate layout of all WORK, including but not limited to the recovery and establishment of baselines, elevations, traverses, and measurements all in accordance with the Requirements of the Contract Documents.



Table 01 29 00 – 15 – Allowable Percent of Lump Sum Price for Construction Layout – Additive Alternate No. 2.	
Percent of Total Contract Amount Earned:	Allowable Percent of Lump Sum Price for Construction Layout:
<i>First Application for Payment</i>	40
25	60
50	80
75	95
100	100

1.68 8" WATER MAIN, PVC, RESTRAINED, INSTALLED BY OPEN CUT – UNIT PRICE FROM REF. NO. 741 (02).

- A. Explanation:** This item is part of Additive Alternate No. 2 (if awarded).
- B. Measurement:** Measurement for payment for this item will be based upon the number of linear feet of such pipe placed as determined by measurement along the centerline of such pipe as measured between outside of structures, not inclusive of the length of fittings and valves.
- C. Payment:** Payment for this item will be made at the unit price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the installation of the restrained water main pipeline, inclusive but not limited to excavation, shoring for excavation safety, exclusion of water, provision and placement of bedding material, provision, placement and joining of pipe, pressure testing and disinfection of pipe, pipe restraints, joining of pipe to structures, valves, and fittings, tracer wire and locator tape, and backfilling all in accordance with the requirements of the Contract Documents.

1.69 8" DUCTILE IRON FITTINGS, FULLY RESTRAINED, ALL TYPES, MECHANICAL JOINT BY MECHANICAL JOINT – UNIT PRICE FORM REF. NO. 741 (04).

- A. Explanation:** This item is part of Additive Alternate No. 2 (if awarded).
- B. Measurement:** Measurement for payment for this item will be based upon the number of such fittings furnished and installed in place.
- C. Payment:** Payment for this item will be made at the unit price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all



labor, products and materials, equipment, and services necessary for the installation of fittings within the water main pipeline, inclusive but not limited to excavation, shoring for excavation safety, provision and placement of bedding material, provision, placement and joining of fittings, retainer glands, tracer wire and locator tape, and backfilling and all other work all in accordance with the requirements of the Contract Documents.

1.70 FIRE HYDRANT AND ISOLATION VALVE – UNIT PRICE FORM REF. NO. A2-741 (10).

- A. Explanation:** This item is part of Additive Alternate No. 2 (if awarded).
- B. Measurement:** Measurement for fire hydrant assemblies will be based upon the number of such hydrant assemblies furnished and installed in place.
- C. Payment:** Payment will constitute full compensation for installing fire hydrant assemblies during construction including furnishing all materials, equipment, tools, labor and incidentals required to install the fire hydrant assemblies. Excavation, geotextile fabric, backfill, joint restraints, bedding material, valves, valve boxes, shoring, necessary vertical hydrant extensions and any materials required for installation of the hydrants shall be considered incidental to the unit price.

1.71 SITE CONDITIONS SURVEYS – UNIT PRICE FORM REF. NO. A2-S-001.

- A. Explanation:** This item is part of Additive Alternate No. 2 (if awarded).
- B. Measurement:** No measurement will be made for this item.
- C. Payment:** Payment for this item will be made at the lump sum price on the Bid Form, or in portions thereof in accordance with the estimated amount of the WORK satisfactorily completed. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the pre – construction photo and video survey, inclusive of all attempts to gain access necessary for the survey, all in accordance with the requirements of the Contract Documents.

1.72 SAW CUTTING OF PAVEMENT – UNIT PRICE FORM REF. NO. A2-S-002.

- A. Explanation:** This item is part of Additive Alternate No. 2 (if awarded).
- B. Measurement:** Measurement for payment for this item will be based upon the linear feet of full depth saw cutting satisfactorily completed multiplied by the number of inches in thickness of the pavement saw cut. For instance, 1 linear foot of saw cut through 6" thick pavement will be measured as 6 inch – linear feet.
- C. Payment:** Payment for this item will be made at the unit price named on the bid form. Payment of said price listed on the Bid Form constitutes full compensation to be paid to the CONTRACTOR for this item, inclusive of all labor, products and materials, equipment, and services necessary for the full depth saw cutting of pavement, all in accordance with the requirements of



the Contract Documents.

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION (NOT USED)

- END OF SECTION -



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SECTION 01 32 14 - BARCHART CONSTRUCTION SCHEDULE

PART 1 -- GENERAL

1.1 THE REQUIREMENT

- A. Schedule the WORK in accordance with the Contract Documents.
- B. Where submittals are indicated, submit as directed and as per these specifications.
- C. The CONTRACTOR is alerted to Section 01 14 00 – Construction and Schedule Constraints.

1.2 SCHEDULING

- A. Prepare and submit a Project Overview Bar Chart Schedule for WORK. Indicate the major components of the WORK and the sequence relations between the major components and subdivisions of major components. Indicate the relationships and time frames in which the various components of the WORK will be made substantially complete and placed into service in order to meet the Contract Times. Include sufficient detail for the identification of subdivisions of major components according to such activities as mobilization, site dewatering, excavation, demolition, yard piping installation, placement of structural backfill, final site grading, and other important WORK for each major item within the overall project scope. Indicate planned durations and start dates for each work item subdivision.
- B. The ENGINEER's review and comment on the schedules will be limited to conformance to the Contract Documents. Make corrections to the schedules necessary to comply with requirements and adjust the schedules to incorporate any missing information requested by the ENGINEER.
- C. Upon approval of a change order or upon receipt of authorization to proceed with additional WORK, depict the pertinent changes in the next submittal of the Project Overview Bar Chart Schedule.
- D. Furnish monthly Project Overview Bar Chart Schedules and written narrative reports in the form indicated within these Technical Specifications. Submit this information along with Construction Photographs as required by these Specifications with the CONTRACTOR's Regular Progress Payment Requests.
- E. Present the Project Overview Bar Chart Schedule as a summary of the current construction schedule for major project components (original and as updated and adjusted throughout the entire construction period). Represent the major project components as time bars and subdivide the major project components into various types of WORK including dewatering, excavation, demolition, yard piping, placement of structural backfill, and final site grading.
- F. Plot each major component and subdivision accurately on a time scale consistent with the early start and finish activity information contained in the latest update of the schedule. In addition, list a percentage completion for each major component and subdivision. Amend the Project Overview Bar Chart



Schedule as necessary to include any additional detail required by the ENGINEER. Include any additional information requested by the ENGINEER at any time during construction.

- G.** Prepare regular written narrative reports of the status of the project for submission to the ENGINEER with the CONTRACTOR's Progress Payment Requests. Include at a minimum the following items:
- 1.** The status of major project components (percent complete and amount of time ahead or behind schedule) and an explanation of how the project will be brought back on schedule if delays have occurred.
 - 2.** The progress made on critical activities indicated on the construction schedule.
 - 3.** Explanations for any lack of WORK on critical activities planned to be performed during the last month.
 - 4.** Explanations for any schedule changes, including changes to the logic or to activity durations.
 - 5.** A list of the critical activities scheduled for the next 2 months.
 - 6.** The status of major material and equipment procurements.
 - 7.** The value of materials and equipment properly stored at the Site but not yet incorporated into the WORK.
 - 8.** Any delays encountered during the reporting period.
 - 9.** An assessment of inclement weather delays and impacts to the progress of the WORK.
 - 10.** Include any other information pertinent to the status of the project.
 - 11.** Include additional status information requested by the ENGINEER.
- H.** Include lost days on the construction schedule due to inclement weather. Inclement weather delays will be determined in accordance with the requirements of the Supplementary Conditions.

PART 2 -- PRODUCTS (Not Used)

PART 3 -- EXECUTION (Not Used)

END OF SECTION



SECTION 01 33 00 - CONTRACTOR SUBMITTALS

PART 1 -- GENERAL

1.1 THE REQUIREMENT

- A. Wherever submittals are required by the Contract Documents, submit them to the ENGINEER.
- B. Prior to commencement of the WORK as stated in the Notice to Proceed, submit the following items for review:
 - 1. Submittal Schedule
 - a. Submit a preliminary schedule of Shop Drawings, Samples, and proposed Substitutes ("or equal") submittals listed in the Bid.
 - b. Base the schedule of submittals on CONTRACTOR's priority, planned construction sequence and schedule, long-lead items, and size of submittal package.
 - c. Allow time for resubmittals.
 - 2. Submit a list of permits and licenses the CONTRACTOR expects to obtain, indicating the agency required to grant the permit and the expected date of submittal for the permit and required date for receipt of the permit.

1.2 PRECONSTRUCTION CONFERENCE SUBMITTALS

- A. At the preconstruction conference of Section 01 10 00 – Summary of Work, submit the following items to the ENGINEER for review:
 - 1. a revised schedule of Shop Drawings, Samples, and proposed Substitution ("or-equal") items;
 - 2. a list of permits and licenses the CONTRACTOR expects obtain, indicating the agency required to grant the permit, the expected date of submittal for the permit, and required date for receipt of the permit;
 - 3. a 60-Day plan of operation in accordance with Section 01 32 14 – Barchart Construction Schedule;

1.3 SHOP DRAWINGS

- A. Wherever submittals are required in the Contract Documents, submit them to the ENGINEER.
- B. **Shop Drawings:** Wherever called for in the Contract Documents or where required by the ENGINEER, furnish to the ENGINEER for review, a number and type of each Shop Drawing submittal as established by the OWNER or ENGINEER. Shop Drawings may include detail design calculations, shop-prepared drawings, fabrication and installation drawings, erection drawings, lists, graphs, catalog sheets, data sheets, and similar items. Whenever the CONTRACTOR is required to



submit design calculations as part of a submittal, such calculations, ensure that the calculations bear the signature and seal of an engineer registered in the appropriate branch and in the state wherein the project is located, unless otherwise indicated. Unless otherwise directed by the ENGINEER, furnish all submittal documents with the ENGINEER's standard submittal transmittal form which is included within this section. Sign all submittals as an indication that they have been reviewed for completeness and organization. Sign all submittals as an indication that they have been reviewed for completeness and organization.

1. **Organization:** Use a single submittal transmittal form for each technical specification section or item or class of material or equipment for which a submittal is required. A single submittal covering multiple sections will not be acceptable, unless the primary specification references other sections for components. Example: if a pump section references other sections for the motor, shop-applied protective coating, anchor bolts, local control panel, and variable frequency drive, a single submittal would be acceptable. A single submittal covering vertical turbine pumps and horizontal split case pumps would not be acceptable.
2. Unless indicated otherwise, match terminology and equipment names and numbers used in submittals to those used in the Contract Documents.
3. Assign each submittal a unique number. Number submittals sequentially, and clearly note the submittal numbers on the transmittal. Assign original submittals a numeric submittal number followed by a letter of the alphabet to distinguish between the original submittal and each resubmittal. For example, if submittal 25-A requires a resubmittal, the first resubmittal will bear the designation "25-B" and the second resubmittal will bear the designation "25-C" and so on.
4. Disorganized submittals that do not meet the requirements of the Contract Documents will be returned without review.
5. Except as may otherwise be indicated, the ENGINEER will return a copy of each submittal to the CONTRACTOR with comments noted thereon, within 15 Days following receipt by the ENGINEER. It is considered reasonable that the CONTRACTOR will make a complete and acceptable submittal to the ENGINEER by the first resubmittal on an item. The OWNER reserves the right to withhold monies due to the CONTRACTOR to cover additional costs of the ENGINEER's review beyond the first resubmittal. The ENGINEER'S maximum review period for each submittal or resubmittal will be 15 Days. Thus, for a submittal that requires 2 resubmittals before it is complete, the maximum review period could be 45 Days.
6. If a submittal is returned to the CONTRACTOR marked "NO EXCEPTIONS TAKEN", formal revision and resubmission will not be required. If a submittal is returned marked "MAKE CORRECTIONS NOTED," make the corrections on the submittal, but formal revision and resubmission will not be required. If a submittal is returned marked "REVISE - RESUBMIT," revise it and resubmit the required number of copies to the ENGINEER for review. Resubmittal of portions of multi-page or multi-drawing submittals will not be allowed. For example, if a Shop Drawing submittal consisting of 10 drawings contains one



drawing noted as "REVISE - RESUBMIT," the submittal as a whole is deemed "REVISE - RESUBMIT," and 10 drawings are required to be resubmitted. If a submittal is returned marked "REJECTED," either that the proposed material or product does not satisfy the specification, the submittal is so incomplete that it cannot be reviewed or is a substitution request not submitted in accordance with the requirements of the Contract Documents. In the first 2 cases, prepare a new submittal and submit the required number of copies to the ENGINEER for review. In the latter case, submit the substitution request according to the Contract Documents. Fabrication of an item may commence only after the ENGINEER has reviewed the pertinent submittals and returned copies to the CONTRACTOR marked either "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED." Do not take corrections indicated on requirements of the Contract Documents as changes to the contract requirements. Re-submittal of rejected portions of a previous submittal will not be allowed. Identify and flag every change from a submittal to a resubmittal or from a resubmittal to a subsequent resubmittal on the resubmittal.

7. Carefully review submittals prior to submission to the ENGINEER. Sign and date each submittal by the CONTRACTOR as being correct and in strict conformance with the Contract Documents. In the case of Shop Drawings, date and sign each sheet. Note any deviations from the Contract Documents on the transmittal sheet. The ENGINEER will only review submittals that have been so verified by the CONTRACTOR. Non-verified submittals will be returned to the CONTRACTOR without action taken by the ENGINEER, and any delays caused thereby are the total responsibility of the CONTRACTOR.
8. Corrections or comments made on the CONTRACTOR's Shop Drawings during review do not relieve the CONTRACTOR from compliance with Contract Drawings and Specifications. Review is for conformance to the design concept and general compliance with the Contract Documents only. The CONTRACTOR is responsible for confirming and correlating quantities and dimensions, fabrication processes and techniques, coordinating WORK with the trades, and satisfactory and safe performance of the WORK.

1.4 CERTIFICATES

- A. Where certificates are required, submit them to the ENGINEER as specified herein. For materials, regardless of an approved certificate, the ENGINEER may still test the material if in his opinion it is questionable upon delivery. The abbreviations and definitions of certificates are as follows:
 1. **Certificate of Analysis:** Certificate from the manufacturer or supplier of actual test results of the material properties. (This also includes "mill test reports.") Furnish a Certificate of Analysis with each lot of material delivered to the work.
 2. **Certificate of Compliance:** Certificate from the manufacturer or supplier stating that the material complies with the required specifications. Furnish a Certificate of Compliance with each lot of material delivered to the work.



1.5 TECHNICAL MANUALS

A. Technical Manuals: Submit technical operation and maintenance information for each item of mechanical, electrical, and instrumentation equipment in an organized manner in the Technical Manual. Write the manual so that it can be used and understood by the OWNER's operation and maintenance staff. Subdivide the Technical Manual first by specification section number; second, by equipment item; and last, by "Category." Address the following "Categories" (as applicable):

1. **Equipment Summary:** Provide a table which lists the equipment name, equipment number, and project area in which the equipment is installed.
2. **Operational Procedures:** Include manufacturer – recommended procedures on the following Installation, adjustment, startup, locations of controls, special tools, equipment required, or related instrumentation needed for operation, operation procedures, load changes, calibration, shutdown, troubleshooting, disassembly, reassembly, realignment, testing to determine performance efficiency, tabulation of proper settings and listing of all electrical relay settings.
3. **Preventative Maintenance Procedures:** Include manufacturer-recommended procedures to be performed on a periodic basis, both by removing and replacing the equipment or component, and by maintaining the equipment in place. Include recommended frequency of preventive maintenance procedures. Cover lubrication schedules, including lubricant SAE grade, type, and temperature ranges.
4. **Parts List:** Furnish a complete parts list, including a generic description and manufacturer's identification number for each part. Include addresses and telephone numbers of the nearest supplier and parts warehouse. Accompany the parts list with cross-sectional or exploded view drawing. Include part numbers on the drawings with arrows to the corresponding part.
5. **Wiring Diagrams:** Include complete internal and connection wiring diagrams for electrical equipment items.
6. **Shop Drawings:** This category includes approved shop or fabrication drawings with ENGINEER comments and corrections incorporated, complete with dimensions.
7. **Safety:** This category describes the safety precautions to be taken when operating and maintaining the equipment or working near it.
8. **Documentation:** Place equipment warranties, affidavits, certifications, calibrations, laboratory test results, etc. required by the Technical Specifications in this category.

1.6 RECORD DRAWINGS

A. Record Drawings: Maintain one set of Drawings at the Site for the preparation of record drawings. On these, mark every project condition, location, configuration, and any other change or deviation which may differ from the Contract Drawings



at the time of award, including buried or concealed construction and utility features that are revealed during the course of construction. Give special attention to recording the horizontal and vertical location of buried utilities that differ from the locations indicated, or that were not indicated on the Contract Drawings. Supplement said record drawings by any detailed sketches as necessary or as CONTRACTOR is directed, to fully indicate the WORK as actually constructed. These record drawings are the CONTRACTOR's representation of as-built conditions. Include revisions made by addenda and change orders, and maintain the record drawings up-to-date during the progress of the WORK. Use red ink for alterations and notes. Identify relevant Change Orders with notations by number and date. Disorganized or incomplete record drawings will not be accepted. Revise them and resubmit within 10 Days. Maintain record drawings as accessible to the ENGINEER during the construction period. Final payment will not be acted upon until the record drawings have been completed and delivered to the ENGINEER.

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION (NOT USED)

END OF SECTION



SECTION 01 35 53 – SITE SECURITY

PART 1 -- GENERAL

1.1 THE REQUIREMENT

- A.** Assume responsibility and pay for the protection of the site, and all WORK, materials, equipment and existing facilities thereon, against theft, vandals, and other unauthorized persons as a part of the WORK.
- B.** Make no claim against OWNER by reason of any act of an employee or trespasser. Make good all damage to OWNER's property resulting from his failure to provide security measures as specified.
- C.** Provide security measures at least equal to those usually provided to protect the existing facilities during normal operation, but also include such additional security fencing, barricades, lighting, watchman services and other measures as required to protect the site.
- D.** Maintain the security of any limited access areas as required by the Owner.
- E.** Maintain charge and care of the WORK until final acceptance. Take precautions against damages to the WORK by action of the elements or from other cause, and satisfactorily repair any damaged work as a part of the WORK. In case of suspension of the WORK for any reason, assume responsibility for all materials and properly store them if necessary. Erect temporary structures where necessary.
- F.** If the CONTRACTOR fails to comply with the provisions of this section, the ENGINEER will notify the CONTRACTOR, in writing, of such noncompliance. If the CONTRACTOR fails to remedy unsatisfactory maintenance within 48 hours after receipt of such notices, the ENGINEER may immediately proceed to provide security for the project, and the cost of this security will be deducted from payments for the work.
- G.** If unsatisfactory maintenance results in a condition that is hazardous to life, health or property, the ENGINEER or OWNER may immediately effect necessary repairs and deduct the cost of such repairs from payments for the work.

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION (NOT USED)

END OF SECTION



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SECTION 01 42 19 - REFERENCE STANDARDS

PART 1 - GENERAL

1.1 THE REQUIREMENT

- A. **Titles of Sections and Paragraphs:** Titles and subtitles accompanying specification sections and paragraphs are for convenience and reference only, and do not form a part of the Specifications.
- B. **Applicable Publications:** Whenever in these Specifications references are made to published specifications, codes, standards, or other requirements, it is understood that wherever no date is specified, only the latest specifications, standards, or requirements of the respective issuing agencies which have been published as of the date that the Contract is advertised for bids apply; except to the extent that said standards or requirements may be in conflict with applicable laws, ordinances, or governing codes. No requirements set forth in the Specifications or shown on the Drawings will be waived because of any provision of, or omission from, said standards or requirements.

1.2 CODE REFERENCES

- A. References herein to "Building Code" mean The International Building Code (IBC) latest edition. Similarly, references to "Mechanical Code", "Plumbing Code" and, "Fire Code" mean International Mechanical Code, International Plumbing Code and International Fire Code of the International Conference of the Building Officials (ICBO). "Electric Code" or "National Electric Code (NEC)" mean the National Electric Code of the National Fire Protection Association (NFPA). The latest edition of the codes as approved by the Municipal Code and used by the local agency as of the date that the WORK is advertised for bids, as adopted by the agency having jurisdiction, apply to the WORK herein, including all addenda, modifications, amendments, or other lawful changes thereto.
- B. In case of conflict between codes, reference standards, drawings, and the other Contract Documents, the most stringent requirements govern. Bring all conflicts to the attention of the ENGINEER for clarification and directions prior to ordering or providing any materials or furnishing labor. Bid for the most stringent requirements.
- C. References herein to "OSHA Regulations for Construction" mean **Title 29, Part 1926, Construction Safety and Health Regulations**, Code of Federal Regulations (OSHA), including all changes and amendments thereto.
- D. References herein to "OSHA Standards" mean **Title 29, Part 1910, Occupational Safety and Health Standards**, Code of Federal Regulations (OSHA), including all changes and amendments thereto.

1.3 REGULATIONS RELATED TO HAZARDOUS MATERIALS

- A. Assume responsibility that all work included in the Contract Documents, regardless if shown or not. Comply with all EPA, OSHA, RCRA, NFPA, and any other Federal, State, and Local Regulations governing the storage and conveyance of hazardous materials, including petroleum products. Where no



specific regulations exist, install chemical, hazardous, and petroleum product piping and storage in underground locations in double containment piping and tanks, or in separate concrete trenches and vaults, or with an approved lining which cannot be penetrated by the chemicals, unless waived in writing by the OWNER.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION



SECTION 01 45 00 - QUALITY CONTROL

PART 1 -- GENERAL

1.1 THE REQUIREMENT

- A.** Specific quality control requirements for the WORK are indicated throughout the Contract Documents. The requirements of this Section are primarily related to performance of the WORK beyond furnishing of manufactured products. The term "Quality Control" includes inspection, sampling and testing, and associated requirements.

1.2 INSPECTION AT PLACE OF MANUFACTURE

- A.** Unless otherwise indicated, all products, materials, and equipment are subject to inspection by the ENGINEER at the place of manufacture.
- B.** The presence of the ENGINEER at the place of manufacturer, however, will not relieve the CONTRACTOR of the responsibility for providing products, materials, and equipment which comply with all requirements of the Contract Documents. Compliance is a duty of the CONTRACTOR, and said duty is not avoided by any act or omission on the part of the ENGINEER.

1.3 SAMPLING AND TESTING

- A.** Unless otherwise indicated, all sampling and testing will be in accordance with the methods prescribed in the current standards of the ASTM and Louisiana Department of Transportation Testing Procedures Manual (TR), as applicable to the class and nature of the article or materials considered; however, the OWNER reserves the right to use any generally-accepted system of sampling and testing which, in the opinion of the ENGINEER will assure the OWNER that the quality of the workmanship is in full accord with the Contract Documents.
- B.** Any waiver by the OWNER or ENGINEER of any specific testing or other quality assurance measures, whether or not such waiver is accompanied by a guarantee of substantial performance as a relief from the testing or other quality assurance requirements originally indicated, and whether or not such guarantee is accompanied by a performance bond to assure execution of any necessary corrective or remedial WORK, will not be construed as a waiver of any requirements of the Contract Documents.
- C.** Notwithstanding the existence of such waiver, the ENGINEER reserves the right to make independent investigations and tests, and failure of any portion of the WORK to meet any of the requirements of the Contract Documents, will be reasonable cause for the ENGINEER to require the removal or correction and reconstruction of any such WORK in accordance with the General Conditions.

1.4 INSPECTION AND TESTING SERVICE

- A.** Inspection and testing laboratory service will comply with the following:



B. Furnish inspection and testing laboratory services which comply with the following:

1. Appoint, employ, and pay for services of an independent firm listed on the St. Tammany Parish Approved Construction Materials Testing list to perform inspection and testing.
2. The independent firm will perform inspections, testing, and other services as required by the ENGINEER under Paragraph 1.3C above.
3. Submit reports of testing, regardless of whether the testing was required by the OWNER and/or ENGINEER in electronic format, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.
4. Cooperate with the independent firm and furnish samples of materials, design mix, equipment, tools, storage, and assistance as requested.
5. Notify independent firm a minimum of 24 hours prior to the expected time for operations requiring inspection and laboratory testing services.
6. Coordinate directly with the independent 24 hours prior to the date testing will be needed.
7. Retesting required because of non-conformance to requirements will be performed by the same independent firm on instructions by the ENGINEER. Pay all costs from such retesting.
8. For samples and tests required for CONTRACTOR'S use, make arrangements with an independent firm for payment and scheduling of testing. The cost of sampling and testing for the CONTRACTOR'S use is the CONTRACTOR'S responsibility.

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION

3.1 INSTALLATION

- A. Inspection: Inspect materials or equipment upon the arrival on the job site and immediately prior to installation and reject damaged and defective items.
- B. Measurements: Verify measurements and dimensions of the WORK, as an integral step of starting each installation.
- C. Manufacturer's Instructions: Where installations include manufactured products, comply with manufacturer's applicable instructions and recommendations for installation, to whatever extent these are more explicit or more stringent than applicable requirements indicated in Contract Documents.



3.2 REQUIRED TESTING, GENERAL

- A. Conduct tests as prescribed below and as required by individual specifications sections. Failure to conduct testing as specified will be cause for rejection of installed materials.
- B. Where specifications require evidence of a product or material's listing on the LDOTD AML, provide certificates to the ENGINEER and OWNER. Products so specified must be listed on the AML at the time of their incorporation into the WORK.
- C. Submit reports to the ENGINEER.
- D. Conduct tests necessary for quality control and include such costs in the cost of the WORK.
- E. **Definitions:**
 - 1. **Lot, Pavement Concrete:** A lot is an identifiable placement of pavement concrete not exceeding two hundred cubic yards in volume.
 - 2. **Lot, Structural Concrete:** A lot is an identifiable placement not exceeding 50 cubic yards in volume.

3.3 REQUIRED TESTING, SECTION 31 05 16 – AGGREGATES

- A. **Testing:** Refer to requirements for Section 31 30 00 - Earthwork.

3.4 REQUIRED TESTING, SECTION 31 30 00 – EARTHWORK

- A. **Testing:** The following tests are required under this Section:
 - 1. **Sand for Backfill, Source Approval:** Test material for deleterious materials and gradation prior to the first placement of backfill, and then not less than once monthly thereafter. Test and report moisture – density relationships of acceptable material in accordance with DOTD TR 418. Determine In – Place Density and Determination of In – Place Moisture Content by DOTD TR 401 and DOTD TR 403, respectively.
 - 2. **River Sand for Backfill, In Place Testing:** Conduct a minimum one In – Place Moisture Density test per each per lift per 100 linear feet of pipe for pipe backfill. Conduct a minimum of one in – place moisture – density test for every lift of fill for the parking area.
 - 3. **Sand for Bedding Material:** Test material for deleterious materials and gradation prior to the first placement of backfill, and then not less than once monthly thereafter. Test and report moisture – density relationships of acceptable material in accordance with DOTD TR 418. Determine In – Place Density and Determination of In – Place Moisture Content by DOTD TR 401 and DOTD TR 403, respectively.
 - 4. **Sand for Bedding Material, In Place Testing:** Conduct one In – Place Moisture Density test per 100 linear feet of pipe per lift of bedding material.



5. **Select Fill for Backfill, Source Approval:** Test material for deleterious materials and gradation prior to the first placement of backfill, and then not less than once monthly thereafter. Test and report moisture – density relationships of acceptable material in accordance with DOTD TR 418. Determine In – Place Density and Determination of In – Place Moisture Content by DOTD TR 401 and DOTD TR 403, respectively.
6. **Select Fill for Backfill, In Place Testing:** Conduct a minimum one In – Place Moisture Density test per each per lift per 100 linear feet of pipe for pipe backfill. Conduct a minimum of one in – place moisture – density test for every lift of fill for the parking area.
7. **Valve and Pipeline Foundation Material, Source Approval:** Test material for deleterious materials and gradation prior to the first placement of foundation material, and then not less than once monthly thereafter. Test and report relative density relationships of acceptable material in accordance with
8. Valve and Pipeline Foundation Material, In Place Testing:

3.5 REQUIRED TESTING, SECTION 03 31 00 – STRUCTURAL CONCRETE

- A. Refer to the requirements for Section 03 33 10 – Portland Cement Concrete.

3.6 REQUIRED TESTING, SECTION 03 32 10 – REINFORCEMENT

- A. Reinforcement will not be tested unless questionable.

3.7 REQUIRED TESTING, SECTION 03 33 10 – PORTLAND CEMENT CONCRETE.

- A. **Structural Concrete:** Ensure that the following quality control tests are performed as required and in accordance with the ASTM International standards indicated.
 - 1) **Slump:** Perform one slump test for each 150 cubic yards of concrete produced per mix design, or once a day, whichever comes first. Perform slump tests in accordance with LDOTD TR 207.
 - 2) **Temperature:** Measure the temperature of concrete when slump or air content tests are made and when compressive test specimens are made in accordance with ASTM C 1064.
 - 3) **Compressive Strength:** Make at least four compressive strength specimens for each 150 cubic yards of concrete of each mix design in accordance with LDOTD TR 226 and LDOTD TR 227.
 - 4) **Air Content:** Make test for air content on wet-cast concrete for each 150 cu yd of concrete, per mix design, but not less often than once each day when air-entrained concrete is used. Determine the air content in accordance with LDOTD TR 202.
 - 5) **Density (Unit Weight):** Perform tests for density a minimum of once per week to verify the yield of batch mixes. Perform density test for each 100 cu yd of lightweight concrete in accordance with LDOTD TR 201. P density tests each 100 cubic yards of concrete per mix



design, but not less often than once per day when volumetric batch equipment is used.

3.8 REQUIRED TESTING, SECTION 32 12 02 – ASPHALTIC CONCRETE MIXTURES

- A.** Refer to Section 32 12 02 – Asphalt Concrete Mixtures. Ensure attention to longitudinal and transverse surface tolerances.

END OF SECTION



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SECTION 01 50 00 – MOBILIZATION

PART 1 - GENERAL

1.1 THE REQUIREMENT

- A.** Mobilize as required for the proper performance and completion of the WORK and in accordance with the Contract Documents.
- B.** Include at least the following items as part of the WORK of this section:
 - 1.** Moving onto the Site of CONTRACTOR's plant and equipment necessary for the first month of operations.
 - 2.** Installing temporary construction power, wiring, and lighting facilities.
 - 3.** Establishing fire protection system.
 - 4.** Developing construction water supply.
 - 5.** Providing on-Site sanitary facilities and potable water facilities.
 - 6.** Arranging for and erection of CONTRACTOR's WORK and storage yards.
 - 7.** Constructing and implementing security features and requirements as specified.
 - 8.** Obtaining required permits.
 - 9.** Having OSHA required notices and establishing safety programs.
 - 10.** Having the CONTRACTOR's superintendent at the Site full time.
 - 11.** Submitting initial submittals.
 - 12.** Submitting traffic control plan and form of proposed traffic control diary.

1.2 PAYMENT FOR MOBILIZATION

- A.** The CONTRACTOR's attention is directed to the condition that no payment for mobilization, or any part thereof, will be recommended for payment under the Contract until mobilization items listed above have been completed.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION



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SECTION 01 50 10 - PROTECTION OF EXISTING FACILITIES

PART 1 -- GENERAL

1.1 THE REQUIREMENT

- A. Protect all existing utilities and improvements not designated for removal and restore damaged or temporarily relocated utilities and improvements to a condition equal to or better than prior to such damage or temporary relocation, all in accordance with the Contract Documents.

1.2 RIGHTS-OF-WAY AND UTILITIES

- A. Do not undertake any WORK that would affect any oil, gas, sewer, or water pipeline; any telephone, telegraph, or electric transmission line; any fence; or any other structure, nor enter upon the rights-of-way involved until notified that the OWNER has secured authority therefor from the proper party.
- B. After authority has been obtained, give said party due notice of its intention to begin work, if required by said party.
- C. Remove, shore, support, or otherwise protect such pipeline, transmission line, ditch, fence, or structure, or replace the same.

1.3 PROTECTION OF STREET OR ROADWAY MARKERS

- A. Do not destroy, remove, or otherwise disturb any existing survey markers or other existing street or roadway markers without proper authorization. Do not begin pavement breaking or excavation until all survey or other permanent marker points that will be disturbed by the construction operations have been properly referenced. Accurately restore survey markers or points disturbed by the CONTRACTOR after street or roadway resurfacing has been completed. Use qualified licensed land surveyors for restoration of survey markers or points.

1.4 RESTORATION OF PAVEMENT

- A. Where the CONTRACTOR's operations cause damage to existing pavement which is not required by the plans and specifications, remove and repair the damaged pavement in at no cost to the OWNER in accordance with the requirements of the authority having jurisdiction over the pavement. The authority having jurisdiction over the pavement will determine the limits of removal and restoration.

1.5 UNDERGROUND UTILITIES

- A. **General:** Protect underground Utilities and other improvements which may be impaired during construction operations, regardless of whether or not the Utilities are indicated on the Drawings. Take all possible precautions for the protection of unforeseen Utility lines to provide for uninterrupted service and to provide such special protection as may be necessary.
- B. Conduct exploratory excavations as necessary to determine the exact locations and depths of Utilities which may interfere with its work. Perform such exploratory



excavations as soon as practicable after Notice to Proceed and, in any event, a sufficient time in advance of construction to avoid possible delays to the CONTRACTOR's progress. When such exploratory excavations show the Utility location as shown on the Drawings to be in error, notify the ENGINEER.

- C. Perform the number of exploratory excavations which is sufficient to determine the alignment and grade of the Utility.
- D. **Utilities to be Moved:** In case it becomes necessary to move the property of any public utility or franchise holder, such utility company or franchise holder will, upon request of the CONTRACTOR, be notified by the OWNER to move such property within a specified reasonable time. When utility lines that are to be removed are encountered within the area of operations, notify the ENGINEER a sufficient time in advance for the necessary measures to be taken to prevent interruption of service.
- E. **Utilities to be Removed:** Where the proper completion of the WORK requires the temporary or permanent removal and/or relocation of an existing Utility or other improvement which is indicated, remove and, without unnecessary delay, temporarily replace or relocate such Utility or improvement in a manner satisfactory to the ENGINEER and the owner of the facility. In all cases of such temporary removal or relocation, accomplish restoration to the former location in a manner that will restore or replace the Utility or improvement as nearly as possible to its former locations and to as good or better condition than found prior to removal.
- F. **OWNER's Right of Access:** The right is reserved to the OWNER and to the owners of public utilities and franchises to enter at any time upon any public street, alley, right-of-way, or easement for the purpose of making changes in their property made necessary by the WORK of this Contract.
- G. **Underground Utilities Indicated:** Protect existing Utility lines that are indicated or the locations of which are made known to the CONTRACTOR prior to excavation and that are to be retained, and all Utility lines that are constructed during excavation operations from damage during excavation and backfilling. If such utilities are damaged, immediately repair or replace the facility unless otherwise repaired by the owner of the damaged Utility. If the owner of the damaged facility performs its own repairs, reimburse said owner for the costs of repair.
- H. **Underground Utilities Not Indicated:** In the event that the CONTRACTOR damages existing Utility lines that are not indicated or the locations of which are not made known to the CONTRACTOR prior to excavation, immediately make a verbal report of such damage to the ENGINEER and make a written report thereof promptly thereafter. The ENGINEER will immediately notify the owner of the damaged Utility. If the ENGINEER is not immediately available, notify the Utility owner of the damage. If directed by the ENGINEER, make repairs by the CONTRACTOR under the provisions for changes and extra work contained in the General Conditions.
- I. Costs of locating and repairing damage not due to failure of the CONTRACTOR to exercise reasonable care, and removing or relocating such Utility facilities not indicated in the Contract Documents with reasonable accuracy, and for



equipment on the project which was actually working on that portion of the WORK which was interrupted or idled by removal or relocation of such Utility facilities, and which was necessarily idled during such work will be paid for as extra work in accordance with the General Conditions.

- J. Approval of Repairs:** All repairs to a damaged Utility or improvement are subject to inspection and approval by an authorized representative of the Utility or improvement owner before being concealed by backfill or other work.
- K. Maintaining in Service:** Unless indicated otherwise, continuously maintain in service all oil and gasoline pipelines, power, and telephone or the communication cable ducts, gas and water mains, irrigation lines, sewer lines, storm drain lines, poles, and overhead power and communication wires and cables encountered along the line of the WORK during all the operations under the Contract, unless other arrangements satisfactory to the ENGINEER are made with the owner of said pipelines, duct, main, irrigation line, sewer, storm drain, pole, or wire or cable. Assume responsibility for and repair all damage due to construction operations, and the provisions of this Section will not be abated even in the event such damage occurs after backfilling or is not discovered until after completion of the backfilling.

1.6 TREES, SHRUBS, AND LAWN AREAS WITHIN STREET RIGHTS-OF-WAY AND PROJECT LIMITS

- A. General:** Except where trees or shrubs are indicated to be removed, exercise all necessary precautions so as not to damage or destroy any trees or shrubs, including those lying within street rights-of-way and project limits. Do not trim or remove any trees unless such trees have been approved for trimming or removal by the jurisdictional agency or OWNER. Trim or replace existing trees and shrubs which are damaged during construction using a certified tree company under permit from the jurisdictional agency and/or the OWNER. Accomplish trimming and replacement in accordance with the following paragraphs.
- B. Trimming:** Preserve symmetry of the tree; no stubs or splits or torn branches left; make clean cuts close to the trunk or large branch. Do not use spikes for climbing live trees. Coat cuts over 1 1/2 inches in diameter with a tree paint product that is waterproof, adhesive, and elastic, and free from kerosene, coal tar, creosote, or other material injurious to the life of the tree.
- C. Replacement:** Immediately notify the jurisdictional agency and/or the OWNER if any tree or shrub is damaged by the CONTRACTOR's operations. If, in the opinion of said agency or the OWNER, the damage is such that replacement is necessary, replace the tree or shrub at no additional cost to the OWNER. Provide and plant a tree or shrub of a like size and variety as the one damaged, or, if of a smaller size, or pay to the owner of said tree a compensatory payment acceptable to the tree or shrub owner, subject to the approval of the jurisdictional agency or OWNER. Furnish and plant a tree or shrub not less than 1 inch diameter nor less than 6 feet in height. Plant replacement trees and shrubs in accordance with the recommendations of the nursery furnishing the plants. Unless otherwise indicated, water and maintain the replacement trees and shrubs for 6 months after planting.



- D. Repair or replace lawn and/or landscaped areas damaged during construction to match the pre-construction condition to the satisfaction of the land owner and the OWNER.

1.7 NOTIFICATION BY THE CONTRACTOR

- A. Prior to any excavation in the vicinity of any existing underground facilities, including all water, sewer, storm drain, gas, petroleum products, or other pipelines; all buried electric power, communications, or television cables; all traffic signal and street lighting facilities; and all roadway and state highway rights-of-way, notify the respective authorities representing the owners or agencies responsible for such facilities not less than 3 days nor more than 7 days prior to excavation so that a representative of said owners or agencies can be present during such work if they so desire.
- B. Comply with the Louisiana Underground Utilities and Facilities Damage Prevention Law.
- C. Provide notice to Louisiana One Call (811) in accordance with the Louisiana Underground Utilities and Facilities Damage Prevention Law

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION (NOT USED)

END OF SECTION



SECTION 01 53 00 – TEMPORARY WORKS

PART 1 -- GENERAL

1.1 THE REQUIREMENT

- A.** Furnish, construct, and remove temporary facilities employed in the execution of the work. Such facilities include but are not limited to temporary bridges, temporary sheeting, falsework, shoring, formwork, scaffolding, form travelers, cofferdams, systems for the exclusion of water, temporary utilities, and containment systems.
- B.** Temporary works are considered to be the contractor's means and methods. Unless otherwise specified, submittals will be for record.
- C.** Submit information on materials, drawings and construction details, and procedures for installation, operation, maintenance and removal.
- D.** Submit supporting documentation such as engineering analysis and design and manufacturer's information for prefabricated elements. Retain a licensed professional engineer registered in Louisiana to perform, seal, sign, and date all submitted analysis, related drawings, and design unless otherwise specified.

1.2 TEMPORARY ENVIRONMENTAL CONTROLS

- A.** Furnish, install, maintain, and remove temporary environmental controls as specified in Section 01 57 19 – Temporary Environmental Controls.

1.3 TEMPORARY TRAFFIC CONTROLS

- A.** Furnish, place into service, maintain, and remove temporary traffic controls as specified in Section 01 55 26 – Temporary Traffic Control.

1.4 CONSTRUCTION REQUIREMENTS

- A.** For temporary works within the LADOTD right – of – way, Design, construct, and maintain temporary works in accordance with the latest version of AASHTO LRFD Bridge Construction Specifications. Consider appropriately distributed construction loads such as stockpiled materials and construction equipment. Determine member capacities based on field conditions accounting for section loss, deterioration of capacity, alterations of the structure, and support conditions during all construction phases.
- B.** For temporary works within the Parish right – of – way, design, construct, and maintain temporary works in accordance with accepted engineering methods and standards and in accordance with best practices for the type of temporary work undertaken. Consider appropriately distributed construction loads such as stockpiled materials and construction equipment for temporary structures. Additional requirements are contained herein.
- C.** For temporary works within the railroad right – of – way, design, construct, and maintain temporary works in accordance with the requirements of the license



agreement and in accordance with the Norfolk Southern Corporation publication NSCE – 8, latest edition.

1.5 CONTRACTOR SUBMITTALS, SAMPLING, AND TESTING

- A.** Provide submittals, samples for testing, and testing of materials in accordance with Section 01 33 00 – Contractor Submittals and Section 01 45 00 – Quality Control.

PART 2 -- PRODUCTS (NOT USED)

2.1 MATERIALS FOR TEMPORARY UTILITIES

- A.** Provide either new or used materials and equipment, which are in substantially undamaged condition and without significant deterioration and which are recognized in the construction industry, by compliance with appropriate standards, as being suitable for intended use in each case. Where a portion of temporary utility is provided by utility company, provide the remaining portion with matching and compatible materials and equipment and comply with recommendations of utility company.

2.2 MATERIALS FOR SHEETING, SHORING, AND BRACING

- A.** Where wood is used for sheeting, shoring and sheeting, use green, rough cut hardwood (i.e. oak or hickory). Use lumber with a minimum thickness of 2 inches for all planking, sheeting and foundation lumber. Assume responsibility for the design and installation of all wood sheeting unless wood shoring is indicated on the plans.
- B.** Where steel sheet piling is used for sheeting, shoring and bracing, use steel sheet piling of a continuous interlock design. Use sheet piling in good condition and of a watertight interlocking connection, which will retard the infiltration of ground water. Provide cofferdams when constructing wet wells at pump station sites. Assume responsibility for and pay all costs for the design and installation of all cofferdams as a part of the WORK.
- C.** Where trench boxes and shields are used for sheeting, shoring and bracing, use boxes in good, sound condition which comply with all applicable OSHA requirements. Install, use, and remove trench shields or accordance with the manufacturer's recommendations and in such a manner as to prevent damage to adjacent embankments, utilities, pavements, or other improvements. Assume responsibility and pay all costs for the design and installation of all trench boxes or shields as a part of the WORK. Depict the use of such implements within the CONTRACTOR's sheeting, shoring and bracing plan.

2.3 SHEET PILES

- A. Temporary Sheeting:** Where the drawings require temporary sheeting to facilitate the sequence of construction and/or maintain existing facilities in operation, the drawings will indicate the required design criteria for sheeting. Assume full responsibility for the design and details of the sheeting. Submit details of temporary sheeting design and details to the ENGINEER. Use new or used sheeting. Protective coatings are not required for temporary sheeting. Remove



temporary sheeting when no longer required, however, when impractical to remove or when indicated to remain in the drawings, leave the temporary sheeting in place.

- B. Sheeting, Shoring, and Bracing:** Where neither permanent nor temporary sheeting is shown on the Drawings but is required for the CONTRACTOR to meet its obligations for excavation safety. Assume full and complete responsibility for the design and details of the sheeting. Use new or used sheeting with or without protective coatings. Remove unless otherwise approved by the ENGINEER.

PART 3 -- EXECUTION (NOT USED)

3.1 TEMPORARY UTILITIES

- A.** Provide all temporary utilities necessary for the proper execution of the WORK in the most efficient manner practical. Bear the cost of provision of these temporary utilities and include all costs associated therewith in the price of the WORK.
- B. Power:** Provide power required for operations under the Contract and provide and maintain all temporary power lines required to perform the WORK in a safe and satisfactory manner.
- C. Temporary Power Distribution:** Provide a weatherproof, grounded, temporary power distribution system sufficient for performance of entire WORK of project, including temporary electrical heating where indicated, operation of test equipment and test operation of building equipment and systems which cannot be delayed until permanent power connections are operable, temporary operation of other temporary facilities, including permanent equipment and systems which must be placed in operation prior to use of permanent power connections (pumps, HVAC equipment, elevators, and similar equipment), and power for temporary operation of existing facilities (if any) at the Site during change-over to new permanent power system. Provide circuits of adequate size and proper power characteristics for each use; run circuit wiring generally overhead and rise vertically in locations where it will be least exposed to possible damage from construction operations and will result in minimal interference with performance of the WORK; provide rigid steel conduit or equivalent raceways for wiring which must be exposed on grade, floors, decks, or other exposures to damage or abuse. Properly install and maintain wiring for temporary electric light and power and maintained and securely fasten such wiring in place. Conform to the requirements of Subpart K of the OSHA Safety and Health Standards for Construction for such temporary electrical facilities.
- D. Construction Lighting:** Suitably light WORK conducted at night or under conditions of deficient daylight to ensure proper WORK and to afford adequate facilities for inspection and safe working conditions.
- E. Temporary Lighting:** Provide a general, weatherproof, grounded temporary lighting system in every area of construction work, as soon as overhead floor/roof deck structure has been installed to provide sufficient illumination for safe work and traffic conditions. Run circuit wiring generally overhead, and rise vertically in



locations where it will be least exposed to possible damage from construction operations on grade, floors, decks, or other areas of possible damage or abuse.

- F. Construction Water:** Provide an adequate supply of water of a quality suitable for all domestic and construction purposes. Do not make connection to or draw water from any fire hydrant or pipeline without first obtaining permission of the authority having jurisdiction over the use of said fire hydrant or pipeline and from the agency owning the affected water system. For each such connection made, first attach to the fire hydrant or pipeline a backflow preventer, valve, and a meter, if required by the said authority, of a size and type acceptable to said authority and agency. Pay all permit and water charges.

3.2 SHEETING, SHORING, AND BRACING

- A.** Furnish, place, and maintain supports and shoring that may be required for the sides of all excavations regardless of type. Assume full responsibility for the stability and safety of all excavations, regardless of type.
- B.** Slope or otherwise support excavations in a safe manner in accordance with applicable State safety requirements and the requirements of OSHA Safety and Health Standards for Construction (29CFR1926). In accordance with OSHA Safety and Health Standards for Construction, excavations less than five (5) feet in depth will not require protective systems if a competent person under the employ of the CONTRACTOR has examined the excavation and found no danger of a potential cave in.
- C.** Confine limits of all excavations to the right – of – way. Do not allow the limit of any excavation, shoring implement, excavation slopes, or excavation steps to encroach upon private property without a written agreement with the private property owner.
- D.** The use of horizontal strutting below the barrel of a pipe or structure or the use of a pipe as support for trench bracing will not be permitted.

3.3 EXCLUSION OF WATER

- A.** Remove and exclude water, including storm water, groundwater, irrigation water, and wastewater, from excavations. Use dewatering wells, well-points, sump pumps, or other means remove water and continuously maintain groundwater at a level at least 2 feet below the bottom of excavations before the excavation WORK begins at each location. Remove and exclude water from excavations until backfilling is complete and field soils testing has been completed.

3.4 WELL POINTING

- A.** When required by plans or the engineer, design, detail, install, maintain, operate, and remove a well point system. Install the well point system around the perimeter of the excavated area in a location such that other operations will not be impeded. Continuously maintain the piezometric level in the soil at least 5 feet below the bottom of the excavated area.



- B. When well points are no longer required for water control, plug abandoned well in accordance with *Water Well Rules, Regulations and Standards, State of Louisiana*.
- C. Install piezometers or other suitable means of monitoring within the excavated area as required by field conditions. Make daily readings or measurements of the piezometers to verify that the well point system is operational. Excavation may begin when the level is 5 feet below the proposed excavation bottom surface for at least four hours.
- D. Provide the well point system with a back-up system of pumps and power units. If failure of the well point system occurs, add water to the excavation as rapidly as possible at no additional cost or time to the OWNER.
- E. Notify the engineer after completing each excavation. Do not place concrete until the engineer has accepted the excavation.

3.5 FALSEWORK AND FORMWORK

- A. Support falsework on a satisfactory foundation and remove upon completion of work. Set falsework and formwork to give the finished structure the specified final position under all loads.

3.6 CLEANING AND PAINT CONTAINMENT SYSTEMS

- A. Design and construct the containment system in accordance with the Contract and SSPC Guide 6, Guide for Containing Debris Generated During Paint Removal Activities. Unless specified otherwise, provide a Class 1A containment system.

END OF SECTION



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SECTION 01 55 00 - SITE ACCESS AND STORAGE

PART 1 -- GENERAL

1.1 THE REQUIREMENT

- A. Make a thorough investigation of the condition of available public and private roads and of clearances, restrictions, bridge load limits, and other limitations affecting transportation and ingress and egress to the site of the WORK. Construct and maintain any haul roads required for its construction operations.

1.2 TEMPORARY CROSSINGS

- A. Make a thorough investigation of the condition of available public and private roads and of clearances, restrictions, bridge load limits, and other limitations affecting transportation and ingress and egress to the site of the WORK. Construct and maintain any haul roads required for its construction operations.
- B. Provide continuous, unobstructed, safe, and adequate pedestrian and vehicular access to residences, fire hydrants, commercial and industrial establishments, churches, schools, parking lots, service stations, motels, fire and police stations, and hospitals. Provide safe and adequate public transportation stops and pedestrian crossings at intervals not exceeding 300 feet. Cooperate with parties involved in the delivery of mail and removal of trash and garbage and maintain existing schedules for such services. Maintain vehicular access to residential driveways to the property line except when necessary construction precludes such access for reasonable periods of time.
- C. Wherever necessary, to maintain vehicular crossings, provide suitable temporary bridges or steel plates over unfilled excavations, except in such cases as the where the written consent of the responsible individuals or authorities to omit such temporary bridges or steel plates has been obtained. Where such consent is obtained, provide copies to the ENGINEER prior to excavation. Maintain such bridges or plates in service until access is provided across the backfilled excavation. Comply with the requirements of the authority having jurisdiction in each case for temporary bridges or steel plates for street and highway crossing. Adopt designs furnished by said authority for such bridges or steel plates or submit designs to said authority for approval, as may be required.
- D. Nothing herein entitles the CONTRACTOR to the exclusive use of any public street, alleyway, or parking area during the performance of the WORK hereunder. Conduct operations to not interfere unnecessarily with the authorized work of utility companies or other agencies in such streets, alleyways, or parking areas.
- E. Do not close any street, alleyway, highway, or roadway to the public without first obtaining permission of the ENGINEER and proper governmental authority. Where excavation is being performed in primary streets or highways, maintain one lane in each direction open to traffic at all times unless otherwise indicated. Provide toe boards to retain excavated material if required by the ENGINEER or the agency having jurisdiction over the street or highway. Keep fire hydrants on or adjacent to the WORK accessible to fire-fighting equipment at all times. Make



temporary provisions by the CONTRACTOR to assure the use of sidewalks and the proper functioning of all gutters, storm drain inlets, and other drainage facilities.

1.3 CONTRACTOR'S WORK AND STORAGE AREA

- A.** The OWNER may (but will not be obligated) to designate and arrange for the CONTRACTOR's use, a portion of the property for its exclusive use during the term of the Contract as a storage and shop area for its construction operations on the WORK. At completion of WORK, return this area to its original condition, including grading and landscaping.
- B.** Make all arrangements for any necessary off-Site storage or shop areas necessary for the proper execution of the WORK.
- C.** Construct and use a separate storage area for hazardous materials used in constructing the WORK.

1.4 PARKING

- 1. Direct employees to park legally.
- 2. Maintain access routes and parking areas in a sound condition, free of excavated material, construction equipment, mud, and construction materials. Repair breaks, potholes, low areas which collect standing water, and other deficiencies.

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION (NOT USED)

END OF SECTION



SECTION 01 55 26 TEMPORARY TRAFFIC CONTROL

PART 1 - GENERAL

1.1 THE REQUIREMENT

- A. Assume full and sole responsibility for the design, development, and implementation of a temporary traffic control device plan for all phases and portions of the WORK. The traffic control device plan will provide for safe and expeditious movement of traffic and pedestrians through the area of construction.
- B. Furnish, install, maintain, and remove temporary construction barricades, lights, signals, pavement markings and signs, and flaggers as indicated in his plan or as directed by the ENGINEER.
- C. Furnish and install appropriate signs for special conditions as required or as directed.
- D. Requirements for proper signs, barricades, barriers, channelizing devices, or other safety precautions promulgated by the CONTRACTOR's insurers will not be negated by these specifications.
- E. Assign one or more authorized Traffic Control Supervisors (TCS) to provide traffic control management for the execution of the WORK. If more than one TCS is assigned, provide a weekly schedule identifying who will be in charge of providing traffic control management on a daily basis. If the CONTRACTOR utilizes a subcontractor to provide traffic control management, ensure that the subcontractor's TCS meet all requirements set forth herein.

1.2 REFERENCE STANDARDS

- A. American Traffic Safety Services Association (ATSSA)

ATSSA	Quality Guidelines for Temporary Traffic Control Devices and Features
- B. ASTM International (ASTM):

ASTM B209	Standard Specification for Aluminum and Aluminum Alloy Sheet and Plate
ASTM D4956	Standard Specification for Retroreflective Sheeting for Traffic Control
- C. Federal Highway Administration (FHWA):

MUTCD	Manual for Uniform Traffic Control Devices
- D. Louisiana Department of Transportation and Development (LDOTD):

AML	Approved Materials List



TTC-00 (C)	Temporary Traffic Control General Notes
TTC-00 (D)	Layout for Placement of Road Work Next "XX" Miles and End Road Work Signs
TTC-01	Layout for Work Less than 15 Feet from the Traveled Way
TTC-02	Layout for Work Less than 15 Feet from the Traveled Way
TTC-03	Layout for Lane Closures on Two Lane Roads with Two Way Traffic Less Than 1600 Feet from Intersection
TTC-04	Layout for Lane Closures on Two Lane Roads with Two Way Traffic Greater Than 1600 Feet from Intersection
TTC-05	Layout for On - Site Diversion with Two Lane Traffic
TTC-06	Layout for Lane Closure on Four – Lane Undivided Highways
TTC-07	Layout for Lane Closure of Two Adjacent Lanes on Four – Lane Undivided Highways
TTC-08	Layout for Median Crossover on Divided Highways
TTC-09	Layout for One Lane Closure on Divided Highways
TTC-10	Layout for Lane and Sidewalk Closures in Urban Areas with Speed Limit Less than or Equal to 40 Miles per Hour
TTC-11	Layout for Lane Closure Using Temporary Barrier Rail on Divided Highways
TTC-12	Layout for Lane Closures Through Ramp Entrance and Exit Tapers
TTC-13	Layout for Lane Closure of Two Lanes on a Multi – Lane Highway
TTC-14	Layout for "Louisiana Left" on Interstate or Other Divided Highways
TTC-15	Layout for Short Duration Closure of Divided Highways
TTC-16	Layout for Temporary Road Closures
TTC-17	Layout for Moving Operations on Interstate or Other Multi – Lane Roadways
TTC-18	Layout for Moving Operations on Two – Way Two – Lane Roadways
TTC-19	Layout for Traffic Signal Installation and Maintenance at an Intersection



E. National Cooperative Highway Research Program (NCHRP)

NCHRP 350 Recommended Procedures for the Safety Performance
Evaluation of Highway Features

1.3 CONTRACTOR SUBMITTALS, SAMPLING, AND TESTING

A. Provide submittals, samples for testing, and testing of materials in accordance with Section 01 33 00 – Contractor Submittals and Section 01 45 00 – Quality Control.

B. Submittals: Submit the following:

1. Submit product information on all temporary traffic control devices and products to be utilized or incorporated into the WORK. Include evidence of each product's listing on the LDOTD AML, compliance with applicable standards, and any other information required sufficient for the ENGINEER to review the acceptability of the proposed products.
2. Prior to the start of the WORK, submit a traffic control device plan, which clearly depicts the arrangement of all temporary traffic control devices for all phases or portions of the WORK. Clearly depict all temporary traffic control device products to be utilized, along with appropriate certifications to be included therewith.
3. Provide plan that has been prepared under the supervision of a licensed professional engineer registered in the State of Louisiana and signed and sealed by such. Include within the sealed plan product data detailing all traffic control devices to be utilized. WORK on public roads will not be authorized by the ENGINEER until such time as this plan has been submitted and reviewed by the ENGINEER. Prior to the start of the WORK, submit to the ENGINEER proof of the TCS and TCT authorizations. Ensure that TCS's and TCT meet all requirements of the Louisiana Department of Transportation and Development's requirements for such personnel.

C. Sampling: No materials are anticipated to be sampled under this Section.

D. Testing: No testing laboratory tests are anticipated under this Section.

1.4 QUALITY CONTROL

A. See Part 3 – Execution for Quality Control Requirements.

1.5 SAMPLING AND TESTING

A. At his discretion, the ENGINEER may sample materials which in his opinion may be questionable in quality or suspected of not meeting requirements specified herein.



PART 2 - PRODUCTS

2.1 GENERAL

- A. Use Category I, II, and III portable work zone traffic control devices that are crashworthy as determined by evaluations through NCHRP 350 for Test Level 3.
1. **Category 1 Devices:** Category I devices are low mass, single piece traffic cones, tubular markers, single piece drums and flexible delineators and are, by definition, considered crashworthy devices meeting NCHRP 350 Criteria for Test Level III. Drum and light combinations with Type A or C warning lights and fastener hardware consisting of vandal-resistant ½ inch diameter cadmium plated steel bolts and nuts used with 1 1/2 inch diameter by ¾ cup washers are included as Category I devices. In lieu of testing for crashworthiness, acceptance of Category I devices for compliance with NCHRP 350 will be allowed based upon self – certification by the supplier. Certify that the product is crashworthy in accordance with the evaluation criteria of NCHRP 350. Certification may be a one – page affidavit signed by the supplier, with supporting documentation kept on file to be furnished if requested.
 2. **Category 2 Devices:** Category II devices include other low mass traffic control devices such as portable barricades, either with or without lights and/or signs, portable sign stands, portable vertical panel assemblies, and drums with lights not meeting the drum and light combination requirements for Category I. Individual crash testing is required for Category II devices. FHWA letters of approval will serve as verification that these devices comply with the crash testing requirements of NCHRP Report 350, Test Level III. Provide to the ENGINEER a listing of all the Category II Devices to be used, including a reference to the FHWA Work Zone letter number for each device. Certify that each device has been crash tested and meets the NCHRP 350 requirements.
 3. **Category 3 Devices:** NOT USED

2.2 BARRICADE WARNING LIGHTS

- A. Provide Type A, B, and C barricade warning lights in compliance with the MUTCD. Use only approved products listed on the Louisiana Department of Transportation and Development Approved Materials List.

2.3 DRUMS, CONES, AND TUBULAR MARKERS

- A. **Drums and Super Cones:** Use approved products listed on the LDOTD AML. Use devices with a design complying with LDOTD TTC-00 (C). Use reflective sheeting for drums and super cones that is a minimum of six inches wide and which meets the requirements of ASTM D4956, Type III, and the Supplementary Requirement S2 for reboundable sheeting as specified in ASTM D4956. Use sheeting which is an approved material listed on the LDOTD AML.
- B. **Traffic Cones:** Use traffic cones of a design comply with LDOTD TTC-00 (C). Use reflective sheeting for cone collars which is minimum of six inches wide and which meets the requirements of ASTM D4956, Type IV. Use sheeting for plastic



traffic cones which is an approved material listed on the LDOTD AML. Use cones that are a minimum of 36 inches in height.

- C. **Tubular Markers:** Use markers that comply with LDOTD TTC-00 (C). Use reflective sheeting for tubular markers meeting the requirements of ASTM D4956, Type III. Use sheeting for tubular markers which is an approved material listed on the LDOTD AML. Use tubular markers that are a minimum of 28 inches in height.

2.4 TEMPORARY SIGNS, VERTICAL PANELS & BARRICADES

- A. **General:** Provide signs which comply with the MUTCD, the LDOTD Temporary Traffic Control Standards, and the CONTRACTOR's traffic control device plan. The design of temporary barricades and vertical panels must comply with LDOTD TTC – 00 (C). Only Type III barricades will be allowed. Use vertical panels complying with LDOTD TTC – 00 (C).
- B. **Substrate:** Use either wood or rigid thermoplastic for barricade panels. Use aluminum, wood, or plastic for portable signs. Use be aluminum, wood, rigid thermoplastic, or aluminum clad low density polyethylene plastic for post mounted signs.
 - 1. **Aluminum:** Use 0.080-inch thick sheeting complying with ASTM B209, Alloy 6061-T6 or Alloy 5052-H38.
 - 2. **Wood:** Use plywood sheeting of exterior type grades High Density Overlay or Medium Density Overlay. Use panels that are minimum of 5/8-inch thick and which comply with the latest American Plywood Association specifications and which are identified with the APA edge mark or back stamp to verify inspection and testing. Prior to application of the reflective sheeting, sand the surface with steel wool or fine sandpaper and wiped thoroughly clean. Allow the panels to dry for eight (8) hours prior to the application of sheeting. Seal the cut edges of plywood panels with aluminum pigmented polyurethane sealer.
 - 3. **Plastic:** When used, plastic substrate for barricade panels and signs must comply with the following:
 - a. **Fiber Reinforced Vinyl (PVC):** Use a substrate of a nominal composite thickness of 0.04 inches and bonded to an approved retroreflective material by the manufacturer.
 - b. **Rigid Thermoplastic:** Use rigid thermoplastic substrate consisting of either High Density Polyethylene (HDPE) or High Density Polycarbonate (HDPC). Use either hollow core HDPE or HDPC with a minimum thickness of 0.625-inch thick blow molded substrate. Use either 0.4000inch thick thin wall, fluted substrate or 0.625-inch thick blow molded substrate. Use substrate sufficiently rigid to maintain a flat face and which is capable of attachment to the sign mounting in such a manner as not to crush or otherwise deform the substrate. Reflectorized sheeting applied to rigid thermoplastic with its manufacturer's approval for use on the substrate.
 - c. **Aluminum Clad Low Density Polyethylene (AL/LDPE) Plastic:** Use aluminum clad low density polyethylene plastic which is a minimum of



0.080-inch thick. Use sufficiently rigid substrate to maintain a flat face and which is capable of attachment to the sign mounting in such a manner as not to crush or otherwise deform the substrate. Reflectorized sheeting applied to aluminum clad low density polyethylene must have its manufacturer's approval for use on the substrate.

- C. Reflective Sheeting:** Use an approved material listed on the LDOTD AML, and which complies with the requirements of ASTM D4956, Type III. On the main line of freeways and expressways, fabricate the initial advance warning sign using sheeting complying with the requirements of ASTM D4956, Type X (Fluorescent Orange).

PART 3 - EXECUTION

3.1 GENERAL

- A.** Ensure temporary signs, barricades, and related devices are in place when the WORK is in progress or when work is suspended. During such times that temporary signs, barricades, and related devices are not in place, maintain appropriate existing regulatory signs. Do not begin until signs, barricades, and other devices have been erected.
- B.** When signs to be furnished and erected by the CONTRACTOR are in place, ensure the CONTRACTOR's Traffic Control Supervisor (TCS) covers any standard signs that are in conflict with the temporary signs.
- C.** Coordinate with the ENGINEER in covering OWNER's signs or signs owned by other entities so that all appropriate signs remain in place.
- D.** Maintain temporary signs, supplemented by other signs as required, throughout the execution of the WORK. When previously used signs are to be utilized on the project, the ENGINEER will review and approve these signs prior to installation. The ENGINEER will require any sign with reduced reflectivity or excessive fading to be removed from the work zone. In the case of a dispute over a rejected used sign, the ENGINEER may at his discretion require measurements to be taken or review reflectivity or color data obtained by the CONTRACTOR to determine if the sign meets minimum standards for new materials. Replace signs that do not meet the minimum standards for new materials.
- E.** Signs, barricades, and related devices furnished and placed by the CONTRACTOR remain property of the CONTRACTOR.
- F.** When a work area has been established on one side of the roadway only, do not allow conflicted operations or parking on the opposite shoulder within 500 feet of the work area.
- G.** Do not park vehicles or unattended equipment, or store of materials within the clear zone. If the clear zone is not defined on the plans, the ENGINEER will inform the CONTRACTOR of the clear zone.
- H.** Consider sight distance and vertical curvature when placing traffic control devices.



- I. **Advanced Warning Area and Flashing Arrow Board:** When specified, provide advance warning arrow panels for temporary traffic control. Use one of the specified types complying with the MUTCD. If none is specified, Provide Type C panels. Use flashing arrow boards that are 4 feet by 8 feet.

3.2 MINIMUM REQUIREMENTS FOR TRAFFIC CONTROL SETUP

- A. General: Minimum traffic control devices shown on reference standards are the minimum. Assume the full responsibility to ensure that appropriate devices are employed and maintained during the duration of construction.
- B. Minimum Traffic Control Device Layout for various construction situations are to be as indicated in the table below. These minimum requirements are the minimum required, assume the full and sole responsibility to supplement the minimum arrangements as required. The use of these minimum layouts does not relieve the CONTRACTOR from the responsibility of submitting a traffic control device plan sealed by a licensed professional engineer.

Minimum Requirement	Reference Layout
Layout for Placement of Road Work Next "XX" Miles and End Road Work Signs	LDOTD TTC – 00 (D)
Layout for Work Less than 15 Feet from the Traveled Way	LDOTD TTC – 01
Layout for Work Less than 15 Feet from the Traveled Way	LDOTD TTC – 02
Layout for Lane Closures on Two Lane Roads with Two Way Traffic Less Than 1600 Feet from Intersection	LDOTD TTC – 03
Layout for Lane Closures on Two Lane Roads with Two Way Traffic Greater Than 1600 Feet from Intersection	LDOTD TTC – 04
Layout for On - Site Diversion with Two Lane Traffic	LDOTD TTC – 05
Layout for Lane Closure on Four – Lane Undivided Highways	LDOTD TTC – 06
Layout for Lane Closure of Two Adjacent Lanes on Four – Lane Undivided Highways	LDOTD TTC – 07
Layout for Median Crossover on Divided Highways	LDOTD TTC – 08
Layout for One Lane Closure on	LDOTD TTC – 09



Divided Highways	
Layout for Lane and Sidewalk Closures in Urban Areas with Speed Limit Less than or Equal to 40 Miles per Hour	LDOTD TTC – 10
Layout for Lane Closure Using Temporary Barrier Rail on Divided Highways	LDOTD TTC – 11
Layout for Lane Closures Through Ramp Entrance and Exit Tapers	LDOTD TTC – 12
Layout for Lane Closure of Two Lanes on a Multi – Lane Highway	LDOTD TTC – 13
Layout for "Louisiana Left" on Interstate or Other Divided Highways	LDOTD TTC – 14
Layout for Short Duration Closure of Divided Highways	LDOTD TTC – 15
Layout for Temporary Road Closures	LDOTD TTC – 16
Layout for Moving Operations on Interstate or Other Multi – Lane Roadways	LDOTD TTC – 17
Layout for Moving Operations on Two – Way Two – Lane Roadways	LDOTD TTC – 18
Layout for Traffic Signal Installation and Maintenance at an Intersection	LDOTD TTC – 19

3.3 DROP – OFFS

- A. Provide minimum temporary traffic control devices for Drop – offs as indicated on LDOTD TTC-00 (C)

3.4 CHANNELIZING DEVICES

- A. Tubular markers, drums, super cones, vertical panels, and traffic cones may be utilized as channelizing devices. During nighttime operations, 36 – inch traffic cones will not be allowed.
- B. Match retroreflective material pattern used on super cones with that used on drums.
- C. Tangent Areas:
 - 1. Standard Spacing: Use spacing as indicated on LDOTD TTC – 00 (C).



2. Daylight Operations: Space drums and super cones at standard spacing. Space all other devices at ½ of standard spacing.
 3. Nighttime Operations: Space drums and super cones at standard spacing onyl.
- D. Taper Areas:
1. Standard Spacing: Space devices as indicated on LDOTD TTC – 00 (C).
 2. Daylight Operations: Space drums and super cones at standard spacing. Space all other devices at ½ of standard spacing.
 3. Nighttime Operations: Use only drums at standard spacing.
- E. Use Type C Steady Burn Lights on all channelizing devices in the taper and on the first two devices in the tangent at night.
- F. Typical channelizing device lateral placement (do not include when it is used as a divider for opposing directions of traffic) is to be two feet off the lane line of the closed lane or two feet off the shoulder.
- G. Devices may be adjusted laterally to accommodate ongoing work in the immediate vicinity but must be returned to the closed lane after to work activity has moved.
- H. Use the same channelizing devices throughout the entire tangent area.
- I. Use the same channelizing devices throughout the entire taper area.

3.5 TYPE III BARRICADES

- A. Only Type III Barricades may be utilized.
- B. When used for overnight closures, supplement all barricades that are placed in a closed lane or that extend across a highway with two Type B High Intensity lights.
- C. When signs and lights are mounted to a barricade, they must meet NCHRP Report 350 and MASH requirements.
- D. A truck with a truck – mounted attenuator may be substituted for a barricade when workers are present.
- E. Place barricades, at a minimum:
1. At the beginning of a closed lane or shoulder and at 1,000 foot intervals where no active work is ongoing and the lane must remain closed. Place a minimum of two (2) barricades if the lane or shoulder closure is less than 2,000 feet (Place one barricade at the beginning of the lane closure after the buffer space and place the other in middle of the lane closure);
 2. Before each or group of unfilled holes or holes filled with temporary material;
 3. Before uncured concrete;



4. In the closed lane on each side of every intersection and crossover (do not block sight distance);
5. In front of piles of material (dirt, aggregate, broken concrete), culverts, and equipment which is near the work zone.

3.6 SIGNS

- A. Supplement the first sign or pair of signs that gives a warning about a lane closure during nighttime operations with One Type B high intensity light.
- B. Use caution not to damage existing signs which remain in place. Replace any such signs damaged at the cost of the CONTRACTOR.
- C. Cover signs with a strong, lightweight material when not applicable. Burlap will not be acceptable for covering signs.
- D. When portable sign frames are used, move the portable sign frames to an area inaccessible to traffic and not visible to drivers.
- E. Left side mounted signs will not be required for roadways with a center left turn lane and for undivided roadways.
- F. Vinyl roll up signs may be used if work zone is in place for 12 hours or less, there are no more than 2 lanes in each direction, and if signs meet all size, color, retroreflectivity, and NHCPR 230 Report or MASH requirements.
- G. One foot portable sign stands may be used if work zone is in place for 12 hours or less, the pre – construction posted speed limit is less than 45 miles per hour, and there are no more than 2 lanes in each direction.
- H. Ensure that all signs are visible to the drivers. Ensure that no obstructions such as on – street parking or other traffic control devices block the sign.
- I. On divided highways, place signs on the right and the left.
- J. Sign Posts:
 1. Mount signs measuring 10 square feet or less on 1 rigid post.
 2. Mount signs measuring over 10 square feet on two (2) rigid posts.
 3. Mount signs measuring over 20 square feet on at least three (3) rigid posts.
 4. Observe and comply with allowable lap splices for U – channel posts be as indicated on LDOTD TTC -00 (C).
- K. Observe sign height and offset from roadway as indicated on LDOTD TTC – 00 (C).

3.7 FLAGGING

- A. Use qualified flaggers. Assume full and sole responsibility for training or assuring that all flaggers are qualified to perform flagging duties.



- B. A qualified flagger is one that has completed courses such as those offered by ATSSA, Association of General Contractors, or other courses as approved by the LDOTD Work Zone Task Force.
- C. Use a minimum 18-inch octagonal shape sign on minimum 6-foot stop/slow paddle and wear ANSI Class 2 Lime Green Vest during daytime operations and ANSI Class 3 Lime Green Ensemble during night operations.
- D. In all flagging operations, the flagger must be visible from the flagger advance warning sign.

3.8 FLASHING ARROW BOARDS

- A. Flashing arrow boards should be placed on the shoulder. When there is no shoulder or median area, place the arrow board within the closed lane behind the channelizing devices and as close to the beginning of the taper as practical.
- B. Delineate flashing arrow boards with retroreflective devices.
- C. Do not encroach the arrow board upon the traveled way. When flashing arrow boards are not in use, shield the arrow board by a guard rail or barriers or remove the arrow board.
- D. Only use arrow boards for lane reduction tapers and do not use arrow boards for lane shifts.

3.9 DUTIES OF THE TRAFFIC CONTROL SUPERVISOR (TCS)

- A. The CONTRACTOR's TCS's responsibility is traffic control management, and the TCS must be available to the ENGINEER to address traffic control issues as required. The following is a listing the primary responsibilities of the CONTRACTOR's TCS:
 - 1. Personally provide traffic control management and supervision services at the site of the WORK. The TCS may have other duties, but be readily available at all times to provide TCS duties as required. Ensure that a minimum of one TCT is present on site during all working hours.
 - 2. Assume responsibility for observing and evaluating both the day and night time performance of all traffic control devices installed on the project, in accordance with the traffic control plan to ensure that the devices are performing effectively as planned for both safety and traffic operations. Do this upon the initial installation of traffic control devices and when any modifications and/or changes are made, in addition to regular inspection requirements as specified herein.
 - 3. Assume the responsibility for the training of flagging personnel. Ensure that all flagging is in compliance with the MUTCD, Part VI and the Louisiana Work Zone Traffic Control Details.
 - 4. Coordinate all traffic control operations for the duration of the contract, including those of subcontractors, utility companies, and suppliers, to ensure that all traffic control is in place and fully operational prior to the



commencement of any work. The ENGINEER recognizes that the TCS does not have direct control over the traffic control operations of utility companies. The coordination required by the TCS when dealing with utility companies is specifically for the purpose of coordinating concurrent utility traffic control with any other construction traffic control to avoid conflicts.

5. Coordinate, in writing, all project activities with the appropriate law enforcement, fire control agencies, and other appropriate public entities as determined at the pre – construction conference. Invite the above agencies to the pre – construction conference.
 6. Prepare and submit statements concerning road closures, delays, and other project activities to the OWNER or ENGINEER when directed by the ENGINEER.
 7. Assume responsibility for notifying the ENGINEER of all vehicular accidents and/or incidents related to the project traffic control. Document the time and date of the notification in the traffic control diary. Monitor and document queues that occur.
 8. Attend the pre – construction conference and all project meetings.
 9. Assume the responsibility for the maintenance, cleanliness, and removal of traffic control plan during working and non – working hours.
- B. Traffic Control Diary:** Maintain a project traffic control diary in a bound book. Obtain sufficient number of the diaries from the Louisiana Association of General Contractors (LAGC). The CONTRACTOR may use an alternate form where acceptable to the ENGINEER and OWNER. Keep the traffic control diary on a daily basis and sign each daily entry. Make entries in ink, and there ensure there are no erasures or white – outs. Strike out erroneous entries and replace with the correct text. Photographs and videotapes may be used to supplement written text. Make the diary available at all times to the ENGINEER and submit a copy to the ENGINEER on a monthly basis. Failure to submit the diary will result in requests for payments being withheld until the past due copies of the diary are submitted. The traffic control diary will become property of the ENGINEER at the completion of the WORK.
- C. Traffic Control Plan Revisions:** Where revisions are made to the traffic control plan, regardless of whether or not the changes were promulgated by the CONTRACTOR, OWNER, or ENGINEER, submit a revised traffic control device plan by the CONTRACTOR.
- D. Inspection of Traffic Control:** Assume responsibility for the inspection of all traffic control devices every calendar day that traffic control devices are in use. This inspection may be delegated to the TCT. The "Quality Guidelines for Work Zone Traffic Control Devices" must be used to evaluate the condition of the traffic control devices to determine if acceptable for use. Provide for the immediate repair, cleaning, or replacement of any traffic control devices not functioning as required to ensure the safety of motorists, pedestrians, and construction personnel and/or not meeting the ATSSA standard. Conduct inspection of traffic control devices by the TCS at the beginning and end of each workday, and as



directed by the ENGINEER during the workday. Inspect the traffic control devices on weekends, holidays, or other non – work days at least once per day. Inspect traffic control devices at least once per week during nighttime periods and the same night after any modifications or changes have been made in the traffic control devices.

- E. Traffic Control Officer:** In some cases, and with the agreement of the ENGINEER, a Traffic Control Officer (TCO) may be utilized onsite where equipment is in or near to a roadway to assist in alerting or directing traffic near the work area. If required by the OWNER, responsibility of payment for the TCO will be the responsibility of the OWNER. If required by the CONTRACTOR's traffic control plan, responsibility of payment for the TCO is the responsibility of the CONTRACTOR.

3.10 FAILURE TO COMPLY WITH TRAFFIC CONTROL PLAN

- A.** The ENGINEER may suspend all or part of the CONTRACTOR's operation(s) for failure to comply with the reviewed traffic control plan or for failure to correct unsafe traffic conditions within a reasonable period of time after such notification is given to the CONTRACTOR in writing.
- B.** In the event that the CONTRACTOR does not take appropriate action to bring the deficient traffic control into compliance with the traffic control plan or to correct unsafe traffic conditions, the OWNER and ENGINEER may employ others to correct the unsafe traffic conditions. Such costs will be deducted from payments due the CONTRACTOR.

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SECTION 01 57 19 - TEMPORARY ENVIRONMENTAL CONTROLS

PART 1 - GENERAL

1.1 THE REQUIREMENT

- A. Comply with federal, state, and local laws and regulations controlling pollution of the environment, including air, water, and noise.
- B. Prevent pollution of waters and wetlands with fuels, oils, asphalts, chemicals, wastewater, chlorinated or chloraminated water, or other harmful materials.

1.2 REFERENCE STANDARDS

- A. Louisiana Department of Environmental Quality (LDEQ)
 - LAR 100000 Master General Permit for Discharges of Storm Water from Construction Activities – Five Acres or More
 - LAR 200000 Storm Water General Permit for Small Construction Activities
- B. Occupational Safety Hazard Administration (OSHA)
 - Part 1926 Safety and Health Regulations for Construction
- C. United States Environmental Protection Agency (US EPA)
 - Storm Water Management for Construction Activities

1.3 CONTRACTOR SUBMITTALS, SAMPLING, AND TESTING

- A. Provide submittals, samples for testing, and testing of materials in accordance with Section 01 33 00 – Contractor Submittals and Section 01 45 00 – Quality Control.
- B. Submittals: Submit the following:
 - 1. Where a stormwater pollution prevention plan is required, submit to the ENGINEER as specified herein. Submit all activity reports as required by permits as applicable.
 - 2. Where certificates, inspection reports, or other items are required, submit to the ENGINEER as specified herein.
- C. **Sampling:** No materials are anticipated to be sampled under this Section.
- D. **Testing:** No testing laboratory tests are anticipated under this Section.

1.4 DUST ABATEMENT

- A. Prevent operations from producing dust in amounts damaging to property, cultivated vegetation, and domestic animals. Prevent operations from



producing dust causing a nuisance to persons living in or occupying buildings in the vicinity of the Site. Assume complete responsibility for any damage resulting from dust originating from its operations. Continue dust abatement measures until relieved of further responsibility by the ENGINEER.

- B. Storage Piles:** Enclose, cover, water (as needed), or apply non-toxic soil binders according to manufacturer's specifications on material piles (i.e. gravel, sand, dirt) with a silt content of 5 percent or greater.
- C. Active Areas of Site:** Water active construction areas and unpaved roads as needed and as directed by ENGINEER.
- D. Inactive Areas of Site:** Apply non-toxic soil stabilizers according to manufacturer's specifications to inactive construction areas, or water as needed to maintain adequate dust control.
- E. Vehicle Loads:** Cover or maintain at least 2-feet of freeboard vertical distance between the top of the load and the top of the trailer sides on trucks hauling dirt, sand, soil, or other loose materials off of the Site.
- F. Roads:** Prevent construction materials, including sand, soils, from accumulating on public and private roads.
 - 1. When there is visible track-out onto a paved public road, install wheel washers where the vehicles exit and enter onto the paved roads and wash the undercarriage of trucks and any equipment leaving the Site on each trip.
 - 2. Sweep the paved street at the end of each shift with a water spray pick-up broom-type street sweeper as necessary or as directed.
- G. Vehicle Speeds:** Reduce vehicle speeds as required for control of dust if watering of unpaved roads is not sufficient to control dust.

1.5 SEDIMENTATION ABATEMENT FOR WORK DISTURBING LESS THAN ONE ACRE

- A.** For work disturbing one acre or less, no formal Storm Water Pollution Prevention Plan is required. Collect, store, haul, and dispose of spoil, silt, and waste materials in compliance with federal, state, and local rules and regulations and the Contract Documents.
- B.** For work disturbing one acre or less, Storm Water Control Measures (SCMs) must be in place. There will be no Notice of Intent (NOI) required. Complete inspection reports and submit copies to ENGINEER.
- C.** Install and maintain erosion and sediment control measures, such as swales, grade stabilization structures, berms, dikes, waterways, filter fabric fences, and sediment basins.
- D.** Install and maintain filter fabric barrier systems, if used, in such a manner that surface runoff will percolate through the system in sheet flow fashion and allow sediment to be retained and accumulated.



- E. Remove and dispose of sediment deposits at the designated spoil area. If a spoil area is not indicated, dispose of sediment off-Site at a legally permitted disposal facility. Sediment to be placed at the spoil area should be spread evenly, compacted, and stabilized. Do not allow sediment to flush into a stream, drainage structure, or drainage way.
- F. Maintain erosion and sediment control measures until final acceptance or until directed by the ENGINEER to remove it.

1.6 STORMWATER POLLUTION PREVENTION PLAN (SWPPP) AND SEDIMENTATION ABATEMENT FOR WORK DISTURBING MORE THAN ONE ACRE

- A. Prepare, implement, and maintain a Storm Water Pollution Prevention Plan (SWPPP), for work disturbing one acre or greater. Within the plan, describe in specific details the CONTRACTOR's program to prevent contamination of the storm water collection system for this project.
- B. A suggested Template and Sample SWPPP Inspection Report, as well as other valuable information can be found at EPA's website: <http://cfpub.epa.gov/npdes/stormwater/swppp.cfm>.
- C. Comprise the plan of all relevant components specified in the U.S. Environmental Protection Agency document entitled, "Storm Water Management for Construction Activities".
- D. Implement, maintain, and inspect all erosion and sediment controls identified in the SWPPP. Address both common construction activities and extraordinary events. Remove all temporary SCMs, such as silt fences, catch basin filters, wash areas, etc. at the end of construction.
- E. Include Water Pollution Control Drawings (WPCD) in the SWPPP to illustrate the locations, applications, and deployment of the Storm Water Control Measures (SCMs) identified in the SWPPP. Include WPCD's as an attachment to the SWPPP.
- F. **Storm Water Control Measures (SCMs):** The Storm Water Control Measures (SCMs) are techniques, processes, activities, or structures used to reduce the pollutant content of a storm water or non-storm water discharge. SCMs may include simple, non-structural methods such as good housekeeping, staff training, and preventative maintenance. Additionally, SCMs may include structural modifications such as the installation of berms, canopies, or treatment control.
- G. Comply with laws, rules, and regulations of the State of Louisiana and agencies of the United States Government prohibiting the pollution of lakes, wetlands, streams, or river waters from the dumping of contaminants, refuse, rubbish, or debris.
- H. Submit copies of the SWPPP a minimum of 10 working days prior to beginning construction, to the ENGINEER. Update the SWPPP as necessary during the work to prevent contamination of the storm water collection system.



- I. Before the start of work, train all employees and Subcontractors on the approved SWPPP and related WPCD. Provide the ENGINEER with written documentation of said training.
- J. For work disturbing one to five acres, Storm Water Control Measures (SCMs) must be in place. Prepare SWPPP and post prominently on the job site. Post the LAR 200000 General Permit posted on the job site. No Notice of Intent (NOI) will be required. Complete all required reports and submit them to OWNER.
- K. For work disturbing five acres or more, Storm Water Control Measures (SCMs) must be in place. The CONTRACTOR must have Notice of Intent (NOI) completed, sent to DEQ, and posted. Prepare a SWPPP and post prominently on the site. Have the LAR 100000 General Permit posted on site with DEQ permit number for specific site. Complete a Notice of Termination (NOT) upon completion of the WORK and submit it to LDEQ with a copy to the OWNER and ENGINEER.

1.7 RUBBISH CONTROL

- A. Keep the Site and adjacent areas in a neat and clean condition and free from any accumulation of rubbish. Dispose of rubbish and waste materials of any nature and establish regular intervals of collection and disposal of such materials and waste. Keep haul roads free from dirt, rubbish, and unnecessary obstructions resulting from its operations. Dispose of rubbish and surplus materials off the Site in accordance with local codes and ordinances governing locations and methods of disposal and in conformance with applicable safety laws and the requirements of Part 1926 of the OSHA Safety and Health Standards for Construction.

1.8 CHEMICALS

- A. When chemicals are used for the WORK or furnished for facility operation, whether defoliant, soil sterilant, herbicide, pesticide, disinfectant, polymer, reactant, or of other classification, use or provide chemicals which show approval of either the U.S. Environmental Protection Agency or the U.S. Department of Agriculture. Use such chemicals and dispose of residues thereof in strict accordance with the printed instructions of the manufacturer.

1.9 ARCHAEOLOGICAL AND HISTORICAL FINDINGS

- A. If cultural artifacts or archaeological or historical sites are discovered, discontinue operations. The ENGINEER will contact the proper authorities in order that an appropriate assessment may be made to determine the disposition thereof and necessary actions relative to the site. When directed, excavate the site to preserve the artifacts encountered. Such excavation will be paid for as extra work, including an appropriate adjustment in contract time. Borrow and muck disposal areas furnished by the CONTRACTOR will be subject to such assessment prior to use.



PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION



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SECTION 01 60 00 - PRODUCTS, MATERIALS, EQUIPMENT, AND SUBSTITUTIONS

PART 1 - GENERAL

1.1 THE REQUIREMENT

- A. The word "Products," as used in the Contract Documents, is defined to include purchased items for incorporation into the WORK, regardless of whether specifically purchased for the project or taken from CONTRACTOR's stock of previously purchased products. The word "Materials," is defined as products which must be substantially cut, shaped, worked, mixed, finished, refined, or otherwise fabricated, processed, installed, or applied to form WORK. The word "Equipment" is defined as products with operational parts, regardless of whether motorized or manually operated, and particularly including products with service connections (wiring, piping, and other like items). Definitions in this paragraph are not intended to negate the meaning of other terms used in the Contract Documents, including "specialties," "systems," "structure," "finishes," "accessories," "furnishings," special construction," and similar terms, which are self-explanatory and have recognized meanings in the construction industry.
- B. Neither "Products" nor "Materials" nor "Equipment" includes machinery and equipment used for preparation, fabrication, conveying, and erection of the WORK.

1.2 QUALITY ASSURANCE

- A. Source Limitations: To the greatest extent possible for each unit of WORK, provide products, materials, and equipment of a singular generic kind from a single source.
- B. **Compatibility of Options:** Where more than one choice is available as options for CONTRACTOR's selection of a product, material, or equipment, select an option which is compatible with other products, materials, or equipment. Compatibility is a basic general requirement of product, material and equipment selections.

1.3 PRODUCT DELIVERY AND STORAGE

- A. Deliver and store the WORK in accordance with manufacturer's written recommendations and by methods and means which will prevent damage, deterioration, and loss including theft. Control delivery schedules as to minimize long-term storage of products at the Site and overcrowding of construction spaces. In particular, ensure coordination to ensure minimum holding or storage times for flammable, hazardous, easily damaged, or sensitive materials to deterioration, theft, and other sources of loss.

1.4 TRANSPORTATION AND HANDLING

- A. Require products to be transported by methods to avoid damage and to be delivered in undamaged condition in manufacturer's unopened containers and packaging.
- B. Provide equipment and personnel to handle products, materials, and equipment by methods to prevent soiling and damage.



- C. Provide additional protection during handling to prevent marring and otherwise damaging products, packaging, and surrounding surfaces.

1.5 STORAGE AND PROTECTION

- A. Store products in accordance with manufacturer's written instructions and with seals and labels intact and legible. Store sensitive products in weather-tight climate controlled enclosures and maintain temperature and humidity ranges within tolerances required by manufacturer's recommendations.
- B. For exterior storage of fabricated products, place products on sloped supports above ground. Cover products subject to deterioration with impervious sheet covering and provide ventilation to avoid condensation.
- C. Store loose granular materials on solid flat surfaces in a well-drained area and prevent such materials from mixing with foreign matter.
- D. Arrange storage to provide access for inspection. Periodically inspect stored materials to ensure products are undamaged and are maintained under required conditions.
- E. Arrange storage in a manner to provide access for maintenance of stored items and for inspection.

1.6 MAINTENANCE OF PRODUCTS IN STORAGE

- A. Periodically inspect stored materials on a scheduled basis. Maintain a log of inspections and make the log available on request.
- B. Comply with manufacturer's product storage requirements and recommendations.
- C. Maintain manufacturer-required environmental conditions continuously.
- D. Ensure that surfaces of products exposed to the elements are not adversely affected and that weathering of finishes does not occur.
- E. For mechanical and electrical equipment, provide a copy of the manufacturer's service instructions with each item cause the exterior of the package to contain notice that instructions are included.
- F. Service products on a regularly scheduled basis, and maintain and submit as a record document prior to final acceptance by the OWNER in accordance with the Contract Documents.

1.7 PROPOSED SUBSTITUTIONS OR "OR-EQUAL" ITEMS

- A. Whenever materials or equipment are indicated in the Technical Specifications by using the name of a proprietary item or the name of a particular manufacturer, the naming of the item is intended to establish the type, function, and quality required. If the name is followed by the words "or equal" indicating that a substitution is permitted, materials or equipment of other manufacturers may be accepted if sufficient information is submitted by the CONTRACTOR to



allow the ENGINEER to determine that the material or equipment proposed is equivalent or equal to that named, subject to the following requirements:

1. The burden of proof as to the type, function, and quality of any such substitution product, material or equipment is on the CONTRACTOR.
 2. The ENGINEER will be the sole judge as to the type, function, and quality of any such substitution and the ENGINEER's decision will be final.
 3. The ENGINEER may require the CONTRACTOR to furnish additional data about the proposed substitution.
 4. The OWNER may require the CONTRACTOR to furnish a special performance guarantee or other surety with respect to any substitution.
 5. Acceptance by the ENGINEER of a substitution item proposed by the CONTRACTOR will not relieve the CONTRACTOR of the responsibility for full compliance with the Contract Documents and for adequacy of the substitution.
 6. Pay all costs of implementing accepted substitutions, including redesign and changes to WORK necessary to accommodate the substitution.
- B.** The procedure for review by the ENGINEER will include the following:
1. If the CONTRACTOR wishes to provide a substitute item, make written application to the ENGINEER.
 2. The ENGINEER will evaluate each proposed substitution within a reasonable period.
 3. Make no shop drawing submittals for a substitute item without receipt the ENGINEER'S prior written acceptance of the CONTRACTOR'S request for substitution.
 4. Do not order, install, or utilize substitute items without the ENGINEER'S prior written acceptance of the CONTRACTOR'S request for substitution.
 5. The ENGINEER will record the time required by the ENGINEER in evaluating substitutions proposed by the CONTRACTOR and in making changes by the CONTRACTOR in the Contract Documents occasioned thereby.
- C.** The following factors which will be considered by the ENGINEER in evaluating the proposed substitution:
1. Whether the evaluation and acceptance of the proposed substitution will prejudice the CONTRACTOR's achievement of Substantial Completion on time.
 2. Whether acceptance of the substitution for use in the WORK will require a change in any of the Contract Documents to adapt the design to the proposed substitution.



3. Whether incorporation or use of the substitution in connection with the WORK is subject to payment of any license fee or royalty.
 4. Whether all variations of the proposed substitution from the items originally specified are identified.
 5. Whether available maintenance, repair, and replacement service are indicated. Substitute items must have a local service agency (of equivalent or less distance from the WORK as the originally specified item) which maintains properly trained personnel and adequate spare parts and is able to respond and complete repairs within 24 hours.
 6. Whether an itemized estimate is included of all costs that will result directly or indirectly from acceptance of such substitution, including cost of redesign and claims of other contractors affected by the resulting change.
 7. Whether the proposed substitute item meets or exceeds the experience and/or equivalency requirements listed in the appropriate technical specifications.
- D. Without any increase in cost to the OWNER, assume the full responsibility for any pay all costs in connection with proposed substitutions and of inspections and testing of equipment or materials submitted for review prior to the CONTRACTOR's purchase thereof for incorporation in the WORK, whether or not the ENGINEER accepts the proposed substitution or proposed equipment or material. Reimburse the OWNER for the charges of the ENGINEER for evaluating each proposed substitution.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION



SECTION 01 71 33 – CONSTRUCTION LAYOUT AND STAKING

PART 1 -- GENERAL

1.1 THE REQUIREMENT

- A. Perform all surveying, layout, staking, calculating, and recording of data for the accurate layout and control of the WORK.
- B. Provide technically qualified survey crews experienced in construction survey and staking of the type of WORK to be constructed under this contract. Provide personnel who will perform the layout and staking in a timely and accurate manner.
- C. Assume full liability for the accuracy of the layout of the WORK.
- D. **CAD Files:** The ENGINEER will only provide CAD files for construction layout upon receipt of hold – harmless signed by the CONTRACTOR. A copy of the Hold – Harmless form is included at the end of this section.

1.2 REFERENCE STANDARDS

- A. NOT USED

PART 2 -- PRODUCTS (NOT USED)

2.1 MATERIAL

- A. Furnish acceptable tools and supplies of the type and quality suitable for heavy duty construction survey work. Furnish stakes and hubs of sufficient length to provide a solid set in the ground with sufficient surface area above ground for necessary legible and durable markings.

2.2 EQUIPMENT

- A. Furnish survey instruments and supporting equipment which will achieve accurate construction layout of the WORK.

PART 3 -- EXECUTION

3.1 GENERAL

- A. Provide a competent crew supervisor experienced in construction layout whenever surveying and staking is in progress.
- B. Include staking and layout activities in the construction schedule. Include the dates and sequence of each staking activity.
- C. The ENGINEER has set horizontal control points, vertical control points, and will provide data for use in establishing control for completion of each element of the work.



- D. Data relating to horizontal and vertical alignment, theoretical slope stake catch points, and other design data will be furnished. Reformatting and additional calculations may be required for the convenient use of the furnished data. Provide immediate notification of apparent errors in the initial staking or in the furnished data.
- E. Record survey and measurement field data in an approved format. Submit as-staked data and corrections made to the furnished survey data. Submit survey and measurement data at least weekly. Field data and supporting documentation become the property of the OWNER upon completion of the work.
- F. Discuss and coordinate the following with the ENGINEER before surveying or staking:
 - 1. Surveying and staking methods;
 - 2. Stake marking;
 - 3. Grade control for courses of material;
 - 4. Referencing;
 - 5. Structure control;
 - 6. Field staking data;
 - 7. Localization of the GPS systems to the established control points; and
 - 8. Other procedures and controls necessary for the work.
- G. Do not start work until staking or three-dimensional (3D) verification data for the affected work has been approved.
- H. Preserve initial reference and control points. Notify the ENGINEER of missing control points or stakes at least 10 days before beginning construction.
- I. Acceptance or inspection of the construction staking does not relieve the CONTRACTOR of responsibility for correcting errors discovered during the work and for bearing additional costs associated with the error.
- J. Maintain the legibility of stake markings for the duration of the project or until notified in writing the stakes are no longer needed. Replace stakes if necessary to ensure markings are maintained.
- K. Remove and dispose of flagging, paint, lath, stakes, and other staking material after the project is complete.

3.2 SURVEY AND STAKING REQUIREMENTS

- A. **General:** Perform survey, staking, recording of data, and calculations as necessary to construct the project from the initial layout to final completion. Reset stakes, refine 3D data, or both as many times as necessary to construct the



work.

- B. Relationships to Property Lines and Servitudes:** Where the drawings indicate coordinates (or baseline station and offsets) along with distances from property or servitude lines, verify the agreement of the layout based on plan coordinates with plan dimensions from said lines. Notify the ENGINEER of any discrepancies prior to proceeding with construction. Avoid encroaching onto private property or servitudes.
- C. Permanent Monuments and Markers:** Perform survey and staking work necessary to establish permanent monuments and markers as specified in other sections or as directed, or reestablish monuments as specified in other sections or as directed.

- END OF SECTION -



DATE

Attention: #####

#####

#####

#####

(via email: [####](#))

Re: #####

#####

CAD File Indemnification Agreement

Dear #####

Based on your request, Fairway Consulting and Engineering, LLC is prepared to provide the digital files containing the ##### for the above referenced project in AutoCAD 2020 format. These files will be transmitted by email contingent upon the completion of this Indemnification Agreement.

By accepting this agreement, ##### agrees to indemnify and hold harmless Fairway Consulting and Engineering, LLC their representatives, executives, and associates from any liability that may result from the use of this information by your company, employees, agents, contractors and sub-contractors.

Please be aware these digital drawings are being provided for your convenience, and that Fairway Consulting and Engineering, LLC makes any express or implied warranties as to its suitability for any specific purpose. Fairway Consulting and Engineering, LLC believes these drawing files to be accurate at the time of transfer. While in use, these files can be easily changed or corrupted, therefore, it is the users' responsibility to examine these electronic files for corruption or virus contamination, prior to use.

This information is subject to change. Coordination for updates is the responsibility of the recipient. Fairway Consulting and Engineering, LLC is not responsible to the recipient or any other users allowed by the recipient to employ this data, for updating the files or for compatibility with the user's hardware and/or software. If the above statements meet with your approval, please acknowledge your acceptance by signing below in the space provided and return one (1) copy to this office.

Please do not hesitate to call if you have any questions or comments.

Sincerely,

#####

#####

ACCEPTED BY COMPANY:

BY: _____
Signature

DATE: _____

Printed Name and Title



SECTION 01 74 30 - PRESSURE PIPE TESTING AND DISINFECTION

PART 1 - GENERAL

1.1 THE REQUIREMENT

- A.** Test all pipelines and appurtenant piping in accordance with the Contract Documents. Test and disinfect potable water pipelines and appurtenant piping, in accordance with the Contract Documents.
- B.** Obtain necessary permits for discharging excess testing and disinfection water and de-chlorination of such water if required to satisfy permit limits.
- C.** Unless otherwise directed or noted, bacteriological testing for potable water pipelines and appurtenant piping will be provided by the Louisiana Department of Health laboratory section.

1.2 CONTRACTOR SUBMITTALS

- A.** Furnish submittals in accordance with Section 01 33 00 – Contractor Submittals.
- B. Furnish:**
 - 1.** Submit a testing plan and schedule, including method for water conveyance, control, disposal, and disinfection (where applicable) in writing for approval.

PART 2 - PRODUCTS

2.1 MATERIAL REQUIREMENTS

- A.** Determine the required test equipment, temporary valves, bulkheads, and other water control equipment. No materials may be used which would be injurious to the WORK for future conveyance of potable water.
- B.** Use liquid sodium hypochlorite listed as compliant with NSF 60 and in accordance with ANSI/AWWA B300 – Hypochlorite.
- C.** De-chlorination agents may be sodium bisulfate, sodium sulfite, or sodium thiosulfate.

PART 3 - EXECUTION

3.1 GENERAL

- A.** Water for testing and disinfecting water pipelines will be furnished by the OWNER. Convey the water from the OWNER-designated source to the points of use.
- B.** Test all pipelines. Test and disinfect all pipelines carrying potable water. Perform testing and disinfection operations in the presence of the ENGINEER.
- C.** Dispose of flushing water and water containing chlorine by methods acceptable to the ENGINEER and OWNER.



- D. Schedule disinfection operations during the Contract Time to maximize the degree of sterility of the facilities at the time the WORK is accepted by the OWNER.

3.2 PRESSURE TESTING OF PIPELINES

- A. **Acceptance Tests:** Upon completion of backfilling, ensure pipelines pass the following tests:

1. **Pipe:** Subject all newly installed and backfilled pipe to a leakage test, conducted in the presence of the ENGINEER. Ensure test pressure is 150 percent of systems operating pressure based on pressure as measured at the most elevated point in pipeline or 100 psi, whichever is greater. Slowly fill the force main with water and then apply the specified test pressure (based on the elevation of the lowest point of the line or section under test and corrected to the elevation of the test gauge) with a pump connected to the pipe in a manner satisfactory to the ENGINEER.

Furnish all necessary apparatus to perform pressure testing including but not limited to the pump, water, pipe, temporary valves, temporary fittings, connections, gauges, and thrust restraints and blocking. Use thrust collars to restrain the force main where needed to restrain the pipe near the blind flange required for testing. The required number of thrust collars would be dependent on the magnitude of the thrust force to be restrained and the allowable load per collar. Be responsible to design the thrust collar based on the soil conditions at the collar location. Submit thrust restraint calculations for approval. The CONTRACTOR may elect to install restrained joint force main of adequate length to restrain the pipe for testing purposes at no additional cost to the OWNER. The CONTRACTOR may choose to test at points shown to be restrained on the plans (within the stipulated testing limits), however any thrust restraints or restrained joint force main beyond the limit shown on the plans required for testing purposes will be at no additional cost to the OWNER. Before applying the specified test pressure, expel all air from the pipe. If necessary, make taps at the points of highest elevation before testing, and insert plugs after the test has been completed. Conduct the leakage test by measuring, through a calibrated meter, the amount of water which enters the test section for a period of at least 2 hours. No installation will be accepted until the leakage is less than the number of gallons per hour as determined by the formula:

For PVC Pipe:

$$L = \frac{ND\sqrt{P}}{7,400}$$

L = allowable leakage, gallons/hour

N = number of joints in length of pipe tested

D = nominal diameter of the pipe, inches

P = average test pressure during the leakage test, psig



2. For HDPE Pipe:

- a. Make-up Water Allowance: Maximum allowable make-up water at conclusion to test phase cannot exceed recommended amounts stated in the following table. The table is based on test pressure equal to 1.5 times pressure class of pipe. If lower pressure is used for test, reduce allowances by ratio of test pressure to pressure class of pipe.

Make-Up Water Allowance for Test Phase (U.S. Gallons per 100 feet of Pipe)		
Nominal Pipe Size (inches)	1-Hour Test (gallons)	2-Hour Test (gallons)
3	0.10	0.15
4	0.13	0.25
6	0.30	0.60
8	0.50	1.0
10	0.75	1.3
12	1.1	2.3
14	1.4	2.8
16	1.7	3.3
18	2.2	4.3

Make-Up Water Allowance for Test Phase (U.S. Gallons per 100 feet of Pipe)		
Nominal Pipe Size (inches)	1-Hour Test (gallons)	2-Hour Test (gallons)
20	2.8	5.5
24	4.5	8.9
28	5.5	11.1
32	7.0	14.3
36	9.0	18.0

3. Replace any cracked or defective pipes or fittings discovered in consequence of this leakage test with sound material in the manner



specified at no cost to the OWNER. Repeat the test until the results are satisfactory to the ENGINEER.

4. **Tap Testing:** No testing other than the pressure test is required. However, ensure the testing requirements for the connection pipeline include testing of the restrained joint section, including the connection to the tapping valve. Visually inspect the entire tapped connection and repair any visible leaks. Perform testing in accordance with the requirements described as noted above.
5. Coordinate testing plan with surface restoration requirements. Any removal of replacement of temporary or final surface restoration by the CONTRACTOR to investigate leaks will be at no additional cost to the OWNER.

3.3 DISINFECTING PIPELINES

- A. **General:** Disinfect potable water pipelines accordance with the requirements of ANSI/AWWA C651 - Disinfecting Water Mains, using the Continuous-Feed Method as modified herein.
 1. **Chlorination:** Uniformly introduce a chlorine-water mixture into the pipeline by means of a solution-feed chlorinating device. Introduce the chlorine solution at one end of the pipeline through a tap in such a manner that as the pipeline is filled with water, ensure the dosage applied to the water entering the pipe is approximately 50 mg/l. Take care to prevent the strong chlorine solution in the line being disinfected from flowing back into the line supplying the water.
 2. **Retention Period:** Retain chlorinated water in the pipeline for at least 24 hours. After the chlorine-treated water has been retained for the required time, ensure the free chlorine residual at the pipeline extremities and at other representative points is at least 25 mg/l. If testing does not demonstrate a residual of 25 mg/l or greater, repeat the disinfection procedure above.
 3. **Chlorinating Valves:** During the process of chlorinating the pipelines, operate valves and other appurtenances from closed to full open to closed while the pipeline is filled with the heavily-chlorinated water.
 4. **Sampling Ports:** Provide sampling ports along the pipeline as defined on AWWA C651. Taps may be made at manways and air valves to help facilitate the spacing requirement.
 5. **Final Flushing:** After the applicable retention period, flush the heavily chlorinated water from the pipeline until chlorine measurements show that the concentration in the water leaving the pipeline is no higher than that generally prevailing in the system or is acceptable for domestic use. Ensure that any release of chlorinated water complies with federal, state, and local regulation and the permits for the project. Treat excessive amounts of chlorine before discharge.



6. **Bacteriological Testing:** After final flushing and before the pipeline is placed in service, the OWNER or ENGINEER will collect a sample, or samples from the end of the line and test for bacteriological quality in accordance with the requirements of the Louisiana Department of Health and Hospitals (LDHH). For this purpose, re-fill the pipe with fresh potable water and leave for a period of 24 hours before any sample is collected. If testing does not demonstrate a free chlorine residual after the 24-hour period, repeat the disinfection procedure above. If the initial disinfection treatment fails to produce satisfactory bacteriological test results, repeat the disinfection procedure until acceptable results are obtained.

3.4 CONNECTIONS TO EXISTING SYSTEM

- A. Where connections are to be made to an existing potable water system, swab or spray the interior surfaces of all pipe and fittings used in making the connections with a one percent hypochlorite solution before installation. Begin thorough flushing as soon as the connection is completed and continue until discolored water is eliminated.

- END OF SECTION -



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SECTION 01 77 00 - PROJECT CLOSEOUT

PART 1 - GENERAL

1.1 THE REQUIREMENT

- A.** Promptly remove from the vicinity of the completed WORK, all rubbish, unused materials, concrete forms, construction equipment, and temporary structures and facilities used during construction. Final acceptance of the WORK by the OWNER will be withheld until the CONTRACTOR has satisfactorily performed the final cleanup of the Site.

1.2 CLOSEOUT TIMETABLE

- A.** Establish dates for equipment testing, acceptance periods, and on-site instructional periods (as required under the Contract). Establish such dates not less than one week prior to beginning any of the foregoing items, to allow the OWNER, the ENGINEER, and their authorized representatives sufficient time to schedule attendance at such activities.

1.3 FINAL SUBMITTALS

- A.** Prior to requesting final payment, obtain and submit the following items to the ENGINEER for transmittal to the OWNER:
 - 1. Written guarantees, where required.
 - 2. Technical Manuals and instructions.
 - 3. Completed record drawings.
 - 4. Certificates of inspection and acceptance by local governing agencies having jurisdiction.
 - 5. Releases from all parties who are entitled to claims against the subject project, property, or improvement pursuant to the provisions of law.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION



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SECTION 02 22 00 - SITE CONDITIONS SURVEYS

PART 1 -- GENERAL

1.1 THE REQUIREMENT

- A. Furnish all labor, materials, and equipment to perform color audio-video recording and photography of the project site surfaces as specified herein. Furnish to the Owner continuous color and audio-video documentation and color photographs of the project site. The Owner will reject the audio-video documentation and/or color photographs because of poor quality, unintelligible audio or uncontrolled pan or zoom. Re – video any documentation rejected at no additional cost to the Owner. Submit (1) copy to the Owner for format and content approval prior to the start of any work.
- B. Prior to mobilization, conduct a detailed survey that includes preconstruction photographs and video of the jobsite, surrounding areas, and access/haul routes. Use master video format with accompanying audio on NTSC high definition video equipment with a minimum resolution of 720p (1280 x 720 progressive), supplied on a common media device (such as DVD, USB drives, external hard drives) in a common media format (such as MP4). Provide video recordings made with a dedicated digital video camera specifically made for video recordings. Video recordings made with cell phones, tablets, webcams, wearable cameras, and drones are not acceptable.
- C. **Qualifications:** Use audio-video taping firm or individual knowledgeable in construction practices and experienced in the implementation of established inspection procedures.

1.1 CONTRACTOR SUBMITTALS, SAMPLING, AND TESTING

- A. Provide submittals, samples for testing, and testing of materials in accordance with Section 01 33 00 – Contractor Submittals.

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION

3.1 PHOTOGRAPHS AND VIDEO RECORDINGS

A. Execution of Video:

- 1. Video at a minimum the following areas:
 - a. All areas to be entered by vehicles or equipment, including construction areas for both internal and executed improvements.
 - b. Paved and unpaved areas which will be entered by vehicles or equipment.
 - c. Areas surrounding construction operations including exterior/ interior of



homes within a 200' radius of construction.

2. Assume responsible for the timely execution of the preconstruction audio-video documentation and color photographs, its vantage points, and quality. Cooperate with the photographer's work and provide reasonable auxiliary services as requested, including access and use of temporary facilities including temporary lighting.
3. The OWNER and ENGINEER will review submitted media. Should the media not provide adequate coverage to fully illustrate the physical condition of the work area or not be in compliance with the specifications, re – survey all project areas prior to the initiation of construction at the project sites, at no additional cost to the Owner.
4. Provide a cumulative index correlating the various segments of video coverage to the corresponding media. Provide an index which clearly identifies each segment in the video by location, engineering stationing corresponding to the stationing on the contract documents, video counter number, viewing side, point starting from, traveling direction, and ending point. Written documentation must coincide with the information on the video, so as to make easy retrieval of locations sought for at a later date.
5. Provide video with bright, sharp, clear pictures with accurate colors and that is free from distortion, tearing, rolls, or any other form of picture imperfection. Provide audio portion of the recording with precise and concise explanatory notes by the camera operator with proper volume, clarity, and freedom from distortion.
6. To preclude the possibility of tampering or editing, provide video displaying continuous digital information including the following:
 - a. Video number;
 - b. Name of CONTRACTOR;
 - c. Date and Time;
 - d. Project Information and Location;
 - e. General Location and Name of Street
 - f. Weather Conditions
7. Include in the recording coverage of all surface and other site features located in areas to be affected by the Work. Include at a minimum, roadways, driveways, sidewalks, curbs, culverts, headwalls, retaining walls, buildings, above-ground utilities, parks, lawns, landscaping, trees, tree canopies, shrubbery, and fences. In addition, if properties are near the site, include views from behind the curb, the sidewalk and grass areas, driveways, and fronts of residences. Provide side and rear views of the exterior of the residence, along with the interior of all structures adjacent to the construction. Run interior videos along the corners of each room or the subject structure. Clearly show and document existing damage prior to the



commencement of work. Supply the Engineer with the signatures of any resident not allowing the internal/ external survey of existing residential structures on an appropriate form.

8. Identify houses and structures visually and verbally by house number in such a manner that structures of the proposed system (i.e., manholes on a sewer system) can be located by reference.
9. Provide continuous coverage (i.e., do not turn the camera off once recording has begun) to the greatest extent possible.
10. Do not exceed a rate of travel for video recording of 44 feet per minute. Halt forward motion of the camera when viewing objects or structures outside the limits of the street or easement being documented. Provide a distance from the camera lens to the ground of not less than 12 feet. If not accessible by motorized vehicle, determine the distance from ground to shoulder height of the camera operator.
11. Pan and zoom in and out at a reasonable rate so as to control sufficiently the clarity of objects being viewed.
12. Furnish all auxiliary lighting as required to produce a quality recording.
13. Do not perform video recording if the weather is not acceptable, such as rain, fog, mist, or elongated shadows that distort perception and tend to prevent clear resolution.
14. Retain the original unedited media and photographs for seven (7) years after the date of the final acceptance.
15. Provide a monthly video of the construction area and related temporary traffic signage. In the monthly video, include a walk through the project area, showing all construction and related temporary traffic signage. Deliver (2) copies of the monthly progress video as described herein.

B. Execution of Photographs:

1. Prior to beginning the work, and upon the completion of work, take photographs along both private property lines at fifty (50) foot intervals within the project limits. Take two views at each fifty (50) foot interval. In one view, show up-station along the roadway, in the other view show the property line side view at the station perpendicular to the roadway travel edge.
2. In addition, during the progress of work, take twelve (12) photos every month consisting of various features, as directed by the ENGINEER.
3. Take 4"x6" or 8"x10" Hard copy photographs with a digital format camera, which is capable of imprinting in the lower righthand corner of the image, the date of the photograph. Submit photographs as 4"x6" or 8"x10" glossy color prints of commercial quality and which are clear, sharp and that encompass depth of field. Submit photographs in protective sleeves and number and index photos to a master list to be furnished with the prints. Furnish the master index list neatly bound and provide within at minimum, the



date and time of the photograph, the station location of the photograph, the direction of view, and the image number. Furnish two (2) copies of digital photographs with each set of photographs as JPEG images on CD ROM or USB drive devices.

4. Take photographs with a digital format camera, which imprints in the lower righthand corner of the image; the date of the photograph and picture or frame number. Provide digital photographs of commercial quality and which are clear, sharp and encompass depth of field. Include the master list on the USB drive with the photographs, and contain at a minimum, the date and time of the photograph, the station/ location of the photograph, the direction of view, and the image number. Furnish two (2) copies of digital photographs to the owner as JPEG images on CD ROM or USB drive devices.

END OF SECTION



SECTION 02 41 19 – DEMOLITION AND REMOVAL OF STRUCTURES AND OBSTRUCTIONS

PART 1 -- GENERAL

1.1 THE REQUIREMENT

- A.** Demolish and remove facilities as indicated. Remove and/or relocate structures and obstructions as indicated, all in accordance with the Contract Documents.
- B.** Carefully coordinate the WORK in areas where existing facilities are interconnected with new facilities and where existing facilities remain operational. The WORK as indicated is not all inclusive, and the CONTRACTOR will be responsible to perform the reconstruction indicated plus that which can be reasonably inferred from the Contract Documents as necessary to complete the Project. The Specifications and Drawings identify the major facilities that are to be demolished and reconstructed, but auxiliary utilities are not necessarily shown.
- C.** While demolition and reconstruction are being performed, provide adequate access for the continued operation and maintenance of equipment and other facilities to remain. Erect and maintain fences, warning signs, barricades, and other devices around the reconstruction as required for the protection of the CONTRACTOR's employees and the OWNER's personnel. Remove such protection when reconstruction activities are complete, or as work progresses, or when directed by the ENGINEER.

1.2 REFERENCE STANDARDS

- A.** Code of Federal Regulations
49 CFR, Parts 172-180 Regulations for Hazardous Materials
- B.** Louisiana Administrative Code (LAC)
LAC Title 33, Part V, Chapter 38, Section 3813
LAC Title 33, Part V, Chapter 38
- C.** Louisiana Department of Transportation and Development (LDOTD)
Water Well Rules, Regulations, and Standards, State of Louisiana
- D.** Louisiana Department of Environmental Quality (LDEQ)
UST Regulations for Underground Storage Tanks

1.1 CONTRACTOR SUBMITTALS, SAMPLING, AND TESTING

- A.** Provide submittals, samples for testing, and testing of materials in accordance with Section 01 33 00 – Contractor Submittals.



PART 2 -- PRODUCTS - NOT USED

PART 3 -- EXECUTION

3.1 GENERAL

- A.** Coordinate demolition and reconstruction WORK with the OWNER and ENGINEER. Unless otherwise indicated, assume full responsibility for the sequence of activities. Perform demolition and relocation WORK in accordance with applicable safety rules and regulations.
- B.** Verify that any utilities connected to structures, equipment, and facilities to be removed, relocated, salvaged, replaced, or abandoned are rendered inoperable, replaced with new utilities, or adequately bypassed with temporary utilities before proceeding with demolition and reconstruction.
- C.** Take precautions to avoid damage to adjacent facilities and to limit the WORK activities to the extent indicated. If reconstruction beyond the scope indicated is required, then obtain approval from the ENGINEER prior to commencing.
- D.** Perform a functional test of existing equipment that is relocated and reinstalled to ensure the equipment functions in the manner documented during the initial inspection. Inform the ENGINEER in writing a minimum of 5 Days prior to the functional testing in order for the OWNER and ENGINEER to witness the test. If, in the opinion of the ENGINEER, the relocated equipment does not function in a satisfactory manner, then make repairs and modifications necessary to restore the equipment to its original operating condition at no additional cost to the OWNER.

3.2 PROTECTION OF EXISTING FACILITIES

- A.** Before beginning any reconstruction, carefully survey the existing facilities and examine the Specifications and Drawings to determine the extent of reconstruction and coordination with the WORK. Protect and maintain existing facilities not subject to reconstruction. Repair existing facilities damaged by demolition and removal to the previous condition or replace with new facilities approved by the OWNER and ENGINEER.
- B.** Afford persons and equipment safe passages around areas of demolition.
- C.** Do not overload existing or temporary structural elements. Provide shoring, bracing, or adding new supports as may be required for adequate structural support as a result of WORK performed under this Section. Remove temporary protection when the WORK is complete or when so authorized by the ENGINEER.
- D.** Carefully consider bearing loads and capacities before placement of equipment and material on Site. In the event of any questions as to whether an area to be loaded has adequate bearing capacity, consult with the ENGINEER prior to the placement of such equipment or material.

3.3 DEMOLITION AND REMOVAL OF STRUCTURES AND OBSTRUCTIONS



- A. Equipment Supports:** Remove equipment supports, including concrete pads, baseplates, mounting bolts, and support hangers, where indicated. Repair damage to the existing structure as indicated.
- B. Exposed Piping:** Remove exposed piping including vents, drains, and valves. Where exposed piping penetrates existing floors and walls, remove the piping, including wall thimbles, to a minimum depth of 2-inches. Repair openings in the structure as indicated.
- C. Electrical Control Panels:** Remove electrical control panels, junction boxes, motor control centers, and local switches and push buttons.
- D. Connections:** Remove connections to embedded electrical conduits a minimum of 2-inches inside the finished surface of the existing structure. Remove wiring and repair the resulting openings as indicated.
- E. Structures:**
 - 1. Unsalvageable materials in a structure designated for removal become the property of the CONTRACTOR. Remove and dispose of such material. Demolish and remove appurtenances forming a part of a structure to be demolished, whether integral or not integral to the structure.
- F. Pavement, Base Courses, Walks, and Curbs:** Dispose of pavements, stabilized or treated base courses, walks, curbs, and gutters, designated for removal as shown on the plans and as directed. When the existing shoulder underdrain at the pavement edge is to remain in place and in service but removal of the shoulder surfacing and base is required, do not damage the existing shoulder underdrains. Repair damaged shoulder underdrains at no additional cost to the OWNER.
- G. Pipe:** Remove and store pipe that is to be re-laid so that there will be no loss or undue damage before relaying. Replace sections lost from storage or unduly damaged at no additional cost to the OWNER.

3.4 REMOVING ENVIRONMENTALLY SENSITIVE MATERIALS

- A.** When removal or remediation of any environmentally sensitive or contaminated sites is required during construction, conduct operations in compliance with applicable laws and regulations. If failure to follow applicable laws and regulations subsequently causes or increases harm or damage to the environment, pay all resulting fines and clean-up costs.
- B.** When information is available, the plans will indicate which structures contain friable or non-friable asbestos. When a structure is identified on the plans or discovered on the project to contain asbestos and will be demolished or renovated, dispose of all asbestos containing material in accordance with applicable laws and regulations. Use a certified asbestos abatement contractor for proper removal and disposal. Follow all applicable requirements for proper handling of asbestos material for the continued removal of the asbestos containing material. Notify the Department of Environmental Quality (DEQ), Air Quality Division through the use of the proper notification form, DEQ AAC2, at least 10 calendar days prior to initiation of demolition or renovation of



structure(s). Maintain and furnish to the ENGINEER, all records pertaining to the disposal of the asbestos containing material, either as non-friable or friable asbestos, within 21 calendar days of the material being removed from the site for disposal.

- C. Asbestos containing materials in structures that are removed or relocated without disturbing asbestos will not be abated. Provide a Certificate of Release to the ENGINEER.
- D. **Non-Friable Asbestos:** When a structure contains non-friable asbestos, carefully remove the asbestos without excessive breakage or crushing before demolition or renovation of the structure. Dispose of the non-friable asbestos material at an approved industrial landfill.
- E. **Friable Asbestos:** When a structure contains friable asbestos, request that DEQ provide a confirmation letter with an Asbestos Disposal Verification Form (ADVF). Complete the ADVF within 90 calendar days from the date of issue. Only use contractors or subcontractors certified by DEQ as Asbestos Abatement Entities remove friable asbestos from structures. Remove the asbestos before structure demolition or renovation. Perform friable asbestos removal, handling, and disposal in accordance with the latest requirements for asbestos abatement of the DEQ Air Quality Division. Maintain, and furnish to the ENGINEER within 21 calendar days, Chain of Custody verification records for the friable asbestos from the work site to the disposal site. These records will become part of the permanent project records.
- F. **Underground Fuel Tanks:** Use a DEQ approved subcontractor to perform all site activities, including the collection of closure samples and tank removal, as defined in the latest DEQ Underground Storage Tank (UST) regulations. Submit closure test results, all documentation, and all necessary forms to the ENGINEER to be approved and forwarded to DEQ. Take all necessary precautions to prevent the infiltration of water into tanks and tank excavations during the work. During routine site closure, conduct the removal, transportation, and disposal of tanks, and the handling of contaminated soil and contaminated fluid, in accordance with all local, state, and federal laws and regulations. Limits of excavation and quantities of contaminated soil and contaminated fluid to be removed, transported, and disposed will be as specified or as directed. When underground storage tanks (UST) have been filled with concrete, sand, or other such material and are designated on the plans for removal, use a certified UST subcontractor to remove, transport and dispose of such tanks in accordance with the recommendations of the American Petroleum Institute (API) and the requirements of the Louisiana Department of Environmental Quality (DEQ) or other regulatory agency of jurisdiction. When such UST are discovered during construction, stop construction activity in the immediate vicinity of the UST and notify the ENGINEER in accordance with this subsection. The ENGINEER will verify the closure status of such filled UST discovered during construction prior to any UST site activity by the contractor or certified UST subcontractor. Use a certified UST subcontractor to collect for laboratory analysis a representative sample of non-solidified fill material within the storage tank for landfill acceptance. The results of the laboratory analysis will be used to determine the disposition of the UST fill material. Provide a copy of all laboratory analyses to the ENGINEER for



verification prior to profiling materials for landfill acceptance

- G. Contaminated Soils:** Excavate soil in areas of underground fuel tanks or other areas contaminated with petroleum products or other identified toxic materials at levels above the regulatory limits and is nonprotective of groundwater as shown on the plans or as directed. Determination requirements for groundwater protection through the use of the Synthetic Precipitation Leachate Procedure (SPLP) or as directed by the ENGINEER. Remove the overburden above the contaminated soil to the dimensions shown on the plans or as directed. Also, excavate the contaminated soil at the locations shown on the plans or as directed. Excavate contaminated soil determined to be protective of groundwater, through the use of the SPLP when the soil is determined to be "suitable soil" by the ENGINEER, and when the volume of soil is within quantities specified on the plans. No additional cover of the contaminated soil, other than the specified paved surfaces courses, will be required in the roadbed. Place all remaining contaminated soil determined to be protective of groundwater, but not used in the roadbed, in other embankment areas within the limits of the project. Cover contaminated soil placed in other embankment areas with 2 feet of compacted soil. Maintain final grade in accordance with the plans. Load the contaminated soil determined not to be protective of groundwater into approved hauling vehicles and dispose of in a site approved by the DEQ. Furnish the ENGINEER, within 21 calendar days, Chain of Custody verification records for the contaminated soil. The ENGINEER will verify that all contaminated soil has been removed. While the excavation is open, construct and maintain a soil berm around the excavation to prevent surface water runoff from entering the excavation. The removed overburden may be used to construct the berm and backfill the excavation. Removal and disposal of contaminated soils will be in accordance with all local, state, and federal laws and regulations.
- H. Contaminated Fluids:** Remove and dispose of contaminated fluid, in underground fuel tanks, in areas of underground fuel tanks, or other areas as shown on the plans or as directed. Pump the contaminated fluid into approved hauling vehicles. Remove contaminated fluid from underground fuel tanks before tank removal. Dispose or recycle of contaminated fluid in a site approved by the Department of Environmental Quality. Furnish the ENGINEER, within 21 calendar days, Chain of Custody verification records for the contaminated fluid. The OWNER will verify the removal of the contaminated fluid. Removal and disposal of contaminated fluids will be in accordance with all local, state, and federal laws and regulations.
- I. Paint Containing Lead or Other Hazardous Materials:** Remove steel members of structures protected by paint containing lead or other hazardous materials as shown on the plans or as discovered in the field and prepare for transport in accordance with applicable laws and regulations. Prior to removal, transport, treatment, or disposal of any steel members, submit the following to the ENGINEER:
1. Plan of removal or treatment of steel members.
 2. Plan for transport of steel members and any hazardous materials.



3. Name and address of the licensed recycling center.
 4. Deliver such steel members to a licensed recycling center capable of processing steel members coated with paint identified as hazardous by the Resource Conservation and Recovery Act (RCRA). The OWNER will be the Generator and obtain the generator number. The contractor will be responsible for obtaining an approved disposal site, arranging for transporting the material and/all testing required. The manifest for transportation will have the Generator number on it and should be signed by the contractor, Inspector, and the Disposal Operator with copies to each upon completion. Unless otherwise directed or shown on the plans, the contractor will be allowed to retain any steel member once the lead paint has been removed and disposed of prior to steel leaving the jobsite in accordance with procedure above at no cost to the OWNER. Transport all steel members or hazardous material in accordance with all federal, state, and local laws. Provide Certificates of Disposal, Chain of Custody forms, or other applicable documents within 21 calendar days following each shipment
- J. Treated Timber:** Remove creosoted and other treated timber or lumber shown on the plans or discovered in the field; and prepare for transport by methods approved by the OWNER. Dispose of all materials that are not designated to be salvaged by the OWNER or salvaged by the contractor in an appropriate landfill. Provide Certificates of Disposal, Chain of Custody forms, or other applicable documents within 21 calendar days following each shipment.
- K. Universal Wastes:** Universal wastes are hazardous wastes defined in LAC Title 33, Part V, Chapter 38, Section 3813 to include batteries, pesticides, thermostats, lamps and antifreeze. Remove universal wastes, prepare for transport, and dispose of as specified in LAC Title 33, Part V, Chapter 38 and herein. Inform all employees who handle universal wastes of the proper handling and emergency procedures appropriate to the type of waste.
- L. Other Regulated Materials:** Items for removal under this subsection are defined as any material not considered in the above subsections and may be disposed of as a solid waste in the appropriate solid waste landfill. Such materials may include asphalt shingles, noninfectious medical waste, etc. not covered in other items.

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SECTION 03 20 10 – REINFORCING FOR PORTLAND CEMENT CONCRETE

PART 1 -- GENERAL

1.1 THE REQUIREMENT

- A. Provide reinforcing steel for Portland cement concrete, complete and in place, in accordance with the contract documents.

1.2 CONTRACTOR SUBMITTALS, SAMPLING, AND TESTING

- A. Provide submittals, samples for testing, and testing of materials in accordance with Section 01 33 00 – Contractor Submittals.
- B. **Submittals: Submit the following:**
 - 1. Before placing reinforcing steel, furnish a list of all reinforcing steel showing location, mark number, size and type bend to the ENGINEER.
 - 2. Furnish the ENGINEER placing plans for all structures where reinforcing steel is involved, unless the plans contain sufficient detail for proper placement of reinforcing steel. Show show the location, type and spacing of supports.
 - 3. Submit to the ENGINEER the name and address of each mill providing reinforcing steel. For each type of reinforcement to be used, a statement that the material meets the requirements of this section. submit the name, address, and current status of mills listed on the LDOTD AML to provide steel for the project.
- C. **Sampling:** No materials are anticipated to be sampled under this Section.
- D. **Testing:** No testing laboratory tests are anticipated under this Section.

1.3 REFERENCE STANDARDS

American Association of State Highway and Transportation Officials (AASHTO)

AASHTO M 284 Standard Specification for Epoxy Coated Reinforcing Bars

American Welding Society (AWS)

AWS D1.4 Structural Welding Code – Reinforcing Steel

ASTM International (ASTM)

ASTM A615 Standard Specification for Deformed and Plain Carbon – Steel Bars for Concrete Reinforcement

ASTM A996 Standard Specification for Rail – Steel and Axle – Steel Deformed Bars for Concrete Reinforcement

ASTM A1064 Standard Specification for Carbon – Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete



PART 2 -- PRODUCTS

2.1 REINFORCING STEEL

- A.** Comply with the following unless otherwise specified. Use Grade 60 reinforcing steel in structures. Grade 40 steel may be used in Portland cement concrete pavement. Bars smaller than No. 3 need not be deformed. Use deformed bars complying with items 1, 2, or 3 below. Size W 5 wire complying with item 4 below may be used in lieu of bars smaller than No. 3.
- 1) Billet-Steel Deformed and Plain Bars: Comply with ASTM 615 and use steel produced at a mill listed on the LDOTD AML (formerly QPL 71).
 - 2) Rail-Steel and Axle-Steel Deformed and Plain Bars: Comply with ASTM A 996.
 - 3) Cold-drawn Steel Wire: Comply with ASTM A 1064.
 - 4) Welded Steel Wire Fabric: Conform to ASTM A 1064.
 - 5) Epoxy Coated Reinforcing Steel and patching materials: Comply with AASHTO M 284 and use material listed on the LDOTD AML (formerly QPL 51).

2.2 SPIRAL REINFORCING

- A.** Comply with any of the following:
- 1) Billet-Steel Deformed and Plain Bars: Comply with ASTM 615 and use steel produced at a mill listed on the LDOTD AML (formerly QPL 71).
 - 2) Rail-Steel and Axle-Steel Deformed and Plain Bars: Comply with ASTM A 996.
 - 3) Cold-drawn Steel Wire: Comply with ASTM A 1064
 - 4) Welded Steel Wire Fabric: Conform to ASTM A 1064.

2.3 TIE BARS

- A.** Grade 40 steel may be used in Portland cement concrete pavement. Use tie bars which comply with any of the following:
- 1) Billet-Steel Deformed and Plain Bars: Comply with ASTM 615 and use



steel produced at a mill listed on the LDOTD AML (formerly QPL 71).

- 2) Rail-Steel and Axle-Steel Deformed and Plain Bars: Comply with ASTM A 996.
- 3) Cold-drawn Steel Wire: Comply with ASTM A 1064.

PART 3 -- EXECUTION

3.1 FABRICATION

A. Fabrication: Unless otherwise authorized, cold bend bent reinforcing to the shapes shown on the plans in accordance with the following requirements:

- 1) **Bending:** Bend stirrups and ties around a pin having a diameter of at least four bar diameters for No. 5 or smaller bars, and at least five bar diameters for larger bars. Bend all other bars, except as otherwise specified herein, around a pin having a diameter as specified in the table below:

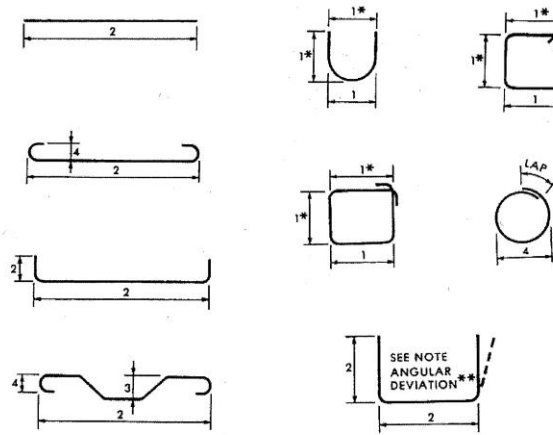
Pins for Bar Bends

Bar Size	Minimum Pin Diameter
Nos. 3 through 8 (Nos. 10 M through 25 M)	6 bar diameters
Nos. 9, 10 and 11 (Nos. 29, 32 and 36 M)	8 bar diameters
Nos. 14 and 18 (Nos. 43 M and 57 M)	10 bar diameters

No rebending of bars will be allowed. Special fabrication will be required for bending Nos. 14 and 18 bars more than 90 degrees.

- 2) **Tolerances:** Fabricate bars in accordance with the tolerances specified in the figure below. All dimensions given in the figure below are out-to-out of bars.





Symbol	Tolerance, Inches (mm)
1	$\pm 1/2$ (± 13)
2	± 1 (± 25)
3	$+0, -1/2$ ($+0, -13$)
4	$\pm 1/2$ (± 13)

*Not to differ for opposite parallel dimension by more than 1/2 inch (13 mm).

**Angular Deviation-Maximum $\pm 2 \frac{1}{2}^\circ$ or $\pm 1/2$ inch/ft. (40 mm/m), but not less than 1/2 inch (13 mm).

- 3) **Shipping:** Ship bar reinforcement in standard bundles, tagged and marked in accordance with the Manual of Standard Practice of the Concrete Reinforcement Steel Institute (CRSI). Use tags made of durable material and marked in a legible manner with waterproof markings. Provide at least one tag per bundle attached by wire. Ensure that tags show the size of reinforcing, number of pieces, and mark or length of bars.
- 4) **Handling and Coating Repairs:** Handle epoxy coated reinforcing steel in a manner to avoid damage to the coating. Pad bundling bands. Lift bundles with multiple supports or strongbacks to prevent abrasion to the coating due to sag. Use the same patching material used by the applicator. Use prequalified patching material. Make repairs in accordance with the patching material manufacturer's recommendations. Repairs to the coating will be required on all damaged areas larger than 1/4 inch square. The total bar surface area covered by patching material may not exceed 2 percent. Coat ends of coated bars cut during field fabrication with the patching material before rusting appears; however, the coated ends are not to be included in the 2 percent maximum coverage of patching material. Hairline cracks without bond loss or other minor damage on fabrication bends need not be repaired.

3.2 PROTECTION OF MATERIAL

- A. Store reinforcing material above ground on platforms, skids or other supports. Protect steel from damage and corrosion.
- B. Plainly mark and tag various sizes, grades and lengths to facilitate inspection.



- C. Unload and store epoxy coated bars on the project site in a manner to avoid damage or contamination. Store bars off the ground and cover the bars such that formation of condensation and exposure to ultraviolet light is avoided.

3.3 PLACING AND FASTENING

- A. Place reinforcement in the position shown on the plans and firmly hold reinforcement in place during placing and setting of concrete. Prior to placing reinforcing in the forms, clean the reinforcement of all dirt, loose rust, loose scale, paint, oil, grease, form release agent, or other foreign material. Thin powdery rust and light rust need not be removed. Tie bars with No.14 or 16 gage wire at all intersections, except where spacing is less than 1 foot in each direction, tie alternate intersections of the bars.
- B. Maintain distance of reinforcement from forms by metal chairs, ties, hangers or other approved supports. Precast mortar or concrete blocks may be used when approved by the ENGINEER in applications where concrete is to be cast against soil. Use hot-dipped galvanized, electroplated with zinc (GS Grade), plastic-coated or stainless steel chairs where in contact with surfaces of concrete. Separate layers of bars by approved devices. The use of pebbles, pieces of broken stone or brick, metal pipe and wooden blocks will not be permitted. Pass vertical stirrups around main tension members and securely attach the reinforcing to each other. Place bars as to provide the minimum covering, measured from the surface of concrete to face of reinforcing bars, as indicated in the table below. The ENGINEER will inspect reinforcement. Reinforcement is subject to approval before placing concrete.

Condition	Required Clear Cover, Inches
For concrete placed against earth	3 inches
For surfaces in contact with water	2 – ½ inches
For formed surfaces in contact with earth	2 inches
For underside of slabs over water, beams, and columns not in contact with water or earth	2 inches
Paving concrete	As indicated on plan details or as per pavement specifications
All other surfaces	2 inches

- C. During and after installation of epoxy coated bars, repair all significant cuts, nicks and abraded places in the coating on the bars with the epoxy repair material supplied by the epoxy resin manufacturer. Repair damaged metallic accessories with a suitable material. No more than 0.25 percent of the bar surface area may



be left bare.

- D. Repair damaged areas of the reinforcing steel and accessories before rusting occurs. Clean coated bars of dirt, paint, oil, grease, form release agent, or other foreign substances prior to incorporating the coated bars into the WORK. Perform placement of concrete in a timely manner with methods and equipment which will not damage the coated materials.
- E. Since the epoxy coating is flammable, do not expose coated bars to fire or flame. Cutting coated bars by burning will not be permitted. Do not field bend coated reinforcing steel to be partially embedded in concrete unless specified on the plans or permitted by the ENGINEER.

3.4 SPLICING

- A. Furnish reinforcement in the full lengths indicated on the plans. Splicing of bars, except where shown on the plans, will not be permitted without written approval. Stagger splices as far as possible. Unless otherwise specified, lap bars in accordance with the requirements of the table below. Do not make construction joints within the limits of lapped bars. In lapped splices, place bar in wire bars together in such manner as to maintain the minimum clear distance to other bars and to the surface of concrete. Weld reinforcing steel only if detailed on the plans or if authorized in writing. Where welding reinforcement, comply with the latest edition of AWS D1.4.

Lap Splice Length for Grade 60 Steel

Bar No.	Lap Splice Length, Inches
No. 3	18
No. 4	24
No. 5	30
No. 6	39
No. 7	53
No. 8	69
No. 9	88
No. 10	111
No. 11	137

- B. When permitted in the plans or specifications, reinforcing steel splices may be made by an approved mechanical butt splicing device listed on the LDOTD AML (formerly QPL 44) and used in accordance with the manufacturer's recommendations. Use splices that develop at least 125 percent of the specified yield strength of the reinforcing steel bars in tension.

3.5 SUBSTITUTIONS

- A. Substitutions of different size bars will be permitted with authorization of the ENGINEER. Provide substitute steel with cross-sectional and surface areas equivalent to the design areas or larger. Allowed substitutions will be made at no additional cost to the OWNER.



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SECTION 03 31 00 – STRUCTURAL CONCRETE

PART 1 -- GENERAL

1.1 THE REQUIREMENT

- A. Furnish, place, and cure Structural Concrete and appurtenant work, formwork, bracing, shoring, supports, falsework, complete and in place, in accordance with the Contract Documents.
- B. Conform to requirements of Section 31 30 00 – Earthwork for structural excavation and backfill.
- C. Unless otherwise noted, cast structural concrete in place. Substitutions may be allowed if in the opinion of the ENGINEER a pre – cast structure will be equivalent in performance to cast – in – place structure. The ENGINEER will require that pre – cast substitutions be designed by the CONTRACTOR. If allowed, substitutions of precast structures for cast – in – place structures will be at no additional cost to the OWNER.
- D. Standard pre – cast structures include items governed by ASTM C478 or other specific design standard referenced in the drawings or specified elsewhere. Custom designed structures are all other precast structures or pre – cast substitutions for cast – in – place concrete.

1.2 REFERENCE STANDARDS

A. American Concrete Institute (ACI)

ACI 301	Specifications for Structural Concrete for Buildings
ACI 318	Building Code Requirements for Structural Concrete
ACI 347	Guide to Formwork for Concrete
ACI 350	Code Requirements for Environmental Engineering Structures

B. American Welding Society

AWS D1.1	Structural Welding Code

C. ASTM International (ASTM)

ASTM C309	Standard Specification for Liquid Membrane Forming Curing Compounds for Curing Concrete
ASTM C478	Standard Specification for Circular Precast Reinforced Concrete Manhole Sections
ASTM C1064	Standard Test Method for Temperature of Freshly Mixed Hydraulic Cement Concrete



ASTM C1077	Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation
ASTM C1107	Standard Specification for Packaged Dry Hydraulic Cement Grout
ASTM D5249	Standard Specification for Backer Material for Use with Cold- and Hot-Applied Joint Sealants in Portland-Cement Concrete and Asphalt Joints
ASTM D5893	

D. Louisiana Department of Transportation and Development (LDOTD)

AML	Approved Materials List
TR 202	Air Content of Freshly Mixed Concrete
TR 207	Slump of Portland Cement Concrete
TR 226	Making, Field Curing, and Transporting Concrete Test Specimens
TR 227	Making and Field Curing Compressive Strength Specimens for Concrete Pipe
TR 230	Curing, Capping, and Determining the Compressive Strength of Cylindrical Concrete Specimens

E. United States Army Corps of Engineers (USACE)

CRD-C-572	Corps of Engineers Specifications for PVC Waterstop

F. U.S. Product Standards

PS 1	US Voluntary Product Standard – Structural Plywood
PS 20	American Softwood Lumber Standard

1.3 CONTRACTOR SUBMITTALS, SAMPLING, AND TESTING

- A.** Provide submittals, samples for testing, and testing of materials in accordance with Section 01 33 00 – Contractor Submittals and Section 01 45 00 – Quality Control.
- B.** Materials proposed for and utilized in the WORK will be sampled as indicated in herein. The frequency of testing may be altered at the discretion of the ENGINEER. Provide all materials required for testing at no additional cost to the OWNER.



1.4 CLASSES AND USES OF CONCRETE

- A. Unless noted otherwise on the drawings, furnish concrete as indicated in the table below:

Classes and Uses of Concrete

Concrete Class	Use
A1, A2, A3	Concrete exposed to sea water, and all other concrete except as specified herein
Mass (A1), Mass (A2), Mass (A3)	Mass Concrete
P1, P2, P3	Precast Concrete
S	Drilled Shafts, Seals, and Underwater Placements
M	Minor Structures

PART 2 -- PRODUCTS

2.1 FORM AND FALSEWORK MATERIALS

- A. Except as otherwise expressly accepted by the ENGINEER, provide new lumber for use as forms, shoring, or bracing.
- B. Conform to the following requirements:
1. **Lumber:** Use Douglas Fir or Southern Yellow Pine, construction grade or better, in conformance with U.S. Product Standard PS 20 - American Softwood Lumber Standard.
 2. **Plywood for concrete formwork:** Use new, waterproof, synthetic resin bonded, exterior type Douglas Fir or Southern Yellow Pine plywood manufactured especially for concrete formwork and conform to the requirements of PS 1 - Construction and Industrial Plywood for Concrete Forms, Class I. Use edge – sealed plywood.
 3. Use metal, wood, plywood, or other material that will not adversely affect the concrete and will facilitate placement of concrete to the shape, form, line, and grade required.
 4. **Metal Forms:** Use an approved type that will accomplish such results.
 5. **Wood forms for surfaces to be painted:** Use Medium Density Overlaid plywood, MDO Ext. Grade.
- C. Unless otherwise indicated, provide exterior corners in concrete members with 3/4-inch chamfers or be tooled to a 1/2-inch radius. Don not provide re-entrant corners in concrete members with unless otherwise indicated.
- D. Design forms and falsework to support the roof and floor slabs for the total dead load, plus a live load of 50 psf (minimum). Design for a minimum combined dead and live loads of 100 psf.



2.2 FORM TIES

- A. Provide form ties with a plastic cone or other suitable means for forming a conical hole to insure that the form tie may be broken off back of the face of the concrete. Use removeable cones for rod ties or other removable form-tie fasteners having a circular cross-section not exceeding 1-1/2 inches. Use such fasteners as to leave holes of regular shape for reaming. Use **Wrench Head Snap Ties** by **MeadowBurke**, **Snap Ties** by **Dayton/Richmond**, or equal.
- B. Removable taper ties may be used when approved by the ENGINEER. If permitted, use **Taper Ties** by **MeadowBurke**, **Taper Ties** by **Dayton/Richmond**, or equal.

2.3 REINFORCING STEEL

- A. Furnish and place reinforcing steel conforming to the requirements of Section 03 32 10 – Reinforcement unless otherwise noted.

2.4 PORTLAND CEMENT CONCRETE

- A. Furnish and place Portland cement concrete conforming to the requirements of Section 03 31 10 – Portland Cement Concrete unless otherwise noted.

2.5 CURING MATERIALS

- A. Conform to the following requirements and ASTM C 309 - Liquid Membrane-Forming Compounds for Curing Concrete:
 - 1. Use white-pigmented and resin-based compounds. Do not use sodium silicate compounds. Use **Kurez VOX White Pigmented** by **Euclid Chemical Company**, **Cure R-2** by **L&M Construction Chemicals**, **1200-White** by **W.R. Meadows**, or equal. When curing compound must be removed for finishes or grouting, use **Kurez DR VOX** by **Euclid Chemical Company**, **Masterkure-100W** by **ChemRex MBT**, **L&M Cure R** by **L&M Construction Chemicals**, **1100-Clear** by **WR Meadows**, or equal. Ensure compounds used meet local VOC requirements.
 - 2. **Polyethylene Sheet:** Use white polyethylene sheet with a nominal thickness of 6-mils. Use a product with loss of moisture when determined in accordance with the requirements of ASTM C 156 - Standard Test Method for Water Retention by Concrete Curing Materials, not exceeding 0.055 grams per square centimeter of surface.
 - 3. **Evaporation Retardant:** Use **Confilm** by **ChemRex MBT**, **Eucobar** by **Euclid Chemical Company**, **E-CON** by **L&M Construction Chemicals, Inc.**, or equal.

2.6 JOINT SEALANTS

- A. Use extruded sealants complying with either of the following:
 - 1. **Silicone Sealant (Single Component):** Use a product complying with ASTM D 5893. Use backer material of the appropriate size complying with ASTM D



5249, Type 3. Use silicone sealant, backer materials and primers that are approved products listed on the LDOTD AML (formerly QPL 42).

2. **Silicone Sealant (Two – Component Rapid Cure):** Use two – component silicone sealant complying with ASTM D5893 and meeting the requirements for single component sealants when mixed and prepared in accordance with the manufacturer's recommendations. Use backer material of the appropriate size conforming to ASTM D5249, Type 3. Use silicone sealant, backer materials and primers, that are products listed on the LDOTD AML (formerly QPL 42).

2.7 WATERSTOPS

- A. **Polyvinyl Chloride (PVC) Waterstop:** Use product complying with U.S. Army Corps of Engineers CRD-C- 572
- B. Where not shown on the plans, submit details of installation and splicing, to the ENGINEER for review. When PVC waterstops are used, submit a certificate of compliance indicating compliance with these specifications.

2.8 SPECIAL SURFACE FINISH FOR CONCRETE

- A. Use an approved product listed on the LDOTD AML (formerly QPL 14)

2.9 FORM RELEASE AGENTS

- A. Use an approved product listed on the LDOTD AML (formerly QPL 29).

2.10 PRECAST CONCRETE

- A. **General:** Use a manufacturer in conformance with the NCPA Quality Control Manual for Precast Concrete Plants, unless noted otherwise.
- B. **Design:** Furnish precast concrete units properly designed to withstand indicated design load conditions in accordance with applicable industry design standards ACI 318, ACI 350, ASTM, ACPA Design Manual, PCI MNL-120, and AASHTO, and/or as indicated on the drawings. Design must also consider stresses induced during handling, shipping and installation in order to avoid product cracking or other handling damage. Indicate design loads for precast concrete units on the shop drawings. Provide design calculations and drawings of non-standard precast units signed and sealed by a licensed professional engineer and submitted for ENGINEER approval prior to fabrication. Include the analysis of units for lifting stresses and the sizing of lifting devices.
- C. **Forms:** Use forms for manufacturing precast concrete units the type and design consistent with industry standards and practices. Use forms which produce uniform products and dimensions and which comply with the requirements specified herein. Apply and utilize form release agent according to the manufacturer's recommendations and do not allow the agent build up on the form casting surfaces.
- D. **Reinforcement:** Use reinforcement per Section 03 32 10 – Reinforcement.



- E. **Embedded Items:** Where required by the Contract Documents or otherwise required by design for custom or standard pre-cast concrete structures, place embedded items. Where welding is required, perform welding in accordance with AWS D1.1. Provide items embedded in precast concrete of the type required for the intended use.
- F. **Concrete:** Comply with the requirements of Section 03 31 10 – Portland Cement Concrete.
- G. **Grout:** Comply with the requirements of Section 03 60 00 – Grouting.

2.11 MISCELLANEOUS MATERIALS

- A. **Epoxy Adhesives:** Use the following products:
 - 1. For bonding freshly-mixed, plastic concrete to hardened concrete, **Sikadur 32 Hi-Mod Epoxy Adhesive** by **Sika Corporation**, **Concresive Liquid (LPL)** by **Chem Rex MBT**; **BurkEpoxy MV** by **Burke** by **Edoco**, or equal.
 - 2. For bonding hardened concrete or masonry to steel, **Sikadur 31 Hi-Mod Gel** by **Sika Corporation**, **BurkEpoxy NS** by **Burke** by **Edoco**, **Concresive Paste (LPL)** by **Chem Rex MBT**; or equal.
- B. Use epoxy grout for grouting reinforcing bars formulated for such application, for the moisture condition, application temperature, and orientation of the hole to be filled. Use grout meeting the requirements in Section 03 60 00 – Grouting.
- C. **Structural Foam:** Where indicated on the drawings, use a lightweight, closed cell, rigid insulation block manufactured from expanded polystyrene (EPS). Use foam which meets exceeds ASTM C578, Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation, Type XV. Use foam complying with the following requirements:

Properties	Requirement	Test Method (ASTM International)
Nominal Density	3.0 pounds per cubic foot	ASTM C303
Compressive Strength at 10% Deformation	60.0 pounds per square inch	ASTM D1621
Flexural Strength, Minimum	75.0 pounds per square inch	ASTM C203
Flame Spread	<20	ASTM E84
Smoke Developed	150-300	ASTM E84

Use StarRfoam XV, manufactured by StarRfoam Manufacturing, Inc, Arlington, Texas or equal.



PART 3 -- EXECUTION

3.1 GENERAL FORMWORK REQUIREMENTS

- A.** Use forms to confine the concrete and shape it to the required lines wherever necessary. Assume full responsibility for the adequate design of forms, and promptly remove from the site and replace any forms that are unsafe or inadequate in any respect from the WORK. Provide a sufficient number of forms of each kind to permit the required rate of progress to be maintained. Comply with applicable local, state and federal regulations for the design and inspection of concrete forms, falsework, and shoring. Design, construct, maintain, prepare, and remove forms in accordance with ACI 347 - Guide to Formwork for Concrete and the requirements herein.
- B.** Use forms that are true in every respect to the required shape and size, which conform to the established alignment and grade, and are of sufficient strength and rigidity to maintain their position and shape under the loads and operations incident to placing and vibrating the concrete.

3.2 CONSTRUCTION

- A. Vertical Surfaces:** Form vertical surfaces of concrete members, except where placement of the concrete against the ground is indicated. Add not less than 1-inch of concrete to the indicated thickness of a concrete member where concrete is permitted to be placed against trimmed ground in lieu of forms. Permission to do this on other concrete members will be granted only for members of comparatively limited height and where the character of the ground is such that it can be trimmed to the required lines and will stand securely without caving or sloughing until the concrete has been placed.
- B. Construction Joints:** Concrete construction joints will not be permitted at locations other than those indicated, except as may be acceptable to the ENGINEER. When a second lift is placed on hardened concrete, take special precautions in the way of the number, location, and tightening of ties at the top of the old lift and bottom of the new to prevent any unsatisfactory effect whatsoever on the concrete. Set pipe stubs and anchor bolts the forms where required.

C. Form Ties

- 1. Embedded Ties:** Wire ties for holding forms will not be permitted. Do not leave any form-tying device or part thereof, other than metal, in the concrete. Do not remove ties in such manner as to leave a hole extending through the interior of the concrete members. The use of snap-ties which cause spalling of the concrete upon form stripping or tie removal will not be permitted. If steel panel forms are used, provide rubber grommets where the ties pass through the form in order to prevent loss of cement paste. Where metal rods extending through the concrete are used to support or to strengthen forms, leave the rods embedded and terminate the rods terminate not less than 1-inch back from the formed face or faces of the concrete.



2. **Removable Ties:** Where taper ties are approved for use, after the taper tie is removed, thoroughly clean and roughen the hole for bond. Locate a precast neoprene or polyurethane tapered plug at the wall centerline. Completely fill the hole with non-shrink or regular cement grout.

3.3 REUSE OF FORMS

- A. Forms may be reused only if in good condition and only if acceptable to the ENGINEER. Light sanding between uses will be required wherever necessary to obtain uniform surface texture on exposed concrete surfaces. Exposed concrete surfaces are defined as surfaces which are permanently exposed to view.

3.4 REMOVAL OF FORMS

- A. Strictly follow careful practices for removing the forms, and accomplish this WORK with care so as to avoid injury to the concrete. No heavy loading on green concrete will be permitted. Do not remove forms from members which must support their own weight they have attained at least 75 percent of the 28-Day strength of the concrete. Leave forms for vertical walls and columns in place at least 48 hours after the concrete has been placed. Leave forms for parts of the WORK not specifically mentioned in place for periods of time as recommended in ACI 347.

3.5 PREPARATION OF SURFACES FOR CONCRETING

- A. **General:** Thoroughly wet earthen surfaces by sprinkling prior to the placing of any concrete, and keep these surfaces moist by frequent sprinkling up to the time of placing concrete thereon. Ensure surfaces are free from standing water, mud, and debris at the time of placing concrete.
- B. **Joints in Concrete:** Concrete surfaces upon or against which concrete is to be placed, where the placement of the concrete has been stopped or interrupted so that, as determined by the ENGINEER, the new concrete cannot be incorporated integrally with that previously placed, are defined as construction joints. Give the surfaces of horizontal joints a compacted, roughened surface for good bonding. Except where the Drawings call for joint surfaces to be coated, clean the joint surface of laitance, loose or defective concrete, and foreign material, and be roughen to a minimum 1/4-inch amplitude. Accomplish such cleaning and roughening by hydroblasting. Remove pools of water from the surface of construction joints before the new concrete is placed.
- C. **Placing Interruptions:** When placing of concrete is to be interrupted long enough for the concrete to take a set, give the working face a shape by the use of forms or other means, that will secure proper union with subsequent WORK. Make construction joints be made only where acceptable to the ENGINEER.
- D. **Embedded Items**
 1. Do not place concrete until formwork, installation of parts to be embedded, reinforcement steel, and preparation of surfaces involved in the placing have been completed and accepted by the ENGINEER at least 4 hours



before placement of concrete. Clean surfaces of forms and embedded items that have become encrusted with dried grout from previous usage before the surrounding or adjacent concrete is placed.

2. Set reinforcement, anchor bolts, sleeves, inserts, and similar items and secured in the forms at locations indicated or by Shop Drawings and as acceptable to the ENGINEER before any concrete is placed. Accuracy of placement is the responsibility of the CONTRACTOR.
- E. **Casting New Concrete Against Old:** Where concrete is to be cast against old concrete (defined as any concrete which is greater than 60 Days of age), thoroughly clean and roughen the surface of the old concrete by hydroblasting (exposing aggregate) prior to the application of an epoxy bonding agent. Apply the bonding agent according to the bonding agent manufacturer's instructions and recommendations.
- F. Do not place concrete in any structure until water entering the space to be filled with concrete has been properly cut off or has been diverted by pipes, or other means, and carried out of the forms, clear of the WORK. Do not deposit concrete underwater nor allow still water to rise on any concrete until the concrete has attained its initial set. Do not permit water to flow over the surface of any concrete in such manner and at such velocity as will injure the surface finish of the concrete. Pumping or other necessary dewatering operations for removing ground water, if required, will be subject to the review of the ENGINEER.
- G. **Corrosion Protection:** Position and support pipe, conduit, dowels, and other ferrous items required to be embedded in concrete construction prior to placement of concrete that there will be a minimum of 2-inches clearance between said items and any part of the concrete reinforcement. Securing such items in position by wiring or welding them to the reinforcement will not be permitted.
- H. Provide for openings for pipes, inserts for pipe hangers and brackets, and anchors, where practicable, during the placing of concrete.
- I. Accurately set and maintain anchor bolts in position by templates while being embedded in concrete.

3.6 HANDLING, TRANSPORTING, AND PLACING

- A. **General:** Placing of concrete in conformance to the applicable requirements of Chapter 8 of ACI 301 and the requirements of this Section. Do not use aluminum materials in conveying any concrete.
- B. **Non-Conforming WORK or Materials:** Reject concrete which during or before placing is found not to conform to the requirements indicated herein and immediately remove it from the WORK. Remove from the WORK and replace concrete which is not placed in accordance with these Specifications or which is of inferior quality at no additional cost to the OWNER.



- C. Unauthorized Placement:** Do not place any concrete except in the presence of a duly authorized representative of the ENGINEER. Notify the ENGINEER in writing at least 24 hours in advance of placement of any concrete.
- D. Placement in Wall and Column Forms**
1. Do not drop concrete through reinforcement steel or into any deep form nor place concrete in any form in such a manner as to leave accumulation of mortar on the form surfaces above the placed concrete. In such cases, use some means such as the use of hoppers and, if necessary, vertical ducts of canvas, rubber, or metal for placing concrete in the forms in a manner that it may reach the place of final deposit without separation. Do not allow the free fall of concrete to exceed 4-feet in walls and 8-feet in columns below the ends of ducts, chutes, or buggies. Uniformly distribute concrete during the process of depositing and do not displace concrete after depositing in the forms more than 6-feet in horizontal direction. Deposit concrete in wall forms uniform horizontal layers not deeper than 2-feet; and take care to avoid inclined layers or inclined construction joints except where such are required for sloping members. Place each later while the previous layer is still soft. Do not exceed a rate of 5 – feet of vertical rise per hour when placing concrete in wall forms. Provide sufficient illumination in the interior of forms so that the concrete at the places of deposit is visible from the deck or runway.
 2. Ensure the surface of the concrete is level whenever a run of concrete is stopped. To insure a level, straight joint on the exposed surface of walls, tack a wood strip at least 3/4-inch thick to the forms on these surfaces. Carry the concrete about 1/2-inch above the underside of the strip. About one hour after the concrete is placed, remove the strip and level and any irregularities in the edge formed by the strip with a trowel, and remove laitance.
- E. Conveyor Belts and Chutes:** Design and arrange ends of chutes, hopper gates, and other points of concrete discharge throughout the CONTRACTOR'S conveying, hoisting, and placing system arranged that concrete passing from them will not fall separated into whatever receptacle immediately receives it. If using conveyor belts, use a type acceptable to the ENGINEER. Chutes longer than 50-feet will not be permitted. Use minimum slopes of chutes that concrete of the required consistency will readily flow in them. If a conveyor belt is used, wipe the belt clean by a device operated in such a manner that none of the mortar adhering to the belt will be wasted. Cover conveyor belts and chutes.

3.7 PUMPING OF CONCRETE

- A. General:** If the pumped concrete does not produce satisfactory end results, discontinue the pumping operation and proceed with the placing of concrete using conventional methods.
- B. Pumping Equipment:**
1. Use pumping equipment having a minimum 2 cylinders and that is designed to operate with one cylinder only in case the other one is not functioning. In lieu of this requirement, the CONTRACTOR may have a standby pump on the Site during pumping.



2. Use a minimum diameter of the hose conduits in accordance with ACI 304.2R - Placing Concrete by Pumping Methods.
3. Replace pumping equipment and hose conduits that are not functioning properly.
4. Aluminum conduits for conveying the concrete will not be permitted.

3.8 TAMPING AND VIBRATING

- A. Thoroughly settle and compact concrete as it is placed in the forms or in excavations, throughout the entire depth of the layer which is being consolidated, into a dense, homogeneous mass, filling all corners and angles, thoroughly embedding the reinforcement, eliminating rock pockets, and bringing only a slight excess of water to the exposed surface of concrete. Use high speed power vibrators (8000 to 12,000 rpm) of an immersion type in sufficient number and with at least one standby unit as required.
- B. Internally vibrate concrete placed in walls and at the same time rammed, stirred, or worked with suitable appliances, tamping bars, shovels, or forked tools until it completely fills the forms or excavations and closes snugly against all surfaces. Do not place subsequent layers of concrete until the layers previously placed have been worked thoroughly. Provide vibrators in sufficient numbers, with standby units as required, to accomplish the required results within 15 minutes after concrete of the prescribed consistency is placed in the forms. Do not contact the surfaces of the forms with the vibrator. Take care not to vibrate concrete excessively or to work it in any manner that causes segregation of its constituents.

3.9 FINISHING CONCRETE SURFACES

- A. **General:** Provide surfaces free from fins, bulges, ridges, offsets, honeycombing, or roughness of any kind, and which present a finished, smooth, continuous hard surface. Allowable deviations from plumb or level and from the alignment, profiles, and dimensions indicated are defined as tolerances and are indicated above. These tolerances are to be distinguished from irregularities in finish as described herein. Do not use aluminum finishing tools.
- B. **Formed Surfaces:** Unless the special surface finish is indicated on the drawings, no treatment is required after form removal except for curing, repair of defective concrete, and treatment of surface defects.
- C. **Unformed Surfaces:** After proper and adequate vibration and tamping, bring the unformed top surfaces of slabs, floors, walls, and curbs to a uniform surface with suitable tools. Whenever the air temperature exceeds 85 degrees F or the wind speed exceeds 25 mph at the time of placement treat the concrete as follows. Immediately after the concrete has been screeded, treat the concrete with a liquid evaporation retardant. Treat the concrete again after each WORK operation as necessary to prevent drying shrinkage cracks. The classes of finish for unformed concrete surfaces are designated and defined as follows:



1. **Finish U1** - Sufficient leveling and screeding to produce an even, uniform surface with surface irregularities not to exceed 3/8-inch. No further special finish is required.
2. **Finish U2** - After sufficient stiffening of the screeded concrete, float finish surfaces with wood or metal floats or with a finishing machine using float blades. Excessive floating of surfaces while the concrete is plastic and dusting of dry cement and sand on the concrete surface to absorb excess moisture will not be permitted. Float the minimum necessary to produce a surface that is free from screed marks and is uniform in texture. Do not allow surface irregularities in excess of 1/4-inch. Tool joints and edges where indicated or as determined by the ENGINEER.
3. **Finish U3** - After the Finish U2 surface has hardened sufficiently to prevent excess of fine material from being drawn to the surface, perform steel troweling with firm pressure such as will flatten the sandy texture of the floated surface and produce a dense, uniform surface free from blemishes, ripples, and trowel marks. Provide a finish that is smooth and free of irregularities.
4. **Finish U4** - Trowel the Finish U3 surface to remove local depressions or high points. In addition, give the surface a light broom finish with brooming perpendicular to drainage unless otherwise indicated. Provide a surface rough enough to provide a nonskid finish.

D. Finish unformed surfaces according to the following schedule:

UNFORMED SURFACE FINISH SCHEDULE	
Area	Finish
Grade slabs and foundations to be covered with concrete or fill material	U1
Floors to be covered with grouted tile or topping grout	U2
Slabs to be covered with built-up roofing	U2
Interior slabs and floors to receive architectural finish	U3
Slabs	U4
Top surface of walls	U3

3.10 CURING AND DAMPPROOFING

- A. **General:** Cure concrete not less than 7 Days after placing, in accordance with the methods indicated below for the different parts of the WORK.



Surface to be Cured or Dampproofed	Method
Unstripped forms	1
Construction joints between footings and walls, and between floor slab and columns	2
Encasement and ductbank concrete and thrust blocks	3
Concrete surfaces not specifically provided for elsewhere in this Paragraph	4
Buried slabs and backfilled walls	5

- B. Method 1:** Wet wooden forms immediately after concrete has been placed and keep forms wet with water until removal. If steel forms are used, keep the exposed concrete surfaces continuously wet until the forms are removed. If forms are removed within 7 Days of placing the concrete, continue curing in accordance with Method 4 below.
- C. Method 2:** Cover the surface with burlap mats and keep the surfaces and mats wet with water for the duration of the curing period, until the concrete in the walls has been placed. Do not apply curing compound to surfaces cured under Method 2.
- D. Method 3:** Cover the surface with moist earth not less than 4 hours nor more than 24 hours after the concrete is placed. Do not begin earthwork operations that may damage until at least 7 Days after placement of concrete.
- E. Method 4:** Spray the surface with a liquid curing compound.
1. Apply the compound accordance with the manufacturer's printed instructions at a maximum coverage rate of 200 square feet per gallon and in such a manner as to cover the surface with a uniform film that will seal thoroughly.
 2. Where the curing compound method is used, exercise care to avoid damage to the seal during the 7 Day curing period. If the seal is damaged or broken before the expiration of the curing period, repair the break immediately by the application of additional curing compound over the damaged portion.
 3. Wherever curing compound has been applied by mistake to surfaces against which concrete subsequently is to be placed and to which it is to adhere, entirely remove the compound by wet sandblasting just prior to the placing of new concrete.
 4. Apply curing compound as soon as the concrete has hardened enough to prevent marring on unformed surfaces, and within 2 hours after removal of forms. Make repairs required to be made to formed surfaces within the said 2 hour period; provided, however, delay any such repairs which cannot be



made within the said 2 hour period until after the curing compound has been applied. When repairs are to be made to an area on which curing compound has been applied, first wet-sandblast the area involved to remove the curing compound.

5. During the curing period, do not permit traffic of any nature and do not deposit any materials, temporary or otherwise, on surfaces coated with curing compound. Foot traffic and the depositing of materials may be allowed after 3 Days if the surface is covered with 5/8-inch plywood placed over polyethylene sheets.

F. Method 5: This method applies to both buried slabs and walls to be backfilled.

1. Keep the concrete continuously wet by the application of water for a minimum period of at least 7 Days beginning immediately after the concrete has reached final set or forms have been removed.
2. Until the concrete surface is covered with the curing medium, keep the entire surface damp by applying water through nozzles that atomize the flow so that the surface is not marred or washed.
3. Use heavy curing mats as a curing medium to retain the moisture during the curing period. Weight or otherwise hold the curing medium substantially in contact with the concrete surface to prevent being dislodged by wind or any other causes. Continuously hold edges in place.
4. Keep the curing blankets and concrete continuously wet by the use of sprinklers or other means both during and after normal working hours.
5. Immediately after the application of water has terminated at the end of the curing period, remove the curing medium, rewet any dry spots, and immediately apply curing compound in accordance with Method 4 above.
6. Dispose of excess water from the curing operation to avoid damage to the WORK.
7. Dampproofing: Dampproof exterior surfaces of buried roof slabs and backfilled walls as follows:
 - a. Immediately after completion of curing, spray the surface with a dampproofing agent consisting of an asphalt emulsion. Apply the emulsion in 2 coats. Dilute the first coat to one-half strength by the addition of water and spray on so as to provide a maximum coverage rate of 100 square feet per gallon of dilute solution. Provide a second coat of an application of the undiluted material, and spray the compound on so as to provide a maximum coverage rate of 100 square feet per gallon. Use dampproofing material indicated above.
 - b. As soon as the material has taken an initial set, coat the entire area thus coated with whitewash. Any formula for mixing the whitewash may be used if it produces a uniformly coated white surface and remains until



placing of the backfill. If the whitewash fails to remain on the surface until the backfill is placed, apply additional whitewash.

- G. The CONTRACTOR may submit alternate methods of curing which maintain the concrete in a continuously wet condition for acceptance by the ENGINEER.

3.11 PROTECTION

- A. Protect concrete against injury until final acceptance.
- B. Protect fresh concrete from damage due to rain, hail, sleet, or snow. Provide such protection while the concrete is still plastic and whenever precipitation is imminent or occurring.

3.12 CURING IN COLD WEATHER

- A. Water curing of concrete may be reduced to 6 Days during periods when the mean daily temperature in the vicinity of the Site is less than 40 degrees F; provided that, during the prescribed period of water curing, when temperatures are such that concrete surfaces may freeze, water curing is temporarily discontinued.
- B. Concrete cured by an application of curing compound will require no additional protection from freezing if the protection at 50 degrees F for 72 hours is obtained by means of approved insulation in contact with the forms or concrete surfaces; otherwise, protect the concrete against freezing temperatures for 72 hours immediately following 72 hours protection at 50 degrees F. Protect concrete cured by water against freezing temperatures for 72 hours immediately following the 72 hours of protection at 50 degrees F.
- C. Discontinue protection against freezing temperatures such that the drop in temperature of any portion of the concrete will be gradual and will not exceed 40 degrees F in 24 hours. In the spring, when the mean daily temperature rises above 40 degrees F for more than 3 Days, 72 hour protection at a temperature not lower than 50 degrees F may be discontinued for as long as the mean daily temperature remains above 40 degrees F; provided, that the concrete is be protected against freezing temperatures for not less than 48 hours after placement.
- D. Where artificial heat is employed, take special care to prevent the concrete from drying. Use of unvented heaters will be permitted only when unformed surfaces of concrete adjacent to the heaters are protected for the first 24 hours from an excessive carbon dioxide atmosphere by application of curing compound; provided, that the use of curing compound for such surfaces is otherwise permitted by these Specifications.

3.13 TREATMENT OF SURFACE DEFECTS

- A. As soon as forms are removed, carefully examine the concrete surface and immediately rub or grind any irregularities in a satisfactory manner in order to secure a smooth, uniform, and continuous surface. Plastering or coating of surfaces to be smoothed will not be permitted. Do not make repairs until after



inspection by the ENGINEER. In no case will extensive patching of honeycombed concrete be permitted. Repair concrete containing minor voids, holes, honeycombing, or similar depression defects as indicated below. Completely remove and replace containing extensive voids, holes, honeycombing, or similar depression defects. Perform repairs and replacement prompt.

- B. Cut back defective surfaces to be repair from true line a minimum depth of 1/2-inch over the entire area. Feathered edges will not be permitted. Where chipping or cutting tools are not required in order to deepen the area properly, prepare the surface for bonding by the removal of laitance or soft material, plus not less than 1/32-inch depth of the surface film from hard portions by means of an efficient sandblast. After cutting and sandblasting, wet the surface sufficiently in advance of shooting with shotcrete or with cement mortar so that while the repair material is being applied, the surfaces underneath will remain moist but not so wet as to overcome the suction upon which a good bond depends. Use material consisting of a mixture of one sack of cement to 3 cubic feet of sand for the repair. For exposed walls, use cement containing such a proportion of Atlas white portland cement as is required to make the color of the patch match the color of the surrounding concrete.
- C. Ream holes left by tie-rod cones with suitable toothed reamers so as to leave the surfaces of the holes clean and rough. Repair these holes in an approved manner with dry-packed cement grout. Do not ream holes left by form-tying devices having a rectangular cross-section, and other imperfections having a depth greater than their least surface dimension, but repair such holes in an approved manner with dry-packed cement grout.
- D. Build up and shape repairs in such a manner that the completed WORK will conform to the requirements of this Section as applicable, using approved methods which will not disturb the bond, cause sagging, or cause horizontal fractures. Provide the surfaces of repairs with the same kind and amount of curing treatment as required for the concrete in the repaired section.

3.14 CARE AND REPAIR OF CONCRETE

- A. Protect against injury or damage from excessive heat, lack of moisture, overstress, or any other cause until final acceptance. Take particular care to prevent the drying of concrete and to avoid roughening or otherwise damaging the surface. Repair or remove and replace concrete found to be damaged, or which may have been originally defective, which becomes defective at any time prior to the final acceptance of the completed WORK, which departs from the established line or grade, or which, for any other reason, does not conform to the requirements of the Contract Documents, with acceptable concrete.

3.15 PLACING ANCHOR BOLTS

- A. Set anchor bolts in piers, bents, abutments or pedestals in an approved non shrink grout listed on the LDOTD AML (formerly QPL 47) at the location and in the manner described herein.



- B. Verify the location of anchor bolts to be built into the concrete by the CONTRACTOR prior to setting. Take care to ensure proper setting of bolts. Correct inaccuracies detrimental to the structure by approved means.
- C. Set anchor bolts not to be built into the concrete in preformed holes having a minimum diameter of 3 inches to allow for adjustment and deep enough to admit the anchor bolt. Holes may be formed by inserting oiled wooden plugs, metal sleeves or other approved devices into fresh concrete which are withdrawn after concrete has partially set. Adequately protect such holes from ice formation while open. When erecting the members, set members and shoes in place, then fill preformed holes sufficiently with grout so that when anchor bolts are placed to required depth, grout will completely fill holes.
- D. If the CONTRACTOR elects to set anchor bolts either at initial casting or by drilling, verify the centerline-to-centerline spacing between anchor bolt holes of each member before setting the anchor bolts. If bolt holes are drilled, drill the diameter of the holes not be less than 1/2 inch larger than the bolt diameter.
- E. Construct anchor bolts for cantilevered overhead signs and high mast light poles to ensure the proper performance of the double-nut anchor bolt system (baseplate sandwiched between top and bottom nuts). This requires that the bolts be set properly at initial casting, the system be constructed free of damage, and a preload be built into each anchor bolt by a specified tightening procedure. Follow the guidelines below:
- 1) **Inspection:** Inspect the anchor bolts for plan compliance (size and grade, bolt galvanizing, projection length, bolt pattern and orientation, etc.). Verify that the individual holes in the top template locations are not more than 1/8 inch (3 mm) misaligned from their corresponding baseplate holes. Individual bolts must not be out of plumb more than 1/8 inch per 3 feet (3 mm/m). Straightening of misaligned bolts by bending is strictly prohibited. The ENGINEER must approve any corrective action for misaligned bolts. Do not use bolts in nuts that are in a damaged condition; bring anything more than minimal effort by one worker using only a spud wrench to turn off and then back on the nuts to the ENGINEER's attention and corrected to his satisfaction.
 - 2) **Lubrication:** After inspection of the anchor bolts is completed, clean their threads of all foreign matter and then lubricated with beeswax. If erection is delayed more than 24 hours after being lubricated, this cleaning and lubricating must be repeated.
 - 3) **Bolt Tightening Sequence:** Erect the member and completely tighten the bolts with all cantilever elements removed. Tighten the bolts at sequence specified at each step, which calls for tightening. For an eight-bolt pattern, number the bolts 1 through 8 in a clockwise order viewed from above, beginning with bolt 1 on the side away from the heaviest cantilever element. Tighten the bolts in the sequence of 1,5,2,6,8,4,7,3. For a six-bolt pattern, number the bolts 1 through 6 in a clockwise order viewed from



above, beginning with bolt 1 on the side away from the heaviest cantilever element. Tighten the bolts in the sequence of 1,4,2,5,6,3.

- 4) **Tightening Procedures:** Install the bottom nuts on the anchor bolts, one on each bolt. Level the top template by adjusting the bottom nuts so the template rests on each nut and the distance between the top of the concrete shaft and the bottom face of the nut is approximately 1/2 inch (13 mm). Remove the template, lubricate the bearing surfaces of the bottom nuts and washers with beeswax, and erect and plumb the structure as to the satisfaction of the ENGINEER. Adjust the bottom nuts so that each is bearing equally on its washer against the baseplate. With all cantilever elements removed and with the plumbed structure supported by crane, lubricate the bearing surfaces of the top nuts and washers and install the washers and top nuts and turn them onto the bolts so that each top nut is handtight against the washer. Using a wrench, turn the bottom nuts up in the specified sequence to a snug tight condition [snug tight is defined to be the condition where the nut is in firm contact with the baseplate, and it may be assumed that the full effort of a workman on a 12 inch (300 mm) wrench results in a snug condition]. Verify that the structure is still plumb and still supported by the crane. In the specified sequence, turn the top nuts down to the same snug tight condition.
- 5) Preload is induced into the bolt by tightening the nuts and measuring the tightness by turn-of-nut method. Tighten each top nut in the specified sequence 30 degrees past snug tight (one-half of a hex nut "flat"). Repeat this process of tightening each top nut an additional 30 degrees down until each top nut has been tightened 60 degrees past snug tight.

3.16 PRECAST CONCRETE

A. **Quality Control:** Show that the following quality control tests are performed as required and in accordance with the ASTM International standards indicated.

- 1) **Slump:** Perform one slump test for each 150 cubic yards of concrete produced per mix design, or once a day, whichever comes first. Perform slump tests in accordance with LDOTD TR 207.
- 2) **Temperature:** Measure the temperature of concrete when slump or air content tests are made and when compressive test specimens are made in accordance with ASTM C 1064.
- 3) **Compressive Strength:** Make at least four compressive strength specimens for each 150 cubic yards of concrete of each mix design in accordance with LDOTD TR 226 and LDOTD TR 227.
- 4) **Air Content:** Make test for air content on wet-cast concrete for each 150 cu yd of concrete, per mix design, but not less often than once each day when air-entrained concrete is used. Determine the air content in accordance with LDOTD TR 202.



- 5) **Density (Unit Weight):** Perform tests for density a minimum of once per week to verify the yield of batch mixes. Perform density test for each 100 cu yd of lightweight concrete in accordance with LDOTD TR 201. P density tests each 100 cubic yards of concrete per mix design, but not less often than once per day when volumetric batch equipment is used.
- B. Concrete Mixing:** Comply with the requirements of Section 03 31 10 – Portland Cement Concrete and the requirements specified herein.
- C. Concrete Placement:** Comply with the requirements of Section 03 31 10 – Portland Cement Concrete and the requirements specified herein.
- D. Curing of Precast Units:** Cure precast units immediately following the initial set of the concrete and completion of surface finishing. Precast units may be cured by moisture retention (burlap) or by heat and moisture.
- 1) Cure concrete cured by moisture retention with wet burlap or combined wet burlap and white polyethylene sheeting and adhere to the requirements specified within this section.
 - 2) Do not subject concrete cured by heat and steam to steam or hot air until after the concrete has attained its initial set. Apply steam within a suitable enclosure, which permits free circulation of the steam in accordance with ACI 517.2R. If hot air is used for curing, take precautions to prevent moisture loss from the concrete. Do not allow the temperature of the concrete to exceed 150° F. These requirements do not apply to products cured with steam under pressure in an autoclave.
- E. Surface Finish:** Unless special surface finish is noted in the plans,
- F. Stripping Precast Units from Forms:** Do not remove precast units from the forms until the concrete reaches the compressive strength for stripping required by the design. If no such requirement exists, products may be removed from the forms after the final set of concrete provided that stripping damage is minimal. Routinely measure stripping strengths to ensure product has attained sufficient strength for safe handling.
- G. Patching and Repair:** No repair is required to formed surfaces that are relatively free of air voids and honeycombed areas, unless the surfaces are required by the design to be finished.
- 1) **Repairing Honeycombed Areas:** When honeycombed areas are to be repaired, remove all loose material and cut the area back into essentially horizontal or vertical planes to a depth at which coarse aggregate particles break under chipping rather than being dislodged. Use proprietary repair materials in accordance with the manufacturer's instructions. If a proprietary repair material is not used, saturate the area with water. Immediately prior to repair, the area should be damp, but free of excess water. Apply a cement-sand grout or an approved bonding agent to the chipped



surfaces, followed immediately by consolidating an appropriate repair material into the cavity.

- 2) **Repairing Major Defects:** Evaluate defects in precast concrete products which impair the functional use or the expected life of products using qualified personnel to determine if repairs are feasible and, if so, to establish the repair procedure.

H. Shipping Precast Units: Do not ship precast units, including piles, until the concrete strength has reached at least 75% of the specified 28-day strength, or that damage will not result, impairing the performance of the product.

I. Installation: Install precast concrete units to the lines and grades shown in the Contract Documents or otherwise specified. Lift units suitable lifting devices at points provided by the precast concrete producer. Install units in accordance with applicable industry standards. Upon request, provide installation instructions. Where water-tightness is a necessary performance characteristic of the precast concrete unit's end use, watertight joints, pipe-entry connectors and inserts should be used to ensure the integrity of the entire system.

- END OF SECTION -



SECTION 03 31 10 – PORTLAND CEMENT CONCRETE

PART 1 -- GENERAL

1.1 THE REQUIREMENT

- A. Provide Portland Cement Concrete, complete and in place, in accordance with the contract documents.
- B. Structural Concrete is designated by class and pavement concrete is designated by type.
- C. Provide mixtures of an approved mix design and use a Louisiana Department of Transportation and Development certified plant. Transport concrete using Louisiana Department of Transportation and Development certified trucks.
- D. Assume full responsibility for the design, control, and transportation of concrete mixtures in accordance with these specifications.

1.2 REFERENCE STANDARDS

- A. Louisiana Department of Transportation and Development (LDOTD)
AML Approved Materials List

1.3 CONTRACTOR SUBMITTALS, SAMPLING, AND TESTING

- A. Provide submittals, samples for testing, and testing of materials in accordance with Section 01 33 00 – Contractor Submittals. Testing requirements are specified in Section 01 45 00 – Quality Control.
- B. Materials proposed for and utilized in the WORK will be sampled as indicated in Section 01 45 00 – Quality Control. The frequency of testing may be altered at the discretion of the ENGINEER. Provide all materials required for testing at no additional cost to the OWNER.**Submit the following:**
 - 1. Submit a proposed concrete mix designs on a form acceptable to the ENGINEER giving the intended sources of materials and the mix design for concrete for each concrete mixture to be furnished.
 - 2. **Product Data:** Submit product data for all components included in the mixture, including evidence of all product's current listing on the LDOTD AML.

1.4 QUALITY ASSURANCE

- A. Assume full responsibility for quality control of materials during handling, proportioning, mixing, and placing operations.
- B. Furnish a Certified Concrete Technician at the plant or job site to make adjustments in batch weights for moisture content, to perform necessary adjustments in proportioning materials, and to perform tests necessary for control of the concrete mix within specification requirements. Do not begin daily plant operations until the Certified Concrete Technician has determined that



gradations and batch weight adjustments are within specification limits. Use the Certified Concrete Technician or the Authorized Concrete Field Tester to perform the job-site control tests for slump, air content, mix temperature, and then report the documented results to the contractor. The use of an Authorized Concrete Field Tester will not relieve the Certified Concrete Technician from performing the remaining duties as outlined in these specifications.

- C. Use a Certified Concrete Technician and Authorized Concrete Field Tester having completed the requirement training prescribed by the Louisiana Department of Transportation and Development. Personnel with a current ACI Concrete Field Testing Technician Grade I certification qualify as an Authorized Concrete Field Tester.
- D. **Mix Design:** Submit a mix design on an approved form showing details for concrete to be furnished. Do not start work until the concrete mix design has been accepted by the ENGINEER. Review and acceptance of this mix design does not release the contractor from the responsibility of producing concrete that minimum requirements of the specifications. Proportion the volume of coarse aggregates in concrete meets the mixes in accordance with the Master Proportion Table for Portland Cement Concrete below. This does not apply to mixes for concrete pipe, Types B and D pavement, and minor structure class concrete. Fine aggregate must have fineness Moduli (FM) between 2.20 and 3.00. For an example of proportioning of coarse aggregate, see the LDOTD publication entitled Application of Quality Assurance Specifications for Portland Cement Concrete Pavement and Structures.

Nominal Maximum Size of Aggregate	Volume of Dry – Rodded Coarse Aggregate per Unit Volume of Concrete for Different Fineness Moduli of Fine Aggregate				
	2.20	2.40	2.60	2.80	3.00
3/8 Inch	0.52	0.50	0.48	0.49	0.44
1/2 Inch	0.61	0.59	0.57	0.55	0.53
3/4 Inch	0.6	0.66	0.64	0.62	0.60
1 Inch	0.73	0.71	0.69	0.67	0.65
1 – 1/2 Inch	0.77	0.75	0.73	0.71	0.69
2 Inch	0.80	0.78	0.79	0.74	0.72
3 Inch	0.84	0.82	0.80	0.78	0.76

1. Proportion aggregates for pavement Types B and D mixes in accordance with Section 31 05 16 – Aggregates.
2. Perform trial mixes to demonstrate the mix's performance and the



compatibility of components.

3. Submit test results for slump, unit weight, air content, set times, and surface resistivity (i.e., permeability) when required. Develop a curve for compressive strength (flexural strength for pavements if required) at 3, 7, 14, and 28 days. All trial mixes, especially those incorporating ASTM C494 Type S admixtures, must demonstrate their intended specific use and compliance with this section to the ENGINEER. Submit these findings to the ENGINEER for all precast and prestress elements.
4. Furnish materials to the ENGINEER for verification of trial mixes as requested.
5. The ENGINEER may waive the requirement for trial mixes, in writing, where in the opinion of the ENGINEER sufficient information is provided by the CONTRACTOR to substantiate historical performance of the submitted mix. Waiver of trial mixes does not release the CONTRACTOR from the responsibility of producing concrete that meets the minimum requirements of the specifications.
6. Ensure that slumps are within the ranges shown in Table 03 31 10-3 when tested in accordance with DOTD TR 207. The ENGINEER may authorize an increase in maximum slump, without mix segregation, by use of water reducing admixtures. Formulate mixes to produce concrete that, when molded and cured in accordance with DOTD TR 226 and tested in accordance with DOTD TR 230, show an average compressive strength not less than shown in Table 03 31 10-3.

E. Quality Control Tests:

1. Conduct tests to confirm the mix complies with the accepted mix design. Determine gradation and moisture content of aggregates used in the concrete mixture. Test the mixture at the job site for slump, unit weight, temperature, and air content. Keep mix variations within specified control limits for individual samples. Plot test results for gradation, slump, unit weight, and air content on control charts for individual samples. Submit these control charts to the ENGINEER.
2. Monitor admixtures, cementitious the mix chemical materials components (cementitious materials, chemical additives, and aggregates) for variations. As and chemical admixture shipments arrive, verify slump, air content, and initial set time by testing at ambient temperatures. Adjust the mix design to rectify any changes, which would adversely affect constructability, concrete placement, or compliance with the specifications. Document the testing to validate component consistency on the control charts. Note conformance or variation in mix parameters (workability, set times, air content, etc.) on the control charts. Provide a copy of the proposed testing plan to the ENGINEER for record. Acceptance of the plan does not relieve the contractor of the responsibility for satisfying specifications.
3. Select times to obtain control test samples using random number tables in accordance with DOTD S 605 or by random selection. Conform to gradation



control limits of aggregates as shown in Section 31 05 16 – Aggregates.

4. Use the LDOTD Materials Sampling Manual to determine the minimum number of quality control tests for structural and pavement concrete. Take additional test samples as directed for slump, concrete temperature, and air content.
5. For minor structure concrete only, a Certified Concrete Technician or Authorized Concrete Field Tester will not be required. However, implement a quality control testing program to ensure that the concrete meets the requirements of these specifications.
6. When producing concrete for Types B and D pavements, determine gradations daily on each stockpile of aggregates. Base all gradation calculations on percent of dry weight. Upon determination of the gradation of each stockpile, mathematically determine the percent of the total aggregates retained based on the proportions of the combined aggregate blend, and check for conformance with Section 31 05 16 – Aggregates. For additional QC requirements for Mass Concrete, see Part 3 of this Section 03 31 10 – Portland Cement Concrete.
7. It is permissible to adjust the ratio of fine to coarse aggregates of the approved mix design by no more than 5 percent.
8. Never adjust to materially affect the volume of concrete. For mixtures incorporating the Type B or D gradation, if the proportions of the aggregate sizes used do not satisfy the gradation requirements of Section 31 05 16 - Aggregates due to changes in the gradation, adjust the proportions to bring the combined aggregates back within specification limits. These minor adjustments for gradation will not require a new mix design. Ensure that the mix produced is uniform, workable and within the specification limits of Table 03 31 10-3. When plant operations do not produce a uniform and workable mix, cease plant operations and take corrective action prior to restart.
9. When slump, air content, concrete temperature, or gradation measurements, as plotted on control charts, uniform and may fall outside tolerance indicate that the mix is not limits, immediately make adjustments to keep the mix within specified limits. Failure to make proper adjustments or the mix deviates from specification requirements, or the mix is obviously defective, the ENGINEER will reject the mix.
10. Do not change sources of any materials or percentages of cementitious materials, until a new Mix Design showing the new material or adjusted proportions has been accepted.

F. Acceptance and Verification for Type B and D Portland Cement Concrete Pavement: Use the LDOTD Materials Sampling Manual to determine sampling and testing requirements for acceptance and verification for concrete for Types B and D pavements, except as follows:

1. Gradation testing of individual stockpiles for acceptance will not be required.



2. Verification tests, performed by the ENGINEER or Testing Laboratory to assure conformance to the combined aggregate gradation shown in Section 31 05 16 - Aggregates, are at the frequency of one sample every five days of production.
3. Upon determination of the gradation of each aggregate size sampled, mathematically determine the percent retained based on the dry weight of the total combined aggregates based on the proportions of the combined aggregate blend, and check for conformance with Section 31 05 16 - Aggregates
4. If the results of the verification sample indicate that, the combination of aggregates does not meet the requirements of Section 31 05 16 – Aggregates, resample the aggregates, and test again.
5. If the results of the second verification sample indicate that the combination of aggregates does not meet the requirements of Section 31 05 16 - Aggregates, adjust operations to produce a mix meeting these specifications. The ENGINEER will investigate and compare verification results to quality control results, for the same period, to determine appropriate action.

1.5 DELIVERY, STORAGE, AND HANDLING:

- A. Comply with the requirements of Part 3 – Execution of this Section 03 31 10 – Portland Cement Concrete and the requirements below.
- B. **Transportation and Storage of Cementitious Materials:** Transport cementitious materials in watertight conveyances and store in separate dry facilities. Reject material that is contaminated, partially set, or contains lumps of caked material. Do not mix brands, mills, types, grades, or classes unless authorized by the ENGINEER. The ENGINEER may waive this requirement in case of plant breakdown during production to allow concrete, conforming to the requirements of this Section 03 31 10 – Portland Cement Concrete, furnished from another plant to finish a placement in progress.
- C. **Handling and Storage of Aggregates:** Stockpile aggregates so that no detrimental degradation, contamination or segregation of aggregates results. Do not incorporate any foreign material into the aggregates. Provide a positive separation between natural ground and stockpile. Do not intermingle individual stockpiled materials. Do not add material to working faces of the stockpiles during continuous operations. Maintain drainage of stockpiles to control moisture content. Control aggregates to maintain the required gradation. Do not use aggregates that have become segregated or contaminated.

PART 2 -- PRODUCTS

2.1 GENERAL

- A. Use cement, fly ash, ground granulated blast-furnace slag, and microsilica (silica fume) certified by the manufacturer in accordance with current LDOTD



procedures.

- B.** Maintain accurate records of cement, fly ash, ground granulated blast-furnace slag, and silica fume deliveries and their use. Furnish copies of these records to the ENGINEER in such form as required.
- C. Mixture Substitutions:** In accordance with Table 03 31 10-2, these are the allowable mixture substitutions:

Structural Class	Substitute
A1	No Substitutions
A2	No Substitutions
A3	No Substitutions
P1	P2, P3
P2	P3
P3	No Substitutions
S	No Substitutions
MASS (A1)	No Substitutions
MASS (A2)	No Substitutions
MASS (A3)	No Substitutions
Minor Structure Class	
M	A1, B, D
R	A1, B, D
Pavement Type	
B	D
D	B
E	No Substitutions

2.2 COMPOSITION OF CONCRETE

- A.** Provide the type of cement and Portland cement concrete composed of components as specified in this Section 03 31 10 – Portland Cement Concrete



and Table 03 31 10-3. For mix designs not conforming to the requirements of this Section 03 31 10 or Table 03 31 10-3, the approval of the ENGINEER is required.

B. Cement: Allowable types of cement are as follows:

Use	Allowable Cement Types
General Construction	Type I and/or Type II Portland Cement; Blended Hydraulic Cement, Type IL Portland lime cement
Concrete Pavement	Type I and/or Type II Portland Cement; Blended Hydraulic Cement, Type IL Portland Lime Cement, Type III Cement for High Early Strength Applications Only
Sewer Structures	Type II or Type V Portland Cement, Type III Cement for High Early Strength Applications Only
Pre – Stressed or Pre – Cast Concrete	Type III Portland Cement; Blended Hydraulic Cement; Type IL Portland Lime Cement

C. Cementitious Material Substitution:

1. For structural classes of concrete, fly ash conforming to Part 2 of this Section 03 31 10 – Portland Cement Concrete may be partially substituted for Portland cement on a pound for pound basis. For purposes of cement material substitution with fly ash and slag, do not treat Type IL cement as blended.
2. A binary concrete mix is one that combines Portland cement and one additional cementitious replacement, e.g., ground granulated blast furnace slag (GGBFS) or fly ash (class C or F).
3. A ternary concrete mix is one that combines Portland cement with two additional cementitious replacements, e.g., GGBFS and fly ash (class C or F) or fly ash (both class C and F).
4. The maximum substitution rate for binary mixtures is 30 percent fly ash or 50 percent GGBFS.
5. The maximum substitution rate for ternary mixtures containing Type I, II, III, or 1L Portland cement is 70 percent of cement. When using Type IP or IS Portland cement, the maximum substitution rate for ternary mixtures is 40 percent. Ternary combinations using both class C and F fly ash are allowable. When using fly ash ternary mixtures, replace Portland cement with class C and class F fly ash in equal amounts. When using combinations of GGBFS and fly ash, the amount of GGBFS must be equal to or greater than



the amount of fly ash.

6. For pavement types of concrete (Types B and D), the maximum substitution rate for ternary mixtures is limited to 50 percent of cement and for binary mixtures is 30 percent fly ash or 50 percent GGBFS.
7. The use of Type III Portland cement outside of the specified allowances for precast, prestress, and specified HES pavements requires the approval of the ENGINEER.

D. Chemical Admixtures:

1. Only use admixtures listed on the Approved Materials List.
 2. Use an air-entraining admixture in all concrete. Test the total air content of the concrete in accordance with DOTD TR 202, and meet the requirements specified in Table 03 31 10-3.
 3. Use set-retarding admixtures in an amount sufficient to produce the necessary retardation. Consider the influence of different materials and job conditions, including local weather on setting characteristics.
 4. Include the amount of water incorporated in admixtures as a part of required mixing water.
 5. Follow manufacturer's recommendations for adding and mixing high range water reducers (HRWR, superplasticizer) to the mix.
 6. When using multiple admixtures, ensure the same company manufactures all the admixtures, and they are all compatible.
- E. Water:** Ensure that the total amount of water in the mixture, including admixtures and free water, does not exceed the maximum water- cementitious ratio specified in Table 03 31 10-3. Free water includes all water entering the mix with the aggregates, except water absorbed by the aggregate.
- F. Aggregates:** Ensure that all aggregates for use in Portland cement concrete meet the requirements of Section 31 05 16 – Aggregates.
- G. Fine Aggregates:** Ensure that fine aggregates comply with the requirements of Section 31 05 16 – Aggregates.
- H. Course Aggregates:** Ensure that coarse aggregates are the grade specified in Table 03 31 10 – 3 and comply with Section 31 05 16 – Aggregates.

2.3 PORTLAND CEMENT

- A. Use Portland cement from the Approved Materials List complying with AASHTO M 85. Alkali content calculated as sodium oxide equivalent may not exceed 0.60 percent by weight.

2.4 BLENDED HYDRAULIC CEMENT



- A. Use blended hydraulic cement Type IP, Type IS, or Type IL from the Approved List and comply with AASHTO M 240. The alkali content of blended hydraulic cement calculated as sodium oxide equivalent may not exceed 0.60 percent by weight. Type IP may contain up to 30 percent by weight of fly ash or up to 30 percent by weight of bottom ash, provided that the bottom ash is inter-ground with the cement clinker. Fly ash and bottom ash must comply with AASHTO M 295, Class C or F. Type IS cement may contain up to 50 percent by weight of ground granulated blast-furnace slag. Grade 100 and Grade 120 ground granulated blast-furnace slag (slag cement) must comply with AASHTO M 302. Do not treat Type IL Portland limestone cement as blended cement for purposes of cement material substitution with fly ash and slag.

2.5 MASONRY CEMENT AND MORTAR CEMENT

- A. Comply with ASTM C91 for masonry cement. Comply with ASTM C1329 for mortar cement. Mix mortar cement in accordance with ASTM C270 or use pre-blended dry mortar cement complying with ASTM C1714 and mix according to the manufacturers recommendations

2.6 AGGREGATES

- A. Use aggregates complying with the requirements of Section 31 05 16 – Aggregates.

2.7 ADMIXTURES

- A. Use admixtures listed on the LDOTD AML.

2.8 WATER

- A. Use water suitable for human consumption or in compliance with the following when tested in accordance with AASHTO T 26:

Contaminant	Maximum Allowable Percent by Weight
Alkali	0.1
Organic Solids	0.1
Inorganic Solids	0.4
Salt	0.5
Sugar, Oil, or Acid	0.0

2.9 FLY ASH

- A. Use fly ash from the Approved Materials List. Comply with AASHTO M 295 for Class C and Class F. Comply with ASTM C618 for Class N. Alkali content calculated in



accordance with DOTD TR 531 may not exceed 2.5 percent

2.10 GROUND GRANULATED BLAST – FURNACE SLAG (GGBFS)

- A.** Use Grade 100 or Grade 120 ground granulated blast-furnace slag from the Approved Materials List and comply with AASHTO M 302.

2.11 MICROSILICA

- A.** Use microsilica (silica fume) from the Approved Materials List and comply with AASHTO M 307.

PART 3 -- EXECUTION

3.1 SAMPLING AND TESTING

- A.** Perform sampling and testing in accordance with the LDOTD "Materials Sampling Manual and Testing Procedures Manual". Furnish necessary materials for testing at no additional cost to the OWNER. For pumped concrete, sample at the discharge end of pump.

3.2 EQUIPMENT

- A.** Provide sufficient plant capacity and transporting equipment to ensure delivery at the required rate. Ensure that the rate of delivery provides for proper handling, placing and finishing of concrete and maintains a workable surface. Ensure that methods of delivering and handling concrete facilitate placing with a minimum of rehandling and without damage to the structure or concrete.
- B. Plant Equipment:** Ensure that batch plants include approved storage, weigh hoppers, and measuring devices. Properly seal and vent equipment to minimize contamination, dusting and loss of material. Ensure uniform distribution of the incorporated materials. Provide adequate water supply and a device for automatically controlling the amount of water used in each batch. Provide communication between the concrete batcher and loader operator
 - 1. Direct Fill Elevating Weigh Hoppers:** For plants using direct-fill elevating weigh hoppers, use computer controlled lights as an indicator of aggregate weights, but not as the sole means of control for aggregate proportioning. Provide means of control so that, as approaching the quantity desired in the weigh hopper, material may be added slowly and shut off with precision. Ensure that weigh hoppers eliminate accumulation of materials and discharges completely. Make provisions for removal of overloads.
 - 2. Storage Bins and Silos:** For plants with storage bins, ensure that the bins have adequate separate compartments for each size of aggregate. Design each compartment to discharge efficiently and freely. Provide a means of control so that, as approaching the quantity desired in the weigh hopper, material may be added slowly and shut off with precision. Ensure that silos are weatherproof, sealed, free of holes, and prevent contamination. Ensure complete separation for each cementitious material. Design silos to freely discharge and equip with vibrators and/or aerators to maintain flow of



material and prevent accumulation. Provide silos with a positive means of shut off without leaking into the weigh hopper

- 3. Measuring Devices:** Equip batch plants to proportion materials by approved weighing/metering devices. Moisture probes are allowed to determine the moisture content of aggregates for batch adjustment, provided the accuracy is within 0.5 percent of the results obtained by the Certified Concrete Technician in accordance with DOTD TR 106 and confirmed by the ENGINEER. Use separate scale systems: one for aggregates, and another for cementitious materials. Weigh each size of aggregate from separate bins either individually or cumulatively. Weighing each cementitious material cumulatively in the same hopper is allowable but measure the weight of the cement first before other cementitious materials. Ensure that weigh hoppers eliminate accumulation of materials and discharge completely. Make provisions for removal of overloads. Ensure that scales are accurate to 0.5 percent throughout the range of use. Use scales graduated to 0.1 percent of the rated scale capacity. When beam type scales are used, ensure that poises are lockable into any position to prevent accidental change of position, and the weigh beam and a telltale device is in view of the operator. Plant measuring devices are be subject to approval by the ENGINEER. Ensure that scales are tested, inspected, and certified every 90-calendar days by a qualified independent scale service or the Weights and Measures Division of the Louisiana Department of Agriculture and Forestry at no cost to the OWNER and more frequently when the ENGINEER deems it necessary to assure their accuracy. Use a qualified independent scale service or the Weights and Measures Division of the Louisiana Department of Agriculture and Forestry to certify the plant's laboratory-measuring devices annually at no direct cost to the OWNER. Batch individual aggregates within 2 percent, and the cumulative total weight of aggregates within 1 percent of the required weight. Ensure that cementitious materials are within 1 percent of the required weight. For smaller batches of 1 to 3 cubic yards, the quantity of cement and cumulative quantity of cementitious materials may be neither less than the required amount nor more than 4 percent in excess. Cement in standard bags need not be weighed; however, furnish in full bag increments and adjust the quantities of other materials accordingly. Do not use bagged fly ash or GGBFS. Measure the mixing water by volume or weight. Ensure that water measuring devices are accurate to 1 percent at 1/2 the maximum allowable water per batch and the maximum graduation is 1 gallon. Use approved methods and equipment for adding admixtures into the batch. Measure the quantity of admixtures with an accuracy of 3 percent. Provide a separate dispensing device for each admixture.
- 4. Batch Tickets:** Certified concrete plants may be equipped with an approved automatic ticket printer system for recording required batching information. Enter actual weights of material batched each time on the Batch Certification Report or an approved electronic document. When an automatic ticket printer system is not used, determine quantities and batching information by visual observation. Record these quantities on the Batch Certification Report. Ensure that the approved ticket printer system is tamper-proof and prints time of batching, amount of water, batch weights, moisture content of aggregates, and quantities of admixtures. The Certified Concrete Technician may add moisture content of aggregates or quantities



of admixtures to the printed ticket when the automatic system does not have these capabilities. During a printer breakdown, determine quantities by visual observation and certify as stated above. Ensure that all records of batches show batch number, day, month, year, and time of day to the nearest minute for each batch. Record any added water on the Batch Certification Report Provide to the ENGINEER, a legible copy of all batch records identified with lot number and mix design number.

C. Hauling Equipment: Ensure that hauling equipment is watertight and capable of discharging concrete at a controlled rate without segregation.

- 1. Truck Mixer:** Provide revolving-drum truck mixers, equipped with tanks for carrying any additional portion of the mixing water and capable of dispensing to the nearest gallon. Replace pick-up and throwover blades in the mixing drum when worn beyond the limit recommended by the manufacturer. Have available a copy of the manufacturer's design, showing dimensions and arrangements of blades in reference to original height and depth. Equip truck mixers with electrically or mechanically actuated revolution counters. Locate counters to provide safe and convenient inspection. In a prominent place, attach to each truck mixer a metal plate on which is plainly marked the maximum rated capacity of the drum in terms of concrete volume and rotation speed for both agitating and mixing speeds.
- 2. Agitator Hauling Equipment:** Furnish agitators with blades or paddles to effectively agitate the mix and prevent segregation. Provide covers when directed. Attach to each agitator in a prominent place, a metal plate on which is plainly marked the designed uses for the equipment, the maximum rated capacity in terms of concrete volume, and agitation speed.
- 3. Non Agitator Hauling Equipment:** Ensure that the bodies of non-agitating hauling equipment are clean, smooth, metal, and mortar-tight containers. Provide covers when directed.
- 4. Portable Mixers:** Provide portable mixers with a minimum capacity of one cubic yard and capable of accurately and uniformly mixing and discharging concrete without segregation.

3.3 BATCHING AND MIXING

- A.** Thoroughly mix concrete in a mixer of an approved size and type, which will ensure uniform distribution of materials throughout the mix.
- B.** Do not use mixers with worn blades or excessive build-up. Replace pickup and throw-over blades or mixing paddles in the mixing drum or mixing unit when worn beyond the limit recommended by the manufacturer. Have available a copy of the manufacturer's design, showing dimensions and arrangements of blades in reference to original height and depth. Begin mixing operations within 15 minutes after addition of cement to the aggregates. When there is an interruption to the mixing operations, thoroughly clean the mixer. Remove the entire contents of the mixer from the drum before placing materials for a succeeding batch. Add a portion of mixing water in advance of cement and aggregates. Do not use a



mixer having a rated capacity of less than one cubic yard or charge a mixer in excess of its rated capacity. Do not produce batches smaller than one cubic yard.

- C. Central Plant and Site Mixing:** Mix concrete until uniformity is achieved but not less than 60 seconds. Mixing time begins after all materials are in the mixer. Mixing time ends when the discharge chute opens. Ensure that the mixer is equipped with an approved timing device, which automatically locks the discharge lever when charging the drum and releases it at the end of the mixing period. During mixing, operate the mixer at its designed drum speed as shown on the manufacturer's nameplate on the mixer
- D. Truck Mixing:** Measure aggregates and cementitious materials for concrete and charge into the drum at the proportioning plant. Ensure that the size of the batch does not exceed the maximum rated mixing capacity as stated by the manufacturer and stamped on a metal plate on the mixer. When using a truck mixer for complete mixing, mix each batch at designated mixing speed until uniformity is achieved, but not less than 70 revolutions. Ensure that all materials, including mixing water, are mixer drum before actuating the revolution counter or taking an reading. Ensure that any additional revolutions during transit are designated agitating speed. in the initial at the Add a minimum of 75 percent of the prescribed amount of batch water at the plant. If the slump is low at the jobsite, add up to the "maximum water that can be added at jobsite" as indicated on the Batch Certification form. Ensure that water added at the jobsite does not exceed the maximum allowable water-cementitious material ratio or exceed the maximum allowable slump by more than 1/4 inch. Reject the load if these criteria are exceeded. Add water and/or admixtures at the job site in one or two increments with additional mixing within the range of 20 to 30 revolutions at designated mixer speed for each increment. When adding to a partial load, add only a proportional amount of water or admixtures. Follow the manufacturer's recommendations when adding and mixing admixtures to the mix. Perform slump, air, temperature, and unit weight tests, and mold cylinders after the addition of all components into the mix
- E. Partial Mixing at Central Plant (Shrink Mixing):** When partially mixing at a central plant, reduce the mixing time to a minimum of 30 seconds. Complete required mixing in a truck mixer at mixing speed until uniformity is achieved but not less than 10 revolutions.
- F. Time Limitations:** Ensure that the maximum time from the addition of cement to the mix to final placement of the concrete is 90 minutes or a maximum of 300 revolutions, whichever occurs first. When transport is by non-agitator truck, ensure that the maximum time from the addition of cement to the mix to final ENGINEER may reduce the conditions contributing to concrete. placement maximum rapid loss of the concrete is 45 minutes. The allowable time for any observed of plasticity or uniformity of the For special applications, the stated time limitations may be modified based on trial batch results.
- G. Hauling Equipment:** Transport fresh concrete in a truck mixer, agitator, or other certified equipment. Non-agitator trucks are only allowed for pavement concrete. Ensure that the volume of mixed concrete transported in an agitator truck at agitation speed is in accordance with the manufacturer's specified



rating.

- H. **Portable Mixing:** Obtain written approval from the ENGINEER to use portable or volumetric mixers for PCCP patching and minor structure concrete.
- I. **Delivery:** Provide sufficient plant capacity and transporting equipment to ensure delivery at the required rate. Ensure that methods and rate of delivery and handling of concrete facilitate placement, without damage to the structure or fresh concrete.

3.4 WEATHER AND TEMPERATURE LIMITATIONS

- A. Concrete used in precast/prestress structural elements may be exempt from the following temperature limitations at the determination of the ENGINEER. Prepare for rain and hot or cold weather concrete placement well in advance of these events.
- B. The CONTRACTOR is responsible for proper mixing, placing, and curing of all concrete. At no cost to the OWNER, remove and replace any unacceptable concrete as determined by the ENGINEER.
- C. **Cold Weather Limitations:** Do not place concrete when the internal temperature of the concrete is below 45°F nor on frozen subgrade or into forms that are below 32°F.
 - 1. **Portland Cement Mixes:** Discontinue concreting operations when a descending air temperature at the jobsite, in the shade, and away from artificial heat, reaches 35°F or NOAA forecasts the temperature to be less than 32°F within the 24-hour period following placement. Do not resume PC concreting operations until an ascending air temperature at the jobsite, in the shade, and away from artificial heat, reaches 32°F; provided the high temperature forecasted by NOAA is above 35°F and remains above 32°F for a minimum of 24 hours.
 - 2. **Binary Mixes:** Discontinue concreting operations when a descending air temperature at the jobsite, in the shade, and away from artificial heat, reaches 40°F or NOAA forecasts the temperature to be less than 35°F within the 36-hour period following placement. Do not resume concreting operations until an ascending air temperature at the jobsite, in the shade, and away from artificial heat, reaches 40°F; provided the high temperature forecasted by NOAA is above 45°F and remains above 40°F for a minimum of 36 hours.
 - 3. **Ternary Mixes:** Discontinue concreting operations when a descending air temperature at the jobsite, in the shade, and away from artificial heat, reaches 45°F or NOAA forecasts the temperature to be less than 40°F within the 48-hour period following placement. Do not resume concreting operations until an ascending air temperature at the jobsite, in the shade, and away from artificial heat, reaches 45°F; provided the high temperature forecasted by NOAA is above 50°F and remains above 45°F for a minimum of 48 hours. Written authorization from the ENGINEER is required for all concrete operations outside these cold weather limitations.



D. Hot Weather Limitations: During hot weather concreting, it is critical to reduce the evaporation rate from concrete to minimize plastic shrinkage cracking by having an appropriate concrete mix design, placement methods, and curing operations. Furthermore, additional moisture loss precautions may be essential when other environmental conditions (i.e. relative humidity, air temperature, and wind velocity) accelerate water evaporation from the concrete. Hot weather limitations commence when the internal temperature of the concrete during placement, exceeds 85°F. If these conditions exist, maintain an internal concrete placement temperature less than 90°F or submit concrete trial-batch test results for the concrete mix designs conforming to the requirements for production during hot weather conditions. Meet the following requirements:

1. Maintain a minimum internal concrete temperature of 94°F throughout the trial-batching process.
2. After initial mixing, hold the trial batch in the mixer for 90 minutes. During this period, turn the drum intermittently for 30 seconds every five minutes. In between the intermittent turning of the drum, cover the drum opening with an impermeable cover to prevent moisture loss and to maintain heat. At the end of the 90-minute period, remix the trial batch a minimum of one minute and then test for slump and air content.
3. After completion of a 90-minute mixing period, ensure that the trial batch has the desired workability, with slump and air content within the specified range as shown in Table 03 31 10-3. Allow the addition of water if the slump is below the target range but do not exceed the maximum water-to-cementitious material ratio. Remix a minimum of two minutes after addition of second water. Furthermore, ensure that concrete temperature is not less than 94°F at any time during the trial batch testing.
4. Remove and replace concrete placed at a temperature exceeding 90°F that fails to meet the hot weather trial-batch acceptance criteria at no cost to the OWNER. The CONTRACTOR is responsible for proper mixing, placing, and curing of concrete as determined by the ENGINEER. Regardless of any hot weather precaution taken, remove and replace all concrete attaining an internal temperature in excess of 99°F during placement at no additional cost to the OWNER.

E. Rain Protection: Prior to any concreting operations, have available at the jobsite sufficient plastic sheeting material to prevent rainwater from marring or leaving indentations in any fresh concrete. Lap sections of plastic sheeting a minimum of 18 inches and extend coverage beyond edges so that edges are not marred by falling rainwater. Secure plastic sheeting so that it will remain in place to protect the surface. As soon as conditions permit, reapply all curing compound washed away by the rain. Repair all areas of tining or surface finishing marred by rain or plastic sheeting coverage. Repair all rain-damaged areas at no cost to the OWNER.

3.5 MASS CONCRETE

A. Mass concrete is defined as a structural concrete placement having a least dimension of 48 inches or greater, or if designated on the plans or in the project



specifications as being mass concrete. Structural Class S concrete is exempt from mass concrete requirements.

- B.** Submit proposals for the mass concrete mix design, analysis, temperature monitoring, and control, including insulation and methods, to the ENGINEER for review and acceptance a minimum of 30 days prior to the placement of any mass concrete.
- C.** The structural class designation for mass concrete is Class MASS (A1, A2, or A3) as shown in Table 03 31 10-3.
- D.** Use Type II Portland cement. Replace Portland cement with fly ash at 20 percent to 50 percent by weight or replace with slag cement at 50 percent to 70 percent by weight or a ternary mix meeting specification requirements. Certify that the cementitious combination generates a heat of hydration of not more than 70 calories/gram at 7 days as determined by ASTM C186 or ASTM C1702.
- E.** Use Type B or D aggregate gradation for mass concrete.
- F.** Do not use accelerating admixtures in mass concrete.
- G.** Produce a structure free from thermal cracks. Place mass concrete continuously to eliminate cold joints. Control differential temperatures by appropriate use of insulated forms, curing blankets, or other acceptable methods. If during the first 48 hours after placement, the temperature differential nears 35°F, take corrective measures immediately to remain within the limits. Furthermore, revise the plan to maintain the limits on differential temperature on any remaining placements of mass concrete. Obtain the ENGINEER's acceptance of the revised plan prior to implementation. Strength gain and cooling of the mass concrete placements can take a long time. Take all such time and strength considerations into account when planning construction activities.
- H.** Submit an analysis to the ENGINEER of the projected thermal developments within the mass concrete elements for the anticipated concrete and ambient temperatures, along with the proposed mix design and construction methods. Include a copy of model results, with site and element specific data, and any electronic files. Describe the measures and procedures intended to maintain, monitor, and control the temperature differential between the interior and exterior of the mass concrete elements. A maximum temperature during curing of 160°F and a maximum differential temperature of 35°F is allowed. An abbreviated submittal may be allowed for previously approved mass concrete mix designs.
- I.** Provide temperature-monitoring devices to record temperature development between the interior and the exterior of the element at points acceptable to the ENGINEER. Monitor a minimum of two independent sets of interior and exterior points for each element to provide redundancy. Locate the monitoring points at the geometric center of the element for the interior point and two inches from the surface along the shortest line from the geometric center to the nearest surface of the element for the exterior point. Use automatic sensing and recording instruments that record information at a maximum interval of one hour. Calibrate monitoring devices to the manufacture's recommendations. Use



devices that operate within the temperature range of 0 to 180°F with an accuracy of $\pm 2^\circ\text{F}$. Take readings and record the temperature data at intervals no greater than 6 hours to ensure that the automatic devices are working properly and that the temperatures are within allowable limits. The intervals of one and six hours begin immediately after casting is complete and continue until the maximum temperature differential is reached and begins to drop. Transmit these readings to the ENGINEER daily. Prior to the placement of mass concrete, perform a test of the automatic and manual thermal sensing and recording equipment to ensure they are operational.

3.6 ACCEPTANCE CRITERIA

- A.** Remove and replace concrete not complying with specifications requirement at no additional cost to the OWNER.

- END OF SECTION -



	Average Compressive Strength, psi, at 28 Days	Grade of Coarse Aggregate ¹	Surface Resistivity, kΩ-cm) ²	Maximum Water/Cementitious Material Ratio	Air Content, Percent by Volume ³	Slump Range, Inches ⁵		
						Non – Vibrated ⁴	Vibrated	Slip Form Paving ⁶
Structural Class								
A1	4,500	57M, 67, 89M ⁹ , B,D	22	0.45	2-7	2-5	2-4 ⁴	N/A
A2	6,500 ¹¹	57M, 67, 89M ⁹ , B,D	22 ¹¹	0.45	2-7	2-5	2-4 ⁴	N/A
A3	9,000 ¹¹	57M, 67, 89M ⁹ , B,D	22 ¹¹	0.36	2-7	2-5	2-4 ⁴	N/A
P	5,000 ⁸	57M, 67, B,D	---	0.44	2-7	N/A	2-6 ¹⁰	N/A
P1	6,000 ⁸	57M, 67, 89M ⁹ , B,D	22	0.44	2-7	N/A	2-6 ¹⁰	N/A
P2	8,500 ⁸	57M, 67, 89M ⁹ , B,D	22	0.40	2-7	N/A	2-6 ¹⁰	N/A
P3	10,000 ⁸	57M, 67, 89M ⁹ , B,D	22	0.40	2-7	N/A	2-6 ¹⁰	N/A
S	4,500	B, D	22	0.53	2-7	6-8	N/A	N/A
Mass (A1)	4,500	B, D	22	0.53	2-7	N/A	2-4 ⁴	N/A
Mass (A2)	6,500 ¹¹	B, D	22 ¹¹	0.46	2-7	N/A	2-4 ⁴	N/A
Mass (A3)	9,000 ¹¹	B, D	22 ¹¹	0.36	2-7	N/A	2-4 ⁴	N/A
Minor Structure Class								
M	3,000	57M, 67, 89M ⁹ , B, D	---	0.56	2-7	2-5	2-4 ⁴	1-2.5
R	1,800	57M, 67, B, D	---	0.70	2-7	2-5	2-4 ⁴	N/A
Pavement Type								
B	4,000	B, D	---	0.53	2-7	N/A	2-4	1-2.5
D	4,000	B, D	---	0.53	2-7	N/A	2-4	1-2.5
E	4,000	57M, 67, 89M ⁹ , B,D	---	0.40	2-7	N/A	2-4	1-2.5

1. Combined aggregate gradations to comply with the requirements of Aggregates
2. Surface resistivity will not be tested unless otherwise indicated.
3. See specifications for allowable admixtures.
4. Allow an 8-inch maximum slump if water reducing admixtures are used.
5. Additional allowance in slump range to be approved by the ENGINEER.
6. Also slump range for other concrete placed by extrusion methods.
7. See specifications for allowable cement types.
8. Values shown represent the minimum compressive strengths allowed for all test cylinders.

9. Grade 89M coarse aggregate may only be used only when specified or permitted for Class A1, A2, A3, P, P1, P2, P3, M, and E.
10. No more than 2-inch slump differential for any design placement. Allow 8-inch maximum slump if water reducers are used.
11. Average Compressive Strength, psi and Resistivity (k Ω -cm) at 56 days
12. Dry cast concrete for concrete pipe is exempt from this table

SECTION 03 60 00 – GROUTING

PART 1 -- GENERAL

1.1 THE REQUIREMENT

- A. Furnish and place grout, complete and in place, in accordance with the Contract Documents. For
- B. Where grout is provided as a base support for mechanical and electrical equipment, conform to manufacturer's requirements and the requirements of this section.
- C. The following types of grout are covered in this Section:
 - 1. Non-Shrink Grout
 - 2. High Strength Non-Shrink Grout
 - 3. Non-Shrink Grout for High Sulfate Environments
 - 4. Non-Shrink Epoxy Grout
 - 5. Topping Grout and Concrete/Grout Fill

1.2 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

ASTM C109	Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50-mm] Cube Specimens)
ASTM C307	Standard Test Method for Tensile Strength of Chemical-Resistant Mortar, Grouts, and Monolithic Surfacing
ASTM C531	Standard Test Method for Linear Shrinkage and Coefficient of Thermal Expansion of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing, and Polymer Concretes
ASTM C579	Standard Test Methods for Compressive Strength of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing, and Polymer Concretes
ASTM C580	Standard Test Method for Flexural Strength and Modulus of Elasticity of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing, and Polymer Concretes
ASTM C827	Standard Test Method for Change in Height at Early Ages of Cylindrical Specimens of Cementitious Mixtures
ASTM C882	Standard Test Method for Bond Strength of Epoxy-Resin Systems Used with Concrete by Slant Shear



ASTM C1090	Standard Test Method for Measuring Changes in Height of Cylindrical Specimens from Hydraulic-Cement Grout
ASTM C1107	Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink)
ASTM C1116	Standard Specification for Fiber-Reinforced Concrete
ASTM C1339	Standard Test Method for Flowability and Bearing Area of Chemical-Resistant Polymer Machinery Grouts

1.3 CONTRACTOR SUBMITTALS

A. Furnish submittals in accordance with Section 01 33 00 - Contractor Submittals.

1. Certified testing lab reports for tests indicated herein.
2. Test results and service report from the field tests and the demonstration and training session verifying the requirements indicated herein.
3. Manufacturer's literature containing instructions and recommendations on the mixing, handling, placement, curing, and appropriate uses for each type of grout used in the WORK, and location of use.
4. Documentation indicating that the grouts contain no chlorides or other chemicals that cause corrosion.
5. Manufacturer's Safety Data Sheet documenting composition of grouts.
6. Submit manufacturer's written warranty as indicated herein.
7. Name and telephone number of grout manufacturer's representative who will give on-site service. Employ representative having at least one year of experience with the indicated grouts.

1.4 QUALITY ASSURANCE

A. Field Tests

1. Compression test specimens will be taken from the first placement of each type of grout, and at intervals thereafter selected by the ENGINEER. The specimens will be made by the ENGINEER or its representative.
2. Compression tests and fabrication of specimens for cement grout and cement based non-shrink grout will be performed in accordance with ASTM C1107 at intervals during construction selected by the ENGINEER.
3. Compression tests and fabrication of specimens for topping grout and concrete/grout fill will be performed in accordance with Section 03 31 00 – Structural Concrete at intervals during construction selected by the ENGINEER.



4. Compression tests and fabrication of specimens for epoxy grouts will be performed in accordance with ASTM C579, Method B, at intervals during construction selected by the ENGINEER. A set of 3 specimens will be made for testing at 7 Days and each earlier time period as appropriate.
 5. The cost of laboratory tests on grout will be paid by the OWNER except where test results show the grout to be defective. In such case, assume responsibility for and pay all costs for the tests, removal and replacement of Defective Work, and re-testing, all as part of the WORK.
 6. Assist the ENGINEER in obtaining specimens for testing and furnish materials necessary for fabricating the test specimens.
- B. Construction Tolerances:** Construct grout to tolerances as indicated in Section 03 31 00 – Structural Concrete unless indicated otherwise.

C. Pre-Installation Demonstration and Training

1. Non-Shrink Grouts

- a. Require the grout manufacturer to give a demonstration and training session for the cement based and epoxy non-shrink grouts to be used on the project before any installation of grout is allowed.
- b. Use a minimum of 5 bags of cement-based non-shrink grout mixed to fluid consistency. Conduct test for flow cone and bleed tests. Make six cubes for testing at 1, 3, and 28 Days. Place the remaining grout, and curing may be initiated on actual project placements such as baseplates to provide on-the-job training for the CONTRACTOR and ENGINEER. Require CONTRACTOR employees who will be doing the grouting to participate in this training and demonstration session. Require the training session to include methods for curing the grout.
- c. Transport the test cubes to an independent test laboratory, obtain the test reports, and report these demonstration and training test cube strengths to the ENGINEER.

1.5 SPECIAL CORRECTION OF DEFECTS PROVISIONS

A. Manufacturer's Warranty

1. Furnish one year warranty for WORK provided under this section.
2. Manufacturer's warranty may not contain a disclaimer limiting responsibility to the purchase price of products or materials.

PART 2 -- PRODUCTS

2.1 APPLICATION

- A.** Unless indicated otherwise, Provide as listed below whether indicated on the Drawings or not.



Application	Type of Grout
Beam and column (1 or 2 story) base plates less than 16-inches in the least dimension.	Non-Shrink
Column base plates (greater than 2 story or larger than 16-inches in the least dimension)	High Strength Non-Shrink
Under precast concrete elements	High Strength Non-Shrink
Storage tanks and other non-motorized equipment or machinery under 30 horsepower	Non-Shrink
Motorized equipment over 30 horsepower and equipment under 30 horsepower but subject to severe shock loads and high vibrations	Non-Shrink Epoxy
Filling blockout spaces for embedded items such as railing posts, gate guide frames, etc.	Non-Shrink
Toppings and concrete/grout fill less than 3-inches thick	Topping Grout
Toppings and concrete/grout fill greater than 3-inches thick	Minor Concrete per Section 03 31 10
Anchor bolts, anchor rods and reinforcing steel required to be set in epoxy or adhesive.	Post Installed Anchors in Concrete per Section 05 05 19
Repair of holes and defects in concrete members.	Concrete Repair and Rehabilitation per Section 03 31 00

2.2 NON-SHRINK GROUTS

A. General

1. Use cement based non-shrink grout unless otherwise noted.
2. Furnish and place a prepackaged, inorganic, fluid, non-gas liberating, non-metallic, cement type grout requiring only the addition of water. Cement from kilns burning metal-rich hazardous waste fuel may not be used.
3. Furnish and place a grout with the manufacturer's instructions printed on each bag or other container in which the materials are packaged. Provide specific formulation for each non-shrink grout as recommended by the manufacturer for the particular application.



4. Require that the manufacturer's product information state the acceptability of the non-shrink grout for the intended purpose and location.
5. Do not use grout containing chlorides or additives that may contribute to corrosion.
6. Grout placed in continuously wet environments or in exterior conditions may not contain gypsum or calcium salt.
7. Provide cement-based non-shrink grout having the following general properties:
 - a. Compliance with the requirements of ASTM C1107.
 - b. A maximum early age height change of 4.0 percent expansion, and no shrinkage (0.0 percent) in accordance with ASTM C827. The grout when tested may not bleed or segregate at maximum allowed water.
 - c. No shrinkage (0.0 percent) and a maximum of 0.3 percent expansion in the hardened state when tested in accordance with ASTM C1090.
 - d. A minimum bond strength (concrete to grout) of 1900 psi per modified ASTM C882.
8. Consider environmental and ambient conditions in the selection of non-shrink grout. If a non-shrink grout is to be used in a high sulfate environment, marine environment, high temperature environment, or freeze/thaw environment, furnish and place a grout which is stated by the manufacturer as suitable for each environmental condition.
9. Where grout is placed in marine environments, furnish and place grout suitable for use in a marine environment.
10. Where placed in outdoor environments or other environments subject to freezing and thawing, furnish and place a grout suitable for use in freeze/thaw environments.
11. Where grout is placed in a high – sulfate environment, furnish and place a grout suitable for use in high sulfate environments.

B. Regular Non-Shrink Grout

1. Provide Non-Shrink Grout having a minimum 28 Day compressive strength of 5000 psi when mixed at a fluid consistency and tested per ASTM C109.
2. **Manufacturer or Equal: Five Star Grout by Five Star Products, Five Star Fluid Grout 100 by Five Star Products, Sikagrout 212 by Sika Corporation, or approved equal.**

C. High Strength Non-Shrink Grout



1. Provide High Strength Non-Shrink Grout having a minimum 28-Day compressive strength of 10,000 psi when mixed at a fluid consistency and tested per ASTM C109.
2. **Manufacturer or Equal: Five Star High Strength Grout by Five Star Products, SikagROUT 428 FS, or approved equal.**

D. Non-Shrink Grout for High Sulfate Environments

1. Provide a grout having minimum 28 Day compressive strength of 7000 psi when mixed at a fluid consistency and tested per ASTM C109.
2. **Manufacturer or Equal: Five Star Special Grout 150 by Five Star Products, or approved equal.**

2.3 NON-SHRINK EPOXY GROUT

- A. Furnish and place non-shrink epoxy grout of be a flowable, non-shrink, 100 percent solids system. Provide grout system having components: resin, hardener, and specially blended aggregate, each premeasured and prepackaged. The resin component may not contain any non-reactive diluents.
- B. Use grout with manufacturer's product information stating the acceptability of the epoxy grout for the intended purpose and location.
- C. Variation of component ratios is not permitted unless specifically recommended by the manufacturer. Use grout with manufacturer's instructions printed on each container in which the materials are packaged.
- D. Resins containing butyl glycidyl ether (BGE) or other highly volatile and hazardous reactive diluents are not acceptable.
- E. Provide non – shrink epoxy grout having a negligible (less than 0.0006 in/in) length change after hardening, and a coefficient of thermal expansion less than 0.00003 in/in F when tested in accordance with ASTM C531.
- F. Provide non – shrink epoxy grout which develops a minimum compressive strength of 9000 psi in 24 hours and 13,000 psi in seven days when tested in accordance with ASTM C579, method B.
- G. For the purposes of testing, use an effective bearing area of a minimum of 85 percent effective bearing area (EBA) in accordance with ASTM C1339, for bearing area and flow.
- H. Provide non – shrink epoxy grout of chemical formulation recommended by the manufacturer for the particular application. Do not reduce aggregate loading or add solvents to increase flowability.
- I. Provide non – shrink epoxy grout having the following minimum properties when tested at 7 Days:
 1. Minimum bond strength to concrete of 3000 psi per ASTM C882 modified.



2. Minimum bond strength to steel of 1700 psi per ASTM C882 modified.
3. Minimum flexural strength of 2500 psi per ASTM C580.
4. Minimum tensile strength of 2000 psi per ASTM C307.

J. Manufacturers or Equal: Five Star DP Epoxy Grout by Five Star Products, Inc., Masterflow 648 by BASF Corporation, Sikadur 42 Grout-Pak by Sika Corporation, or approved equal.

2.4 TOPPING GROUT AND CONCRETE/GROUT FILL

- A.** Where fill thickness is 3-inches or greater, structural concrete as indicated in Section 03 31 00- Structural Concrete, may be used when accepted by the ENGINEER. Use fiber reinforcing as indicated below.
- B.** Use grout composed of cement, fine aggregate, coarse aggregate, water, and admixtures proportioned and mixed as indicated for topping of slabs and concrete/grout fill for built-up surfaces of tanks, channels, and basin bottoms. Materials and procedures indicated for structural concrete in Section 03 31 00- Structural Concrete, apply unless indicated otherwise.
- C.** Furnish and place topping grout and concrete/grout fill with a minimum of 564 pounds of cement per cubic yard and a maximum water/cement ratio of 0.45. For clarifiers. Furnish and place topping grout in clarifiers containing between 750 and 800 pounds of cement per cubic yard with a maximum water/cement ratio of 0.42.
- D.** Use coarse aggregate graded as follows:

U.S. Standard Sieve Size	Percent By Weight Passing
1/2 in	100
3/8 in	90-100
No. 4	20-55
No. 8	5-30
No. 16	0-10
No. 30	0

- E.** Determine final mix design by trial mix design as indicated in Section 03 31 10 except that drying shrinkage tests are not required.
- F.** Use air-entraining agent per Section 03 31 00 in topping grout and concrete grout/fill.



- G. Strength:** Provide topping grout and concrete grout/fill having a minimum compressive strength of fill at 28 days be 4500 psi.
- H.** Use fiber reinforcing in topping grout used in clarifiers, or where the fill thickness is 3 inches or greater, unless otherwise shown on the Contract Documents. Use 100 percent virgin polypropylene fibrillated fibers specifically manufactured in a blended gradation for use as concrete secondary reinforcement. Add fibers at a rate of 1.5 pounds per cubic yard of concrete. Use fibers conforming conform to ASTM C1116.

2.5 CURING MATERIALS

- A.** Use curing materials complying with 03 31 00 and as recommended by the manufacturer of prepackaged grouts.

2.6 CONSISTENCY

- A.** Ensure that the consistency of grout is as necessary to completely fill the space to be grouted for the particular application. Dry pack consistency is defined such that the grout is plastic and moldable but will not flow. Where "dry pack" is called for in the Contract Documents, it means a grout of that consistency; the type of grout to be used is to be as indicated herein for the particular application.
- B.** Adjust slump for topping grout and concrete/grout fill to match placement and finishing conditions but do not allow the slump to exceed 4-inches.

2.7 MEASUREMENT OF INGREDIENTS

- A.** Make measurements for cement grout accurately by volume using containers. Do not use shovel measurements.
- B.** Measure ingredients for prepackaged grouts measured by means recommended by the manufacturer.

PART 3 -- EXECUTION

3.1 PRODUCT DELIVERY, STORAGE AND HANDLING

- A.** Store grout be stored in accordance with manufacturer's recommendations.

3.2 GENERAL

- A.** Arrange for the manufacturer of prepackaged grouts to provide on-site technical assistance within 72 hours of request, as part of the WORK.
- B.** Do not place grout until base concrete or masonry has attained its design strength, unless authorized otherwise by the ENGINEER.
- C.** When cementitious grouts are used on concrete surfaces, saturate the concrete surface with water for 24 hours prior to placement. Upon completion of the saturation period, remove excess water with clean, oil free compressed air prior to grouting. Concrete substrate may not be wet prior to placement of epoxy grouts.



- D. Conduct surface preparation, curing, and protection of cement grout in accordance with Section 03 31 00. Match the finish of the grout surface to that of the adjacent concrete unless otherwise indicated.
- E. Ensure that surfaces that will be in contact with grout are free of dirt, loose rust, oil, wax, grease, curing compounds, laitance, loose concrete, and other deleterious materials.
- F. Shade the WORK from sunlight for at least 24 hours before and 48 hours after grouting.
- G. Contact the grout manufacturer's representative for assistance on hot and cold weather grouting techniques and precautions if applicable.

3.3 GROUTING PROCEDURES

- A. **General:** Conduct the mixing, surface preparation, handling, placing, consolidation, curing, and other means of execution for prepackaged grouts according to the instructions and recommendations of the manufacturer.
- B. Grout structural, equipment, tank, and piping support bases unless indicated otherwise.
 - 1. Block out or finished off the original concrete a sufficient distance below the plate to provide for a minimum one-inch thickness of grout or other thickness if indicated.
 - 2. After the base plate has been set in position at the proper elevation by steel wedges or double nuts on the anchor bolts, fill the space between the bottom of the plate and the original pour of with non-shrink-type grout through a headbox of appropriate size. Use grout of a fluid consistency and pour the grout continuously into the space between the plate and the base concrete. Use forms for grout that are tight against retaining surfaces, and seal joints as recommended by the grout manufacturer to be liquid-tight. Coat forms as recommended by the grout manufacturer for easy form release. Where this method of placement is not practical or where required by the ENGINEER, submit alternate grouting methods by the CONTRACTOR for acceptance by the ENGINEER.
 - 3. Size concrete equipment pads for equipment bases that will be epoxy-grouted so that, when the equipment base is fully grouted, the epoxy grout is stopped not less than 4-inches from the edge of the pad.
- C. Topping Grout and Concrete/Grout Fill
 - 1. Complete mechanical, electrical, and finish WORK prior to placement of topping or concrete/grout fill. To ensure bonding to the base slab, give the base slab an exposed aggregate finish. Alternatively, where accepted by the ENGINEER, give the base slab a roughened textured surface by a close-spaced rake while the surface is green. After curing, use high pressure washing to expose the aggregates and produce not less than a 3/16-inch amplitude



roughness. Jackhammers or chipping hammers may not be used for this operation.

2. Ensure that the minimum thickness of grout topping and concrete/grout fill is not less than one-inch. Where the finished surface of concrete/grout fill is to form an intersecting angle of less than 45 degrees with the concrete surface it is to be placed against, form a key in the concrete surface at the intersection point. Form a key that is a minimum of 3-1/2 inches wide by 1-1/2 inches deep.
3. Thoroughly clean and wet the base slab to saturated surface dry (SSD) condition per the International Concrete Repair Institute (ICRI) -- Technical Guide for Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays, prior to placing topping grout and grout fill. Do not place topping grout until the slab is completely free from standing pools or ponds of water. Broom a thin coat of neat cement grout into the surface of the slab just before topping or fill placement. Do not allow neat cement grout to dry before topping placement. If the neat grout does dry, it must be immediately removed using wet stiff brooms and reapplied. Compact the topping and fill by rolling or thorough tamping, brought to established grade, and floated. Install grout fill for tank and basin bottoms where scraping mechanisms are to be installed by screeding by blades attached to the revolving mechanism of the equipment in accordance with the procedures outlined by the equipment manufacturer after the grout is brought to the established grade. Coat surface with evaporation retardant as needed to prevent plastic shrinkage cracks.
4. Place topping grout placed on sloping slabs uniformly from the bottom of the slab to the top, for the full width of the placement.
5. Test the surface a straight edge to detect high and low spots and immediately eliminate high and low spots. When the topping or fill has hardened sufficiently, trowel the surface to a smooth surface free from pinholes and other imperfections. An approved type of mechanical trowel may be used as an assist in this operation, but make the last pass over the surface by hand-troweling. During finishing, do not apply water, dry cement, or mixture of dry cement and sand to the surface.
6. As soon as topping or fill finishing is completed, coat surface with curing compound. After the topping is set and sufficiently hard in clarifiers and where required by the ENGINEER, fill the tank with sufficient water to cover the entire floor for 14 days.

3.4 CONSOLIDATION

- A. Place and consolidate grout in such a manner, for the consistency necessary for each application, to assure that the space to be grouted is completely filled.

END OF SECTION



SECTION 05 50 00 – MISCELLANEOUS METALWORK

PART 1 -- GENERAL

1.1 THE REQUIREMENT

- A. Provide miscellaneous metalwork and appurtenances, complete and in place, in accordance with the Contract Documents.

1.2 REFERENCE STANDARDS

- A. Aluminum Association

AA	Aluminum Association Designation System for Anodized Aluminum Finishes

- B. American Association of State Highway and Transportation Officials

AASHTO HS-20	Standard Live Loads for Bridges

- C. American Institute for Steel Construction

AISC LRFD	Standard Specification for Structural Steel Buildings

AISC CSP	Code of Standard Practice

- D. American Welding Society (AWS)

AWS D1.1	Structural Welding Code

AWS WH	Welding Handbook

- E. ASTM International (ASTM)

ASTM A36	Standard Specification for Carbon Structural Steel

ASTM A48	Standard Specification for Gray Iron Castings

ASTM A53	Standard Specification for Pipe, Steel, Black and Hot – Dipped, Zinc Coated, Welded and Seamless

ASTM A193	Standard Specification for Alloy-Steel and Stainless Steel Bolting for High – Temperature or High Pressure Service and Other Special Purpose Applications

ASTM A194	Standard Specification for Carbon Steel, Alloy Steel, and Stainless Steel Nuts for Bolts for High Pressure or High Temperature Service, or Both

ASTM A307	Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod

ASTM A325	Standard Specification for High Strength Structural Bolts, Steel and Alloy Steel, Heat Treated, 120 KSI



ASTM A500 Standard Specification for Cold – Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes

ASTM A992 Standard Specification for Structural Steel Shapes

F. Code of Federal Regulations

29CFR1910 General Occupational Industry Health and Safety Standards

G. International Organization for Standardization

ISO 898 Mechanical and Physical Properties for Fasteners

1.3 CONTRACTOR SUBMITTALS, SAMPLING, AND TESTING

A. Provide submittals, samples for testing, and testing of materials in accordance with Section 01 33 00 – Contractor Submittals.

B. Materials proposed for and utilized in the WORK will be sampled as indicated in herein. The frequency of testing may be altered at the discretion of the ENGINEER. Provide all materials required for testing at no additional cost to the OWNER

C. Submittals: Submit the following:

1. Submit shop drawings for all hatches. Include complete details showing all members and their connections, anchor bolts, schedules for fabrication procedures, and diagrams showing requirements for installation. Mill certificates for all fabrications indicating compliance with all referenced specifications. Submit design calculations substantiating the design of the hatches.
2. Submit product data for all bolts and anchors. Submit with each anchor an an ICBO report listing the ultimate load capacity in tension and shear for each size and type of concrete anchor. Submit manufacturer's recommended installation instructions and procedures for adhesive anchors.

PART 2 -- PRODUCTS

2.1 GENERAL REQUIREMENTS

A. Corrosion Protection: Unless otherwise indicated, coat fabricated steel metalwork which will be used in a corrosive environment and/or will be submerged in water/wastewater in accordance with Section 09 96 00 - Protective Coating and do not galvanized prior to coating. Hot – dip galvanize other miscellaneous steel metalwork after fabrication.

B. Stainless Steel: Unless otherwise indicated, use Type 316 stainless steel for steel metalwork and use bolts be of Type 316 stainless steel. Where anaerobic conditions are noted, use Type 304 stainless steel.



- C. **Aluminum:** Unless otherwise indicated, use Alloy 6061-T6. Coat contact surfaces of aluminum in contact with concrete, masonry, wood, porous materials, or dissimilar metals with an acceptable coating for isolation.
- D. **Cast Iron:** Unless otherwise indicated, use iron castings conforming to the requirements of ASTM A 48, Class 50B or better.

2.2 IRON CASTINGS

- A. Unless noted otherwise elsewhere in the drawings are specifications, provide gray iron castings complying with AASHTO M306. Provide castings true to pattern in form and dimensions and free from pouring faults, sponginess, cracks, blowholes and other defects in positions affecting their strength and value for the services intended. Provide castings boldly filleted at angles, with rises cleaned of scale and surfaces sanded to a smooth, clean and uniform surface.
- B. Provide covers and grates together evenly, so that the cover fits flush with the surrounding finished surface and so that the cover does not rock or rattle when loading is applied. Provide round covers and frames with machined bearing surfaces.

2.3 BOLTS AND ANCHORS

- A. **Standard Service (Non-Corrosive Application):** Unless otherwise indicated, provide steel bolts, anchor bolts, washers, and nuts. Provide threads on galvanized bolts formed with suitable taps and dies such that they retain their normal clearance after hot-dip galvanizing. Except as otherwise indicated, use steel for bolt material, anchor bolts, and cap screws complying with the following:
 - 1. Structural connections: ASTM A 307, Grade A or B, hot-dip galvanized.
 - 2. Anchor Bolts: ASTM A 307, Grade A or B, or ASTM A 36, hot-dip galvanized.
 - 3. High strength bolts where indicated: ASTM A 325.
 - 4. Pipe and equipment flange bolts: ASTM A 193, Grade B-7.
- B. **Corrosive Service:** Use stainless steel bolts, nuts, and washers in the locations listed below:
 - 1. Buried locations.
 - 2. Submerged locations.
 - 3. Locations subject to seasonal or occasional flooding.
 - 4. Inside hydraulic structures below the top of the structure.
 - 5. Inside buried vaults, manholes, and structures that do not drain through a gravity sewer or to a sump with a pump.
 - 6. Chemical handling areas.



7. Inside trenches, containment walls, and curbed areas.
 8. Locations indicated by the Contract Documents or designated by the ENGINEER to be provided with stainless steel bolts.
- C. Where stainless steel bolts are required, provide stainless steel bolts, anchor bolts, nuts, and washers of Type 316 stainless steel, Class 2, conforming to ASTM A 193 for bolts and to ASTM A 194 for nuts. Protect threads on stainless steel bolts with an antiseize lubricant suitable for submerged stainless steel bolts, to meet government specification MIL-A-907E. Use lubricant suitable for contact with potable water and listed on NSF 61. Use "PURE WHITE" by **Anti-Seize Technology**, Franklin Park, IL, 60131, AS-470 by **Dixon Ticonderoga Company**, Lakehurst, NJ, 08733, or equal.

D. Bolt Requirements

1. Use bolt and nut material made of free-cutting steel.
2. Use nuts capable of developing the full strength of the bolts. Provide Coarse Thread Series threads conforming to the requirements of the American Standard for Screw Threads. Provide bolts and cap screws hexagon heads and provide Heavy Hexagon series nuts.
3. Install bolts and nuts with washers fabricated of material matching the base material of bolts, except that hardened washers for high strength bolts must conform to the requirements of the AISC Specification. Install lock washers fabricated of material matching the bolts where indicated.
4. Provide bolts of length such that the bolt extends at least 1/8-inch beyond the outside face of the nut before tightening. For anchor bolts, provide bolts of such length such that the bolt is flush with the face of the nut before tightening.

E. Adhesive Anchors and Rods: Use adhesive anchors in drilled holes in concrete or masonry.

1. Use adhesive anchors and rods which employ an injectable adhesive. Use adhesive furnished in side-by-side refill packets that keep components separate prior to installation. Use side – by – side refill packets which use static mixing nozzles which thoroughly combines components and allows injection directly into drilled hole. Only use injection tools and static mixing nozzles as recommended by manufacturer. Follow manufacturer's recommended instructions. Use **HILTI – HY 500 MAX – SD** or equal.
2. Furnish rod with chamfered ends so that either end will accept a nut and washer. Alternatively, furnish rods with at 45 degree chisel end on one end to allow for easy insertion into an adhesive – filled hole. Use anchor rods manufactured to meet ISO 898 Class 5.8, ASTM A193 Grade B7 (high strength carbon steel anchor). Use **HILTI HAS Rods** or equal.

F. Expanding-Type Anchors: Do not use expanding type (or "wedge") anchors for any application.

G. Non-Shrink Grouted Anchors: Do not use non – shrink



PART 3 -- EXECUTION

3.1 GENERAL

- A. **Measurements:** Verify all dimensions and make any field measurements necessary. Assume full responsibility for accuracy and layout of work. Review the Drawings, and report any discrepancies to the ENGINEER for clarification prior to starting fabrication.

3.2 WELDING

- A. **Method:** Provide welding using the metal-arc method or gas-shielded arc method as described in the American Welding Society's "Welding Handbook" as supplemented by other pertinent standards of the AWS. Use welders qualified in accordance with the AWS Standards governing same.
- B. **Quality:** In assembly and during welding, adequately clamp, support, and restrain components as to minimize distortion and for control of dimensions. Use reinforcement as indicated by the AWS Code. Upon completion of welding, remove weld splatter, flux, slag, and burrs left by attachments. Repair welds to produce a workmanlike appearance, with uniform weld contours and dimensions. Grind sharp corners of material that is to be painted or coated to a minimum of 1/32-inch on the flat.

3.3 GALVANIZING

- A. Galvanize structural steel plates shapes, bars, and fabricated assemblies required to be galvanized after the steel has been thoroughly cleaned of rust and scale in accordance with the requirements of ASTM A 123. Straighten any galvanized part that becomes warped during the galvanizing operation. Galvanize olts, anchor bolts, nuts, and similar threaded fasteners, after being properly cleaned, in accordance with the requirements of ASTM A 153.
- B. Make field repairs to damaged galvanizing by preparing the surface and applying a coating.
 - 1. Prepare surfaces by removing oil, grease, soil, and soluble material by cleaning with water and detergent (SSPC SP1) followed by brush off blast cleaning (SSPC SP7), over an area extending at least 4-inches into the undamaged area.
 - 2. Apply coating to at least 3-mils dry film thickness. Use **Zinc-Clad XI** by **Sherwin-Williams**, **Galvax** by **Alvin Products**, or **Galvite** by **ZRC Worldwide**.

3.4 DRILLED ANCHORS

- A. Install drilled anchors and reinforcing bars in strict accordance with the manufacturer's instructions. Roughen holes with a brush on a power drill, cleaned and dry. Do not install drilled anchors until the concrete has reached the required 28-day compressive strength. Do not load anchors until the adhesive has reached its indicated strength in accordance with the manufacturer's instructions.

- END OF SECTION -



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SECTION 09 96 00 – PROTECTIVE COATINGS

PART 1 -- GENERAL

1.1 THE REQUIREMENT

- A. Provide protective coatings, complete and in place, in accordance with the Contract Documents.
- B. Definitions
 - 1. The term "paint," "coatings," or "finishes" as used herein, includes surface treatments, emulsions, enamels, paints, epoxy resins, and all other protective coatings, excepting galvanizing or anodizing, whether used as a pretreatment, primer, intermediate coat, or finish coat.
 - 2. The term "DFT" means minimum dry film thickness, without any negative tolerance.
- C. Do not coat the following surfaces:
 - 1. Concrete, unless required by items on the concrete coating schedule below or the Drawings.
 - 2. Stainless steel
 - 3. Machined surfaces
 - 4. Grease fittings
 - 5. Glass
 - 6. Equipment nameplates
 - 7. Platform gratings, stair treads, door thresholds, and other walk surfaces, unless specifically indicated to be coated.
- D. The coating system schedules included herein and/or on the drawings summarize the surfaces to be coated, the required surface preparation, and the coating systems to be applied. Coating notes on the Drawings are used to show or extend the limits of coating schedules, to show exceptions to the schedules, or to clarify or show details for application of the coating systems.
- E. Where protective coatings are to be performed by a subcontractor, provide 5 references which show that the painting subcontractor has previous successful experience with the indicated or comparable coating systems. Include the name, address, and the telephone number for the owner of each installation for which the painting subcontractor provided the protective coating.

1.2 REFERENCE STANDARDS



A. American Water Works Association (AWWA)

AWWA/ANSI C213 Fusion Bonded Epoxy Coating

B. ASTM International (ASTM)

ASTM C309 Standard Specification for Liquid Membrane Forming Compounds for Curing Concrete

ASTM D412 Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers – Tension

ASTM D624 Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers

C. Code of Federal Regulations

29CFR1910.1200 Occupational Safety and Health Standards

D. United States Environmental Protection Agency (US EPA)

Method 524.1 Measurement of Volatile Organic Compounds in Water by Purge and Trap Gas Chromatography/Mass Spectrometry

Method 524.2 Measurement of Purgeable Organic Compounds in Water by Capillary Column Gas Chromatography/Mass Spectrometry

E. Federal Specifications

TT-P-28 Paint, Aluminum, Heat Resisting

F. National Association of Corrosion Engineers (NACE)

TM-01-70 Standard Test Method – Visual Standard for Surfaces of New Steel Air – Blast Cleaned with Sand Abrasive

TM-01-75 Visual Standard for Surfaces of New Steel Centrifugally Blast Cleaned with Steel Grit and Shot

G. National Sanitation Foundation (NSF)

NSF 61 Drinking Water System Components – Health Effects

H. Society for Protective Coatings (SSPC)

SSPC SP1 Surface Preparation – Solvent Cleaning

SSPC SP2 Surface Preparation – Hand Tool Cleaning

SSPC SP3 Surface Preparation – Power Tool Cleaning



SSPC SP5	Surface Preparation – White Metal Blasting
SSPC SP6	Surface Preparation – Commercial Blasting
SSPC SP7	Surface Preparation – Brush Off Blasting
SSPC SP10	Surface Preparation – Near White Blasting

1.3 CONTRACTOR SUBMITTALS, SAMPLING, AND TESTING

- A. Provide submittals, samples for testing, and testing of materials in accordance with Section 01 33 00 – Contractor Submittals and Section 01 45 00 – Quality Control.
- B. Submit the following:
 - 1. A coating materials list showing the manufacturer and the coating number, keyed to the coating systems herein
 - 2. Paint Manufacturer's Information: For each coating system to be used, the following data:
 - 1) Paint manufacturer's data sheet for each product proposed, including statements on the suitability of the material for the intended use.
 - 2) Technical and performance information that demonstrates compliance with the system performance and material requirements.
 - 3) Paint manufacturer's instructions and recommendations on surface preparation and application.
 - 4) Colors available for each product (where applicable).
 - 5) Compatibility of shop and field applied coatings (where applicable).
 - 6) Material Safety Data Sheet for each product used.

1.4 SPECIAL CORRECTION OF DEFECTS REQUIREMENTS

- A. **Warranty Inspection:** Conduct a warranty inspection during the eleventh month following completion of all coating and painting work with the CONTRACTOR and a representative of the coating material manufacturer in attendance. Repair any defective work in accordance with these specifications and to the satisfaction of the OWNER. The OWNER may, by written notice to the CONTRACTOR, reschedule the warranty inspection to another date within the one-year correction period, or may cancel the warranty inspection altogether. If a warranty inspection is not held, the CONTRACTOR is not relieved of its responsibilities under the Contract Documents.



1.5 PIPING AND VALVE IDENTIFICATION

- A. Provide identification for exposed piping and valves, complete and in place, in accordance with the Contract Documents.

PART 2 -- PRODUCTS

2.1 GENERAL

- A. **Suitability:** Use suitable coating materials as recommended by the manufacturer. Comply with Volatile Organic Compound (VOC) limits applicable at the Site.
- B. **Material Sources:** Where manufacturers and product numbers are listed, it is to show the type and quality of coatings that are required. If a named product does not comply with VOC limits in effect at the time of bid opening, that product will not be accepted. Propose a compliant substitution product of equal quality. Unless indicated otherwise, proposed substitute materials will be considered as indicated above. Coating materials must have a record of satisfactory performance in industrial plants, manufacturing facilities, and water and wastewater treatment plants.
- C. **Compatibility:** In any coating system use only compatible materials from a single manufacturer in the work. Direct particular attention to compatibility of primers and finish coats. If necessary, apply a barrier coat between existing prime coat and subsequent field coats to ensure compatibility.
- D. **Containers:** Seal coating materials in containers that plainly show the designated name, formula or specification number, batch number, color, date of manufacture, and name of manufacturer at the time of use.
- E. **Colors:** Select all colors and shades of all coats of paint as indicated by the ENGINEER. Apply each coat in a slightly different shade to facilitate inspection of surface coverage of each coat. Select finish colors from the manufacturer's standard color samples provided by the ENGINEER.
- F. Substitute or "Or-Equal" Products
 - 1. Establish equality of products in accordance with the Contract Documents, by furnishing satisfactory documentation from the manufacturer of the proposed substitute or "or-equal" product that the material meets the indicated requirements and is equivalent or better in the following properties:
 - 1. Quality
 - 2. Durability
 - 3. Resistance to abrasion and physical damage
 - 4. Life expectancy



5. Ability to recoat in future
 6. Solids content by volume
 7. Dry film thickness per coat
 8. Compatibility with other coatings
 9. Suitability for the intended service
 10. Resistance to chemical attack
 11. Temperature limitations in service and during application
 12. Type and quality of recommended undercoats and topcoats
 13. Ease of application
 14. Ease of repairing damaged areas
 15. Stability of colors
2. Utilize protective coating materials which are standard products produced by recognized manufacturers who are regularly engaged in production of such materials for essentially identical service conditions. Where requested, provide the ENGINEER with the names of not less than 10 successful applications of the proposed manufacturer's products that comply with these requirements.
 3. Bear all such costs involved as part of the WORK if a proposed substitution requires changes in the WORK.

2.2 INDUSTRIAL COATING SYSTEMS

A. System 5 – Epoxy/Epoxy/Polyurethane: Provide a prime coat and an intermediate coat with a high-build two component epoxy and a solids content of at least 69 percent by volume. Utilize a finish coats with a 2-component aliphatic acrylic or polyester polyurethane coating material that provides superior color and gloss retention, resistance to chemical fumes and severe weathering, and a minimum solids content of 58 percent by volume.

1. Prime coat DFT 4-5 mils = Tnemec N69, Sherwin Williams Macropoxy 646 FC or equal.
2. Intermediate coat DFT 5-6 mils, **Tnemec N69, Sherwin Williams Macropoxy 646 FC or equal.**
3. Finish coats (one or more, DFT = 3 mils), **Tnemec 1094, Sherwin Williams Acrolon 218 HS** or equal.
4. Total system DFT = 12-14 mils.
5. Apply more than one finish coat as necessary to produce a finish with



uniform color and texture. If the inorganic zinc primer is used as a pre-construction or shop applied primer, spot abrasive blast and coat all damaged and uncoated areas after construction using the indicated material.

2.3 SUBMERGED AND SEVERE SERVICE COATING SYSTEMS

- A. Material Sources:** The manufacturers' products listed in this paragraph are materials which satisfy the material descriptions of this paragraph and have a documented successful record for long term submerged or severe service conditions. Proposed substitute products will be considered as indicated above.
- B. System 100 - Amine Cured Epoxy:** Provide a high build, amine cured, epoxy resin with a solids content of at least 80 percent by volume, that is suitable for long-term immersion service in potable water and municipal wastewater. For potable water service, utilize a coating material indicated by the NSF International as in compliance with NSF Standard 61 - Drinking Water System Components - Health Effects.
1. Prime coat and finish coats (3 or more, DFT = 16 mils), **Ameron 395, Tnemec 104 for Water or Tnemec N140 for all other, Carboline Carboguard 891 HS, Sherwin – Williams Macropoxy 5500, or equal.**
- C. System 106 - Fusion Bonded Epoxy:** Provide a coating material with a 100 percent powder epoxy, certified as compliant with NSF Standard 61, applied in accordance with the ANSI/AWWA C213 - Fusion-Bonded Epoxy Coating for the Interior and Exterior of Steel Water Pipelines, except with the surface preparation as listed in the coating system schedule of this Section. Apply the coating using the fluidized bed or electrostatic spray process.
1. Coating DFT = 16 mils, **Scotchkote 134 or 206N**, or equal.
 2. For coating of valves, DFT = 12 mils.
 3. Liquid Epoxy: For field repairs, the use of a liquid epoxy will be permitted, applied in not less than 3 coats to provide a DFT of 15 mils. Utilize a liquid epoxy with a 100 percent solids epoxy recommended by the powder epoxy manufacturer.

2.4 SPECIAL COATING SYSTEMS

- A. System 200 - PVC Tape:** Prior to wrapping the pipe with PVC tape, prime the pipe and fittings using a primer recommended by the PVC tape manufacturer. After being primed, wrap the pipe with a 20-mil adhesive PVC tape, half-lapped, to a total thickness of 40 mils.
- B. System 205 - Polyethylene Encasement:** Apply the polyethylene encasement in accordance with ANSI/AWWA C105 using Method C.



PART 3 -- EXECUTION

3.1 MANUFACTURER'S SERVICES

- A. Require the protective coating manufacturer to furnish a qualified technical representative to visit the Site for technical support as may be necessary to resolve field problems attributable or associated with the manufacturer's products.

3.2 WORKMANSHIP

- A. Utilize a skilled craftsmen and experienced supervision on all WORK.
- B. Produce coatings in a workmanlike manner with an even film of uniform thickness. Treat edges, corners, crevices, and joints with special attention to ensure thorough cleaning and an adequate thickness of coating material. Ensure finished surfaces are free from runs, drops, ridges, waves, laps, brush marks, and variations in color, texture, and finish. Complete the hiding so that the addition of another coat would not increase the hiding. Give special attention to ensure that edges, corners, crevices, welds, and similar areas receive a film thickness equivalent to adjacent areas. Utilize drop cloths or other precautionary measures to protect adjacent areas and installations.
- C. Clean, repair, and refinish all damage to surfaces resulting from the WORK back to original condition.

3.3 STORAGE, MIXING, AND THINNING OF MATERIALS

- A. **Manufacturer's Recommendations:** Unless otherwise indicated, strictly observe the coating manufacturer's printed recommendations and instructions for thinning, mixing, handling, applying, and protecting its coating materials, for preparation of surfaces for coating, and for all other procedures relative to coating.
- B. Utilize all protective coating materials within the manufacturer's recommended shelf life.
- C. **Storage and Mixing:** Store coating materials under the conditions recommended by the Material Safety Data Sheets, and thoroughly stir, strain, and maintain a uniform consistency during application. Do not mix coatings of different manufactures together.

3.4 PREPARATION FOR COATING

- A. **General:** Clean all indicated surfaces receiving protective coatings prior to application of coatings. Examine all surfaces to be coated, and correct all surface defects before application of any coating material. Touch-up all marred or abraded spots on shop-primed and on factory-finished surfaces prior to any coating application. Ensure all surfaces to be coated are dry and free of visible dust.
- B. **Protection of Surfaces Not to be Coated:** Protect all surfaces not receiving



protective coatings during surface preparation, cleaning, and coating operations.

- C. Remove, mask, or otherwise protect all hardware, lighting fixtures, switchplates, machined surfaces, couplings, shafts, bearings, nameplates on machinery, and other surfaces not being painted. Utilize drop cloths to prevent coating materials from falling on or marring adjacent surfaces. Protect the working parts of all mechanical and electrical equipment from damage during surface preparation and coating operations. Mask openings in motors to prevent entry of coating or other materials.
- D. Exercise care not to damage adjacent work during blast cleaning operations. Conduct spray painting under carefully controlled conditions. Assume full responsibility and pay all costs for the prompt repair of any and all damage to adjacent work or adjoining property occurring from blast cleaning or coating operations.
- E. **Protection of Painted Surfaces:** Coordinate cleaning and coating so that dust and other contaminants from the cleaning process will not fall on wet, newly coated surfaces.

3.5 SURFACE PREPARATION STANDARDS

- A. Include the following referenced surface preparation specifications of the Steel Structures Painting Council as part of this specification:
 - 1. Solvent Cleaning (SSPC SP1): Removal of oil, grease, soil, salts, and other soluble contaminants by cleaning with solvent, vapor, alkali, emulsion, or steam.
 - 2. Hand Tool Cleaning (SSPC SP2): Removal of loose rust, loose mill scale, loose paint, and other loose detrimental foreign matter, by hand chipping, scraping, sanding, and wire brushing.
 - 3. Power Tool Cleaning (SSPC SP3): Removal of loose rust, loose mill scale, loose paint, and other loose detrimental foreign matter, by power tool chipping, descaling, sanding, wire brushing, and grinding.
 - 4. White Metal Blast Cleaning (SSPC SP5): Removal of all visible rust, oil, grease, soil, dust, mill scale, paint, oxides, corrosion products and foreign matter by blast cleaning.
 - 5. Commercial Blast Cleaning (SSPC SP6): Removal of all visible oil, grease, soil, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter, except that staining is limited to no more than 33 percent of each square inch of surface area.
 - 6. Brush-Off Blast Cleaning (SSPC SP7): Removal of all visible oil, grease, soil, dust, loose mill scale, loose rust, and loose paint.
 - 7. Near-White Blast Cleaning (SSPC SP10): Removal of all visible oil, grease, soil, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign



matter, except that staining is limited to no more than 5 percent of each square inch of surface area.

3.6 METAL SURFACE PREPARATION (UNGALVANIZED)

- A.** Utilize the minimum abrasive blasting surface preparation as indicated in the coating system schedules included at the end of this Section. Utilize the higher degree of cleaning where there is a conflict between these specifications and the coating manufacturer's printed recommendations for the intended service.
- B.** Provide workmanship for metal surface preparation in conformance with the current SSPC Standards and this Section. Match blast cleaned surfaces to the standard samples available from the National Association of Corrosion Engineers, NACE Standard TM-01-70 - Visual Standard for Surfaces of New Steel Airblast Cleaned with Sand Abrasive and TM-01-75 - Visual Standard for Surfaces of New Steel Centrifugally Blast Cleaned with Steel Grit.
- C.** Remove all oil, grease, welding fluxes, and other surface contaminants by solvent cleaning per SSPC SP1 - Solvent Cleaning prior to blast cleaning.
- D.** Round or chamfer all sharp edges and grind smooth all burrs, surface defects and weld splatter prior to blast cleaning.
- E.** Select the type and size of abrasive to produce a surface profile that meets the coating manufacturer's recommendation for the particular coating and service conditions. Provide clean, hard, sharp cutting crushed slag as abrasives for submerged and severe service coating systems. Do not utilize automated blasting systems for surfaces that will be in submerged service. Do not utilize metal shot or grit for surfaces that will be in submerged service, even if subsequent abrasive blasting is planned to be one with hard, sharp cutting crushed slag.
- F.** Do not reuse abrasives unless an automated blasting system is used for surfaces that will be in non-submerged service. Maintain clean oil-free abrasives for automated blasting systems. Provide an abrasive mix with at least 50 percent grit.
- G.** Comply with the applicable federal, state, and local air pollution control regulations for blast cleaning.
- H.** Supply compressed air for air blast cleaning at adequate pressure from well maintained compressors equipped with oil and moisture separators that remove at least 95 percent of the contaminants.
- I.** Clean surfaces of all dust and residual particles of the cleaning operation by dry air blast cleaning, vacuuming, or another approved method prior to painting.
- J.** Vacuum clean all enclosed areas and other areas where dust settling is a problem and wipe area clean with a tack cloth.
- K.** Remove damaged or defective coating by the blast cleaning to meet the clean



surface requirements before recoating.

- L. Utilize SSPC SP2 or SSPC SP3 if the required abrasive blast cleaning will damage adjacent work, the area to be cleaned is less than 100 square feet, and the coated surface will not be submerged in service.
- M. Completely remove shop applied coatings of unknown composition before the indicated coatings are applied. Examine all valves, castings, ductile or cast iron pipe, and fabricated pipe or equipment for the presence of shop-applied temporary coatings. Completely remove temporary coatings by solvent cleaning per SSPC SP1 before the abrasive blast cleaning work has been started.
- N. Solvent clean shop primed equipment in the field before finish coats are applied.

3.7 SURFACE PREPARATION OF FERROUS SURFACES WITH EXISTING COATINGS, EXCLUDING STEEL RESERVOIR INTERIORS

- A. **General:** Remove all grease, oil, heavy chalk, dirt, or other contaminants by solvent or detergent cleaning prior to abrasive blast cleaning. Determine the generic type of the existing coatings by laboratory testing.
- B. **Abrasive Blast Cleaning:** Provide the degree of cleaning indicated in the coating system schedule for the entire surface to be coated. If the degree of cleaning is not indicated in the schedule, deteriorated coatings remove by abrasive blast cleaning to SSPC SP6. Clean areas of tightly adhering coatings to SSPC SP7, with the remaining thickness of existing coating not to exceed 3 mils.
- C. **Incompatible Coatings:** If coatings to be applied are not compatible with existing coatings, apply intermediate coatings per the paint manufacturer's recommendation for the indicated coating system or completely remove the existing coating prior to abrasive blast cleaning. Conduct a small trial application for compatibility prior to painting large areas.
- D. **Unknown Coatings:** Completely remove coatings of unknown composition prior to application of new coatings.
- E. **Water Abrasive or Wet Abrasive Blast Cleaning:** Where indicated or where Site conditions do not permit dry abrasive blasting for industrial coating systems due to dust or air pollution considerations, water abrasive blasting or wet abrasive blasting may be used. In both methods, use paint-compatible corrosion inhibitors, and begin coating application as soon as the surfaces are dry. Utilize water abrasive blasting with high pressure water with sand injection. In both methods, utilize equipment commercially produced equipment with a successful service record. Do not use wet blasting methods for submerged and severe service coating systems unless indicated.

3.8 SHOP COATING REQUIREMENTS

- A. Unless otherwise indicated, shop prime and then finish coat in the field after installation with the indicated or selected color all items of equipment, or parts of equipment which are not submerged in service. Ensure all methods, materials, application equipment and all other details of shop painting comply with this



section. If the shop primer requires topcoating within a specified period of time, finish coat the equipment in the shop and then touch-up painted after installation.

- B. Perform all surface preparation and coating work in the field for all items of equipment, or parts and surfaces of equipment which are submerged or inside an enclosed hydraulic structure when in service, with the exception of pumps and valves.
- C. Perform all surface preparation and coating work in the field for the interior surfaces of steel water reservoirs, except for Part A surfaces
- D. For certain pieces of equipment, it may be undesirable or impractical to apply finish coatings in the field. Such equipment may include engine generator sets, equipment such as electrical control panels, switchgear or main control boards, submerged parts of pumps, ferrous metal passages in valves, or other items where it is not possible to obtain the indicated quality in the field. Prime and finish coat such equipment in the shop and touch up in the field with the identical material after installation. Require the manufacturer of each such piece of equipment to certify as part of its Shop Drawings that the surface preparation is in accordance with these specifications. Submit the coating material data sheet with the Shop Drawings for the equipment.
- E. For certain small pieces of equipment, the manufacturer may have a standard coating system that is suitable for the intended service conditions. In such cases, the final determination of suitability will be made during review of the Shop Drawing submittals. Equipment of this type generally includes only indoor equipment such as instruments, small compressors, and chemical metering pumps.
- F. Protect shop painted surfaces during shipment and handling by suitable provisions including padding, blocking, and the use of canvas or nylon slings. Do not expose primed surfaces to the weather for more than 2 months before being topcoated, or less time if recommended by the coating manufacturer.
- G. Repair damage to shop-applied coatings in accordance with this Section and the coating manufacturer's printed instructions.
- H. Ensure shop primers and field topcoats are compatible and meet the requirements of this Section. Submit copies of applicable coating manufacturer's data sheets with equipment Shop Drawings.

3.9 APPLICATION OF COATINGS

- A. Ensure the application of protective coatings to steel substrates is in accordance with SSPC PA1 - Paint Application Specification No. 1.
- B. Inspect all cleaned surfaces and all coats prior to each succeeding coat. Schedule such inspection in advance with the ENGINEER.
- C. Paint blast cleaned ferrous metal surfaces before any rusting or other deterioration of the surface occurs. Limit blast cleaning to only those surfaces



that can be coated in the same working day.

- D. Apply coatings in accordance with the manufacturer's instructions and recommendations, and this Section, whichever has the most stringent requirements.
- E. Give special attention to edges, angles, weld seams, flanges, nuts and bolts, and other places where insufficient film thicknesses are likely to be present. Use stripe painting for these areas.
- F. Give special attention to materials that will be joined so closely that proper surface preparation and application are not possible. Coat such contact surfaces prior to assembly or installation.
- G. Apply finish coats, including touch-up and damage repair coats in a manner that will present a uniform texture and color matched appearance.
- H. Do not apply coatings under the following conditions:
 - 1. Temperature exceeding the manufacturer's recommended maximum and minimum allowable.
 - 2. Dust or smoke laden atmosphere.
 - 3. Damp or humid weather.
 - 4. When the substrate or air temperature is less than 5 degrees F above dewpoint.
 - 5. When air temperature is expected to drop below 40 degrees F or less than 5 degrees F above the dewpoint within 8 hours after application of coating.
 - 6. When wind conditions are not calm.
- I. Determine dewpoint by use of a sling psychrometer in conjunction with U.S. Dept. of Commerce, Weather Bureau psychrometric tables.
- J. Abrasive blast clean unburied steel piping and prime before installation.
- K. Apply the finish coat on all work after all concrete, masonry, and equipment installation is complete and the work areas are clean and dust free.

3.10 CURING OF COATINGS

- A. Maintain curing conditions in accordance with the conditions recommended by the coating material manufacturer or by this Section, whichever is the most stringent, prior to placing the completed coating system into service.
- B. In the case of enclosed areas, forced air ventilation, using heated air if necessary, may be required until the coatings have fully cured.



- C. Forced Air Ventilation of Steel Reservoirs and Enclosed Hydraulic Structures:**
Forced air ventilation is required for the application and curing of coatings on the interior surfaces of steel reservoirs and enclosed hydraulic structures. During application and curing periods, continuously exhaust air from a manhole in the lowest shell ring, or in the case of an enclosed hydraulic structure, from the lowest level of the structure using portable ducting. After all interior coating operations have been completed, provide a final curing period for a minimum of 10 days in which, which the forced ventilation system operates continuously. For additional requirements, refer to the specific coating system requirements in Part 2 above.

3.11 IDENTIFICATION OF PIPING

- A.** Install markers and identification tags in accordance with the manufacturer's printed instructions, and ensure they are neat and uniform in appearance. Provide tags and markers that are readily visible from all normal working locations.
- B.** Permanently attach valve tags to the valve or structure by means of 2 stainless steel bolts or screws.
- C.** Label every valve or connection, where it may be possible for a worker to be exposed to a hazardous substance, per Occupational Safety and Health Standards 29CFR1910.1200.
- D.** Color-code paint all unburied pipes in structures and in chemical pipe trenches. Colors will be selected by the ENGINEER, or as indicated.
- E.** Color-code paint all unburied chemical pipes, including chemical pipes in structures and chemical pipe trenches.
- F.** Mark each pipe at:
- 1.** Intervals of 20-feet in straight runs.
 - 2.** At least once in every room.
 - 3.** Within 2-feet of turns, elbows, and valves.
 - 4.** On the upstream side of tees, branches, and other distribution points.
 - 5.** On both sides of walls and floors through which the piping passes.
- G.** Conform identification Colors to the piping schedule contained in the drawings.

3.12 SHOP AND FIELD INSPECTION AND TESTING

- A.** General: Give the ENGINEER a minimum of 3 days advance notice of the start of any field surface preparation work or coating application work, and a minimum of 7 days advance notice of the start of any shop surface preparation work.
- B.** Perform all such work only in the presence of the ENGINEER, unless the ENGINEER



has granted prior approval to perform such work in its absence.

- C. Inspection by the ENGINEER, or the waiver of inspection of any particular portion of the WORK, does not relieve the CONTRACTOR of its responsibility to perform the work in accordance with these Specifications.
- D. Erect and move scaffolding to locations where requested by the ENGINEER to facilitate inspection. Furnish additional illumination to cover all areas to be inspected.
- E. **Inspection Devices:** Furnish, until final acceptance of such coatings, inspection devices in good working condition for the detection of holidays and measurement of dry-film thicknesses of protective coatings. Make dry-film thickness gauges available for the ENGINEER'S use at all times while coating is being done, until final acceptance of such coatings. Furnish the services of a trained operator of the holiday detection devices until the final acceptance of such coatings. Operate holiday detection devices only in the presence of the ENGINEER.
- F. **Holiday Testing:** Holiday test all coated ferrous surfaces inside a steel reservoir, other surfaces which will be submerged in water or other liquids, or surfaces which are enclosed in a vapor space in such structures and surfaces coated with any of the submerged and severe service coating systems. Mark, repair, or recoat areas that contain holidays in accordance with the coating manufacturer's printed instructions and then retested.
 - 1. Coatings With Thickness Exceeding 20 Mils: For surfaces having a total dry film coating thickness exceeding 20 mils: utilize pulse-type holiday detector such as **Tinker & Rasor Model AP-W, D.E. Stearns Co. Model 14/20**, or equal. Adjust the unit to operate at the voltage required to cause a spark jump across an air gap equal to twice the required coating thickness.
 - 2. Coatings With Thickness of 20 Mils or Less: For surfaces having a total dry film coating thickness of 20 mils or less: use **Tinker & Rasor Model M1 non-destructive type holiday detector, K-D Bird Dog**, or equal. Operate the unit at less than 75-volts. For thicknesses between 10 and 20 mils, add a non-sudsing type wetting agent, such as **Kodak Photo-Flo**, or equal, to the water prior to wetting the detector sponge.
- G. **Film Thickness Testing:** On ferrous metals, measure the dry film coating thickness in accordance with the SSPC "Paint Application Specification No. 2" using a magnetic-type dry film thickness gauge such as **Mikrotest model FM, Elcometer model 111/1EZ**, or equal. Test each coat for the correct thickness. Do not take measurements until at least 8 hours after application of the coating. On non-ferrous metals and other substrates, measure the coating thicknesses at the time of application using a wet film gauge.
- H. **Surface Preparation:** Evaluation of blast cleaned surface preparation work will be based upon comparison of the blasted surfaces with the standard samples available from the NACE, using NACE standards TM-01-70 and TM-01-75.



3.13 COATING SYSTEM SCHEDULES - FERROUS METALS

A. Coating System Schedule, Ferrous Metal - Not Galvanized:

	Item	Surface Prep.	System No.
FM-1	Exterior surfaces of exposed ductile iron piping and fittings	Near white metal blast cleaning SSPC SP10	(5) Epoxy urethane
FM-2	Exterior surfaces of buried ductile iron piping and fittings	As specified by reference specification	(205) polyethylene encasement
FM-5	Ferrous surfaces in water passages of all valves 2-inch size and larger	White metal blast cleaning SSPC SP5	(106) Fusion Bonded Epoxy
FM-14	Exterior ferrous surfaces of valves	Near white metal blast cleaning SSPC SP10	(100) Amine – cured epoxy

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SECTION 10 14 53 – TRAFFIC SIGNS AND DEVICES

PART 1 -- GENERAL

1.1 THE REQUIREMENT

- A. Furnish and install permanent traffic signs, dead end road installations, markers and delineators, with accessories, posts and overhead spans of specified materials, sizes, shapes, weights and designs.
- B. In general, comply with the MUTCD as modified by these specifications or as shown on the plans.
- C. Fabricate signs in an approved plant.
- D. The term "legend" means border strip, letters, numerals and symbols which convey the message on signs.

1.2 REFERENCE STANDARDS

- A. American Association of State Highway and Transportation Officials (AASHTO)
 - AASHTO M270 Standard Specification for Structural Steel for Bridges
- B. ASTM International (ASTM)
 - ASTM A1 Standard Specification for Carbon Steel Tee Rails
 - ASTM A36 Standard Specification for Carbon Structural Steel
 - ASTM A153 Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
 - ASTM A307 Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength
 - ASTM A325 Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength
 - ASTM A499 Standard Specification for Steel Bars and Shapes, Carbon Rolled from "T" Rails
 - ASTM A501 Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing
 - ASTM A576 Standard Specification for Steel Bars, Carbon, Hot-Wrought, Special Quality
 - ASTM B209 Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate
 - ASTM B221 Standard Specification for Aluminum and Aluminum-



Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes

ASTM B429 Standard Specification for Aluminum-Alloy Extruded Structural Pipe and Tube

ASTM B695 Standard Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel

ASTM F593 Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs

ASTM F1554 Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength

C. Federal Highway Administration (FHWA)

MUTCD Manual On Uniform Traffic Control Devices

D. Louisiana Department of Transportation and Development (LDOTD)

AML Approved Material List (formerly QPL)

1.3 CONTRACTOR SUBMITTALS, SAMPLING, AND TESTING

- A.** Provide submittals, samples for testing, and testing of materials in accordance with Section 01 33 00 – Contractor Submittals and Section 01 45 00 – Quality Control.

1.4 QUALITY ASSURANCE

- A. Extended Period for Correction of Defects:** Provide the OWNER with a guaranty from the sheeting manufacturer stating that if the retroreflective sheeting fails to comply with the performance requirements of this subsection, cause the sheeting manufacturer to take the action specified in the table below. Cause the replacement sheeting for sign faces, material, and labor to carry the unexpired guaranty of the sheeting for which it replaces. Date all signs with the month and year of fabrication at the time of sign fabrication. The date of fabrication constitutes the start of the guaranty obligation period.

Sheeting Type	Restore the sign face in its field location to its original effectiveness at no cost to the OWNER if failure occurs during the time period as specified below		Replace the sheeting required to restore the sign face to its original effectiveness at no cost to the OWNER if failure occurs during the time period as specified below
	Orange/Fluorescent Orange	All colors except Orange/Fluorescent	All colors except Orange/Fluorescent



		Orange	Orange
LDOTD Type X	<3 Years	<7 Years	7-10 Years

1.5 DELIVERY, STORAGE, AND HANDLING:

- A. Before being packed, allow each sign with screened legend to stand for at least 12 hours after completion of screening.
- B. Slip – sheet and pack signs in such manner as to ensure their arrival at their destination in an undamaged condition.
- C. Do not permit packaged signs to become wet during storage or shipment

PART 2 -- PRODUCTS

2.1 GENERAL

- A. Other than recycled aluminum blanks, use new stock material conforming to the requirements included herein. Mark sign panels on the front bottom edge with MUTCD code, fabrication date, sign size, sheeting type, initials of the manufacturer and the date.

2.2 SIGN AND MARKER SHEETING

- A. Use super high intensity retroreflective sheeting listed as LDOTD Type X listed on the LDOTD AML.

2.3 FERROUS METAL

- A. **Ferrous Metals:** Use structural steel for posts, stringers, framing and miscellaneous steel complying with AASHTO M 270, Grade 36. Provide galvanized steel in accordance with ASTM A193.
- B. **Steel:** Use Schedule 40 (STD) steel pipe or tubing complying with ASTM A53, Type E or Type S Grade B, or hot formed tubing complying with ASTM A36 and ASTM A501. Provide steel pipe or tubing galvanized in accordance with ASTM A193.
- C. **Posts and Accessories:** Install square tubing posts with a break away as shown in the DOTD Roadside Traffic Sign Standard Details. Use 2 inches x 2 inches square tubing. The square tubing shall conform to ASTM A1011, Grade 50 for hot rolled carbon steel, structural quality. The average minimum tensile strength after cold-forming is 60,000 psi. The cross section of the square tubing shall be a square tube formed and carefully rolled to size and shall be welded by high frequency resistance welding and externally scarfed to agree with corner radii and dimensional tolerances shown in the DOTD Roadside Traffic Sign Standard Details. It shall be manufactured from hot-dipped galvanized steel conforming to ASTM A653, G90, Structural Quality, Grade 50, Class 1. The weld shall be hot zinc coated after the scarfing operation. The steel shall be coated with a chromate conversion coating and a clear organic polymer topcoat. Perforated sign posts



shall be 2 inches x 2 inches square tubing for the upright sign post and 2 1/4 inches x 2 1/4 inches x 3 feet shall be used for anchoring into soil using wet concrete in accordance with the Roadside Traffic Sign Standard Plans. Furnish a Kleen-Break Model 425 post coupler manufactured by Xcessories Squared.

- D. **Sign Fasteners:** Use vandal resistant aluminum alloy rivets to attach signs to the square posts.

2.4 ALUMINUM

- A. **Structural Members:** Use aluminum structural members complying with ASTM B221 or ASTM B429, Alloy 6061-T6. Use miscellaneous aluminum complying with ASTM B209, Alloy 6061-T6.
- B. **Sign Panels:** Use new or recycled aluminum sheets or plates complying with ASTM complying with ASTM B221, Alloy 6063-T6 and after fabrication, having a flatness equal to or less than 0.031 inch per foot of length and 0.004 inch per inch of width. Maintain traceability paperwork from the fabricator for 7 years.

2.5 FASTENERS

- A. Use high strength bolts complying with ASTM A325. Use bolts with hexagonal heads and include two flat washers and one lock washer and one hexagonal-head nut. Use bevel washers, where required, fabricated of wrought steel. Provide bolts, nuts and washers that are galvanized in accordance with ASTM A153 or by an approved mechanical galvanizing process complying with ASTM B695 that provides the same coating thickness.
- B. Provide anchor bolts complying with ASTM F1554. Provide bolts that are hot dip galvanized in accordance with ASTM A153.
- C. Where indicated, provide stainless steel bolts complying with ASTM F593, alloy groups 1, 2, or 3 (except alloys 303 or 303 Se), with a minimum tensile strength of

2.6 SILK SCREEN PASTE

- A. Use silk screen paste as recommended by the sheeting manufacturer. Use screen paste mixed at the factory, well ground to a uniform consistency and smooth texture, and that is be free from water and other foreign matter. Use paste that will dry within 18 hours to a film that does not run, streak, or sag. Paste which has livered, hardened, or thickened in the container, or in which pigment has settled out so that it cannot be readily broken up with a paddle to a uniform usable consistency, will be rejected. Use thinner in accordance with the sheeting manufacturer's recommendations. Use paste of proper pigmentation and consistency for use in silk screen equipment. Use material that will produce the desired color and the same retroreflectivity values as required for reflective sheeting of the same type and color when applied on reflective sheeting background. Use paste meeting quality and test requirements for appearance, coarse particles, and moisture and water resistance as specified for sign paints.

2.7 OVERLAY FILM

- A. Use transparent electronic cuttable overlay film producing the desired color and



the same reflectivity values as required for reflective sheeting of the same type and color when applied on reflective sheeting background.

PART 3 -- EXECUTION

3.1 GENERAL REQUIREMENTS

- A. Sign Face Fabrication:** Fabricate signs of Types A, B, D, and E, overhead signs and sign face overlay panels in accordance with the MUTCD, the "Standard Highway Signs" booklet, and the signing detail sheets of the plans. Furnish shop drawings of sign faces for Types D and E, overhead signs and sign overlay panels and for any non-standard sign faces of Types A and B not included in the drawings. Obtain acceptance of shop drawings before sign face fabrication is begun.

3.2 FABRICATION OF SIGN PANELS AND MARKERS

- A.** Provide completed signs free of cracks, blisters, blemishes, and wrinkles. Complete metal fabrication including shearing, cuttings and punching of holes prior to surface treatment of metal and application of sheeting. Cut metal panels to size and shape and ensure that panels are free of buckles, warps, dents, cockles, burrs and defects resulting from fabrication. Provide sign panels with flat surfaces. Do not extend splice plates joining sign panels behind horizontal sills. Provide flat aluminum panels of nominal 0.080 inch thickness. Provide extruded aluminum panels that are 12 inches wide with a nominal face thickness of 0.125 inches.
- B. Surface Treatment:** Treat sign surfaces in accordance with approved recommendations of the reflective sheeting manufacturer.
- C. Sheeting Application:** Apply reflective sheeting in accordance with the approved written recommendations of the sheeting manufacturer. Apply reflective with no horizontal splices. Apply sheeting directly to extruded panels with no more than two vertical splices per sign and no more than one vertical splice per individual panel. Carefully match sign faces comprised of two or more pieces of reflective sheeting for color at the time of sign fabrication to provide uniform appearance and brilliance, both day and night.
- D. Legend:** Unless otherwise specified, apply legend by using direct - application, screening, or overlay film as specified below.
 - 1. **Direct Applied:** Use adhesive backed DOTD Type X sheeting as specified in this section. Apply legend to provide a wrinkle-free surface.
 - 2. **Screening:** Apply screened legend to sign faces by an approved screening process in accordance with the reflective sheeting manufacturer's recommendations. Provide completed screened sign surface uniform in color, have sharp edges, be free of bubbles, show good workmanship, uniform be free of blemishes, streaks, or spotted areas. Screening on sheeting may be accomplished either before or after application of sheeting to sign panels.



3. **Overlay Film:** When legend is applied by overlay film, apply legend to the sign faces by an approved transparent electronic cuttable overlay film compatible with the reflective sheeting to which it is applied. Apply overlay film in accordance with the recommendations of the manufacturer(s) of both the film and the reflective sheeting. Provide covered areas with sharp edges, that are free of bubbles and blemishes, and show good workmanship.

3.3 CONSTRUCTION REQUIREMENTS

- A. When removal of existing signs is required, coordinate sign removal operations as directed with new sign construction to provide for adequate signing to be in place at all times.
- B. **Sign Location:** Sign support locations will be as shown on the plans or as directed. Sign location, after initial staking by the CONTRACTOR, must be approved by the ENGINEER. Sign location which are obviously improper because of topography, existing appurtenances or other conflicting conditions will be adjusted to the closest desirable location. Determine elevations for post length determinations at the established sign support location. Assume full responsibility for orientation, elevation, offset and leveling of signs.
- C. **Sign Postings:**
 1. **Overhead Signs:** Construct signs such that the top edge of the sign face is tilted towards oncoming traffic 3 degrees (approximately 1:20) from vertical and at right angles to the road, unless otherwise directed.
 2. **Road Edge Signs:** Construct road edge signs with sign faces vertical. Place sign faces located less than 30 feet from the edge of travel lane at 93 degree angle from the center of the travel lane. Place sign faces located 30 feet or more from the edge of the travel lane at an 87 degree angle from the center of the travel lane. Where the lanes divide or are on curves or grades, orient sign faces to be most effective both day and night and avoid specular reflection.
 3. **Delineator, Object Marker and Milepost Assemblies:** Place these assemblies at least 24 inches beyond the face of curb, or in the line of guard rail.
 4. **Vertical and Horizontal Clearances:** Adhere to vertical and horizontal clearances of the MUTCD and/or as shown on the plans.
- D. **Sign Overlay Panels:** When specified, completely overlay with new sign panels placed over the existing sign face. Do not allow partially overlaid signs to remain exposed overnight. Place only one overlay on a sign. When an overlay is to be placed on an existing overlaid sign, remove the previous overlay prior to placement of the new overlay. Comply with the requirements for permanent signs for overlay panels. Remove existing legend from the existing sign face prior to placing the overlay panel. The size of the overlay panel may not exceed the size of existing sign panel by more than 3 inches (n any side. Attach overlay panels to the existing sign with approved rivets. Place rivets on 12-inch centers (maximum) along the perimeter of panel and at panel splices, and on 24-inch



centers (maximum) both vertically and horizontally in interior portions of each panel. Center rivets horizontally on panels less than 24-inch wide. Place a 4 by 4-inch shim with a nominal 0.080-inch thick aluminum plate between existing panel and overlay panel at interior rivet locations. Shims cut from salvaged sign panels may be used. Keep the existing sign panels reasonably flat during installation of the overlay panels. Conform to requirements for traffic sign blanks for splice arrangement for overlay panels.

- E. Excavation and Backfill:** Perform sign installation to levels and dimensions shown on the plans or as directed. Perform excavation and backfill in accordance with Section 02200 – Earthwork.
- F. Footings:** Comply with the drawings. Posts for ground mounted delineator, object marker and milepost assemblies may be driven; no footings will be required.
- G. Bolt Tensioning:** Assemble slip plates for breakaway sign posts in the shop with high strength bolts tightened at a minimum bolt tension in accordance with the recommendations of the manufacturer. After field installation, tighten high strength bolts in the breakaway base connection to the specified minimum bolt tension. Correct bolt tensioning as required.
- H. Cleaning and Clearing:** Prior to erection, clean sign faces to allow adequate visibility of the sign. Perform any clearing or tree trimming required to provide for full sign visibility in accordance with the plans or as directed. Use a licensed arborist to perform of trees of significant local interest.
- I. U-Channel Posts:** Drive u-channel posts for ground mounted small signs, markers and delineators to a minimum depth of 3 feet below natural ground using a suitable protective driving cap. U-channel posts may be spliced where long lengths are required. Overlap the lower section with the upper section by at least 24 inches. Ensure the bottom edge of the upper section of the splice is a minimum of 24 inches above the ground. Secure the spliced sections at least four 5/16 inch diameter hex head bolts spaced equally along the splice. Splicing of U-channel posts will not be allowed when break-away footings are required.

- END OF SECTION -



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SECTION 31 05 16 – AGGREGATES

PART 1 -- GENERAL

1.1 THE REQUIREMENT

- A. Provide aggregates as specified herein and elsewhere required by the Contract Documents.

1.2 CONTRACTOR SUBMITTALS, SAMPLING, AND TESTING

- A. Provide submittals, samples for testing, and testing of materials in accordance with Section 01 33 00 – Contractor Submittals and Section 01 45 00 – Quality Control.

1.3 REFERENCE STANDARDS

A. American Association of State Highway and Transportation Officials (AASHTO)

AASHTO PP 65-11	Standard Practice for Determining the Reactivity of Concrete Aggregates and Selecting Appropriate Measures for Preventing Deleterious Expansion in New Concrete Construction
AASHTO T 19	Standard Method of Test for Bulk Density (Unit Weight) and Voids in Aggregate
AASHTO T 21	Standard Method of Test for Organic Impurities in Fine Aggregates for Concrete
AASHTO T 71	Standard Method of Test for Effect of Organic Impurities in Fine Aggregate on Strength of Mortar
AASHTO T 84	Standard Method of Test for Specific Gravity and Absorption of Fine Aggregate
AASHTO T 85	Standard Method of Test for Specific Gravity and Absorption of Coarse Aggregate
AASHTO T 96	Standard Method of Test for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
AASHTO T 104	Standard Method of Test for Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate
AASHTO T 278	Standard Method of Test for Surface Frictional Properties Using the British Pendulum Tester
AASHTO T 279	Standard Standard Method of Test for Accelerated Polishing of Aggregates Using the British Wheel
AASHTO T 327	Standard Method of Test for Resistance of Coarse



	Aggregate to Degradation by Abrasion in the Micro-Deval Apparatus
AASHTO TP 57-99	Standard Method of Test for The Qualitative Detection of Harmful Clays of the Smectite Group in Aggregates Using Methylene Blue

B. ASTM International (ASTM)

ASTM C289	Standard Test Method for Potential Alkali-Silica Reactivity of Aggregates
ASTM C586	Standard Test Method for Potential Alkali Reactivity of Carbonate Rocks as Concrete Aggregates
ASTM C1260	Standard Test Method for Potential Alkali Reactivity of Aggregates
ASTM D2321	Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications
ASTM D4791	Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate

C. Louisiana Department of Transportation and Development (DOTD)

LDOTD AML	Louisiana DOTD Approved Materials List
TR 111	Abrasion of Lightweight Coarse Aggregate
TR 112	Amount of Material Finer than No. 200 Sieve in Aggregate
TR 113	Sieve Analysis of Fine and Coarse Aggregates
TR 119	Determination of Deleterious Materials
TR 120	Sand Equivalent Value of Soils and Fine Aggregate
TR 121	Fine Aggregate Angularity - FAA (Uncompacted Void Content of Fine Aggregate)
TR 122	Determination of pH Value for Aggregates
TR 306	Determination of Percentage of Crushed Particles for Coarse Aggregates
TR 309	Mechanical Analysis of Extracted Aggregate
TR 322	Determining the Effect of Moisture on Asphaltic Concrete Paving Mixture



TR 413	Organic Material in Soil
TR 423	Classification of Soils and Soil-Aggregate Mixtures for Highway Construction Purposes
TR 428	Determining the Atterberg Limits of Soils
TR 430	Determination of pH Value of Water or Soil

1.4 QUALITY CONTROL

- A. Locate, select, deliver, and place material conforming to specification requirements and requirements shown on the drawings. Control processes, perform tests, and make adjustments as necessary to result in a uniform product meeting all the requirements of the drawings and specifications.
- B. The following test methods will be utilized for the testing, classification and acceptance of aggregates:

Material Property	Test Procedure
Deleterious Materials	DOTD TR 119
Flat and Elongated Particles	ASTM D4791
Magnesium Sulfate Soundness	AASHTO T 104
Los Angeles Abrasion	AASHTO T 96
Alkali – Silica Reactivity (Chemical Method)	ASTM C289
Alkali Reactivity (Mortar – Bar Method)	ASTM C1260
Reactivity of Concrete Aggregates	AASHTO PP65-11
Alkali Reactivity of Carbonate Rocks (Rock – Cylinder Method)	ASTM C586
Organic Impurities	AASHTO T 21
Unit Weight	AASHTO T 19
Specific Gravity and Absorption of Fine Aggregate	AASHTO T 84
Specific Gravity and Absorption of Coarse Aggregate	AASHTO T 85
Polish Value	AASHTO T 278 and T 279



Amount of Material Finer than the No. 200 Sieve	DOTD TR 112
Sieve Analysis (Gradation)	DOTD TR 113
pH of Soil and Water	DOTD TR 430
pH of Aggregates	DOTD TR 122
Atterberg Limits	DOTD TR 428
Organic Content	DOTD TR 413
Percent Crushed	DOTD TR 306
Mechanical Analysis of Extracted Aggregate	DOTD TR 309
Sand Equivalent	DOTD TR 120
Fine Aggregate Angularity	DOTD TR 121
Micro – Deval	AASHTO T 327
Moisture Sensitivity	DOTD TR 322
Mortar Strength	AASHTO T 71
Methylene Blue	AASHTO TP 57-99

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle aggregates as recommended by the supplier of the aggregates and as specified herein. Prevent unwanted mixing or segregation of aggregate stockpiles.

PART 2 -- PRODUCTS

2.1 GENERAL REQUIREMENTS FOR AGGREGATES

- A. Use aggregates that are environmentally acceptable for the intended use from a source acceptable to the ENGINEER. For an aggregate source to be approved, comply with the general requirements within this subsection and requirements for specific aggregate applications contained within this section and other specifications sections.
- B. **Deleterious Materials:** Conform to the following deleterious materials table for source approval and/or project acceptance:



Property	Per Cent Maximum
Wood	0.05
Clay Lumps	0.5
Clay Lumps and Friable Particles	3.0
Coal and Lignite	1.0
Flat and Elongated Particles (5:1)	15.0
Flat and Elongated Particles (3:1)	25.0
Glassy Particles	10.0
Iron Ore	2.0
Total of Wood, Clay Lumps, Friable Particles, Iron Ore, Lignite and Other Foreign Matter	5.0

- C. Magnesium Sulfate Soundness:** For source approval coarse natural aggregates and recycled portland cement concrete (RPCC), the maximum soundness loss is 15 percent when subjected to 5 cycles of the magnesium sulfate soundness test.
- D. Los Angeles Abrasion:** For coarse natural aggregates and RPCC source approval, maximum Los Angeles abrasion loss is 40.0 percent.
- E. Friction Ratings:** Where specified herein or in other specifications sections, use aggregates which comply with the requirements for friction ratings as defined in the table below and as indicated on the LDOTD AML (formerly QPL 2).

Friction Rating	Description
I	Aggregates that have a Polish Value of greater than 37 or demonstrate the ability to retain acceptable friction numbers for the life of the pavement.
II	Aggregates that have a Polish Value of 35 to 37 or demonstrate the ability to retain acceptable friction numbers for the life of the pavement.
III	Aggregates that have a Polish Value of 30 to 34 or demonstrate the ability to retain acceptable friction numbers for the life of the pavement
IV	Aggregates with a Polish Value of less than 30



2.2 AGGREGATES FOR BASE COURSES

- A. **General:** Comply with the General Requirements for Aggregates.
- B. **Stone for Base Course:** Use stone from the Approved Materials List, and comply with the following gradation:

U.S. Sieve Size	Percent Passing by Weight
1-1/2 Inches	100
1 Inch	90-100
3/4 Inch	70-100
No. 4	35-65
No. 40	12-32
No. 200	5-12

For material passing the No. 40 sieve, comply with the following requirements:

Liquid Limit, Maximum	25
Plasticity Index, Maximum	5

2.3 AGGREGATES FOR SURFACE COURSE

- A. **General:** Comply with the General Requirements for Aggregates.
- B. **Stone for Surface Course:** Comply with the following gradation.

U.S. Sieve Size	Percent Passing by Weight
1-1/2 Inches	100
3/4 Inch	50 – 100
No. 4	35-65
No. 40	10-32
No. 200	3-15

For material passing the No. 40 sieve, comply with the following requirements:

Liquid Limit, Maximum	25



2.4 AGGREGATES FOR ASPHALT MIXTURES

- A. General:** Comply with the general requirements for aggregates. Use only stone, gravel, slag, lightweight aggregates, and coarse and manufactured sand sources from the LDOTD AML. RAP and fine natural sand are required to be from an approved Producer/Supplier. Use clean and durable crushed stone for all coarse aggregates for SMA mixtures. Use 100 percent crushed stone or manufactured sand for fine aggregates for SMA Mixtures. Coarse aggregate is all material retained on or above the No. 4 sieve. Fine aggregate is all material passing the No. 4 sieve. Additional requirements for aggregates for asphalt mixtures are included in the asphaltic mixture sections.
- B. Coarse Aggregate for Asphalt Mixtures:** For coarse aggregate stockpiles, determine Coarse Aggregate Angularity in accordance with DOTD TR 306 (Double Face), and determine Flat and Elongated in accordance with ASTM D4791.
- C. Fine Aggregate for Asphalt Mixtures:** For fine aggregate stockpiles, determine Fine Aggregate Angularity in accordance with DOTD TR 121, and Sand Equivalent (SE) in accordance with DOTD TR 120. SE is not required for manufactured sands (screenings), nor for fine aggregate stockpiles having 25 percent or more passing the No. 200 sieve.
- D. Natural Sand for Asphalt Mixtures:** Natural sand is non-plastic material consisting of clean, hard, durable, siliceous grains graded from coarse to fine and reasonably free from vegetative matter, clay balls, clay lumps, or other deleterious materials as per the general requirements for aggregates. Use a material with a gradation with a maximum of 25 percent passing the No. 200 sieve. Clay lumps may not exceed 0.5 percent by weight when sampled from the stockpile and tested in accordance with DOTD TR 119.
- E. Manufactured Sand for Asphalt Mixtures:** Manufactured sand (screenings) is the fine aggregate material generated during the crushing and processing of coarse aggregates. Sand Equivalent testing is not required; fine aggregate angularity testing is required.
- F. Reclaimed Asphalt Pavement for Asphalt Mixtures:** Use RAP which is approved either at the time of removal from the roadway or in stockpiles. Make all stockpile quality control records available at the ENGINEER's request. Include RAP quantities and delivery date, quantities delivered to projects, daily moisture contents, weekly asphalt cement content, and weekly RAP Gse in all records. Before feeding RAP into the plant, crush or screen all pieces that are larger than 2 inches.
- G. Mineral Filler for Asphalt Mixtures:** Use material listed on the LDOTD AML which consists of limestone dust, pulverized hydrated lime, Portland cement, cement stack dust, or lime kiln dust. Mineral dust collected in bag houses or by other dust collectors at asphalt concrete plants is not classified as mineral filler. Cement



stack dust must consist of material collected from waste rotary kiln gases discharged through a collector of a cement plant. Comply with the following:

U.S. Sieve Size	Percent Passing by Weight
No. 30	100
No. 80	95-100
No. 200	70-100
No. 270	60-100

- H. **Lightweight Aggregate for Asphalt Mixtures:** Use a lightweight aggregate consisting of cubical fragments which are of uniform density and are free from an excess of foreign matter.

2.5 AGGREGATES FOR PORTLAND CEMENT CONCRETE

- A. **General:** Use aggregates from the Approved Materials List in Portland cement concrete and mortar.
- B. **Fine Aggregate for Portland Cement Concrete and Mortar:** Use natural silica sand. For fine aggregate used in all Portland cement concrete except Types B and D gradations, conform to the following gradations:

Gradation for Fine Aggregate for Portland Cement Concrete	
U.S. Sieve Size	Percent Passing by Weight
3/8 Inch	100
No. 4	95-100
No 16	45-90
No. 50	7-30
No. 100	0-7
No. 200	0 – 3
Gradation for Mortar Sand	
U.S. Sieve Size	Percent Passing by Weight
No. 4	100



No. 8	95-10
No. 100	0-25
No. 200	0-10

- C. Uncrushed Coarse Aggregate:** For uncrushed coarse aggregate used in all Portland cement concrete except Types B and D gradations, use material which complies with the following:

Gradation for Uncrushed Coarse Aggregate for Portland Cement Concrete			
U.S. Sieve Size	Size 57M	Size 89M	Size 67
2 – ½ Inch	--	--	--
2 Inch	--	--	--
1 – ½ Inch	100	--	--
1 Inch	90-100	--	100
¾ Inch	--	100	90-100
½ Inch	25-60	90-100	--
3/8 Inch	--	--	20-55
No. 4	0-10	15-60	0-10
No. 8	0-5	0-30	0-5
No. 16	--	0-5	--
No. 200	0-1	0-1	0-1

- D. Crushed Coarse Aggregate:** For crushed coarse aggregate used in all portland cement concrete, except Types B and D gradations, comply with the uncrushed coarse aggregate gradations for uncrushed coarse aggregate, except that when the material finer than the No. 200 sieve consists of the dust fraction from crushing, essentially free of clay, this percentage is limited be 0-2 percent. When the total material passing the No. 200 sieve from the coarse and fine aggregates does not exceed 5 percent, the percent passing the No. 200 sieve from the crushed coarse aggregate may be increased to 3 percent.

- E. Portland Cement Concrete Aggregates – Combined Gradations:** For the combined aggregates for the proposed Portland cement concrete combined



gradation mix, the percent retained based on the dry weight of the total aggregates must meet the requirements below for the type of concrete specified in in the Master Proportion Table for Portland Cement Concrete. Sample and test each type of aggregate stockpile to be used in the proposed mixture individually. Mathematically determine the percent of total combined aggregates retained using the proportions of the combined aggregate blend. Base all gradation calculations on percent of dry weight.

U.S. Sieve Size	Percent Retained of Total Combined Aggregates	
	Gradation Type	
	Type B	Type D
2 – ½ Inch	0	0
2 Inch	0	0-20
1 – ½ Inch	0-20	0-20
1 Inch	0-20	5-20
¾ Inch	5-20	5-20
½ Inch	5-20	5-20
3/8 Inch	5-20	5-20
No. 4	5-20	5-20
No. 8	5-20	5-20
No. 16	5-20	5-20
No. 30	5-20	5-20
No. 50	0-20	0-20
No. 100	0-20	0-20
No. 200	0-5	0-5
Note. For the sieves in the shaded areas, the sum of any two (2) adjacent sieves must be a minimum of 12 percent of the total combined aggregates.		

2.6 AGGREGATES FOR PIPE AND VALVE FOUNDATION MATERIAL

A. General: Furnish stone complying with the General Requirements for Aggregates.



- B.** Furnish stone bedding material meeting AASHTO No. 57 gradation as specified below:

Gradation for Stone Pipe Bedding (No. 57)	
U.S. Sieve Size	Percent Passing by Weight
1-1/2 Inch	100
1-Inch	95-100
1/2-Inch	25-60
No. 4	0-10
No. 8	0-5

2.7 SAND FOR PIPE BEDDING AND BACKFILL

- A. General:** Furnish sand complying with the General Requirements for Aggregates.
- B.** Furnish sand complying with AASHTO Group Classification A-3.

PART 3 -- EXECUTION

3.1 GENERAL

- A.** Execution requirements for aggregates are contained within the specific specifications sections for the WORK into which the aggregates are being incorporated.

- END OF SECTION -



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SECTION 31 10 00 - SITE PREPARATION

PART 1 -- GENERAL

1.1 THE REQUIREMENT

- A.** Provide all WORK necessary for CONTRACTOR's initial move onto the Site; inspection of the Site, clearing, grubbing and stripping; and development of construction site access.

1.2 REFERENCE STANDARDS

- A.** Commercial Standards:

AAN

American Association of Nurserymen

- B.** Louisiana Department of Transportation and Development

Quality Assurance Specifications for Embankment
and Base Course

1.3 CONTRACTOR SUBMITTALS, SAMPLING, AND TESTING

- A.** Provide submittals, samples for testing, and testing of materials in accordance with Section 01 33 00 – Contractor Submittals.

1.4 QUALITY CONTROL

- A.** NOT USED

1.5 DELIVERY, STORAGE, AND HANDLING

- A.** NOT USED

PART 2 -- PRODUCTS

2.1 BACKFILL

- A.** Use material in accordance with Section 31 30 00 – Earthwork.

PART 3 -- EXECUTION

3.1 SITE INSPECTION

- A.** Prior to moving onto the Site, inspect the Site conditions and review maps of the existing site, existing utilities, and facilities or other items delineating the OWNER's property and right-of-way lines.

3.2 PRIMARY CONSTRUCTION SITE ACCESS

- A.** Develop any necessary access to the Site, including access barriers to prohibit entry of unauthorized persons.



- B. **Utility Interference:** Where existing utilities interfere with the WORK, notify the utility owner and the ENGINEER before proceeding in accordance with the General Conditions.

3.3 CLEARING AND GRUBBING

- A. Clear, grub, and remove vegetation and debris within the limits of the right-of-way and easement areas, except such items that are designated to remain. Cut trees, logs, brush, stumps and debris; excavate and remove stumps, roots, submerged logs, snags, and other vegetative or objectionable material; dispose removed material in a licensed and permitted landfill and clean the area.
- B. Adhere to the quality assurance requirements specified in the latest edition of the LDOTD publication titled Application of Quality Assurance Specifications for Embankment and Base Course.
- C. Implement and maintain temporary erosion control measures in accordance with Section 01 57 19 – Temporary Environmental Controls prior to clearing and grubbing.
- D. Preserve the items to remain as designated by the ENGINEER. Do not store equipment, materials, and supplies in proximity of items designated to remain. Remove trees and other items without damaging items marked to remain. Repair damage to bark, trunks, limbs, or roots of vegetation marked to remain using horticultural and tree surgery practices published by the American Association of Nurserymen (AAN) under the supervision of a licensed landscape arborist at no cost to the department. Do not fell trees outside of the right-of-way. Assume full responsibility for damage outside the right-of-way caused by the CONTRACTOR's operations.
- E. Clear and grub to the limits of the right-of-way, or to the construction limits, whichever is greater, unless otherwise designated on the plans.
- F. When fencing or utility relocation is required, clear and grub an area 10 foot wide, adjacent to and inside the right-of-way line. Mow when required by the ENGINEER.
- G. Some loose limbs and roots approximately 2 inch x 2 foot and smaller may be allowed to remain; however, excessive amounts will not be allowed.
- H. Do not use explosives.
- I. Stump holes and other holes left from clearing and grubbing by blading the area and backfilling with existing materials or select soil as specified in Section 31 30 00 – Earthwork and compact to a condition similar to surrounding soils.
- J. **Burning:** Burning is not allowed.
- K. **Merchantable Timber:** Merchantable timber in the area to be cleared, not removed from the right of-way prior to the beginning date stipulated in the Notice to Proceed, becomes the property of the CONTRACTOR.
- L. Remove hanging branches and unsound or unsightly branches on trees or shrubs



designated to remain as directed. Trim branches of trees extending over the roadbed to a height of 20 foot above the pavement in accordance with accepted horticultural and tree surgery practices published by AAN.

- END OF SECTION -



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SECTION 31 30 00 - EARTHWORK

PART 1 -- GENERAL

1.1 THE REQUIREMENT

- A. Perform earthwork indicated and required for construction of the WORK, complete and in place, in accordance with the Contract Documents.

1.2 REFERENCE STANDARDS

A. ASTM International (ASTM)

ASTM D1140	Standard Test Methods for Amount of Material in Soils Finer Than the No. 200 (75-um) Sieve
ASTM D2487	Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D2974	Standard Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils
ASTM D3787	Standard Test Method for Bursting Strength of Textiles Constant-Rate-of-Traverse (CRT) Ball Burst Test
ASTM D4491	Standard Test Methods for Water Permeability of Geotextiles by Permittivity
ASTM D4253	Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table
ASTM D4254	Standard Test Methods for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density
ASTM D4632	Standard Test Method for Grab Breaking Load and Elongation of Geotextiles
ASTM D4751	Standard Test Methods for Determining Apparent Opening Size of a Geotextile
ASTM D4533	Standard Test Method for Trapezoid Tearing Strength of Geotextiles
ASTM D4833	Standard Test Method for Index Puncture Resistance of Geomembranes and Related Products
ASTM G154	Standard Practice for Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for Exposure of Nonmetallic Materials

B. Louisiana Department of Transportation and Development (LDOTD)

LDOTD AML	Approved Materials List



TR 401	The Determination of In-Place Density
TR 407	Mechanical Analysis of Soils
TR 411	Dry Preparation of Disturbed Samples for Test
TR 413	Organic Material in Soil
TR 415	Field Moisture-Density Relationships
TR 418	Moisture - Density Relationships
TR 423	Classification of Soils and Soil-Aggregate Mixtures for Highway Construction Purposes
TR 428	Determining the Atterberg Limits of Soils
TR 430	Determination of pH Value of Water or Soil

1.3 CONTRACTOR SUBMITTALS, SAMPLING, AND TESTING

- A.** Provide submittals, samples for testing, and testing of materials in accordance with Section 01 33 00 – Contractor Submittals and Section 01 45 00 – Quality Control.

1.4 QUALITY ASSURANCE

- A.** Locate, select, deliver, and place material conforming to specification requirements and requirements shown on the drawings. Control all processes, perform testing and make adjustments as necessary to result in a uniform product meeting all the requirements of the drawings and specifications.
- B.** Excavation, pile driving, shoring installation and removal and sheet pile installations may cause vibrations that may affect existing residences or underground utilities in the vicinity of WORK. Control particle velocities during the installation of and removal of shoring.
- C. Soil Usage and Classification:** Soils will be classified and tested in accordance with DOTD TR 423, TR 428, TR 413, TR 407, and TR 430.

1.5 DELIVERY, STORAGE, AND HANDLING

- A.** Deliver, store, and handle products for earthwork as recommended by the supplier of the materials and as specified herein. Prevent unwanted mixing or segregation of material stockpiles.

PART 2 -- PRODUCTS

2.1 SOIL USAGE

- A.** Do not blend soils which do not meet Liquid Limit or Plasticity Index to reduce Liquid Limit or Plasticity Index. Soils may be treated with Lime to reduce plasticity index only with the approval of the ENGINEER.



2.2 PIPE BACKFILL MATERIAL – SELECT FILL

- A.** Furnish select fill meeting the requirements of AASHTO group classification A-2-4. In – situ soils may be used as select fill where they comply with AASHTO group classification A-2-4 and are free of large debris, large roots, and other deleterious materials.

2.3 PIPE BACKFILL MATERIAL – SAND

- A.** Provide clean sand complying with the requirements of Section 31 05 16.

2.4 PIPE BEDDING MATERIAL – SAND

- A.** Provide clean sand complying with the requirements of Section 31 05 16.

2.5 PIPE AND VALVE FOUNDATION MATERIAL

- A.** Provide No. 57 stone as specified in Section 31 05 16.

2.6 GEOTEXTILE FABRIC

- A.** Provide Mirafi 500X, Propex Geotext 200ST or approved equal.

2.7 GEOGRID

- A. General:** Provide biaxial geogrid, Tensar BX1200, Syntec SBX 12 or equal.

2.8 MATERIALS FOR SHEETING, SHORING, AND BRACING

- A.** Where wood is used for sheeting, shoring and bracing, use green, rough cut hardwood (i.e. oak or hickory). Use lumber with a minimum thickness of 2 inches for all planking, sheeting and foundation lumber. Assume responsibility for the design and installation of all wood sheeting unless wood shoring is indicated on the plans.
- B.** Where steel sheet piling is used for sheeting, shoring and bracing, use steel sheet piling of a continuous interlock design. Use sheet piling in good condition and of a water tight interlocking connection, which will retard the infiltration of ground water. Provide cofferdams when constructing wet wells at pump station sites. Assume responsibility for and pay all costs for the design and installation of all cofferdams as a part of the WORK.
- C.** Where trench boxes and shields are used for sheeting, shoring and bracing, use boxes in good, sound condition which comply with all applicable OSHA requirements. Install, use, and remove of trench shields or accordance with the manufacturer's recommendations and in such a manner as to prevent damage to adjacent embankments, utilities, pavements, or other improvements. Assume responsibility and pay all costs for the design and installation of all trench boxes or shields as a part of the WORK. Depict the use of such implements within the CONTRACTOR's sheeting, shoring and bracing plan.



PART 3 -- EXECUTION

3.1 GENERAL

- A.** Except when specifically provided to the contrary, excavation includes the removal of materials, including obstructions that would interfere with the proper execution and completion of the WORK. Conform to the lines and grades indicated or ordered. Unless otherwise indicated, the strip the entire site of vegetation and debris and grub the entire site. Remove such material from the Site prior to performing any excavation or placing any fill.

3.2 SHEETING, SHORING, AND BRACING

- A.** Furnish, place, and maintain supports and shoring that may be required for the sides of all excavations regardless of type. Assume full responsibility for the stability and safety of all excavations, regardless of type.
- B.** Slope or otherwise support excavations in a safe manner in accordance with applicable State safety requirements and the requirements of OSHA Safety and Health Standards for Construction (29CFR1926). In accordance with OSHA Safety and Health Standards for Construction, excavations less than five (5) feet in depth will not require protective systems if a competent person under the employ of the CONTRACTOR has examined the excavation and found no danger of a potential cave in.
- C.** Confine limits of all excavations to the right – of – way. Do not allow the limit of any excavation, shoring implement, excavation slopes, or excavation steps to encroach upon private property without a written agreement with the property owner.
- D.** The use of horizontal strutting below the barrel of a pipe or structure or the use of a pipe as support for trench bracing will not be permitted.

3.3 EXCLUSION OF WATER

- A.** Remove and exclude water, including storm water, groundwater, irrigation water, and wastewater, from excavations. Use dewatering wells, well-points, sump pumps, or other means remove water and continuously maintain groundwater at a level at least 2 feet below the bottom of excavations before the excavation WORK begins at each location. Remove and exclude water from excavations until backfilling is complete and field soils testing has been completed.

3.4 OVER – EXCAVATION

- A. Indicated:** Where areas are indicated to be over-excavated, excavate to the depth indicated, and install backfill to the grade indicated.
- B. Not Indicated:** When ordered to over-excavate areas deeper and/or wider than required by the Contract Documents, over-excavate to the dimensions ordered and backfill to the indicated grade.



- C. **Neither Indicated nor Ordered:** Backfill any over-excavation carried below the grade ordered or indicated to the required grade with granular material or non – plastic embankment as part of the WORK.

3.5 DISPOSAL OF EXCESS MATERIAL

- A. Unless otherwise indicated, take possession of and dispose of excess material. Assume full responsibility for the removal and disposal of excess excavated material. Dispose of material of an approved on-Site disposal area or off-Site at a location arranged by the CONTRACTOR in accordance with laws and regulations regarding disposal of such material.

3.6 DRAINAGE AND UTILITY PIPELINE EXCAVATION

- A. **General:** Unless otherwise indicated or ordered, install pipelines and utilities within open-cut trenches with minimum widths as indicated.
- B. **Trench Bottom:** Except where pipe bedding is required, excavate the bottom of the trench uniformly to the grade of the bottom of the pipe. Make excavations for pipe bells and welding as required. Where pipe bedding is required, the bottom of the trench uniformly to the grade of the bottom of the pipe bedding.
- C. **Open Trench:** The maximum amount of open trench permitted in any one location is 500-feet or the length necessary to accommodate the amount of pipe installed in a single Day, whichever is greater. Fully backfill trenches at the end of each day or, in lieu thereof, cover trenches by heavy steel plates adequately braced and capable of supporting vehicular traffic in those locations where it is impractical to backfill at the end of each Day. These requirements for backfilling or use of steel plate will be waived in cases where the trench is located further than 100-feet from any traveled roadway or occupied structure. In such cases, however, provide and maintain barricades and warning lights meeting appropriate safety requirements.
- D. Where pipelines are to be installed in embankments, fills, or structure backfills, construct the fill to a level at least one-foot above the top of the pipe before the trench is excavated. Upon completion of the embankment or structural backfill, excavate a trench conforming to the appropriate detail and install the pipe.
- E. Where moveable trench shield is used during excavation operations, excavate the trench width slightly wider than the shield so that the shield is free to be lifted and then moved horizontally without binding against the trench sidewalls and causing sloughing or caving of the trench walls.
- F. If a moveable trench shield is used during excavation, pipe installation, and backfill operations, move the shield by lifting the shield free of the trench bottom or backfill and then moving the shield horizontally. Do not drag trench shields along the trench causing damage or displacement to the trench sidewalls, the pipe, or the bedding and backfill.



3.7 DRAINAGE AND UTILITY PIPELINE BACKFILL AND COMPACTION

- A. Prior to backfilling, remove and reinstall or replace pipes found to be damaged or out of alignment or grade as directed by the ENGINEER.
- B. Bedding Material: Place geotextile fabric in accordance with plan details. Place sand bedding in accordance with plan details in loose lifts not exceeding 8" thickness and compact material to 95% of maximum dry density as determined by ASTM D698.
- C. Backfill Material: Place geotextile in accordance with plan details for both paved and unpaved areas.
 - 1. **Paved Areas:** Place sand backfill in accordance with plan details in loose lifts not exceeding 8" thickness and compact material to 95% of maximum dry density as determined by ASTM D698.
 - 2. **Unpaved Areas:** Place sand backfill in accordance with plan details to a minimum of 12" above the top of the pipe (when compacted) in loose lifts not exceeding 8" thickness and compact material to 95% of maximum dry density as determined by ASTM D698. Place select fill in accordance with plan materials to grade and compact to 95% of maximum dry density as determined by ASTM D698.
- D. **Foundation Material:** For pipelines, place foundation material to stabilize soft and/or wet trench bottom in locations directed by the ENGINEER. Provide geogrid and geotextile in accordance with plan details. Place stone foundation material in loose lifts not exceeding 8" lifts and compact to a minimum of 75% relative density as determined by ASTM D4253 and D4254.. For the flow control structure, place foundation material as indicated on the drawings. Place stone foundation material in loose lifts not exceeding 8" lifts and compact to a minimum of 75% relative density as determined by ASTM D4253 and D4254.

3.8 GEOTEXTILE FABRIC

- A. Keep rolls of geotextile covered and protected from ultraviolet degradation at all times until use. Cover geotextile fabric that has been installed with embankment within 7 calendar days. When ultraviolet damage occurs, remove and replace the geotextile. Place fabric at the locations shown on the plans or as directed. Overlap or sew adjacent rolls of geotextile fabric. When rolls are overlapped, provide an overlap of a minimum of 18 inches (450 mm), or as specified in the plans, including the ends of the rolls. Place the top layer of the geotextile fabric parallel with adjacent rolls and in the direction of embankment placement. When rolls are sewn, join adjacent rolls by sewing with polyester or Kevlar thread. Employ the "J" seam or "Butterfly" seam for field sewing with the two pieces of geotextile fabric mated together, turned in order to sew through 4 layers of fabric and sewn with 2 rows of Type 401, two-thread chain stitch. Factory seams other than specified may be submitted to the ENGINEER for approval. Where the ground is covered with water or soil is saturated, sew the geotextile fabric.



- B.** Place geotextile fabric as smooth as possible with no wrinkles or folds, except in curved road sections. For curved road sections, fold the geotextile fabric to accommodate the curve. Fold in the direction of construction and pinned or stapled. Fill and compact ruts that occur during construction prior to placement of geotextile fabric.
- C.** Remove and replace damaged geotextile fabric with new geotextile fabric or covered with a second layer of geotextile fabric extending 2 feet in each direction from the damaged area

3.9 GEOGRID

- A.** Place geogrid in continuous sheets parallel to the roadway or pipeline centerline. Ensure that geogrid sections do not separate during construction.
- B.** Cut geogrid to ensure that placement is maintained parallel to the centerline of the roadway or the pipeline.
- C.** Do not allow tracked equipment to operate directly on the geogrid. Remove and replace damaged geogrid with new geogrid or cover geogrid with new geogrid extending three (3) feet in each direction.

- END OF SECTION -



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SECTION 32 12 02– ASPHALTIC CONCRETE MIXTURES

PART 1 -- GENERAL

1.1 THE REQUIREMENT

- A. Furnish and construct asphalt concrete mixtures in conformance with these specifications, the lines, grades, thicknesses, and typical sections in the plans.
- B. Comply with Section 32 12 02 and the Application of Quality Assurance Specifications for Asphalt Concrete Mixtures (QA Manual).
- C. Use a DOTD certified laboratory accredited by AMRL, CMEC, or other accreditation agency approved by DOTD.

1.2 LIFT DESCRIPTION AND MIXTURE TYPES

- A. The wearing course is defined as the final lift placed. The binder course is defined as the lift placed prior to the final lift as defined in the plans.
- B. Mainline mixtures include wearing, binder, and base courses for travel lane, ramps and turnouts greater than 300 feet, interstate acceleration/deceleration lanes, turn lanes, and the two center lanes for airports.
- C. Minor mixes include mixture used for bike paths, crossovers, curbs, detour roads, driveways, guardrail widening, islands, joint repair, leveling, medians, parking lots, shoulders, turnouts, ramps less than or equal to 300 feet, patching, widening, miscellaneous handwork, and any other mixture that is not mainline.

1.3 REFERENCE STANDARDS

- A. American Society for Testing and Materials (ASTM)
 - ASTM D4791 Flat and Elongated Particles
 - ASTM D6390 Asphalt Cement Draindown
- B. American Society of State Highway and Transportation Officials (AASHTO)
 - M323 Standard Specification for Superpave Volumetric Mix Design
 - M325 Standard Specification for Stone Matrix Asphalt
 - R30 Standard Practice for Mixture Conditioning of Hot Mix Asphalt
 - T84 Bulk Specific Gravity and Absorption
 - T85 Bulk Specific Gravity and Absorption
 - T195 Degree of Particle Coating (plant requirement)



T312 Preparing Gyratory Samples

T324 Loaded Wheel Tester (LWT)

C. Louisiana Department of Transportation and Development (LDOTD)

Application of Quality Assurance Specifications for Asphalt Concrete Mixtures

TR 120 Sand Equivalent

TR 121 Fine Aggregate Angularity

TR 304 Specific Gravity and Density of Compressed Asphalt Mixture

TR 306 Coarse Aggregate Angularity, % Crushed (Double Faced)

TR 309 Mechanical Analysis of Extracted Aggregate

TR 319 Moisture Content of Loose HMA

TR 323 Asphalt Cement Content, Pb

TR 327 Theoretical Maximum Specific Gravity, G_{mm}

TR 330 Semi-circular Bend Test (SCB)

TR 403 Determination of Moisture Content

TR 602 Measuring Thickness and Widths of Base and Subbase Courses and Aggregate Type Surface Courses

TR 603 Calibration and Certification of Rolling Straightedge

TR 618 Use of Rolling Straightedge

1.4 CONTRACTOR SUBMITTALS, SAMPLING, AND TESTING

A. Furnish submittals in accordance with Section 01 33 00.

B. Materials proposed for and utilized in the WORK will be sampled as indicated in herein. The frequency of testing may be altered at the discretion of the ENGINEER. Provide all materials required for testing at no additional cost to the OWNER.

C. Submittals: Submit the following:

- 1.** Asphalt Cement – Submit product data for the asphalt cement to be utilized. Submit evidence of the product's current listing on the LDOTD AML.
- 2.** Additives - submit product data for all additives to be utilized. Provide evidence of the product's current listing on the LDOTD AML.



3. Aggregates: Provide a listing of sources for all aggregates to be utilized.
 4. Submit a job – mix formula as specified herein, with format equivalent to the LDOTD Job Mix Formula form, or other format as acceptable to the ENGINEER provided that all required information is provided. Provide evidence of the certification of the LDOTD certified asphalt technician who will supervise the production of mixtures at the asphalt plant.
 5. Paving Equipment: Furnish a list of all paving equipment to be utilized for the placement of the asphalt concrete mixtures.
- D. **Sampling:** Sampling and testing will be as per Section 32 12 02, Part 3 – Execution. The ENGINEER will sample aggregates at his option. If requested, provide two (2) standard LDOTD sample sacks of each aggregate to be utilized in mixtures.
- E. **Test Procedures:** Test procedures used for testing of Asphalt Concrete will be as indicated in Table 32 12 02– 01 below:

Table 32 12 02-1 Test Procedures for Asphalt Concrete	
Description	Test Method
Specific Gravity and Density of Compressed Asphalt Mixtures	DOTD TR 304
Theoretical Maximum Specific Gravity, G_{mm}	DOTD TR 327
Asphalt Cement Content, P_b	DOTD TR 323
Mechanical Analysis of Extracted Aggregate	DOTD TR 309
Moisture Content of Loose HMA	DOTD TR 319
Degree of Particle Coating (plant requirement)	AASHTO T-195
Bulk Specific Gravity and Absorption	AASHTO T 84, T 85
Coarse Aggregate Angularity, % Crushed (Double Faced)	DOTD TR 306
Fine Aggregate Angularity	DOTD TR 121
Flat and Elongated Particles	ASTM D 4791
Sand Equivalent	DOTD TR 120
Mixture Conditioning (Aging) of HMA Mixtures	AASHTO R 30
Superpave Volumetric Mix Design	AASHTO M 323
Preparing Gyratory Samples	AASHTO T 312
Asphalt Cement Draindown	ASTM D 6390
Longitudinal Profile Using Automated Profilers	DOTD TR 644
Thickness and Width of Base and Subbase	DOTD TR 602
Loaded Wheel Tester (LWT)	AASHTO T 324
Semi-circular Bend Test (SCB)	TR 330

1.5 QUALITY ASSURANCE

- A. Provide mixtures that meet the requirements of this section. All WORK is subject to acceptance by the OWNER. When these specifications are not being met and satisfactory control adjustments are not being made, discontinue operations and



notify the ENGINEER immediately until proper adjustments and uniform operations are established. Maintain in place and pay all costs related to a quality control program independent of the ENGINEER's and OWNER's testing and ensure that the requirements of the job mix formula (JMF) are being achieved and that necessary adjustments provide the specified results.

- B. Do not begin daily plant operations unless a Certified Asphalt Concrete Plant Technician (Level 2 or Level 3) is at the plant. When the plant is in operation, have a Certified Asphalt Concrete Plant Technician at the plant and jobsite.

PART 2 -- PRODUCTS

2.1 GENERAL

- A. Keep accurate records including proof of deliveries of materials for use in these processes. Ensure that materials comply with the requirements specified herein.

2.2 AGGREGATES

- A. Use aggregates meeting the requirements of Section 31 05 16 – Aggregates and the requirements specified herein.
- B. **Mixture Levels:** Comply with the table below. If no 20 – year ESAL is shown, provide Level 1 Mixture for mainline binder and wearing courses. Provide Level A for all minor mixture.

Table 32 12 02 – 2 – Mixture Level Requirements for Mainline Mixtures

	Wearing Course		Binder Course	
Level	1	2	1	2
20 Year ESALS	< 3 Million	>3 Million	<3 Million	>3 Million

- C. **Friction Ratings:** Friction ratings for aggregates are determined in accordance with Section 31 05 16 – Aggregates. Table 32 12 02-3 describes the friction ratings and corresponding usage allowed for the current average daily traffic (ADT) shown on the plans. If no ADT is shown on the plans, use aggregate with a Friction Rating of I or II. Friction rating requirements apply to the mainline wearing course only, unless a finish course is applied. If a finish course is applied, then the friction rating requirements do not apply to wearing course.

**Table 32 12 02-3
Aggregate Friction Rating**

Friction Rating	Allowable Usage ^{1,2}
I	All mixtures
II	All mixtures



III	All mixtures, except mainline wearing courses with current plan Average Daily Traffic (ADT) greater than 7000
IV	All mixtures, except mainline wearing courses

¹.When ADT is greater than 7000, blending of Friction Rating III aggregates and Friction Rating I and/or II aggregates will be allowed for travel lane wearing courses at the following percentages. At least 30 percent by weight (mass) of the total aggregates must have a Friction Rating of I, or at least 50 percent by weight (mass) of the total aggregate must have a Friction Rating of II. The Friction Rating I and Friction Rating II aggregates used to obtain the required percentages must not have more than 10 percent passing the No. 8 (2.36 mm) sieve.

².When the average daily traffic (ADT) is less than 2500, blending of Friction Rating IV aggregates with Friction Rating I and/or II aggregates will be allowed for travel lane wearing courses at the following percentages. At least 50 percent by weight (mass) of the total aggregate in the mixture must have a Friction Rating of I or II. The Friction Rating I and Friction Rating II aggregates used to obtain the required percentages must not have more than 10 percent passing the No. 8 (2.36 mm) sieve.

2.3 ANTI – STRIP ADDITIVE

- A. Use an anti – strip additive listed on the LDOTD AML.
- B. Add anti-strip additive at the minimum rate of 0.6 percent by weight of asphalt cement or a rate acceptable to the the ENGINEER. Anti-strip will be thoroughly mixed in-line with the virgin asphalt cement at the plant. Increase the anti-strip additive or change to different additive as needed to meet Loaded Wheel Test, LWT, requirements. Discontinue production until satisfactory adjustments are made when the amount of anti-strip additive is not in accordance with the approved JMF.

2.4 ASPHALT CEMENT

- A. Use a product listed on the LDOTD AML. If asphalt cement does not meet specification requirements, notify the ENGINEER and cease production until proper asphalt cement is supplied.
- B. Comply with the requirements of Table 32 12 02– 02 for usage of asphalt cement.

**Table 32 12 02-4
Asphalt Cement Usage**

Location	Mix Level	Asphalt Grade Required ¹	Substitutions Allowed ²	
			Lower Grade	Higher Grade
Mainline Wearing & Binder	1	PG 70-22m	PG 67-22 with traffic volume < 3500 ADT	PG 76-22rm, PG 76-22m



Mainline Wearing & Binder	2 and ³	PG 76-22m PG 76-22rm	PG 70-22m with Hydrated Lime	
Base	1	PG 67-22	PG 58-28 ⁴	PG 76-22rm, PG 76-22m, PG 70-22m
Minor Mixes including Leveling	ALL	PG 67-22		PG 76-22rm, PG 76-22m, PG 70-22m

¹ For single lift overlay, match grade of overlay.

²Asphaltic mixtures using substitutions are required to meet all design requirements for the original design level in Table 32 12 02-6 or Table 32 12 02-6b.

³Not Used.

⁴When more than 25% RAP is used, PG 58-28 is required.

2.5 CRUMB RUBBER

- A. When used, crumb rubber may be pre-blended or, with approval by the ENGINEER, may be blended at the plant. The maximum rubber replacement is 10 percent by weight of asphalt.
- B. When blending crumb rubber at the CONTRACTOR's plant, add crumb rubber to a PG 67-22 material on the Approved Materials List. Add 30 mesh (or finer) crumb rubber as required to meet grade PG 76-22rm. The maximum size of rubber particles shall be 30 mesh crumb (90-100 percent passing the No. 30 sieve) with a maximum replacement of 10 percent by weight of asphalt material. No cryogenic crumb rubber is allowed.

2.6 HYDRATED LIME

- A. Use a product listed on the LDOTD AML.
- B. When used, specify rate of hydrated lime additive on the Job Mix Formula. Add hydrated lime additive at a minimum of 1.5 percent and thoroughly mix with aggregates in conformance with the requirements of Section 31 05 16 as required to meet LWT requirements.

2.7 LATEX ADDITIVE

- A. Use only products listed on the LDOTD AML.
- B. When added at the CONTRACTOR's plant, blend a minimum of 1.0 percent residual latex by weight of asphalt cement to a PG 67-22 material on the Approved Material List, and in accordance with Section 31 21 03. Meet PG 70-22m requirement using pre-qualified asphalt material and late

2.8 FIBERS

- A. Use only products listed on the LDOTD AML.
- B. When required to prevent draindown, use cellulose or mineral fiber, meeting the requirements of Section 31 05 16 - Aggregates. When used, add fibers at a rate sufficient to prevent draindown with a minimum rate of 0.1 percent by weight



(mass) of mixture.

2.9 MINERAL FILLER

- A. Comply with the requirements of Section 31 05 16 – Aggregates.
- B. Mineral filler may be used to control draindown.

2.10 MIX RELEASE AGENT

- A. Use products listed on the LDOTD AML. Do not use diesel.

2.11 RECLAIMED ASPHALT PAVEMENT

- A. Comply with the requirements of Section 31 05 16 – Aggregates.
- B. Keep reclaimed asphalt pavement separate from other materials at the plant in such a manner that will allow for inspection and acceptance. Keep stockpiles uniform and free of soil, debris, foreign matter and other contaminants. Allowable RAP percentages are defined in Table 32 12 02-6 (or Table 32 12 02-6b for ADT $\leq$ 1000). Screen or crush RAP, prior to use, to pass the 1-inch sieve.

2.12 WARM MIX ADDITIVES

- A. Use only products listed on the LDOTD AML.
- B. When used, add only approved warm mix chemical additives. Foaming with water is allowed.

2.13 NATURAL SAND

- A. When used, meet the requirements of Table 32 12 02-6 (or Table 32 12 02-6b for ADT $\leq$ 1000) and Section 31 05 16 – Aggregates.

PART 3 -- EXECUTION

3.1 DESIGN OF ASPHALT MIXTURES AND JOB MIX FORMULA (JMF) APROVAL

- A. Design all asphalt mixtures for optimum asphalt content in compliance with the mix design in accordance with DOTD Quality Assurance Manual, AASHTO M323, and the requirements of Table 32 12 02-6 (or Table 32 12 02-6b for ADT $\leq$ 1000).
- B. At minimum, all design submittals must include the recommended materials proportions, extracted gradation, recommended mix and compaction temperatures, and supporting design data. Submit the proposed JMF to the ENGINEER in accordance with the requirements of Section 01 33 00 – Contractor Submittals. Do not produce asphalt concrete mixture until the proposed JMF has been accepted.
- C. Indicate the optimum mixing and compaction temperatures as suggested by the asphalt binder supplier on the JMF. Mix temperatures are recommended by the asphalt supplier as determined by rotational viscosity or other means. Warm Mix Asphalt technology may be used to reduce this temperature and must be



noted on the JMF. Warm mix asphalt may be substituted with a minimum production temperature of 275°F.

- D. Once a plant is producing an acceptable JMF, keep JMF production within the specified tolerances. Changes will be reviewed by the ENGINEER as necessary. An acceptable mix design may not be changed to eliminate or add the use of crumb rubber without submitting a new JMF.
- E. The ENGINEER may require a new mix design when roadway acceptance requirements are not being met or plant quality data indicates non-compliance.

3.2 MIXTURE DESIGN SUBSTITUTIONS

- A. Changes in design level will not be allowed on the roadway.
- B. The 3/4-inch Nominal Maximum Size (NMS) wearing course may be substituted for binder course but not substituted for base course. The 1-inch NMS binder course may be substituted for base course.
- C. The 1/2-inch NMS wearing course may be substituted for incidental paving, Level A. Shoulders may be any mixture type shown in Table 32 12 02-4 regardless of design level except that shoulder wearing must be a 1/2-inch or 3/4-inch NMS mixture.
- D. Apply all specification requirements for the substituted mixture with the following exceptions: When wearing course is substituted for binder course, Table 32 12 02-3 does not apply. The amount of RAP allowed is in accordance with the originally specified mixture.
- E. Frictional aggregate requirements apply to final surface only. RAP is allowed in accordance with the original mixture specified, not the substituted mixture. When a wearing course specified under Section 32 12 02 are required on a project, allowable RAP percentage for wearing may be increased by 5 percent.

3.3 LOT SIZES AND PRODUCTION QUALITY CONTROL

- A. A lot is a segment of segment of continuous production of asphaltic concrete mixture from the same job mix formula produced for a given job at an individual plant. A standard lot will be defined as 2000 tons of production. Partial lots will require testing at the frequency of one test per 500 tons and portion thereof.
- B. Each lot will be sub – divided into four equal sub – lots based on expected production. Testing will be conducted as follows:

1. First Sub Lot:

- a. *Percent Voids (aged specimen compacted to N-Design)*
- b. *Percent VFA (aged specimen compacted to N-Design)*
- c. *Percent VMA (aged specimen compacted to N-Design)*



- d. *Theoretical Maximum Specific Gravity*
- e. *Gradation*
- f. *Percent Crushed*
- g. *AC Content*
- h. *Percent Gmm at N-Initial (aged or unaged specimen compacted to N – maximum)*
- i. *Percent Gmm at N – Maximum (aged or unaged specimen compacted to N – maximum)*

2. Second Sub Lot:

- a. *Theoretical Maximum Specific Gravity*
- b. *Percent Gmm at N-Initial (aged or unaged specimen compacted to N – maximum)*
- c. *Percent Gmm at N – Maximum (aged or unaged specimen compacted to N – maximum)*

3. Third Sub Lot:

- a. *Percent Voids (aged specimen compacted to N-Design)*
- b. *Percent VFA (aged specimen compacted to N-Design)*
- c. *Percent VMA (aged specimen compacted to N-Design)*
- d. *Theoretical Maximum Specific Gravity*
- e. *Gradation*
- f. *Percent Crushed*
- g. *AC Content*
- h. *Percent Gmm at N-Initial (aged or unaged specimen compacted to N – maximum)*
- i. *Percent Gmm at N – Maximum (aged or unaged specimen compacted to N – maximum)*

4. Fourth Sub Lot:

- a. *Theoretical Maximum Specific Gravity*
- b. *Percent Gmm at N-Initial (aged or unaged specimen compacted to N – maximum)*
- c. *Percent Gmm at N – Maximum (aged or unaged specimen compacted to N – maximum)*



to N – maximum)

- C. Tests for or Theoretical Maximum Specific Gravity, Voids, VMA and VFA shall be conducted by the ENGINEER. If lot averages (minimum two samples) exceed tolerances listed in Table C502-3, an adjustment must be made to the mix by the Contractor to bring the mix back within tolerance. If two consecutive lots are out on the same parameter, production must be halted and the mix re-designed.
- D. Tests or Gradation, AC Content, and Percent Crushed and for aged or un-aged specimens compacted to N-maximum shall be conducted by the Contractor's Quality Control representative. If lot averages (minimum two samples) exceed tolerances listed in Table C502-2, an adjustment must be made to the mix by the Contractor to bring the mix back within tolerance. If two consecutive lots are out on the same parameter, production must be halted and the mix re-designed.

3.4 ROADWAY OPERATIONS

- A. **Weather Limitations:** Apply asphalt concrete mixtures on a dry surface when the ambient temperature is above 50°F for wearing courses and 40°F for base and binder courses. Material in transit, or a maximum of 100 tons in a surge bin or silo used as a surge bin, at the time plant operation is discontinued may be placed. All mixture placed is expected to perform satisfactorily and meet specification requirements. Inclement weather will be sufficient reason to terminate or not begin production. When base course mixtures are placed in plan thicknesses of 2 3/4 inches or greater, disregard temperature limitations provided all other specification requirements are met. When a wearing course is substituted for a binder course mixture, apply the temperature limitation for binder course.
- B. **Surface Preparation:** Maintain the surface being covered. Acceptance is required for each surface prior to placement of subsequent surface. Establish roadway slopes at the base course level unless otherwise authorized by the ENGINEER. The absolute minimum lift thickness placed must be 1/4 inch greater than the nominal maximum aggregate size as shown on Table 32 12 02-6 (or Table 32 12 02-6b for ADT ≤ 1000). Failure to meet minimum thickness is subject to removal.
- C. **Cleaning:** Sweep the surface to be covered clean of dust, dirt, caked clay, caked material, vegetation, and loose material by revolving brooms or other mechanical sweepers supplemented with hand equipment as directed. Remove excess joint filler from the surface by an approved method when mixtures are to be placed on portland cement concrete pavement or previously overlaid portland cement concrete. Remove any existing raised pavement markers prior to asphalt concrete overlay. Payment for removal of pavement markings will be included with the applicable asphalt item. Wash the surface with water in addition to brooming, when brooming alone does not adequately clean the surface. When tack coat is exposed to traffic for more than one (1) calendar day, becomes contaminated, or degrades due to inclement weather, reapply the tack coat at the initial recommended rate at no additional cost to the OWNER.
- D. **Applying Tack Coat:**



1. **Existing Pavement Surfaces:** Before constructing each course, apply an approved asphalt tack coat in accordance with Section 32 12 04. Protect the tack coat and spot patch as required.
2. **Raw Aggregate Base Course and Raw Embankment Surfaces:** Apply an approved asphalt prime coat to unprimed surfaces, or protect in-place prime coat and spot apply prime coat as required, in accordance with Section 02505.
3. **Cement and Lime Stabilized or Treated Embankment and Base Course Surfaces:** Apply an approved asphalt curing membrane when none is in place, or protect the in-place curing membrane and spot apply, as required, with asphalt material in accordance with Section 32 12 06.
4. **Other Surfaces:** Cover contact surfaces of curbs, gutters, manholes, edges of longitudinal and transverse joints, and other structures with a uniform coating of an approved asphalt tack coat complying with Section 32 12 04 before placing asphalt mixtures.

E. Joint Construction:

1. **Longitudinal Joints:** When constructing longitudinal joints, set the screed to allow approximately 2 inches onto the adjacent pass. Use approved 10-foot static straight edge to maintain no greater than 1/8-inch deviation in grade. Make necessary correction in joint before continuing operations. Offset longitudinal joints in one layer over those in the layer below by a minimum of 3 inches; however, keep the top layer joint 6 inches to 9 inches from the centerline of two lane highways. Offset 6 inches to 9 inches from lane lines when the roadway is more than two lanes. Construct the narrow strip first.
2. **Transverse Joints:** Construct transverse joints by milling or hand forming paper butt joints. Use an approved 10-foot static straightedge to identify the location to be cut back to maintain no greater than a 1/8-inch deviation in grade. Lightly tack the cut face of the previously placed mat before fresh material is placed. Rest the screed on shims that are approximately 25 percent of lift thickness placed on the compacted mat. Provide an adequate crew to form transverse joints. Additionally, meet the transverse joint surface tolerance requirements of Table 32 12 02-5. Make necessary corrections to the joint before continuing placement operations. Offset transverse joints in succeeding lifts by at least 3 feet.

3.5 HAULING, PAVING, AND FINISHING

- A. Transport mixtures from the plant and deliver to the paver at a temperature no cooler than 25°F below the lower limit of the approved job mix formula. The minimum temperature for WMA going through the paver is 245°F. Send no loads so late in the day that completion of spreading and compaction of the mixture cannot be completed during daylight, unless artificial lighting has been approved and is on site.
- B. Load haul trucks to minimize segregation.



- C. Place each course of asphalt mixture in accordance with the specified lift thickness shown in Table 32 12 02-6 (or Table 32 12 02-6b for ADT $\leq$ 1000).
- D. With the ENGINEER's approval, motor patrols may be used to level isolated depressions in the initial layer, provided this construction does not result in unsatisfactory subsequent lifts.
- E. **Coordination of Production:** Coordinate and manage plant production, transportation of mix and placement operations to achieve a high quality pavement. Provide sufficient hauling vehicles to ensure continuous plant and roadway operations. The ENGINEER may order a halt to operations when sufficient hauling vehicles are not available. On final wearing course construction under traffic with pavement layers of 2 inches compacted thickness or less, the CONTRACTOR will be permitted to pave one travel lane for a full day and the adjacent travel lane the next work day. When the adjacent travel lane is not paved the next work day and the longitudinal joint is exposed to traffic for more than 3 calendar days, and it has been determined that the roadway edge is not true to line and grade as previously constructed, cut back the entire length of exposed longitudinal joint to lift thickness to a vertical edge and heavily tack unless a notch wedge device is used. When pavement layers are greater than 2 inches compacted thickness, place approximately 1/2 of each day's production in one lane and the remainder in the adjacent lane unless an approved notched wedge device is used. Protect pavement from traffic until it has sufficiently hardened to the extent the surface is not damaged.

F. Paving Operations:

1. When placing the final two lifts of asphalt concrete on the roadway travel lanes, use a material transfer vehicle (MTV) as specified in Section 02503. During continuous paving, maintain temperature of the mixture constant. At no time may there be more than 50°F difference in temperature as measured in 300 linear feet of paving or 25°F across the full paved width. Ensure all mixtures flow through the paver hopper. Lift into the hopper any mixture dropped in front of the paver or reject such material and cast it aside. Deliver material to the paver at a uniform rate and in an amount within the capacity of paving and compacting equipment. Adjust the paver speed and number of trucks to maintain one truck waiting in addition to the one at the paver in order to maintain continuous paving operations. Maintain a uniform height of material in front of the screed.
2. Keep the paver steady and in constant alignment during mix transfer. Maintain a level of mix higher than the paver hopper feed slats at all times.
3. Use pavers and operators capable of placing mixtures to required line, grade and surface tolerance without resorting to hand finishing.
4. Construct longitudinal joints and edges along established lines. Utilize some form of longitudinal control for the paver to follow, preferably a string line. Position and operate the paver to closely follow the established line. Correct irregularities in alignment by trimming or filling directly behind the paver. Check the texture for uniformity after each load of material has been placed. Check the adjustment of screed, feed screws, hopper feed, etc.,



frequently and adjust as required to assure uniform spreading of the mix to proper line and grade and adequate compaction. When segregation of materials or other deficiencies occur, suspend paving operations until the cause is determined and corrected.

5. Correct surface irregularities directly behind the paver. Hand placement will be allowed for surface repair, taking care never to cast material over the fresh surface.
6. Discontinue paving operations when any screed control device malfunctions during binder or wearing course placement operations. When malfunctions occur, limit material through the paver to that which is in transit. Assume responsibility of meeting all specifications and yield requirements, and bear the cost of any overrun during malfunctions. Do not resume paving operations until the malfunction is fixed.
7. When paving operations are interrupted, remove and replace at no additional cost to the OWNER, mixture that has cooled below the point that it cannot be finished, or compacted to meet specifications. When additional mix is required to increase superelevation in curves, the use of automatic slope control is optional. However, ensure slope by measuring with a slope board. Allow the ENGINEER of the slope board upon request.
8. Use the traveling reference plane method of construction for airport runways unless designated otherwise on the plans. Unless the erected string line is required or directed, use the 27-foot (minimum) traveling reference plane method of construction for roadway travel lanes.

G. Traveling Reference Plane: Obtain approval of the traveling reference plane method before use. After the initial paving strip of each lift is finished and compacted, place adjacent paving strips to the grade of the initial paving strip using the traveling reference plane or shoe device to control grade and a slope control device to control cross slope.

1. On multilane pavements, the initial paving strip and the sequence of lane construction will be subject to approval.
2. When both outside edges of the paving strip being placed are flush with previously placed material, do not use the slope control device. A grade sensor is required for each side of the paver.
3. In superelevated curves, change the cross slope from that specified for tangents to that specified for superelevation in gradual increments while the paver is in motion so a smooth transition in grade is obtained. Accomplish this change in cross slope within the transition distance specified.
4. This is the minimum acceptable method and the CONTRACTOR must meet or exceed current surface tolerance specifications.

H. Erected Stringline: Use the erected stringline method in isolated areas as directed by the ENGINEER. This method may be used on the first lift of asphalt when the underlying new or reconstructed bases do not have grade control requirements.



Equip pavers for roadway travel lanes with automatic screed and slope control devices when used with an erected stringline.

- I. **Without Automatic Screed Control:** When permitted, pavers without automatic screed control may be used for pavement patching, pavement widening, paved drives and turnouts.
- J. **Hand Placement.** When the use of mechanical finishing equipment is not practical, the mix may be placed and finished by hand to the satisfaction of the ENGINEER. During paving operations, thoroughly loosen and uniformly distribute material. Material that has formed into lumps and does not break down readily will be rejected. Check the surface before rolling and correct irregularities.

3.6 ROLLING AND COMPACTION

A. General:

1. After placement, uniformly compact mixture by rolling while still hot, to a density that complies with Table 32 12 02-5. If continuous roller operation is discontinued, move rollers to cooler areas of the mat where they will not leave surface indentations. The use of steel wheel rollers in the vibratory mode, which result in excessive crushing of aggregate, will not be permitted. Utilize experienced operators when rolling the mixture using consistent rolling sequences and uniform methods to achieve specified density and smoothness. Uniformly overlap preceding passes of individual roller passes to ensure complete coverage of the paving area. Do not tear or crack the mat by varying the roller speed, amplitude, vibration frequency or other roller operation. Operate non-vibrating steel wheel rollers with drive wheels toward the paver. Correct any operation causing displacement, tearing or cracking of the mat.
2. Prohibit use of equipment, which leaves tracks or indented areas that cannot be corrected in normal operations or fails to produce a satisfactory surface. Stop use of equipment resulting in accumulation of material and subsequent shedding of accumulated material into the mixture or onto the mat.
3. Keep rollers of steel wheel rollers properly moistened without excess water to prevent adhesion of mixture to rollers.
4. Maintain adequate heat for pneumatic tire rollers to prevent mix from adhering to tires. Operate the pneumatic tire roller at a contact pressure which will result in a uniform, tightly knit surface. Keep the pneumatic tire roller approximately 6 inches from unsupported edges of the paving strip; however, when an adjacent paving strip is down, overlap the adjacent paving strip approximately 6 inches.
5. Vibratory rollers may be used provided they do not impair the stability of the pavement structure or underlying layers. Do not use vibratory rollers on the first lift of asphalt concrete placed over an asphalt treated drainage blanket. When mix is placed on newly constructed cement or lime stabilized or treated layers, do not use vibratory rollers until base is approved by the



ENGINEER and not for at least 5 days after such stabilization or treatment.

6. It is the responsibility of the CONTRACTOR to determine the number, size, and type of rollers to sufficiently compact the mixture to the specified density and surface smoothness. Ensure that the rolling equipment is capable of maintaining the pace of the paver and conforms to Section 32 12 03.
7. Use compaction methods such that the surface of mixtures after compaction is smooth and true to cross slope and grade within the tolerances specified. Remove mixtures that become loose, broken, contaminated or otherwise defective and replace with fresh hot mixture compacted to conform to the surrounding mixture.
8. Excessive rippling of the mat surface will not be accepted. Ripples are small bumps in the pavement surface which usually appear in groups in a frequent and regular manner. No more than 12 ripples or peaks will be allowed in any 100-foot section. Rippling indicates a problem with the paving operation or mix that requires immediate corrective action by the CONTRACTOR; otherwise cease operations. Correct unacceptable areas at no additional cost to the OWNER.
9. After rolling, ensure that newly finished pavements have a uniform, tightly knit surface free of cracks, tears, roller marks or other deficiencies. Correct deficiencies at no additional cost to the OWNER and adjust operations to correct the problem. This may require the CONTRACTOR to adjust the mix or furnish additional or different equipment.

- B. Hand Compaction:** Along forms, curbs, headers, walls and at other places inaccessible to rollers, compact the mixture uniformly to the satisfaction of the ENGINEER with approved hand tampers or mechanical tampers complying with Section 32 12 03.

3.7 ROADWAY ACCEPTANCE

- A. Acceptance testing for pavement density and dimensional tolerances will be conducted on that portion of the lot placed on each contract. Acceptance testing for surface tolerance will be conducted upon completion of mainline paving.
- B. Do not place asphalt concrete mixture exhibiting deficiencies such as segregation, contamination, lumps, non-uniform coating, excessive temperature variations, or other deficiencies apparent on visual inspection.
- C. Correct and/or replace at no additional cost to the OWNER any asphalt concrete mix exhibiting deficiencies, such as segregation, contamination, alignment deviations, variations in surface texture and appearance or other deficiencies, apparent on visual inspection. Poor construction practices such as handwork, improper truck exchanges, improper joint construction, or other deficiencies, apparent on visual inspection, will be corrected at no additional cost to the OWNER.

- D. Density by Pavement Cores:**



1. Obtain pavement samples from each subplot within 24 hours after placement. When this falls on a day the CONTRACTOR is not working, sampling will be done within 3 calendar days. Sample at locations determined by the ENGINEER.
2. When the sampling location determined by random sampling falls within areas that are to be replaced or within 18 inches of the unsupported pavement edge, another random sampling location will be used.
3. Take cores, approximately 6 inches in diameter, with an approved core drill. Furnish samples cut from the completed work. Replace removed pavement with hot or cold mixture and refinish during the work day coring is performed at no additional pay. Sample in the presence of the ENGINEER representative. Any evidence of tampering with the acceptance cores during transport by CONTRACTOR or third party will result in the cores being rejected and additional pavement samples being required.
4. The ENGINEER, his representative, or the testing laboratory will transport cores in approved transport containers.
5. There are typically five sublots for each lot. Mainline and minor mixes may be in the same lot/ subplot. Divide each of the sublots into two segments of approximately equal tonnage. For each subplot segment, the ENGINEER will determine sample locations using random sampling approach. Obtain one acceptance core at the designated sample location, obtain one quality control core approximately 12 inches in the direction of travel from the acceptance core. If the subplot segment has mainline mix uses, the acceptance cores will be taken from the mainline portion. A typical lot will have 10 acceptance cores and 10 quality control cores. Record the location and mix use of each core taken.
6. If a subplot has both mainline and minor uses, at least one acceptance core is required to represent the minor mix type. If the lot has any mixture used for mainline, a minimum of three cores is required to represent the mainline portion. Take additional acceptance cores randomly from the respective portions as needed to meet these requirements. Take additional quality control cores approximately 12 inches in the direction of travel from the any additional acceptance core collected.
7. In the presence of the ENGINEER or his representative, the CONTRACTOR will perform the following: cutting, extracting, trimming, and cleaning the roadway cores. The ENGINEER or testing laboratory will immediately take possession of the acceptance core.
8. For projects with less than 250 tons, the job mix formula, materials, and plant and paving operations will be satisfactory to the ENGINEER. Sampling and testing requirements may be modified by the ENGINEER and payment adjustment for deviations waived.

E. Testing of Roadway Cores:

1. The ENGINEER or testing laboratory will calculate the density of each



acceptance roadway core using the bulk specific gravity (G_{mb}) of the core and the maximum specific gravity (G_{mm}) of the corresponding plant subplot. The percent density requirement for each mix use is shown in Table 32 12 02-5.

2. The CONTRACTOR will calculate the density of each quality control core using bulk specific gravity (G_{mb}) of the core and the maximum specific gravity (G_{mm}) of the corresponding plant subplot.

F. Verification of G_{mm} :

1. Within two calendar days after the CONTRACTOR timeframe to dispute roadway core densities (24 hours after the completion and reporting of all roadway core data) or after a roadway core density dispute is settled, one acceptance core tested by the ENGINEER will be randomly selected for verification of the theoretical maximum specific gravity, G_{mm} . If the verification G_{mm} is not within ± 0.024 of the average plant G_{mm} reported for the lot, notify the CONTRACTOR and randomly select one core from each of the other sublots for verification. If the average verification G_{mm} is not within ± 0.024 of the average plant G_{mm} reported for the lot, notify the ENGINEER and the average G_{mm} determined by verification for the lot will be used to calculate percent density for all sublots in the lot.
2. Cores will be retained for a period of 10 days after density is reported.

3.8 SURFACE FINISH REQUIREMENTS

- A. Testing of each course for surface tolerances as outlined in Table 1 of this Section will be the responsibility of the CONTRACTOR. Control checks for these courses and all other courses will be the responsibility of the CONTRACTOR. The CONTRACTOR shall furnish a 10-foot rolling straightedge for longitudinal testing and a 10-foot (minimum) static straightedge for transverse testing, both of which shall be acceptable to the ENGINEER. The rolling straightedge shall be calibrated and used in accordance with DOTD Designations TR 603 and TR618.
- B. Surface finish testing will be required on roadway wearing and binder courses and shoulder wearing course. For the purpose of surface finish requirements, the wearing course is defined as the last course placed, friction course excluded; and the binder course is defined as the last course placed prior to the wearing course.
- C. Other courses on which additional asphaltic concrete is to be placed shall be finished in such manner that succeeding courses will meet the requirements in this Section. Base courses on which portland cement concrete pavement is to be placed shall be finished in such manner that the pavement will meet the requirements of Section 32 13 01. The CONTRACTOR should conduct such checks as he deems necessary.
- D. **Longitudinal Surface Finish:** The finished surface will be tested by the CONTRACTOR in the presence of the ENGINEER in the longitudinal direction for conformance to surface finish requirements of this Section. One path in each lane will be selected at random by the ENGINEER. The entire lot will be tested. Longitudinal variations in the roadway wearing course surface, friction course excluded, will be subject to



provisions of this Section. Correct finish deficiencies exceeding the values in Table 32 12 02-2 by methods specified herein. After corrections have been made, the entire lot will be re – tested to determine if all corrections have been made. Longitudinal surface finish variations in binder course and shoulder wearing course shall be subject to the provisions of Table 32 12 02-2 of this Section. Deficiencies shall be so corrected that no more than 3 percent of the lot exceeds tolerances. Any surface finish deficiency that exceeds 3/8 inch shall be corrected as specified herein.

- E. Transverse Surface Finish:** The transverse surface finish shall be so controlled that the values shown in Table 32 12 02-2 will not be exceeded. The surface for binder and wearing courses will be tested at selected locations by the ENGINEER in the transverse direction for conformance to surface finish requirements of Table 1 of this Section. Corrections shall be made as directed and as specified herein.
- F. Cross Slope:** When the plans require the section to be constructed to a specified cross slope, tests shall be run at selected locations, using a stringline, slope board or other comparable method. The cross slope shall be so controlled that the values shown in Table 1 of this Section will not be exceeded. Cross slope variations allowed in Table 1 shall apply to each lane constructed.
- G. Grade:** When the plans require the pavement to be constructed to a grade, tests for conformance shall be run at selected locations, using a stringline or other comparable method. Grade variations shall be so controlled that the tolerance shown in Table 1 of this Section will not be exceeded. If the pavement is consistently above or below the established grade for a reasonably long segment, the ENGINEER may, for the purpose of determining conformance to the tolerance, use a new grade approximately parallel to the established grade; in which case, any required transition in grade or vertical curve at each extremity of the segment will be in accordance with the best design requirements. Grade tolerances shall apply to only one longitudinal line, such as the centerline or outside edge of pavement. Corrections shall be made in accordance with Heading (e) of this Subsection.
- H. Correction of Deficient Areas:** Deficiencies to be corrected in the final wearing course shall be corrected by milling, removing and replacing, or furnishing and placing a supplemental layer of wearing course mixture at least 1 inch thick for the full width of the roadway; all in a satisfactory manner at no additional cost to the OWNER. Deficiencies to be corrected in binder and shoulder courses shall be corrected in a satisfactory manner at no additional cost to the OWNER. All corrections shall be made before subsequent courses are constructed.

3.9 DIMENSIONAL REQUIREMENTS

- A.** Ensure that mixtures conform to the following dimensional requirements only. No other acceptance tests will be required for these mixtures. Over-thickness and over-width will be accepted at no additional cost to the OWNER
- B. Thickness:**
 - 1.** For mixture specified for payment on cubic yard or square yard basis, thickness of mixtures will be determined by the ENGINEER in accordance



with DOTD TR 602. Under-thickness may not exceed 1/4 inch.

2. Correct area under-thickness in excess of 1/4 inch to plan thickness at no direct pay by furnishing and placing additional mixture. Correct excesses of 1/2 inch for category D, Table 32 12 02-8. When grade adjustments do not permit placing additional mixture, remove the deficient under-thickness area and replace at no additional pay.
3. For mixtures specified for payment on a per ton basis, thickness of mixtures will be determined by the plans, Table 32 12 02-6 (or Table 32 12 02-6b for $ADT \leq 1000$), and that agreed to with the ENGINEER. Under thickness may not exceed 1/2 inch. Removal and replacement of deficient under-thickness area(s) or other approved remediation agreed to by the ENGINEER will be at no additional cost to the OWNER.

C. Width:

1. The width of completed courses will be determined in accordance with DOTD TR 602. Correct under-widths by furnishing and placing additional mixture to a minimum width of 1 foot and plan thickness at no additional cost to the OWNER.

3.10 MEASUREMENT

- A. Measure asphalt concrete by the ton of 2,000 pounds from printed weights as provided in Section 32 12 03. Provide stamped printer tickets with each truckload of material delivered denoting JMF number and plant tonnage. Material lost, wasted, rejected or applied contrary to specifications will not be measured for payment.
- B. Removal of pavement markings will be considered incidental to the associated asphalt pay item and will not be measured for pay.
- C. Estimated quantities of asphalt concrete shown on the plans are based on 110 lb/sq yd/inch thickness. The measured quantity of asphalt mixtures will be multiplied by the following adjustment factors to obtain the pay quantity.

Theoretical Maximum Specific Gravity, (G_{mm}) (DOTD TR 327)	Adjustment Factor
2.340 - 2.360	1.02
2.361 - 2.399	1.01
2.400 - 2.540	1.00
2.541 - 2.570	0.99
2.571 - 2.590	0.98

The adjustment factor for mixtures with theoretical maximum specific gravities less than 2.340 or more than 2.590 will be determined by the following formulas:

Theoretical maximum specific gravity less than 2.340:



$$F = \frac{2.400}{S}$$

Theoretical maximum specific gravity more than 2.590:

$$F = \frac{2.540}{S}$$

where,

F = quantity adjustment factor

S = theoretical maximum specific gravity of mixture from approved job mix formula

- D. Volume or Area Measurement:** The quantities for payment will be the design quantities specified in the plans and adjustments thereto. Design quantities will be adjusted when the ENGINEER makes changes to adjust the field conditions or when design changes are necessary. Design quantities are based on the horizontal dimensions and compacted thickness of the completed course shown on the plans.

3.11 PAYMENT

- A. General:** Payment for all mixes will be at the contract unit price of asphalt mixture accepted on the roadway. Payment for asphalt concrete will include furnishing all required materials, producing the mixtures, preparing the surfaces on which the mixtures are placed, hauling the mixtures to the work site, and placing and compacting the mixtures.
- B. Payment for Mixture with Density Requirements:** The average density of all cores for each lot shall be greater than the density specified in Table #####. Roadway density will be calculated using the lot average for Maximum Theoretical Gravity. Pay will be adjusted in accordance with Table 32 12 02 – 5.
- C. Payment for Tack:** Tack coat as required will not be measured for payment.
- D. Payment Adjustment for Surface Tolerance:** No adjustment will be made for surface tolerance.

Table 32 12 02 – 5 – Mixture Level Requirements for Mainline Mixtures

General Asphalt Pavement Requirements				
Density, Min. % of Theoretical Maximum Specific Gravity, AASHTO T209 Method C				
Mainline		92.0		
Minor		90.0		
Surface	Longitudinal,	Transverse,	Cross Slope,	Grade, Inches



Tolerances per Mixture	Inches	Inches	Inches	
Mainline Wearing Courses	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$
Mainline Binder Courses	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$
Minor Mixes	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{4}$	$\frac{3}{4}$
Bicycle Paths, Detour Roads, and Parking Lots	$\frac{1}{2}$			
Shoulder, Ramps <300' in Length	$\frac{1}{2}$			

¹May be used for minor mix uses

²Mixtures designated at Level 1F and 2F shall meet the requirements of Level 1 and 2, respectively. Additionally, Level 1F and 2F shall meet the friction rating requirements for travel lane wearing courses.

³N/A.

⁴Air voids mix design target is a 3.5 percent.

⁵Mix design minimum VFA is 72.0%. Mix design minimum VFA for PG76-22mm is 75.0%, and 71% for 25 mm NMS mixtures.

⁶For Level 1 mixtures, N_{initial} shall be 91.0% max. For Level A mixes, N_{initial} shall be 92.0% max.

⁷N/A

⁸Absolute minimum of lift thickness across width equal to 1/2 inch lower than minimum lift thickness.

⁹Also must meet a maximum of 25 percent at a 3:1 ratio.



Table 32 12 02 – 6**Superpave Asphalt Gradation, Extracted Cement and Temperature Requirements**

US Sieve Passing	1/2" Nominal Mix	3/4" Nominal Mix	1" Nominal Mix	Mix Tolerance
2 Inch	--	--	--	+/-6
1-1/2 inch	--	--	100	+/-6
1 inch	--	100	90-100	+/-6
3/4 Inch	100	90-100	89 Max	+/-6
1/2 Inch	90-100	89 Max	--	+/-6
3/8 Inch	89 Max	--	--	+/-6
No. 4	---	---	---	+/-6
No. 8	28-58	23-59	19-45	+/-6g
No. 16	---	---	---	+/-5
No. 30	---	---	---	+/-4
No. 50	---	---	---	+/-3
No. 100	---	--	---	+/-2
No. 200	2.0-10.0	2.0-8.0	1.0-7.0	+/-1
Extracted Asphalt %	---	---	---	+/-0.4
Mix Temperature	---	--	---	+/-25 F



Table 32 12 02 – 6

Superpave General Requirements

Nominal Max. Size Aggregate	0.5 Inch			0.75 Inch			1.0 Inch	
Type of Mix	Incidental Paving (Minor Mix)	Wearing Course		Wearing Course	Binder Course		Binder Course	
Level	A	1	2	2	1	2	1	2
Coarse Agregate Angularity, % Crushed, (Double Faced), Minimum,	55	75	95	95	75	95	75	95
Fine Aggregate Angularity, Min. %	40	40	44	44	40	44	40	40
Flat and Elongated Particles (5:1), Max. %	10							
Sand Equivalent, Min. %	40	40	45	45	40	45	40	45
Natural Sand - Max. %	---	15						
Asphalt Binder	Optimum							
RAP, Max. % of Mix ³	25	20	20	20	25	25	25	25
Compacted Mix Volumetrics								
VMA @ N _{design} , Min. %	13.5	13.5	13.5	12.5	12.5	12.5	11.5	11.5
Air Voids @ N _{design} , % ⁴	(2.5 – 4.5)							
VFA @ N _{design} , % ⁵	(69-80)							
N _{initial} 90% max. ⁶ (Gyrations)	7	7	7	7	7	7	7	7
N _{design} 96.5±1 % (Gyrations)	55	55	65	65	55	65	55	65
N _{max} 98 % max. (Gyrations)	90	90	105	105	90	105	90	105
LWT, max. rut-design, mm @ # passes, @ 50°C	10 @ 10,000	10 @ 20,000	6 @ 20,000	6 @ 20,000	10 @ 20,000	6 @ 20,000	10 @ 20,000	6 @ 20,000
Dust/Effective Asphalt Ratio, %	0.6 – 1.6							
SCB, min, Jc, KJ/m ² @ 25°C	---	0.5	0.6	0.6	0.5	0.6	0.5	0.6
Design Lift Thickness, inch ⁸	≤2.0	1.5–2.0		1.5–2.0	2.0–3.0		2.5–4.0	



¹May be used for minor mix uses

²Mixtures designated at Level 1F and 2F shall meet the requirements of Level 1 and 2, respectively. Additionally, Level 1F and 2F shall meet the friction rating requirements for travel lane wearing courses.

³N/A.

⁴Air voids mix design target is a 3.5 percent.

⁵Mix design minimum VFA is 72.0%, Mix design minimum VFA for PG76-22rm is 75.0%, and 71% for 25 mm NMS mixtures.

⁶For Level 1 mixtures, $N_{initial}$ shall be 91.0% max. For Level A mixes, $N_{initial}$ shall be 92.0% max.

⁷N/A

⁸Absolute minimum of lift thickness across width equal to 1/2 inch lower than minimum lift thickness.

⁹Also must meet a maximum of 25 percent at a 3:1 ratio.

Table 32 12 02 – 7

Payment Adjustment Schedule

Parameter¹	Percent of Contract Unit Price/Sublot ^{3,4}		
	100	95	50 or Remove ²
% Air Voids	2.5-4.5	2.0-2.4 or 4.6-5.0	<2.0 or >5.0
Average Roadway Density, % Gmm	Greater than or Equal to Lower Limit	-0.1 to -0.9 below lower limit	-10 below lower limit

¹The percent payment for plant acceptance will be the Lot Average for air voids,. Roadway pay is based on average roadway density of the sublot cores. The percent payment for roadway acceptance will be the average of the percent payments for density. The total percent payment for the Superpave mixture will be the lowest value of the percent payments for plant acceptance and roadway acceptance

²At the Option of the ENGINEER.

³Lot sizes less than 2000 tons will be accepted/adjusted based on the average of all values reported.

⁴Where contract does not contain unit cost for asphalt pavement, mixture must meet criteria for 100% payment for the mixture to be accepted.

- END OF SECTION -



SECTION 32 12 03 – ASPHALTIC CONCRETE EQUIPMENT AND PROCESSES

PART 1 -- GENERAL

1.1 THE REQUIREMENT

- A. This section specifies requirements for the certification of asphalt concrete plants and paving equipment. It includes methods and equipment for handling and storing materials, producing asphalt concrete, and transporting and placing asphalt concrete at the job site.
- B. The LDOTD publication entitled "Application of Quality Assurance Specifications for Asphalt Concrete Mixtures" is hereby made a part of this specification by reference.

1.2 REFERENCE STANDARDS

- A. American Society of State Highway and Transportation Officials (AASHTO)
 - T195 Standard Method of Test for Determining Degree of Particle Coating in Asphalt Mixtures
- B. ASTM International (ASTM)
 - ASTM D2995 Standard Practice for Estimating Application Rate and Residual Application Rate of Bituminous Distributor
 - ASTM D5624 Standard Practice for Determining the Transverse-Aggregate Spread Rate for Surface Treatment Applications
- C. Louisiana Department of Transportation and Development (LDOTD)
 - Application of Quality Assurance Specifications for Asphalt Concrete Mixtures

1.3 CONTRACTOR SUBMITTALS, SAMPLING, AND TESTING

- A. Furnish submittals in accordance with Section 01 33 00 – Contractor Submittals.
- B. **Submittals: Submit the following:**
 - 1. Name, information, and plant process diagram of all plants proposed to produce asphaltic concrete mixes to be incorporated into the WORK. Include the name and location of the asphaltic concrete plant(s), certificates indicating that the asphaltic concrete plant is certified in accordance with current LDOTD Standards, name and current certifications of the asphaltic concrete plant certified technicians, and other information on plant and processes sufficient for the ENGINEER to review the acceptability of the proposed plant. Submit information on pavers, MTV's and all other equipment to be utilized in suitable detail to determine compliance with specification requirement.



C. **Sampling:** No materials are anticipated to be sampled under this Section.

D. **Testing:** No testing laboratory tests are anticipated under this Section.

PART 2 -- PRODUCTS – NOT USED

PART 3 -- EXECUTION

3.1 PLANT EQUIPMENT

A. General:

1. Provide equipment and processes to proportion aggregates, additives and asphalt cement in accordance with the approved Job Mix Formula (JMF). When the automatic adjustments or other critical control and shutoff devices are not functioning, do not operate the plant. Operate the plant with clean, easily accessible, and accurate thermometers, scales and meters. Immediately repair, replace, or recalibrate equipment when faulty operation is detected.
2. Provide a system with positive weight control of cold aggregates fed by a belt scale or other device interlocked with the asphalt measuring system to maintain required proportions of combined aggregates and asphalt cement. Heat, dry and mix aggregates with asphalt cement to produce a homogeneous mixture in which all aggregate particles are uniformly coated. Use approved methods to discard the first and last output of the plant after each interruption. Place discarded material in a separate dedicated area.
3. Digitally display the total quantities and the rates of production of every material used.

B. Certifications and Calibrations: Use an asphalt concrete mixture plant certified by LDOTD at the time of the production of the mixture in accordance with LDOTD procedures.

3.2 AGGREGATES

A. Stockpiles: Store aggregates at the plant site so that no intermixing, segregation, pooling of water or contamination will occur. Ensure that gradation and other properties of aggregate in stockpiles are combined in proper proportions so that the resulting combined gradation will meet the requirements of the approved JMF.

B. Cold Feed Bins: Blend and proportion all aggregates in cold feed bins. Provide cold aggregate bins of sufficient size to store the amount of aggregates required for continuous plant operation. Provide a cold bin feed system capable of uniformly delivering the maximum number of required aggregate sizes in their proper proportion. Extend partitions between bins a minimum of 1 foot above the top of bins sufficient to prevent intermixing of aggregate sizes. Do not use the partition as part of the bin. Calibrate the cold feed system based on the weight of bin material. Feed material from a bin through the individual orifice and bypass to a container to be weighed, or over the calibrated weigh bridge.



Calibrate material from each bin separately. Calibrate with manufacturer's recommended procedures and keep records on file. The calibration process shall be part of the contractor's quality control. Provide an automatic plant no flow alarm and shutoff to cease operations when any aggregate bin becomes empty or flow is interrupted for 20 seconds. If repeated no flow indications are evident, cease operations until continuous flow can be maintained. Provide belt scales for conveyor systems and calibrate accordingly. When more than one cold bin feeder is used, operate each as a separate unit. Integrate the individual controls with a master control for all materials.

- C. **Moisture:** Make provisions for introducing the latest moisture content of the cold feed aggregates into the belt weighing system, thereby correcting the conversion of wet aggregate weight to dry aggregate weight. Digitally display dry weight of the aggregate flow in appropriate units.
- D. **Screens:** Provide a static screen system on top of the fine sand cold feed bin system and the RAP bin system, to ensure removal of objectionable material. When a belt scale is used, provide a vibrating scalping screen between the cold bin system discharge and the belt scale. Size the screens to remove all oversize aggregate and other objectionable material.
- E. **Reclaimed Asphalt Pavement:** If RAP is used, provide a separate cold feed system. Include a scalping screen, bin, feeder belt, and weigh bridge which is fully integrated with the cold feed system and asphalt cement supply system. Calibrate this system in as specified herein. Add RAP to the dryer in a location as recommended by the manufacturer so that it does not expose the material to direct flame.

3.3 ASPHALT CEMENT

- A. **Working Tank:** Provide an asphalt cement working tank capable of uniformly heating the material, under positive control, to the required temperature as recommended by the supplier by methods approved by the ENGINEER. Provide an asphalt circulating system of adequate size to ensure proper and continuous circulation (except while asphalt is being measured). Equip new tanks with paddle-type mixers or agitators which keep the material in motion and minimize prolonged exposure to the heating source. Maintain the proper mixing temperature of the asphalt. Heat and insulate pipelines and fittings. Provide a sampling spigot in each tank and/or the supply line. Place strainers or screens between the working tank and mixing unit to filter undesirable material. Fix a thermometer graduated in 5°F increments and having an accuracy of $\pm 5^\circ\text{F}$ in the asphalt feed line at an approved location near the discharge valve at the mixer unit to indicate the temperature of asphalt from storage.
- B. **Measurement:** Measure the asphalt cement either by weight or volume. Ensure that all scales and meters are calibrated and accurate to 0.5 percent. Display by percent the rate of flow of asphalt cement and the total quantity used.
 - 1. **Weight Measurement:** Provide scales reading to the nearest pound.
 - 2. **Volume Measurement:** Measure the asphalt cement by volume using a positive displacement pump and record in digital form to the nearest gallon.



Periodically check by weight the quantity of asphalt cement delivered. Continuously display in digital form the corrected rate of asphalt cement delivery and the total quantity delivered. Ensure measurement during production is accurate to within 1.0 percent.

3.4 ADDITIVES

- A. General:** When additives are used, digitally display the rate of flow and the total quantity used for each. Provide meters accurate to 0.5 percent.
- B. Anti – Strip:** Provide a recirculation anti-strip additive storage tank producing uniform heat with an indicating thermometer at an approved location near the tank discharge point. Place a thermometer graduated in 5°F increments and having an accuracy of $\pm 5^\circ\text{F}$ at an approved point near the anti stripping tank discharge point before the meter. Disperse anti strip additive directly into the asphalt feed line at a location between the asphalt control valve and the end of the asphalt discharge line. Ensure that the anti-strip delivery system continuously delivers the proper amount of material and in correct proportion to the asphalt cement. This system must be equipped with a no-flow indicator, which triggers a light or alarm in the control room and an alarm in the plant lab when the anti-strip material is not flowing. If the anti-strip flow is stopped or interrupted for more than 5 minutes, discontinue production until the system is repaired. The equipment shall include a positive displacement accumulating meter which accumulates and displays materials used, and reads to the nearest 0.25 gallon. Additionally, provide a measuring dip stick and a chart correlating tank quantity with the height of anti-strip liquid.
- C. Plant Blending:** Equipment required to introduce crumb rubber modifier, latex, or warm mix additives is described herein. Submit a proposed plant equipment diagram to the ENGINEER for review and forward a copy to the ENGINEER. Provide written confirmation from the equipment manufacturer that the quantity and type of mixers are appropriate for the proposed materials and flow rates. When modifying asphalt liquid binder at the contractor's plant to meet a new grade of asphalt, provide a Dynamic Shear Rheometer (DSR) for on-site quality control testing.
- 1. In – Line Blending:** Provide a sampling spigot in line after the point of mixing and prior to anti-stripping introduction. When modifying the binder with additives, use a totalizing meter to measure the quantity of additive in a similar manner as anti-strip.
 - 2. Single Tank Batch Blending:** A single tank system consists of a single blending tank used to blend crumb rubber modifiers. Provide a 20,000-gallon capacity tank or greater, which serves as both a mixing liquid tank and working liquid tank. Continuously mix the liquid and crumb rubber or other additive with paddle type mixers, auger type mixers, or shear mills to properly blend and maintain suspension. Provide a safe and easily accessible sampling spigot.
 - 3. Multiple Tank System:** A multiple tank system consists of a blending tank feeding into a working tank used to blend crumb rubber modifiers. The blending tank may be batch or continuous with metered feed controls to



accurately maintain proper ratios of crumb rubber or other additive to neat asphalt binder liquid. Properly agitate the mixture in the working tank with paddle type mixers or auger type mixers to maintain suspension of the modified liquid. Provide a safe and easily accessible sampling spigot.

D. Warm Mix Additives: Provide necessary equipment in accordance with the manufacturer's recommendations and submit a proposed plant equipment diagram to the ENGINEER for review. Forward a copy to the ENGINEER.

1. Foaming Water Using Injection: Provide an approved foamed asphalt injection system flow diagram upon request. Provide a control room indicator when using the water injection system.

2. Chemical Additives: Chemical additives are supplied by the liquid supplier, by mixing in the working tank, by in-line blending, or by introducing as an anti-strip. Provide a system that continuously records the quantity of additive used.

E. Mineral Filler: Proportion mineral filler separately from a bin equipped with an adjustable feed as specified herein which can be accurately and conveniently calibrated and be interlocked with the aggregate. The feeder shall accurately proportion the mineral filler and provide a constant flow of material. For continuous drum mixer plants introduce the mineral filler, if used, to the mix at an approved location sufficiently in advance of the addition of the asphalt cement.

F. Hydrated Lime: When hydrated lime additive is mixed with aggregate on the belt feed, interlock and synchronize the hydrated lime additive equipment with cold feed controls. Equip the system with an automatic no flow indicator that will automatically shut the plant down when a malfunction causes an improper supply of additive or water. Equip the hydrated lime additive system with the following:

1. A separate bulk storage bin with a vane feeder or other approved feeding system that can be readily calibrated. The system shall provide for easy sampling of additive and verification of the quantity dispensed by weight (mass). Ensure the feeder system continuously records the total amount of additive dispensed.

2. An approved spray bar, capable of spraying the composite aggregate with potable water before the addition of hydrated lime additive, when the moisture content of the composite aggregate falls below 3 percent. Ensure the approved equipment and methods consistently maintain the aggregates in a uniform, surface wet condition.

3. An approved pug mill after the cold feed system and before the belt scale.

4. Dispense the hydrated lime additive directly into the pug mill and composite aggregate. Uniformly blend the additive with the composited aggregate before exiting the pug mill. Obtain the ENGINEER's review of the process and equipment used for mixing the lime additive and aggregate. Ensure that no less than the required amount of additive is continuously blended with the aggregate.



- G. Fibers:** Use a separate feed system to accurately proportion and uniformly distribute the required quantity of mineral fibers into the mixture. Interlock the proportioning device with the aggregate feed or weigh system to maintain the correct proportions for all rates of production. Control the fiber proportion to within ± 10 percent of the amount of fibers required. Equip the system with an automatic no flow indicator that will automatically shut the plant down when a malfunction causes an improper supply of fiber. For drum plants, add the fiber adjacent to the asphalt cement discharge location.

3.5 DRUM

- A.** Equip the drum with automatic burner controls that continuously agitate aggregates during heating and drying. Provide equipment capable of heating and drying aggregates to meet specifications in the necessary quantities to supply the mixing unit continuously at its operating capacity and at a specified temperature and acceptable moisture content. Slope the drum and maintain flights in accordance with manufacturer's recommendations.
- B.** Produce a uniform blend at the specified production rate, with rapid and complete asphalt coating of aggregate. As a minimum, completely coat 95 percent of the coarse aggregate particles retained on the No. 4 sieve when tested in accordance with AASHTO T195.
- C.** Process the mixture at the temperature specified on the approved JMF and within $\pm 25^{\circ}\text{F}$ of the optimum mixing temperature at the discharge. Equip the drum with a thermometer or other temperature device to monitor the discharge temperature of the mix. Use temperature recording device or thermometers graduated in maximum 10°F increments with an accuracy of $\pm 5^{\circ}\text{F}$ and a sensitivity capable of detecting a change of at least 10°F per minute.

3.6 DUST COLLECTION SYSTEM

- A.** Return the fines from the dust collection system at a uniform and regulated rate near the asphalt cement discharge.

3.7 STORAGE AND LOADING OF ASPHALT CONCRETE MIXTURES

- A. Mix Conveyors:** Transport the mix directly from plant to the storage silos or surge bin system by means of an enclosed continuous type conveyor system designed to prevent spillage and match the production rate of the plant. Deliver the mixture to the storage silo or surge bin within $\pm 15^{\circ}\text{F}$ of plant discharge temperature.
- B. Storage Silos and Surge Bins:** Use approved storage silos or surge bins for storing asphalt concrete mixtures. Ensure that the use of storage silos or surge bins conform to the limitations on retention time, type of mixture, heater operation, bin atmosphere, bin level or other characteristics set forth in these specifications and other requirements stated in granting approval of these facilities. Affix an indicator device to each bin, visible to the loading operator, which is activated when material in the bin drops below the top of the sloped portion. Maintain mixtures above this level during production, except when the plant is not in operation. When the mixture is placed into a silo or bins through a surge device,



provide an automatic warning system to audibly warn the operator of a gate malfunction. Ensure silo or bin unloading gates are either clam shell gates operating under gravity feed or other approved gates that will not cause segregation or be detrimental to the mix.

1. **Storage Silos:** Maintain a uniform mixture temperature without localized heating. Maximum allowable overnight storage time is 18 hours, provided the silo has an oil sealed discharge gate. The ENGINEER may approve additional storage time provided test results and other data indicate that the additional storage time is not detrimental to the mix.
2. **Surge Bins:** Maintain the mixture at a temperature not less than 25°F below the optimum mixing temperature on the JMF. Do not store the mixture over night.
3. **Loading and Sampling:** Use haul trucks conforming to the requirements of this section. Provide a sturdy secured metal sampling platform, with protective rails, at least 30 square feet in area, and set at the proper height to easily obtain a sample. Protect the sampling platform from loaded trucks with barrier rail. Equip the plant with an approved pressurized system capable of spraying a uniform coating of an approved asphalt mix release agent into the haul unit bed prior to loading. Do not use diesel as a mix release agent.

3.8 SCALES AND METERS

- A. **Scales:** Provide scales and meters accurate to ± 0.5 percent of the indicated load. Design, construct and install scales and meters so that operations do not affect their accuracy. Calibrate in accordance with the requirements of this section. Measure all asphalt concrete mixtures by weigh hoppers or truck platform scales to determine weight for pay.
- B. **Weigh Hoppers:** Provide weigh hoppers to weigh the mixture or individual material components. Provide hoppers that do not leak or cause segregation. Suspend weigh hoppers from calibrated springless dial scales or load cell scales. Equip the weigh hopper with an approved automatic printer system that will print the certified tare weight of the truck, each batch weight, and total weight of mixture loaded into the truck.
- C. **Platform Scales:** Provide truck platform scales of sufficient length to weigh the entire unit transporting the mix. Weigh the truck empty to determine tare weight prior to mixture loading. Equip scales with an approved automatic printer system that will print the tare weight as well as the total weight of the unit and the mix.
- D. **Printers:** Inform the ENGINEER in the event of a breakdown of the printing mechanism. Discontinue operations until the printer is repaired or replaced.

3.9 PAVING EQUIPMENT

- A. **General:** The ENGINEER will inspect primary roadway equipment, including Material Transfer Vehicle (MTV), asphalt distributors, pavers, and rollers, at the start of each project.



3.10 HAUL TRUCKS

- A.** The ENGINEER will certify haul truck and trailers with a maximum of three trailer combinations for legal payload and volume. Comply with load restrictions in accordance with local, state, and federal laws. Use trucks having tight, clean, and smooth beds. Spray beds daily or as often as directed with an approved asphalt mix release agent.
- B.** Provide a canvas or vinyl cover large enough to completely cover the top and extend over the sides of the bed to protect the mixture from the weather or loss of heat. Use sufficient tie downs to hold the cover.
- C.** Discharge the mixture in a continuous manner so the spreader apron of the paver or MTV will not be overloaded. If the truck or paver is causing surface tolerance penalties or excessive bumps, discontinue its use.
- D.** Change equipment or operations when size, speed and condition of trucks interfere with orderly paving operations.
- E.** Equip haul trucks used for asphalt surface treatments with a mechanism to provide a positive connection to the aggregate spreader.

3.11 ASPHALT MILLING MACHINE

- A.** Use an approved self-propelled milling machine or grinder equipment for milling asphalt surfacing. Provide equipment with sufficient power, traction and stability to remove the thickness of asphalt concrete necessary to provide profile grade and cross slope uniformly across the surface. Provide milling equipment capable of controlling grade or cross-slope from an erected stringline, shoe device or approved traveling reference plane that will accurately reflect the average grade of the surface on which it is to be operated and have an automatic system for controlling cross slope at a given rate. The drum shall be round and true with sufficient number of teeth to yield a uniform and fine textured surface. Equip the milling machine with means to control dust created by the cutting action. Provide adequate loading equipment to immediately remove materials cut from the surface and discharge the cuttings into a truck or on the shoulder as specified or directed.

3.12 ASPHALT DISTRIBUTORS

- A.** General: Use equipment that ensures even distribution of the asphalt or asphalt emulsion across the entire pavement area at the specified rate as measured per ASTM D2995.
- B. Distributors:**
 - 1.** The asphalt cement distributor shall be capable of maintaining the allowable variation from any specified rate within ± 0.02 gallons per square yard. Equip the distributor with a height adjustable spray bar with spray nozzles recommended by the manufacturer. Assure that the end nozzle over the roadway edge provides a sharp line of asphalt material parallel to the direction of travel. Ensure nozzles remain clean and free from blockage.



2. Provide means for an accurate and rapid determination of the control and amount of asphalt materials being applied per square yard of surface. Equip the distributor with thermometers to indicate the temperature of the material in the tank. Equip the distributor with a hand-held spray attachment for applying asphalt materials to areas inaccessible with the spray bar.
3. Within 12 months prior to use, calibrate the asphalt distributor in accordance with ASTM D 2995. Provide the ASTM calibration and furnish the ENGINEER an accurate and satisfactory calibration record prior to beginning the work. The ENGINEER may at any time require verification of calibration accuracy of the asphalt distributor in accordance with ASTM D 2995.

3.13 MATERIAL TRANSFER VEHICLE

- A. When placing the final two lifts of asphalt concrete on the roadway travel lanes, use a material transfer vehicle (MTV) or lightweight MTV to deliver mixtures from the hauling equipment to the paving equipment, and to minimize thermal and material segregation of the hot mix asphalt concrete.
- B. Ensure that the MTV provides additional mixing of the asphalt concrete mixtures and then deposits the mixture into the paving equipment hopper to reduce segregation and facilitate continuous production. At a minimum, provide an MTV with a high capacity truck unloading system, which will receive mixtures from the hauling equipment; a 20-ton storage bin in the MTV to continuously mix the mixture prior to discharge to a conveyor system; a discharge conveyor, with the ability to swivel, delivering the mixture to a paving equipment hopper while allowing the MTV to operate from an adjacent lane. If the weight of the MTV is determined by the ENGINEER to cause settlement or movement in the base or sub-base, discontinue use. When a malfunction occurs in the MTV during lay-down operations, immediately discontinue plant operations and do not resume until the MTV malfunctions have been remedied. Mixtures in the silo (≤ 100 tons) or materials in transit may be placed.
- C. Due to the weight of the loaded MTV, apply the following restrictions at bridge crossings:
 1. Abide by posted weight limits.
 2. Prior to crossing a bridge, be as near empty as possible.
 3. Do not move across a bridge with any other vehicles being on the bridge.
 4. Move on a bridge only within the limits of the travel lanes and do not move on the shoulders of the bridge.
 5. Move at a speed no greater than 5 miles per hour when crossing a bridge.

3.14 LIGHTWEIGHT MTV

- A. The lightweight MTV has a smaller capacity, is more fuel efficient and may be used in lieu of the MTV. Lightweight MTV's must meet all requirements of the Material Transfer Vehicle specified above as modified herein. Use a Thermal Profile system in accordance with all times when a lightweight MTV is used in



lieu of the MTV. Discontinue use of lightweight MTV when thermal segregation is observed

- B. The requirement of the 20-ton storage hopper is waived for all lightweight MTVs. The approved remixing methods for lightweight MTV's are:
 - 1. Counter rotating augers,
 - 2. Offset gravity transfer conveyor chute, or
 - 3. Twin interlaced augers.
- C. A tracked or high flotation tires are required for the undercarriage of the MTV to facilitate low ground pressure (< 55 psi).

3.15 WINDROW PAVING

- A. Windrow paving is allowed with the use of an MTV and thermal profile system. Equip the MTV with a windrow head attachment capable of removing 95 percent of the mixture off the pavement. Use a thermal profile system when windrow paving is used.

3.16 THERMAL PROFILE SYSTEM

- A. The thermal Profile System may be used on all projects. The Thermal Profile System is a device capable of continuously recording the temperature of the full width of pavement as the mixture exits the paver with constant record of the GPS location and distance traveled. The system requirements include the capability to provide the ENGINEER with the thermal profile of every roadway subplot and roadway lot.
- B. Mount the system with a recording device to the back of the paver. Provide capability of instant review of data on project site at any time keeping permanent record of all temperature and location data daily.

3.17 PAVERS

- A. Use pavers with an automatic grade control device (dual grade may be required) and slope control devices for use with an approved traveling reference plane or erected stringline, as directed.
- B. Use pavers capable of placing mixtures within specified tolerances. Use a screed or strike off assembly to distribute the mixture over the entire paving strip. The width of the paving strip must be acceptable to the ENGINEER. Use screed, including screed extensions, to place mixtures that are uniform in appearance and quality. Adjust the screed assembly to provide the required cross section. Equip the screed (including screed extensions) with a heater and a vibrator.
- C. Use a paver insert hopper, in conjunction with the MTV, with a minimum capacity of 5 tons (5 Mg).
- D. Equip pavers with hoppers adequately designed and maintained to prevent spillage. Equip pavers with augers to place the mix evenly in front of the screed,



including extensions. Equip pavers with a quick and efficient steering device capable of traveling both forward and in reverse. Provide pavers capable of spreading mixes to required thickness without segregation or tearing.

- E. For shoulder construction or other incidental applications, use modified pavers or widening machines when permitted.
- F. **Spray Pavers:** Spray pavers are designed to distribute the tack coat immediately before placing the asphalt mixture. Comply with specification requirements for tack coat and ensure that spray pavers evenly distribute the tack coat and apply and level thin asphalt concrete concurrently at a rate of 30 to 92 feet per minute. Do not allow a wheel or other part of the paving machine to come in contact with the tack coat before the hot mix asphalt concrete wearing course is applied. Equip the spray paver to include a receiving hopper, feed system, insulated storage chamber for the tack coat, spray bar, tanks with calibrated load cells, and a variable width heated screed unit.

3.18 COMPACTION EQUIPMENT

- A. **General:** Provide self-propelled compaction equipment capable of reversing without backlash. Establish a rolling pattern and provide the number, type and size of rollers sufficient to compact the mixture to the specified density and surface smoothness.
- B. **Steel Wheel Rollers:** Use either vibratory or non-vibratory steel wheel rollers. Equip the roller with wheels that are true to round and equipped with suitable scrapers and watering devices. Design vibratory rollers for asphalt concrete compaction having separate controls for frequency, amplitude and propulsion.
- C. **Pneumatic Tire Rollers:** Use treadless tires that are the same size and ply rating, and inflated to a uniform pressure not varying more than ± 5 psi between tires. Equip tires with scrapers to prevent adhesion of mixture. The ENGINEER may require additional cleaning and water apparatus on tires if material adhesion is detrimental to the mat.
- D. **Equipment for Asphalt Surface Treatment:**
 - 1. **Pneumatic Tire Rollers:** Use a minimum of two self-propelled rollers, weighing at least 12 tons each. Tires shall be smooth tread, of the same size and ply rating. Inflate to a minimum uniform tire pressure of 60 psi, unless damage occurs. The ENGINEER may require a reduction in roller pressure to prevent damage to the aggregate or underlying base course. Wheels shall not wobble and shall be aligned so that the gaps between tires on one axle are covered by tires of the other axle.
 - 2. **Power Broom or Blower:** Use a power revolving broom or power blower to clean the surface of dust, dirt, mud, and loose or excess material.
 - 3. **Aggregate Spreader:** Use a self-propelled, pneumatic tire power spreader designed, equipped, and operated to spread aggregate uniformly at the designated rate within the limits of the desired roadway width. The aggregate spreader shall be capable of maintaining an allowable variation from the specified rate within ± 0.5 pounds per square yard or ± 0.25 pounds



per square yard for expanded clay. Calibrate the aggregate spreader in accordance with ASTM D 5624.

- 4. Vacuum Sweeper:** Provide a vacuum-sweeper when there is a dusting problem, as determined by the ENGINEER.

3.19 MISCELLANEOUS EQUIPMENT AND HAND TOOLS

- A.** Provide power revolving brooms or power blowers that are maintained and in satisfactory working condition.
- B.** In areas that are inaccessible to conventional rollers, use satisfactory mechanical compaction equipment, or hot hand tampers. Tamping tools may be used for compacting edges.

- END OF SECTION -



SECTION 32 12 04 – ASPHALTIC TACK COATS

PART 1 -- GENERAL

1.1 THE REQUIREMENT

- A. Prepare and treat existing asphalt or Portland cement concrete pavement surfaces with asphalt material in accordance with these specifications and in conformity with the lines and grades shown on the plans or established.

1.2 REFERENCE STANDARDS

- A. Louisiana Department of Transportation and Development (LDOTD)

AML Approved Materials List

1.3 CONTRACTOR SUBMITTALS, SAMPLING, AND TESTING

- A. Provide submittals, samples for testing, and testing of materials in accordance with Section 01 33 00 – Contractor Submittals.
- B. **Submittals:** Submit the following:
 - 1. Product data on all tack coats to be utilized. Include evidence of each product's current listing on the LDOTD AML.
- C. **Sampling:** No materials are anticipated to be sampled under this Section.
- D. **Testing:** No testing laboratory tests are anticipated under this Section.

PART 2 -- PRODUCTS

2.1 ASPHALTIC TACK COAT MATERIALS

- A. Use an undiluted asphalt emulsion Grade NTSS-1HM, CBC-1HT, CRS-2P, CSS-1H, SS-1H or PET or a hot applied non-tracking tack (NTHAP) as required and as listed on the LDOTD AML.

PART 3 -- EXECUTION

3.1 GENERAL

- A. Do not apply asphalt tack coat on a wet surface or when the ambient air temperature is below 40°F. For full depth patching, do not place asphalt tack coat when ambient air temperature is below 35°F.

3.2 EQUIPMENT

- A. Provide equipment for applying asphalt material and prepare the surface to be tacked. Apply with equipment conforming to the requirements of Section 32 12 03. A hand held pressure nozzle may be used for tack coat application in lieu of the spray bar/tachometer combination for irregular sections or short sections of



1500 feet or less.

3.3 PREPERATION

- A. Clean the pavement surface by sweeping or other approved methods. Satisfactorily clean edges of existing pavements that will form joints with new pavement before tack coat is applied.

3.4 APPLICATION

- A. Uniformly apply asphalt tack coat to a clean dry surface with no bare areas, streaks or puddles with an asphalt distributor at a rate in accordance with Table 32 12 04-1. If bleeding, ponding, or slipping are evident, these rates may be reduced to a minimum of 0.04 gallon/square yard with a minimum 0.02 gal/sq yd residual with approval of the ENGINEER.

**Table 32 12 04-1
Asphalt Tack Coats**

Surface Type	Rate ^{1,3} ; Gal/Sq yd
Existing Surface Treatment ²	0.12
New Hot Mix	0.06
Existing Hot Mix	0.09
Portland Cement Concrete	0.09
Milled	0.08

¹Rates are minimum rates of undiluted asphalt emulsion.

²Asphalt Surface Treatment Type E Interlayer does not require a tack coat.

³Minimum rate for hot applied non-tracking tack (NTHAP) is 0.08 gal/sq yd for all surface types in Table 32 12 04-1

- B. The minimum application temperature of the emulsified asphalt Grades NTSS-1HM, CBC-1HT, CRS-2P and Polymer Emulsion Tack (PET) is 160°F and Grades CSS-1H and SS-1H, is 70°F, or as recommended by the manufacturer. For hot applied non-tracking tack (NTHAP) the minimum application temperature is as recommended by the manufacturer.
- C. Apply tack coat in such manner as to cause the least inconvenience to traffic. Traffic is not permitted on tacked surfaces prior to application of the mixture placement. The contractor will be permitted to apply the tack coat one calendar day prior to the mixture laydown for non-traffic areas. However, when tack coat has been damaged or contaminated by dirt, dust or mud, clean the surface and apply tack coat again prior to the mixture laydown at no direct pay. Reapply tack coat to previously tacked surfaces exposed to damage or due to inclement weather at no additional cost to the OWNER.

- END OF SECTION -



SECTION 32 15 00 – AGGREGATE SURFACE COURSE

PART 1 -- GENERAL

1.1 THE REQUIREMENT

- A.** Furnish and construct aggregate surface courses for roadways, shoulders, drives, or other facilities in accordance with these specifications, and in conformity with the lines, grades, thicknesses, and typical sections shown on the plans or already established.

1.2 REFERENCE STANDARDS

- A.** Louisiana Department of Transportation and Development (LDOTD)

AML Approved Materials List (formerly QPL)

TR 602 Measuring Thickness and Widths of Base and Subbase Courses and Aggregate Type Surface Courses

1.3 CONTRACTOR SUBMITTALS, SAMPLING, AND TESTING

- A.** Provide submittals, samples for testing, and testing of materials in accordance with Section 01 33 00 – Contractor Submittals and Section 01 45 00 – Quality Control.

1.4 DELIVERY, STORAGE, AND HANDLING:

- A.** Ensure that delivery, storage, and handling of materials is undertaken in such a way as to ensure compliance of the placed and compacted material with all requirements of the specifications.

PART 2 -- PRODUCTS

2.1 GENERAL

- A.** Use uniformly blended aggregate surface course materials that have been sampled and approved prior to placement.
- B.** Unless otherwise approved in writing, use the same type of material throughout the project.

2.2 STONE

- A.** Use stone aggregate for base courses complying with the requirements of Section 31 05 16 – Aggregates.



PART 3 -- EXECUTION

3.1 EQUIPMENT

- A.** Furnish and maintain equipment necessary to produce a finished product meeting the requirements of these specifications. Obtain approval of equipment prior to use.

3.2 GENERAL CONSTRUCTION REQUIREMENTS

- A.** Obtain approval of the subgrade before placing aggregate surface course. Uniformly spread material removed from shoulders adjacent to the shoulder material.
- B.** On existing surfaces, where only placing aggregate surface course, remove vegetation, shape, and satisfactorily compact the surface prior to placing aggregate surfacing. For new or reconstructed surfaces construct subgrade in accordance with the requirements of the earthwork specifications.

3.3 PLACING MATERIALS

- A.** Place material directly on the prepared and approved subgrade. Do not place surface course on damaged subgrade until repairs have been completed and approved.
- B.** Do not place or spread aggregate surfacing materials on adjacent portland cement concrete or asphalt concrete pavements. Conduct aggregate surfacing operations so that pavement surfaces, edges, and joints are not damaged. Repair damaged areas at no additional cost to the OWNER.

3.4 MIXING

- A.** Uniformly mix sand-clay-gravel with 6 percent lime by volume; for central mixing, use 5 percent lime. The sand-clay-gravel will be sampled and approved prior to treatment with lime.
- B.** Add moisture to adequately control compaction.

3.5 SHAPING AND COMPACTING AGGREGATE SURFACE COURSE

- A. General:** Place material to required thickness, shape to the required section, and compact with an approved roller to a tight, uniform surface free from ruts and waves
- B.** Stone and Recycled Portland Cement Concrete Pavement: Compact with at least three passes of a roller approved by the ENGINEER.
- C.** Reclaimed Asphalt Pavement: Compact with at least three passes of a roller approved by the ENGINEER.
- D.** lime at half the specified rate at no additional cost to the OWNER.



3.6 DIMENSIONAL TOLERANCES

- A. When specifying net section measurement, the thickness and width of completed aggregate surface course will be checked for acceptance in accordance with DOTD TR 602. Correct to plan dimensions areas with deficiencies in excess of the following tolerances as required at no additional cost to the OWNER.
- B. **Thickness:** Do not allow under-thickness to exceed 3/4 inch. Over-thickness may be waived at no additional cost to the OWNER.
- C. **Width:** Do not allow under widths to exceed 3 inches for shoulders and 6 inches for roadways. Over-width may be waived at no additional cost to the OWNER. When using vehicular measurement, the ENGINEER will take measurements to ensure the work's conformance to plan dimensions.

- END OF SECTION -



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SECTION 32 15 10 TRAFFIC MAINTENANCE SURFACING

PART 1 -- GENERAL

1.1 THE REQUIREMENT

- A. Furnish and construct surfacing for maintenance of traffic on driveways, pipe crossings, short-term traffic on raw embankment, slope corrections, or other disturbed roadway sections as directed and in accordance with the following requirements.

1.2 CONTRACTOR SUBMITTALS, SAMPLING, AND TESTING

- A. Furnish submittals in accordance with Section 01 33 00.
- B. Materials proposed for and utilized in the WORK will be sampled as indicated in herein. The frequency of testing may be altered at the discretion of the ENGINEER. Provide all materials required for testing at no additional cost to the OWNER.

1.3 QUALITY ASSURANCE

- A. Comply with quality assurance requirements specified herein.

1.4 DELIVERY, STORAGE, AND HANDLING:

- A. Deliver, store, and handle materials for traffic maintenance surfacing in a manner which ensures the compliance of traffic maintenance surfacing with all specification requirements.

PART 2 -- PRODUCTS

2.1 STONE

- A. Use stone for base courses complying with the requirements of Section 31 05 16 – Aggregates.

PART 3 -- EXECUTION

3.1 EQUIPMENT

- A. Furnish and maintain equipment necessary to produce a finished product meeting the requirements of these specifications. Obtain approval of equipment prior to use.

3.2 CONSTRUCTION REQUIREMENTS

- A. **General:** Satisfactorily place, shape, compact, and maintain areas requiring traffic maintenance surfacing. When directed, reuse the aggregate material at adjacent locations when the material can be reasonably shifted by blading. When directed, load, haul, and re – use material. Unless otherwise directed by the ENGINEER, remove and dispose of traffic maintenance surfacing when no



longer necessary.

- B. Mainline Surfacing:** For mainline roadway, use traffic maintenance surfaces in accordance with Table 32 15 10-1 at the posted speed limit during construction. Aggregate surface is allowed only when all aggregate table criteria are met. Hard surface is required when any hard surface table criteria is met. Hard surface will be either asphalt concrete or excavatable flowable fill with a minimum thickness of 6 inches. Construct all surfacing uniformly and smoothly, ensuring that the finished surfacing meets a 1/2 inch longitudinal tolerance with a 10- foot static straight edge and drains properly. Construct asphalt surfaces to a density of minimum of 89 percent of maximum dry density. Should a contractor's operation or sequence of construction extend the time an aggregate surface remains in place under traffic beyond four weeks, hard surfacing will be at no additional pay. Should a contractor's operation or sequence of construction necessitate the use of aggregate in areas requiring hard surface, place the hard surface within 48 hours. Placement of aggregate surfacing in this case will be at no additional cost to the OWNER.
- C. Non – Mainline Surfacing:** Use either aggregate or hard surfacing for turnouts, drives, crossovers and other non-mainline segments of roadway. If using hard surfacing, comply with the requirements specified herein.

**TABLE 32 15 10-1
MAINLINE TRAFFIC MAINTENANCE CRITERIA**

PROJECT AREA	Required Temporary Surfacing
All project areas	Aggregate

- END OF SECTION



SECTION 33 05 23 – HORIZONTAL DIRECTIONAL DRILL

PART 1 -- GENERAL

1.1 THE REQUIREMENT

- A.** Install pipe or conduit by horizontal directional drilling where indicated. Horizontal directional drilling involves the controlled directional drilling of a pilot bore/hole, back reaming/hole, enlargement and pull back of the specified sewer pipe to line and grade as shown on the drawings. Use pipes, drill bits and reamers in conjunction with an engineered drilling fluid solution.
- B. Definitions:** The following terms are utilized in this section:
1. **Horizontal Directional Drilling:** A method of installing buried piping by controlled, (guided within specified limits) horizontal drilling.
 2. **Pilot Hole:** The initial controlled drilled horizontal shaft used to guide the enlargement to design size and eventual installation of the pipe
 3. **Reaming:** The back reaming hole opener is attached to the drill pipe and rotated and pulled back through the pilot hole to enlarge the bore in one or more passes to the size for pipe installation (the final bore diameter, in most cases is selected by the CONTRACTOR, consistent with his experience).
 4. **Pullback:** The pipe installation pulled back by a swivel/pulling head connected behind the reamer, which pulls the prepared pipe into place.
 5. **Drilling Fluids:** Fluids consisting of water, bentonite, and any approved additives such as environmentally safe polymers, lubricants, and viscosifiers
 6. **Bore Tracking Equipment:** Methods and systems generally defined as a walk over or non walkover. To be specified by the CONTRACTOR and used to measure the actual accuracy of the bore to the specific line and grade. The bore path is monitored during the pilot bore by taking periodic readings of the inclination and azimuth of the probe located within the drive bit.
 7. **Zone of Active Excavation:** Area located within a radial distance about a surface point immediately above the face of excavation equal to the depth to the bottom of the excavation.
 8. **Bore – Tracking Pit:** An excavated area for entry, exit, slurry sump pits or any other excavation. It will also be used to manage, control and track the progress of the bore.
 9. **Critical Structure:** Any pipeline, utility, building, structure, bridge, pier, or similar construction partially or entirely located within a zone of active excavation.



1.2 REFERENCE STANDARDS

A. American Water Works Association (AWWA)

AWWA C906

B. Code of Federal Regulations (CFR)

29 CFR 1910

Occupational Safety and Health Standards

29 CFR 1926

Safety and Health Regulations for Construction

1.3 CONTRACTOR SUBMITTALS, SAMPLING, AND TESTING

A. Provide submittals, samples for testing, and testing of materials in accordance with Section 01 33 00 – Contractor Submittals.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Handle pipe in accordance with manufacturer's instructions. Repair any cracks, gouges, scratches, distorted lengths, or other damage per the manufacturer's instructions. Do not allow the pipe to touch the ground during movement, fusing, reaming, and pullback operations.

B. Cover and protect plastic pipe from direct sunlight during storage.

PART 2 -- PRODUCTS

2.1 PRESSURE PIPE

A. Unless otherwise noted, use density polyethylene in complying with AWWA C906 as specified for the installed pull section. Select the wall thickness but no case use a wall thickness less than that of SDR 11. Fusion butt weld all pipe to pipe joints. Use fully restrained mechanical joint fittings with fusion welded adapters for pipe to fittings joints.

2.2 DRILLING FLUIDS

A. Use a mixture of bentonite clay, lubricants, polymers, and viscosifiers mixed with potable water with a minimum pH of 6.0 to create the drilling fluid for lubrication and soil stabilization. Design drilling fluid mix design accordance with component manufacturer instructions and based upon the soil conditions. Vary the fluid viscosity to best fit the soil conditions encountered. Do not use any other chemicals or polymer surfactants in the drilling fluid without written consent from the ENGINEER. Certify to the ENGINEER that any chemicals to be added are environmentally safe and not harmful or corrosive to the facility. Identify the source of water for mixing the drilling fluid. Approvals and permits are required for obtaining water from such sources as streams, rivers, ponds, or fire hydrants. Any water source used other than potable water must be pH tested, hardness tested, chlorine tested, and approved by the ENGINEER prior to use.



PART 3 -- EXECUTION

3.1 CONSTRUCTION OPERATIONS

- A.** Utilize methods for HDD operations that will minimize ground settlement. Select methods, which will control flow of water and prevent loss of soil into the bore and provide stability in all operating conditions. Assume full responsibility and pay all costs associated with damage due to settlement, and frac-outs due to any construction-induced activities.
- B.** Conduct all operations in accordance with applicable safety rules and regulations, 29 CFR 1910, 29 CFR 1926, and CONTRACTOR's safety plan. Employ methods, which include due regard for safety of workmen, adjacent structures, utilities, and the public.
- C.** Utilize a trailing stem (a drill rod on the trailing end of the reaming operation) during back-reaming of the bore hole.
- D.** Maintain clean working conditions.
- E.** If crossing under railroad embankments, highways, or streets, perform the installation to avoid interference with the operation of the railroads, highways, or streets, except as approved by the owner of the facility.
- F. Utility Crossings:**
 - 1. Field verify the location and depth of all existing utilities, including service connections, to be paralleled or crossed prior to the start of directional drilling operations in accordance with Louisiana law. With approval of the ENGINEER, modify alignment, depth or grade as necessary to avoid utilities and minimize the number of peaks and valleys along the alignment.
 - 2. Expose all utilities that will be crossed with horizontal directional drilling. All major utilities (high pressure gas, fiber optic, high voltage electric, major pipe lines, water and sewer lines, etc.) should be exposed every 100 feet at minimum, if parallel within 5 feet horizontally to verify depth and location of the utility. If the location is not accurate, contact the utility owner immediately.
- G.** Maintain entry and exit angles between 8 and 12 degrees. Once the CONTRACTOR has begun the HDD pipe installation process, operate without intermission, including 24- hour working, weekends and holidays, until pipe segment is completed. Immediately follow bore hole drilling, reaming, and swabbing with pipe pulling. Pipe pulling through collapsing bore hole is prohibited.
- H.** Allow the installed pipe to relax and cool following installation, for a minimum twelve (12) hours, prior to any reconnection of service lines or backfilling of the insertion pit. Where an HDPE bore terminates in a manhole, allow sufficient excess length of new pipe, not less than six (6) inches, to protrude into the manhole to provide for further length reduction with the use of electrofusion flex restraints. Following the relaxation period, seal HDPE terminating in a manhole



with electrofusion flex restraints and non – shrink grout.

3.2 TRENCH SAFETY

- A.** Assume full responsibility for design, installation, maintenance and removal of any construction sheeting necessary for the drilling operation, including fluid containment and permitted disposal practices.

3.3 GROUND WATER CONTROL

- A.** Control ground water in accordance with Section 31 30 00 – Earthwork.

3.4 EQUIPMENT

- A.** Provide the following equipment at a minimum:
 - 1. Horizontal directional drilling rig as selected by the CONTRACTOR.
 - 2. Drill pipe and tail stem as selected by the CONTRACTOR.
 - 3. Drill bits and reamers as selected by the CONTRACTOR.
 - 4. Drilling fluid mixing tanks, holding tanks, cleaning systems, recirculation containment, collection and disposal equipment as selected by the CONTRACTOR.
- B.** Use a dedicated pipe handler during any pipe pulling operations.
- C.** Full directional guidance of the pilot hole drilling operation to line and grade is a prerequisite of this method of construction. Wireline or wireline with grid is acceptable.
- D.** Assume full responsibility for the selection of all drilling and auxiliary equipment which, based on past experience, has proven to be satisfactory for excavation of the soils to be encountered.
- E.** Provide and maintain in place pumps and/or vacuum truck(s) of sufficient size convey excess drilling fluid from containment areas to storage facilities
- F.** Use pipe rollers of sufficient size, spacing, and in good working condition (as determined by the pipe manufacturer) to fully support the weight of the pipe while being hydro-tested and during pull-back operations. Use sufficient number of rollers to prevent sagging of pipe. Do not exceed pipe roller spacing of 20 feet. Do not allow pipe to come in contact with ground surface during pull back operations.
- G.** Provide drilling equipment of the size and power so that the pilot hole can be drilled along the path shown on the plan and profile drawings within specified tolerances.
- H.** Document and immediately bring to the attention of the ENGINEER deviations between the recorded position of the drill string and the plan and profile



drawings.

3.5 DIRECTIONAL DRILLING DATA

- A. Maintain shift logs of construction events and observation. Maintain HDD supervisory personnel (superintendent) on-site at all times any drilling operations are being conducted. Provide the ENGINEER access to the daily logs with regard to the following information:
1. Location of drill head and progress of drilling operation during shift;
 2. Hours worked per shift during drilling operations;
 3. List of crew names, including full and last names, title, and hours worked for each day;
 4. Completed forms or computer print outs for checking line and grade of the drilling operation, showing achieved tolerance relative to design alignment;
 5. Maximum pipe loads per pull back including but not limited to torque and fluid pressures.

3.6 CONTROL OF LINE AND GRADE

- A. **Construction Control:** Check baselines and benchmarks shown on the Contract Documents at the beginning of the Work and report any errors or discrepancies to the ENGINEER. Use the baselines and benchmarks to establish and maintain construction control points, reference lines and grades for locating, boring, reaming, and in relationship to existing pipelines, utilities and structures. Establish construction control points sufficiently far from the work to avoid being affected by any ground movements caused by HDD operations
- B. **Temporary Benchmark Control:** If settlement of the ground surface occurs during construction which affects the accuracy of the temporary benchmarks, detect and report to the ENGINEER such movement and reestablish temporary bench marks.
- C. **Line and Grade:**
1. Continuously check and record the survey control for the boring operations against an aboveground undisturbed reference as required to accurately guide and monitor the constructed length (± 20 feet).
 2. At a minimum of every drill rod connection or a maximum of every 5 feet, record the position of the drill bit, then make immediate corrections to alignment position before allowable tolerances are exceeded.
 3. When the drill is off line or grade make, ongoing alignment corrections to avoid major changes and keep within specified tolerances. For gravity pipe installations, a belly in the bore that will hold water and/or a reverse grade is not acceptable. Replace such pipe at no additional cost to the OWNER. Remove and replace the bellied pipe length by open cut or by re-drilling on



a parallel alignment as directed by ENGINEER.

4. **Vertical Tolerance:** A variation greater than plus (+) 0.0 feet or minus (-) 5 feet from vertical alignment designated on the Contract Documents may be allowed at the discretion of the ENGINEER and must be approved prior to installation.
5. **Horizontal Tolerance:** A variation greater than $\pm$ 2 feet from horizontal alignment designated on the Contract Documents may be allowed at the discretion of the ENGINEER and must be approved prior to installation.
6. The outside edge of pipe must not deviate into a 2-foot space inside either edge of the servitude or right-of-way nor should it conflict with any above or below ground obstructions.
7. Fully grout and abandon or remove all pipe installed out of tolerance and all fill all voids filled as directed by the ENGINEER at no additional cost to the OWNER.

3.7 MONITORING

A. Monitoring Line and Grade:

1. Monitoring of bore, reamer and pipe may be accomplished by manually plotting reference points based on location and depth readings provided by the locating/tracking system. Alternately, computer generated bore logs which automatically map the bore path based on information provided by the locating/tracking system may be used. Make this information readily available upon request of the ENGINEER.
2. Before any direction drilling commences, calibrate the locating/tracking equipment.
3. Record readings or plot points on every drill rod. Take required readings every 3 to 5 feet.
4. Submit a pilot hole profile to the ENGINEER as specified in Part I.

B. Instrumentation Monitoring:

1. Provide and operate an instrumentation system to monitor and detect movement of the ground surface and adjacent structures. Establish reference vertical control points in safe locations at a distance away from the construction areas to avoid potential disturbance due to ground settlement.
2. Installation of the instrumentation will not preclude the ENGINEER, through an independent CONTRACTOR or consultant, from installing instrumentation in, on, near, or adjacent to the construction work. Provide access to the work for such independent installations.
3. Install and operate instrumentation in accordance with the Contract



Documents and the manufacturer's recommendations.

- C. Walkover, wire line, and wire line with surface grid verification, or any other system as approved by the ENGINEER, will be the accepted methods of tracking directional bores. Submit readings promptly to the ENGINEER as they are recorded.
- D. In any case the CONTRACTOR must use a locating and tracking system capable of ensuring that the proposed pipe is monitored and installed as intended. Consequently, if an area of radio signal interference is expected the ENGINEER may specify the use of a suitable tracking system. The locating and tracking system must provide information on the following:
 - 1. Clock and pitch information;
 - 2. Transmitter temperature;
 - 3. Battery status;
 - 4. Position (x,y,z)
 - 5. Azimuth, where direct overhead readings (walkover) are not possible (i.e. sub aqueous or limited access transportation facility).
- E. Maintain proper calibration of all equipment before commencing directional drilling operation. The ENGINEER may witness calibration.
- F. **Recording:** Take and record alignment readings or plot points so that elevations on top of and offset dimensions from the center of the pipe to a permanent fixed feature are provided. Each permanent fixed feature must have prior approval of the ENGINEER. Provide elevations and dimensions at all bore alignment corrections (vertical and horizontal) with a minimum distance between points of 100 feet. Provide a sufficient number of elevations and offset distances to accurately plot the vertical and horizontal alignment of the installed product. A minimum of three elevation and plot points are required.
- G. **Tracing:** Install all facilities so their location can be readily determined by electronic designation after installation. For non-conductive installations attach a minimum of two separate and continuous conductive tracking (tone wire) materials, externally or integral with the pipe. Use a continuous green sheathed solid conductor copper wire line (minimum #12 AWG) or a coated conductive tape. Conductors must be located on opposite sides when installed. Connect any break in the conductor line before construction with an electrical clamp, or solder, and coat the connection with a rubber or plastic insulator to maintain the integrity of the connection from corrosion. Clamp connections must be made of brass or copper and of the butt end type with wires secured by compression. Soldered connections must be made by tight spiral winding of each wire around the other with a finished length minimum of 3 inches overlap. Tracking conductors must extend 2 feet beyond bore termini. Test conductors for continuity. Each conductor that passes must be identified as such by removing the last 6 inches of the sheath. No deductions are allowed for failed tracking conductors. Failed conductor ends must be wound into a small coil and left



attached for future use.

H. Surface Settlement Monitoring: At a minimum:

1. Establish monitoring points on all critical structures;
2. Record location of settlement monitoring points with respect to construction baselines and elevations. Record elevations to an accuracy of 0.01 feet for each monitoring point location. Monitoring points should be established at locations and by methods that protect them from damage by construction operations, tampering, or other external influences.
3. Record ground surface elevations on the centerline ahead of the construction operations at a minimum of 100-foot intervals or at least three locations per installed section of pipe. For pipelines greater than 60-inch diameter, also record similar data at approximately 20 feet each side of the centerline. Settlement monitoring points must be clearly marked by studs or paint for ease of locating.
4. **Railroads:** Monitor ground settlement of track subbase at centerline of each track
5. **Utilities and Pipelines:** Monitor ground settlement directly above and 10 feet before and after a utility or pipeline intersection.

I. Reading Frequency and Reporting: Submit to the ENGINEER, records or readings from the various instruments and survey points.

1. Start instrumentation monitoring results to be read at the frequency specified and unless otherwise specified, prior to the zone of active excavation reaching that point, and continued after the zone of active excavation has passed and until no further detectable movement occurs.
2. Take surface settlement monitoring readings:
 - a. Prior to the zone of active excavation reaching that point;
 - b. When the installation operation reaches the monitoring point (in plan) and;
 - c. When the zone of active excavation has passed and no further movement is detected

J. Submit all monitoring results promptly to the ENGINEER.

K. Immediately report to the ENGINEER any movement, cracking, or settlement which is detected

L. Following substantial completion but prior to final completion, make a final survey of all monitoring points

3.8 PIPE BORE HOLE DIAMETER



- A. Minimize potential damage from soil displacement/settlement by limiting the ratio of the bore hole to the product size. The size of the back reamer bit or pilot bit for gravity sewer installations, if no back reaming is required, will be limited relative to the pipe diameter to be installed as follows:
- B. Use a size of the back reamer bit or pilot bit for installations over 24" that are a maximum of 1.25 times the pipe outside diameter to be installed.

3.9 DRILLING FLUIDS

- A. Promptly remove from the project site and properly dispose of all drilling fluids and associated cuttings in compliance with all environmental regulations, construction right-of-way and workspace agreements and permit requirements at an appropriate disposal site. Dispose of all drilling fluids and associated cuttings at no additional cost to the OWNER.
- B. In the event that a drilling fluid fracture (frac out), inadvertent returns or returns loss occurs during HDD operations, cease operations; notify ENGINEER and all appropriate regulatory agencies. Immediately contain and clean-up drilling fluid loss prior to continuing HDD operations. Prevent drilling fluids from entering streets, adjacent properties, streams or other water bodies and municipal storm or sanitary sewer lines. No additional payment will be made for cleanup costs required by OWNER, ENGINEER, or regulatory agencies due to loss of drilling fluid. If mud fracture or returns loss continues, CONTRACTOR will cease operations, notify ENGINEER to discuss additional options to control or minimize the loss and work will then proceed accordingly.

3.10 DISPOSAL OF EXCESS MATERIAL

- A. Remove of and dispose of soil in a licensed, permitted landfill facility.

3.11 ACCEPTANCE TESTING

- A. Acceptance testing for water pipelines will be as specified in Section 01 74 30 – Pressure Pipe Testing and Disinfection.

3.12 SITE RESTORATION

- A. Restore all surfaces affected by the WORK to their preconstruction conditions. Performance criteria for restoration work will be similar to those employed in traditional open excavation work

3.13 POST CONSTRUCTION EVALUATION

- A. Provide a set of Field Record Drawings including both alignment and profile to the ENGINEER. Drawings should be developed from actual field readings. Raw data should be available for submission at any time upon request. As part of the Field Record Drawing, specify the tracking equipment used, including method of confirmatory procedure used to ensure the data was captured. Provide Record Drawings having survey data that are stamped by a Professional Land Surveyor registered in the State of Louisiana.
- B. Locate all fittings, valves, manholes, connections, etc., including all critical



structure monitoring points as shown on the Contract Documents, by GPS and based on the Louisiana State Plane coordinate system as shown on Contract Documents and provide those locations on the Field Record Drawings. Do not use landmarks. Provide record drawings stamped by a registered land surveyor.

- END OF SECTION -



SECTION 33 05 26 – JACKED AND BORED PIPE

PART 1 -- GENERAL

1.1 THE REQUIREMENT

- A. Furnish and install pipe at the locations shown on the drawings by jacking or boring as specified herein.
- B. Install pipe and casing in accordance with the plan details, the requirements of this section, and the requirements of the railroad permit.

1.2 REFERENCE STANDARDS

- A. ASTM International (ASTM)

ASTM A53 Standard Specification for Pipe, Steel, Black and Hot –
Dipped, Zinc – Coated, Welded and Seamless

- B. **Norfolk Southern Railroad (NSRR)**

NSCE 8 Specifications for Pipeline Occupancy of Norfolk Southern
Corporation Property.

1.3 CONTRACTOR SUBMITTALS, SAMPLING, AND TESTING

- A. Provide submittals, samples for testing, and testing of materials in accordance with Section 01 33 00 – Contractor Submittals.
- B. **Submittals:** Submit the following:
 - 1. Jacking and boring plan, consisting of a list of equipment to be used, required size of boring and receiving pits, method of pushing the casing across the embankment, provisions for removal and disposal of spoil material, products and materials and methods of welding, and any other information deemed necessary by the ENGINEER to determine compliance with the requirements of this section.
 - 2. Product data for proposed casing, casing spacers, and end seals.
 - 3. Track monitoring plan, in accordance with the requirements of NSCE 8.
 - 4. Contingency plans in accordance with the requirements of NSCE 8.
- C. **Testing:** The testing laboratory will examine all welds for each casing section prior to jacking of the casing into the embankment.
- D. **Sampling:** Sampling is not anticipated under this section.

PART 2 -- PRODUCTS



2.1 MATERIALS

- A. Provide pipe of the type and size as indicated on the drawings and per the applicable piping sections.

2.2 JACKED AND BORED PIPE AND CASING

A. Casing:

1. Unless otherwise required by the agency having jurisdiction, provide a casing of welded steel pipe meeting ASTM A53, Grade B, and have a minimum yield strength of 35,000 psi. Coat the exterior of the casing pipe coal tar epoxy or bituminous asphalt. Provide at least the wall thickness shown in the following table:

Carrier Pipe Nominal Diameter	Minimum Casing Pipe Diameter	Minimum Thickness of Casing Pipe
6	12	0.250 inch
8	16	0.281 inch
10	20	0.344 inch
12	24	0.375 inch
14	28	0.438 inch
16	30	0.469 inch
18-20	30	0.531 inch
21-24	42	0.625 inch
30	48	0.688 inch
36	54	0.781 inch
42	60	0.844 inch
48	66	0.938 inch

2. Increase the wall thickness above to the nearest standard size.
3. Increase casing pipe wall thickness if required due to jacking force load and/or length
4. Where carrier pipe nominal diameter is greater than 48 inches, provide a minimum casing pipe diameter great enough to provide a minimum 3 inch radial clearance between the casing pipe and the "bell" outside diameter of the carrier pipe. Provide thickness calculations prepared by a professional



engineer licensed in the state of Louisiana and submit those calculations to the ENGINEER.

- B. Carrier Pipe:** Use the material indicated on the drawings or as specified by ENGINEER. Provide restrained joints in the casing for all pressurized carrier pipes.
- C. Grout Holes:** For casing pipes larger than 36 inches in diameter, the CONTRACTOR may choose to furnish casing pipe with 2-inch diameter threaded grout holes or nipples at centerline and crown for pressure grouting. Do not exceed a spacing of 5 feet for grout holes. Use neat cement grout for filling voids outside of a casing.
- D. Casing Spacers:** Provide casing spaces for all carrier pipes.
1. Size casing spacers sufficiently to provide a minimum clearance of two (2) inches between outside of carrier pipe bells or couplings and inside of casing. Provide spacers consisting of the following components:
 - a. **Spacer Band Material:** Minimum 14-gauge steel band of either Type T-304 stainless steel or Carbon steel coated with fusion bonded epoxy or PVC coating.
 - b. **Spacer Liner Material:** Ribbed liner of PVC or EPDM rubber designed to overlap the edges of the spacer band and prevent slippage. Provide a liner of a minimum thickness of 0.090 inches and a hardness of 85-90 durometer "A".
 - c. **Spacer Width:** As recommended by spacer manufacturer for the specific application. Provide spacers with a minimum width of 8 inches. Obtain the manufacturer's approval for installations exceeding 300 feet in length, carrier pipes in excess of 48 inches in diameter or multiple carrier pipes in casing.
 - d. Provide risers of minimum 10-gauge steel same material and requirements as spacer band. Weld spacers to the to spacer band. Provide risers suitable for supporting the weight of carrier pipe. Risers must be minimum 10-gauge steel risers of same material and requirements as spacer band.
 2. Provide stainless steel hardware and fasteners.
 3. Do not use hardwood skids in place of manufactured casing spacers.
- E. Casing End Seals:** Provide end seals made of synthetic rubber, conical shape, pull-on or wrap-around style with Type 304 stainless steel bands. For carrier pipe greater than 24 inches in nominal diameter, brick the the annular space between the carrier pipe and the casing pipe in conjunction with the end seals.



PART 3 -- EXECUTION

3.1 GENERAL REQUIREMENTS

- A.** In general, jack pipes 30 inches and diameter, and bore pipes less than 30 inches in diameter unless otherwise noted on the drawings. Where a casing is indicated, jack the casing through the embankment to the line and grade indicated regardless of the pipe size.
- B.** Begin the WORK at the outfall end of pipe when possible. When the grade at the jacking or boring end is below ground surface, excavate suitable pits or trenches for conducting operations and placing joints of pipe. Provide shoring to prevent earth caving in accordance with Section 31 30 00 – Earthwork.
- C.** For pipe with bell joints, if the outside diameter of pipe bell exceeds the outside diameter of pipe barrel by more than 1 inch (25 mm), either case or pressure grouted the pipe its length. Provide casing of an approved type and size, furnish and install the casing by the CONTRACTOR in accordance with these specifications. Perform pressure grouting with approved materials placed by approved methods.
- D.** Do not weaken or damage the existing embankment. Dips or settlement in the embankment will be considered damage.

3.2 JACKING

- A.** Use heavy duty jacks specifically designed for forcing pipe through the embankment. Do not use excavators to pull or push casing through embankment. Apply even jacking pressure to all jacks and transmit jacking pressure to the pipe end through a jacking head. Use a jacking head designed and constructed so that pressure is uniformly applied around the ring of the pipe. Provide a backstop or jacking frame which is adequate to resist pressure of the jacks under load. Set pipe on guides properly fastened together to support the pipe in the proper direction at correct grade. Provide suitable cushioning material, such as plywood, between sections of concrete pipe.
- B.** Excavate material ahead of the pipe and remove excavated material through the pipe. Do not extend excavation more than 24 inches (600 mm) beyond the forward end of pipe. When the character of embankment material dictates, reduce the distance ahead to prevent the embankment from being damaged. Dispose of excavated material.
- C.** Conform excavation on the underside of pipe, for at least 1/3 the circumference of pipe, to the contour and grade of the pipe. A clearance of not more than 2 inches may be provided for the upper half of pipe, tapered to zero at the point where excavation conforms to contour of pipe.
- D.** A steel cutting edge may be used around the forward end of pipe, constructed so that it will transmit pressures uniformly around the ring of the pipe.
- E.** Continue jacking without interruption, to prevent pipe from becoming firmly set in the embankment.



- F. Do not allow pipe to vary horizontally or vertically by more than 1/4 inch in 10 feet (0.6 mm in 3 m) from established line and grade. Any variation must be regular, and no abrupt changes in direction will be permitted. Remove and replace pipe damaged or misaligned in jacking operations no cost to the OWNER.

3.3 BORING

- A. Complete boring mechanically, using a pilot hole approximately 2 inches (50 mm) in diameter. Extend the pilot hole through the embankment and check for line and grade before boring begins. Do not allow variations from line and grade to exceed those specified for jacking. Use the pilot hole as the centerline of the larger diameter hole to be bored.
- B. The use of water and other fluids with boring operations will be permitted only to lubricate cuttings. Jetting will not be permitted.
- C. In unconsolidated soil formations, a gel-forming colloidal drilling fluid consisting of at least 10 percent high-grade, bentonite may be used to consolidate cuttings of the bit, seal walls of the hole, and furnish lubrication for subsequent removal of cuttings and installation of pipe.
- D. Remedy over-cutting in excess of 1 inch by pressure grouting the entire length of the installation.
- E. Join pipe as indicated on the drawings and per the applicable piping specifications.

3.4 TRACK MONITORING

- A. Provide track monitoring in accordance with the requirements of NSCE 8. Adhere to track deflection limits in accordance with the requirements of NSCE 8.

- END OF SECTION -



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SECTION 40 05 07 - PIPE SUPPORTS

PART 1 -- GENERAL

1.1 THE REQUIREMENT

- A. Furnish and install provide pipe supports, hangers, guides, and anchors, complete and in place, as indicated in accordance with the Contract Documents.
- B. Where pipe support systems are not indicated on the Drawings, design and provide the supports in accordance with this Section. The absence of pipe supports and details on the contract drawings does not relieve the Contractor of responsibility for sizing and providing the pipe supports.
- C. Provide supporting devices for supporting and restraining piping as indicated on the Drawings. Where pipe support devices and/or restraining details are not indicated on the Drawings, it is the CONTRACTOR'S responsibility to develop the details necessary to support and restraint the piping for a complete and functional pipe support system.

1.2 CONTRACTOR SUBMITTALS

- A. Furnish submittals in accordance with the requirements of Section 01 33 00 – Contractor Submittals.
- B. **Shop Drawings**
 - 1. Submit Shop Drawings which include the following information:
 - a. Drawings of pipe supports, hangers, anchors, and guides.
 - b. Pipe support schedule or layout indicating where the supports will be installed.

PART 2 -- PRODUCTS

2.1 GENERAL REQUIREMENTS

A. Code Compliance

- 1. Properly anchor and support piping systems and pipe connections to equipment in order to prevent undue deflection, vibration, and dislocation due to seismic events, line pressures, pipe weight, fluid weight, liquid movement, thermal changes, vibration, and probable forces applied during construction as well as stresses on piping, equipment, and structures.

B. Materials of Construction

- 1. Furnish support assemblies, including framing, hardware, and anchors, steel construction, galvanized after fabrication, unless otherwise indicated.

C. Concrete Anchors



1. Unless otherwise indicated, furnish concrete anchors for pipe supports be according to the following table; consult the ENGINEER for any anchor applications not appearing on the table.
2. Embed anchors in accordance with the requirements of Section 05 50 00 – Miscellaneous Metalwork.

Pipe Support Application	Type of Concrete Anchor
New Concrete	Use embedded concrete insert anchors on a grid pattern. Use Grinnell (Anvil International), Tolco , or equal.
Existing Concrete	Use non-shrink grouted anchors, expansion anchors, or epoxy anchors. Epoxy anchors are not permitted for vertical hanging applications or where sustained tension is exerted on the anchor. Exceptions: Expansion anchors and epoxy anchors are not permitted for pipe supports subject to vibrating loads. Epoxy anchors are not permitted where the concrete temperature is in excess of 100 degree F or higher than the limiting temperature recommended by the manufacturer.
Vibratory Loads and High-Temperature Conditions	Use non-shrink grouted anchors.

D. Noise Reduction

1. In order to reduce the transmission of noise in piping systems, wrap copper tubes in buildings and structures with a 2-inch wide strip of rubber fabric or similar suitable material at each pipe support, bracket, clip, or hanger.

2.2 SUPPORT SPACING

- A. Space supports for piping with the longitudinal axis in approximately a horizontal position to prevent excessive sag, bending, and shear stresses in the piping, with special consideration given where components such as flanges and valves impose concentrated loads.
- B. Where pipe spacing are indicated on the Drawings and are referenced to a Standard Detail, that requirement takes precedence over the general requirements of this section.
- C. Do not exceed the maximum indicated spans. Balance and support piping with grooved joint couplings, flexible joints, and bend fittings by a minimum of two pipe supports per pipe length, one at near each joint/fitting.



- D. For temperatures other than ambient temperatures or those listed, and for other piping materials or wall thicknesses, modify the pipe support spacings in accordance with the pipe manufacturer's recommendations.
- E. Provide vertical supports to prevent the pipe from being overstressed from the combination of loading effects.

F. Ductile Iron Pipe

- 1. Install supports for ductile iron pipe in accordance with the recommendations of the Ductile Iron Pipe Research Association (DIPRA) Design of Ductile Iron Pipe on Supports.
- 2. As a minimum, where support spacing is not indicated on the Drawings, use the spacing indicated in the following schedule:

Nominal Pipe Diameter, inches	Support Configuration
All diameters	two supports per pipe length, with one of the two supports located at a joint

2.3 MANUFACTURED SUPPORTS

A. Stock Parts

- 1. Where not specifically indicated, utilize designs that are generally accepted as exemplifying good engineering practice and using stock or production parts wherever possible.
- 2. Furnish parts which are locally available, new, of best commercial quality, and designed and rated for the intended purpose.

B. Manufacturers, or Equal

- 1. **Basic PSA, Inc.**
- 2. **Bergen-Paterson Pipe Supports Group**
- 3. **Grinnell**
- 4. **Power Piping Company**
- 5. **TOLCO (Eaton B-Line)**

2.4 COATING

- A. Unless otherwise indicated, blast clean fabricated pipe supports other than stainless steel or non-ferrous supports after fabrication and hot-dip galvanize in accordance with ASTM A 123 - Zinc (Hot-Dip Galvanized).



- B. Provide coatings on Iron and Steel Products in accordance with the requirements of Section 09 96 00 – Protective Coating.

PART 3 -- EXECUTION

3.1 INSTALLATION

A. General

1. Install pipe supports, hangers, brackets, anchors, guides, and inserts in accordance with the manufacturer's printed instructions and per ANSI/MSS SP-58 Pipe Hangers and Supports- Materials, Design, Manufacture, Selection, Application and Installation.
2. Coordinate embedded concrete inserts for pipe hangers and supports with the formwork.

B. Appearance

1. Position pipe supports and hangers in order to produce an orderly, neat piping system.
2. Install hanger rods plumb, without offsets.
3. Adjust hangers to line up groups of pipes at the proper slope for drainage and venting, as close to ceilings or roofs as possible, and without interference with other WORK.

3.2 FIELD FABRICATION

A. Quality Control

1. Fabricate and install field - fabricated pipe hangers and supports employing experienced welders and fitters, using the best welding procedures available.
2. Install hangers and supports with a neat appearance without sharp corners, burrs, or edges.

END OF SECTION



SECTION 43 05 00 – GENERAL SPECIFICATIONS FOR PIPING MATERIALS AND INSTALLATION

PART 1 -- GENERAL

1.1 THE REQUIREMENT

- A. Provide the piping systems indicated, complete and operable, in accordance with the requirements of the Contract Documents.
- B. The drawings define the general layout, configuration, routing, method of support, pipe size, and pipe type. The drawings are not pipe fabrication drawings. Where pipe supports and spacing are indicated on the Drawings and are referenced to a Detail, use that Detail. Where pipe supports are not indicated on the Drawings, it is the CONTRACTOR's responsibility to develop the details necessary to design and construct mechanical piping systems to accommodate the specific equipment provided, and to provide spacers, adapters, and connectors for a complete and functional system.

1.2 CONTRACTOR SUBMITTALS, SAMPLING, AND TESTING

- A. Provide submittals, samples for testing, and testing of materials in accordance with Section 01 33 00 – Contractor Submittals.

PART 2 -- PRODUCTS

2.1 GENERAL

- A. **Extent of Work:** Provide pipes, fittings, and appurtenances in accordance with the requirements of the drawings and as specified herein, and as indicated. For materials which will come into contact with potable water, or which are installed as a part of any process pipeline within a water treatment facility, provide materials in listed as complying with NSF Standard 61 and NSF 14 (for plastic piping).
- B. **Pipe Supports:** Adequately support, restrain and anchor pipes in accordance with Section 40 05 07 - Pipe Supports, and as indicated.
- C. **Lining:** Provide piping with interior and or exterior lining in accordance with the applicable provisions of this section, unless otherwise indicated.
- D. **Coating:** Provide application, thickness, and curing of coating on buried pipe in accordance with the requirements of this Section and Section 09 96 00 – Protective Coatings unless otherwise indicated. Coat pipes above ground or in structures in accordance with Section 09 96 00 - Protective Coating.
- E. **Pressure Rating:** Furnish piping systems suitable for the maximum expected pressure as defined in Section 01 74 30 - Pressure Pipe Testing and Disinfection, the piping schedule in the drawings, or as specified herein, whichever is greatest.
- F. **Inspection:** Make all piping available for inspection at the place of manufacture. During manufacturing, allow the ENGINEER access to areas where manufacturing is in progress and be permit inspections necessary to confirm compliance with requirements.



- G. Tests:** Except where otherwise indicated, test the materials used in the manufacture of the pipe in accordance with the applicable specifications and standards. Assume the full and sole responsibility for performing material tests.
- H. Welding Requirements:** Ensure the qualification of welding procedures used to fabricate pipe are in accordance with the provisions of AWS D1.1 - Structural Welding Code. Submit welding procedures for the ENGINEER's review.
- I. Welder Qualifications:** Provide welding by skilled welders and welding operators who have adequate experience in the methods and materials to be used. Ensure qualified welders under the provisions of AWS D1.1 or the ASME Boiler and Pressure Vessel Code, Section 9, by an independent local, approved testing agency not more than 6 months prior to commencing WORK on the piping. Use machines and electrodes similar to those used in the WORK in qualification tests. Qualification testing of welders and materials used during testing is part of the WORK.

2.2 PIPE FLANGES AND GASKETS, GENERAL

- A. General:** Provide flanges with flat faces that attach with bolt holes straddling the vertical axis of the pipe unless otherwise indicated. Ensure flange faces be perpendicular to the axis of the adjoining pipe. Provide flanges for miscellaneous small diameter pipes in accordance with the standards indicated for these pipes.
- B. Flange Coating:** Coat machined faces of metal blind flanges and pipe flanges with a temporary rust-inhibitive coating to protect the metal until the installation is completed.
- C. Flange Bolts:** Provide bolts and nuts which conform to Section 05 50 00 - Miscellaneous Metalwork. Utilize all-thread studs on valve flange connections where space restrictions preclude the use of regular bolts.
- D. Flange Gaskets:** Furnish gaskets made of materials compatible with the service, pressure, and temperature ratings required.
- E. Mechanical Joint Gaskets:** Furnish gaskets made of materials compatible with the service, pressure, and temperature ratings required.

2.3 PIPE THREADS

- A.** Where threaded pipe is indicated or allowed, furnish pipe threads in accordance with ASME B1.20.1 - Pipe Threads, General Purpose (inch), and be made up with Teflon tape unless otherwise indicated.

2.4 MODULAR MECHANICAL SEALS FOR PIPING PENETRATIONS

- A.** Where indicated and where required to prevent flow of water or air, seal the passages of piping through wall sleeves and cored openings with modular interlocking link mechanical closures. Construct individual links of EPDM rubber, be suitable for temperatures between minus 40 and plus 250 degrees F, and be shaped to fill the annular space between the outside of the pipe and the inside of the wall sleeve or cored opening. Assemble links with type 316 stainless steel



bolts and nuts to form a continuous rubber belt around the pipe. Fabricate pressure plates under each bolt and nut in a corrosion-resistant composite material. After the seal assembly is positioned in the sleeve, tighten the bolts against the pressure plates to expand the rubber links and form the watertight seal. Furnish sizing and installation of sleeves and assemblies in accordance with the manufacturer's recommendations.

B. Manufacturers, or equal

1) Thunderline Corporation, Link-Seal

2.5 DUCTILE IRON PIPE (CEMENT-LINED, CERAMIC EPOXY LINED, AND UNLINED)

A. General: Refer to the piping schedule in the drawings for additional requirements.

B. Pipe: Furnish ductile iron pipe that complies with ANSI/AWWA C151/A21.51, Table 1 or Table 3. Furnish flanged joints for all above – grade pipe joints and restrained joints for all below – grade pipe joints as specified below, unless noted otherwise on the drawings. Conform pipes to the pressure ratings indicated below:

Pipe Size (in)	Minimum Working Pressure (PSI) Rating
4" to 48"	250
54", 60", and 64"	150

C. Pipe Joints:

- 1. Pipe to Pipe, Buried:** Furnish restrained "push – on" joints per ANSI/AWWA C111/A21.11. Provide joints that are restrained push – on, positive locking segments, or with rings and made of American "Flex-Ring" or "Lok-Ring; Clow "Super-Lock"; Griffin "Snap – Lok", or equal.
- 2. Pipe to Pipe, within Structures, Above – Grade, and Where Indicated on the Drawings:** Furnish threaded-on flanged pipe to pipe joints complying with AWWA/ANSI C115/A21.21.15. Furnish ductile iron flanges conforming to the physical properties of AWWA C110, matching the pressure rating of the pipe, and drilled to ANSI/ASME B16.1. Do not provide flanged connections in underground applications except for in structures. Furnish gaskets at all flanged joints as provided for earlier within this Section.
- 3. Pipe to Fitting, Buried:** Provide buried pipe to fitting joints that are restrained mechanical joints and comply with ANSI/AWWA C111/A21.11. Restrained mechanical joints with factory prepared spigot (4" through 48" that are American "MJ Coupled Joints", Griffin "Mech-Lok", or equal. Provide restrained mechanical joints with field cut spigot (4" through 48") that are EBAA Iron "Mega lug" Series 1100, or Star Pipe Products "StarGrip 3000", or equal. Provide wall pipes or Castings that are Mechanical joint with water stop and tapped holes; single casting or fabricated ductile iron pipe; holes sized in accordance with the details on the drawings and provided with removable



plugs. Furnish gaskets as necessary and recommended by the manufacturer as required to achieve the specified pipe pressure rating.

4. **Pipe to Fitting, within Structures, Above – Grade, and Where Indicated on the Drawings:** For the pipe, furnish threaded on threaded-on flanged joints complying with AWWA/ANSI C115/A21.21.15. Furnish ductile iron flanges conforming to the physical properties of AWWA C110, matching the pressure rating of the pipe, and drilled to ANSI/ASME B16.1. For the fitting, furnish flanged fittings complying with AWWA C110/A21.10 for fittings for pipes 48" and smaller and complying with AWWA C153/A21.53 for 54", 60", and 64" diameter pipes.

D. Fittings:

1. **Flanged, 48" diameter and smaller:** Furnish flanged fittings complying with AWWA C110/A21.10 for fittings for pipes 48" and smaller and complying with AWWA C153/A21.53 for 54", 60", and 64" diameter pipes. Furnish flanged fittings matching the pressure rating of the pipe.
2. **Mechanical Joint:** Furnish mechanical joint fittings complying with AWWA/ANSI C110/A21.10 or AWWA/ANSI C153/A21.53, with the joints meeting the requirements of ANSI/AWWA C111/A21.11. Furnish swivel type tees for all fire hydrant installations and where indicated.

- E. Mechanical Couplings:** Where indicated on the drawings, provide mechanical couplings that are Dresser "Style 38"; Smith-Blair "411 Steel Coupling"; or Romac "Style 400" or "Style 501"; without pipe stop. Provide gaskets that are Oil-resistant synthetic rubber. Furnish gaskets provided by the pipe manufacturer. Provide gaskets for potable water service which are certified as suitable for chlorinated potable water; provide a certificate of gasket suitability.

- F. Joint Lubricant:** Utilize joint lubricant that is vegetable – based lubricant as recommended by the pipe manufacturer. Petroleum or animal – based lubricants will not be acceptable. Provide lubricants that will be in contact with treated or potable water that are certified as being in compliance with ANSI/NSF 61.

G. Interior Lining:

1. When the drawings require Ceramic Epoxy Lined Ductile Iron Pipe (CELDI), furnish piping and fittings lined with Induron Protecto 401 or approved equal.
2. When the drawings require Cement Lined Ductile Iron Pipe (CLDI), provide piping and fittings with cement lining complying with the requirements of AWWA C110.
3. When the drawings require Unlined Ductile Iron Pipe (ULDI), provide ductile iron pipe and fittings without interior lining.

2.6 POLYVINYL CHLORIDE (PVC) PIPE (AWWA C900)

- A. General:** Pipe installed by open cut installation may be installed using metallic restraint couplings or non – metallic restraint couplings. Use pipe with non –



metallic restraint couplings or fusible pipe for PVC pipe to be installed by horizontal directional drill.

- B. Pipe:** Provide PVC pressure pipe (4-inch through 12-inch) that conforms to the applicable requirements of AWWA C900, DR 18. Ensure all PVC pipe also conforms to the additional requirements specified herein. Unless otherwise provided in alternate qualification procedures of PPI-TR3, ensure compounds which have a Hydrostatic Design Basis (HDB) of 4000 psi at 73.4 degrees F for water do not contain additives and fillers that exceed the recommended values in Table 1, Part Y of PPI-TR3 (e.g., allowable content range for calcium carbonate is 0.0-5.0 parts per hundred parts of resin). If requested by the ENGINEER, determine the additive and filler content by using the pyrolysis method per ASTM D 2584. Provide blue pipe for potable water mains.
- C. Gaskets:** Provide synthetic rubber gaskets. Natural rubber will not be acceptable. Provide gaskets for potable water service that are certified as suitable at the pipe pressure and for chlorinated and chloraminated potable water. Provide a certificate of gasket suitability. Furnish gaskets as submitted by the manufacturer. Provide gas and oil – resistant gaskets made of Nitrile rubber. Permanently mark or mold the name of the material on the gasket. Utilize gaskets certified as suitable where soils may be contaminated with gas and oil products. Submit a certificate of suitability for the gasket.
- D. Pipe to Fittings Joints:** Use field-cut pipe and metallic joint restraints for all buried pipe to fitting joints. Utilize metallic restraints that are manufactured of ductile iron conforming to ASTM A536. Utilize a split ring on the PVC fitting bell. Utilize a restraint ring, incorporating a plurality of individually-actuating gripping surfaces, to grip the pipe, and a sufficient number of bolts to connect the bell ring and the gripping ring. Ensure the combination has a minimum working pressure rating equivalent to the pipe. Field cut the pipe and prepare in accordance with the recommendations of the pipe supplier and the restraining joint supplier.
- E. Pipe to Pipe Joints:** For pipe to pipe joints for buried PVC pipe utilize either an integral bell or coupling manufactured on the pipe or a separate coupling both employing an elastomeric gasket. An integral bell or separate coupling is not required for fusible PVC. Ensure the bell and coupling is the same thickness as the pipe barrel, or is greater thickness. Ensure the sealing ring groove in the coupling is the same design as the groove in cast iron fittings and valves available from local water works supply distributors. Do not allow deflection at the joint to exceed 1.5 degrees or the maximum deflection recommended by the manufacturer. Do not allow deflection of the joint for joints that are over-belled or not belled to the stop mark. Unless noted otherwise on the drawings, restrain all pipe to pipe joints. Pipe installed by open cut methods to be restrained may be restrained using metallic joint restraint or non – metallic joint restraint. Restrain all PVC pipe installed by horizontal directional drilling using non – metallic joint restraint.

 - 1. Metallic Joint Restraint:** Provide metallic restraints manufactured of ductile iron conforming to ASTM A536. Utilize a split ring on the PVC fitting bell. Utilize a restraint ring, incorporating a plurality of individually actuating gripping surfaces, to grip the pipe, and a sufficient number of bolts to connect the



bell ring and the gripping ring. Ensure this combination has minimum working pressure rating equivalent to the pipe.

2. Non - Metallic Joint Restraint: Use self-restrained Diamond Lok-21, or approved equal, Certa-Lok, or approved equal, or fusible PVC by Underground Solutions, Poway, California, or equal.

B. Fittings: Furnish mechanical joint fittings complying with AWWA/ANSI C110/A21.10 or AWWA/ANSI C153/A21.53, with the joints meeting the requirements of ANSI/AWWA C111/A21.11. Furnish swivel type tees for all fire hydrant installations and where indicated. Furnish fittings with pressure rating of 250 PSI.

C. Joint Lubricant: Utilize joint lubricant that is vegetable – based lubricant as recommended by the pipe manufacturer. Petroleum or animal – based lubricants will not be acceptable. Provide lubricants that will be in contact with treated or potable water that are certified as being in compliance with ANSI/NSF 61.

2.7 TRACE WIRE

A. Provide trace wire for all buried pipe and pipe installed by horizontal directional drill and open cut methods.

B. Provide trace wire and trace wire products which have been domestically manufactured in the U.S.A.

C. Furnish trace wire having HDPE insulation intended for direct bury, color coated per APWA standard for the specific utility being marked.

D. Wire:

1. Open Cut: Furnish #12 AWG Copper Clad Steel, High Strength with minimum 450 lb. break load, with minimum 30 mil HDPE insulation thickness.

2. Directional Drilling/Boring: Furnish #12 AWG Copper Clad Steel, Extra High Strength with minimum 1,150 lb. break load, with minimum 30 mil HDPE insulation thickness.

E. Connect trace wires in intersections, at mainline tees and mainline crosses. At tees, join the wires using a single 3-way lockable connector. At Crosses, join the wires using a 4-way connector. Use of two 3-way connectors with a short jumper wire between them is an acceptable alternative.

F. Direct bury wire connectors – furnish 3-way lockable connectors and mainline to lateral lug connectors specifically manufactured for use in underground trace wire installation. Furnish dielectric silicon filled connectors which seal out moisture and corrosion. Install connectors in a manner so as to prevent any uninsulated wire exposure.

G. Non locking friction fit, twist on or taped connectors are prohibited.

H. All trace wire termination points must utilize an approved trace wire access box (above ground access box or grade level/in-ground access box as applicable), specifically manufactured for this purpose.



- I. Furnish grade level/in-ground access covers having "sewer" or "water" cast into the cap and which are color coded.
- J. A minimum of 2 ft. of excess/slack wire is required in all trace wire access boxes after meeting final elevation.
- K. All trace wire access boxes must include a manually interruptible conductive/connective link between the terminal(s) for the trace wire connection and the terminal for the grounding anode wire connection.
- L. Connect grounding anode wire to the identified (or bottom) terminal on all access boxes.
- M. Service Laterals on public property - Trace wire must terminate at an approved grade level/in- ground trace wire access box, located at the edge of the road right-of-way, and out of the roadway.
- N. Service Laterals on private property - Trace wire must terminate at an approved above-ground trace wire access box, affixed to the building exterior directly above where the utility enters the building, at an elevation not greater than 5 vertical feet above finished grade, or terminate at an approved grade level/in-ground trace wire access box, located within 2 linear feet of the building being served by the utility.
- O. Hydrants – Trace wire must terminate at an approved above-ground trace wire access box, properly affixed to the hydrant grade flange. (affixing with tape or plastic ties will not be acceptable)
- P. Long-runs, in excess of 500 linear feet without service laterals or hydrants - Trace wire access must be provided utilizing an approved grade level/in-ground trace wire access box, located at the edge of the road right-of-way, and out of the roadway. Delineate grade level/in-ground trace wire access box using a minimum 48" polyethylene marker post, color coded per APWA standard for the specific utility being marked.
- Q. Properly ground trace wire at all dead ends/stubs
- R. Furnish grounding of trace wire by use of a drive-in magnesium grounding anode rod with a minimum of 20ft of #12 red HDPE insulated copper clad steel wire connected to anode (minimum 1.5 lb.) specifically manufactured for this purpose, and buried at the same elevation as the utility.
- S. When grounding the trace wire at dead ends/stubs, install the grounding anode in a direction 180 degrees opposite of the trace wire, at the maximum possible distance.
- T. When grounding the trace wire in areas where the trace wire is continuous and neither the mainline trace wire or the grounding anode wire will be terminated at/above grade, install grounding anode directly beneath and in-line with the trace wire. Do not coil excess wire from grounding anode. Trim the grounding anode wire to an appropriate length before connecting to trace wire with a mainline to lateral lug connector.



- U. Where the anode wire will be connected to a trace wire access box, a minimum of 2 ft. of excess/slack wire is required after meeting final elevation.

2.8 POSITIVE DISPLACEMENT METERS AND STRAINERS

- A. Furnish, install and place into service turbine meters meeting or exceeding the requirements of AWWA Standard C701, Class II standards. Furnish and install meters constructed of lead free bronze alloy and which comply with the requirements of the Safe Water Drinking Act, and which have all components of the meter housing, flow element, and seals listed as compliant with NSF 61. Furnish meter with strainer manufactured by the meter manufacturer and which is compatible with the meter provided.

2.9 FIRE HYDRANTS

- A. **General:** Furnish and place into service hydrants which meet or exceed all applicable requirement and tests of the latest revisions of ANSI/AWWA Standard C502. Provide hydrants rated for a working pressure of 250 psig and which are the compression type, opening against the pressure and closing with the pressure. Require that the manufacturer warrant all hydrants against defects in materials or workmanship for a period of ten (10) years from the date of manufacture. The manufacturing facility for the hydrant must have current SO certification.
- B. Provide hydrants having not less than a 5-1/4" main valve opening and a minimum inside lower/upper barrel diameter (I.D.) of 7" to assure maximum flow performance. Furnish hydrants in which pressure loss at 1,000 GPM does not exceed the following values:
 - 1. 4.5" Pumper Nozzle – 2.5 PSI
- C. **Nozzle:** Furnish hydrants of the three – way design, having one pumper nozzle (4.5") and two 2-1/2" hose nozzles. Furnish hydrants with nozzles having National Standard Thread. Furnish nozzles which thread counterclockwise into hydrant barrel utilizing O – ring seals. Provide hydrants having suitable nozzle lock in place to prevent inadvertent nozzle removal.
- D. **Bonnet Assembly:** Furnish hydrants in which the bonnet assembly contains an oil reservoir and lubrication system that automatically circulates lubricant to all stem threads and bearing surfaces each time the hydrant is operated. Furnish hydrants in which this lubrication system is sealed from the waterway and any external contaminants by use of "O" ring seals. Furnish hydrants having an anti – friction washer in place above the thrust collar to further minimize operating torque. Furnish hydrants in which oil reservoir factory filled with a low viscosity; FDA approved non-toxic oil lubricant which will remain fluid through a temperature range of - 600 °F to + 1500 °F.
- E. **Operating Nut:** Furnish hydrants having operating nut of a one piece design, manufactured of ASTM B584 bronze. Furnish hydrants having operating nuts of pentagon/square in shape and with nut dimensions as specified by the end-user. Furnish hydrants in which the operating nut is affixed to the bonnet by means of an ASTM B584 bronze hold down nut and in which the hold down nut is threaded



into the bonnet in such a manner as to prevent accidental disengagement during the opening cycle of the hydrant. The use of allen head set screws as a means of retention is unacceptable. Furnish hydrants having resilient weather seal be incorporated into the hold down nut, for the purpose of protecting the operating mechanism from the elements

- F. Furnish hydrant in which direction of the opening is specified by the end-user. Furnish hydrants having integrally cast on the bonnet flange to indicate the specified opening direction.
- G. **Upper Barrel Connection:** Furnish hydrants in which the hydrant bonnets are attached to the upper barrel by not less than eight bolts and nuts and sealed by an "O" ring.
- H. **Traffic Rating Requirements:** Furnish hydrants of "traffic-model" having upper and lower barrels joined at the ground line by a separate and breakable "swivel" flange providing 360 degree rotation of upper barrel for proper nozzle facing. Furnish hydrants having safety flanges employing not less than eight bolts. Furnish hydrants having safety flange segments located under the upper barrel flange to prevent the segments from falling into the lower barrel when the hydrant is struck. Furnish hydrants having pressure seal between the barrels consisting of "O" ring. Provide hydrants having proper ground line cast clearly on the lower barrel and providing not less than 18" of clearance from the centerline of the lowest nozzle to the ground.
- I. **Operating Stem:** Furnish hydrants having operating stems consisting of two pieces, not less than 1 1/4" diameter (excluding threaded or machined areas) and which are connected by a stainless steel safety coupling. Furnish safety coupling having an integral internal stop to prevent the coupling from sliding down into the lower barrel when the hydrant is struck. Furnish hydrants in which screws, pins, bolts, or fasteners used in conjunction with the stem couplings are stainless steel. The top of the lower stem shall be recessed 2" below the face of the safety flange to prevent water hammer in the event of a "drive over" where a vehicle tire might accidentally depress the main valve.
- J. **Lower Barrel:** The lower barrel shall be an integrally cast unit. The use of threaded on or mechanically attached flanges is deemed unacceptable. The hydrant bury depth shall be clearly marked on the hydrant lower barrel.
- K. **Main Valve Composition:** Composition of the main valve shall be a molded rubber having a durometer hardness of 95 ± 5 and shall be reversible in design to provide a spare in place. Plastic (polyurethane) main valves are unacceptable. The main valve shall have a cross section not less than 1".
- L. **Drain Valves:** Hydrants shall be equipped with (2) two drain valves which drain the barrel when the hydrant is closed and seal shut when the hydrant is opened. These drain valves shall be an integral part of the one piece bronze upper valve plate. They shall operate without the use of springs, toggles, tubes, levers or other intricate synchronizing mechanisms.
- M. **Upper Valve Plate:** The upper valve plate, seat ring and drain ring (shoe bushing) must be ASTM 8-584 bronze and work in conjunction to form an all bronze drain



way. A minimum of two (2) internal and two (2) external drain openings are required. Drains ported through an iron shoe must be bronze lined.

- N. Seat Ring:** The bronze seat ring shall thread into a bronze drain ring (or shoe brushing) providing a bronze to bronze connection. Seat rings shall be "O" ring pressure sealed.
- O. Shoe Inlet:** The shoe inlet size and connection type shall be as specified (flanged, MJ, etc.), having ample blocking pads for sturdy setting and the MJ connection must have two strapping lugs to secure the hydrant to piping. A minimum of six bolts and nuts is required to fasten the shoe to the lower barrel. The interior of the shoe including the lower valve plate and stem cap nut shall have a protective coating that meets the requirements of AWWA C-550. If a stem cap nut is utilized, it must be locked in place by a stainless steel lock washer or similar noncorrosive device that will prevent the cap nut from backing-off during normal use
- P. Manufacturers, or Equal:**
 - 1. Mueller, Super Centurion 250

PART 3 -- EXECUTION

3.1 MATERIAL DELIVERY, STORAGE, AND PROTECTION

- A.** Deliver piping materials, fittings, valves, and accessories in a clean and undamaged condition and stored off the ground for protection against oxidation caused by ground contact. Replace defective or damaged materials with new materials.

3.2 GENERAL

- A.** Install piping, fittings, and appurtenances in accordance with the requirements herein. Install proprietary manufactured couplings in accordance with the coupling manufacturer's recommendation.
- B.** Take care to insure that piping flanges, mechanical-type couplings, sleeve-type couplings, flexible connectors, and expansion joints are properly installed as follows:
 - 1) Carefully clean and inspect gasket surfaces prior to making up the connection. Center each gasket properly on the contact surfaces.
 - 2) Install connections to prevent inducing stress to the piping system or the equipment to which the piping is connected. Ensure contact surfaces for flanges, couplings, and piping ends are aligned parallel, concentric, and square to each axis at the piping connections.
 - 3) Ensure bolts are initially hand-tightened with the piping connections properly aligned. Tighten bolts with a torque wrench in a staggered sequence to the AISC recommended torque for the bolt material.
 - 4) Each groove ends are clean and free from indentations, projections, and roll marks in the area from the pipe end to the groove.



5) After installation, ensure joints meet the indicated leakage rate. Do not provide flanges that are deformed or cracked.

- C. Lined Piping Systems:** Hold the lining manufacturer fully responsible for the complete, final product and its application. Epoxy-coat pipe ends and joints of lined pipes at screwed flanges to assure continuous protection.
- D. Core Drilling:** Where core drilling is required for pipes passing through existing concrete, determine core drilling locations by radiograph of concrete construction to avoid damage to embedded raceways and reinforcing bars.
- E. Cleanup:** After completion of the WORK, removal cuttings, joining and wrapping materials, and other scattered debris from the Site. Ensure the entire piping system is handed over in a clean and **functional** condition.

3.3 DUCTILE IRON PIPE (CEMENT-LINED, CERAMIC EPOXY LINED, AND UNLINED)

- A. Installation of Pipe :** Inspect each pipe and fitting prior to installation to insure that there are no damaged portions of the pipe. Repair or replace pipe damaged prior to Substantial Completion at no additional cost to the owner.
- B. Pipe Laying :** Install pipe directly on the bedding material. No blocking will be permitted at the bells or couplings. Provide excavations as needed outside the normal trench section at field joints to permit adequate access to the joints for field connection operations and for application of coating on field joints. Install each section to the line and grade, within approximately one-inch plus or minus. Where necessary to raise or lower the pipe due to unforeseen obstructions or other causes, the ENGINEER may change the alignment and/or the grades. Make such changes by the deflection of joints, by the use of bevel adapters, or by the use of additional fittings. Do not allow joint deflection to exceed 75 percent of the maximum deflection recommended by the pipe manufacturer. Do not allow and joint misfit that will be detrimental to the strength and water tightness of the finished joint. Except for short runs that may be permitted by the ENGINEER, lay pipes in the direction of uphill on grades exceeding 10 percent. Block and hold pipe that is laid on a downhill grade in place until sufficient support is furnished by the following pipe to prevent movement. Install bends properly as indicated.
- C. Piping in Structures:** Install piping, fittings, appurtenances, valves, and specials in structures in accordance with the drawings and these specifications. Ensure that piping is installed plumbed, level, and in a workmanlike and neat manner.
- D. Cold Weather Protection:** Do not install pipe upon a foundation into which frost has penetrated or at any time that there is a danger of the formation of ice or penetration of frost at the bottom of the excavation before backfilling occurs.
- E. Pipe and Specials Protection:** Protect all openings of pipe and specials with suitable bulkheads to prevent unauthorized access by persons, animals, water, or any undesirable substance. Provide means at all times to prevent the pipe from floating.
- F. Pipe Cleanup:** As pipe laying progresses, keep the pipe interior free of debris. Completely clean the interior of the pipe of sand, dirt, mortar splatter, and any



other debris following completion of pipe laying and perform any necessary interior repairs prior to testing and disinfecting the completed pipeline.

- G. Rubber Gasketed Joints :** Immediately before jointing pipe, thoroughly clean the bell end of the pipe, and place a clean rubber gasket in the bell groove. Carefully clean and lubricate both the spigot end of the pipe and the inside surface of the gasket. Utilize lubricant suitable for lubricating the parts of the joint for assembly and be a compound listed as in compliance with NSF Standard 61. Furnish lubricant that is nontoxic, that will not support the growth of bacteria, and that will have no deleterious effects on the gasket material. Furnish lubricant that does not impart taste or odor to water in the pipe. Insert the spigot end of the pipe section into the bell of the previously laid joint and telescope the pipe into its proper position. Tilting of the pipe to insert the spigot into the bell will not be permitted.
- H. Polyethylene Sleeves :** Encase buried ductile iron pipe encased in accordance with the requirements of AWWA C105, CONTRACTOR's choice between Method A or Method B.
- I. Pipe Appurtenances :**
 - 1. Protection:** Encase buried appurtenances in polyethylene.
 - 2. Installation of Valves:** Handle and install valves in a manner to prevent any injury or damage to any part of the valve. Thoroughly clean and prepare joints to installation. Adjust stem packing and operate each valve prior to installation to insure proper operation. Install valves so that the valve stems are plumb and in the location indicated.
 - 3. Transition Couplings:** Install transition couplings in strict compliance with the manufacturer's written recommendations.

3.4 POLYVINYL CHLORIDE (PVC) PIPE (AWWA C900)

- A. Installation of Pipe :** Inspect each pipe and fitting prior to installation to insure that there are no damaged portions of the pipe. Repair or replace pipe damaged prior to Substantial Completion at no additional cost to the owner.
- B. Horizontal Directional Drill:** For horizontal directional drilling applications, install pipe in accordance with the requirements of Section 33 05 23 – Horizontal Directional Drilling.
- C. Open Cut - Pipe Laying :** Install pipe directly on the bedding material. No blocking will be permitted at the bells or couplings. Provide excavations as needed outside the normal trench section at field joints to permit adequate access to the joints for field connection operations and for application of coating on field joints. Install each section to the line and grade, within approximately one-inch plus or minus. Where necessary to raise or lower the pipe due to unforeseen obstructions or other causes, the ENGINEER may change the alignment and/or the grades. Make such changes by the deflection of joints, by the use of bevel adapters, or by the use of additional fittings. Do not allow joint deflection to exceed 75 percent of the maximum deflection recommended by the pipe manufacturer. Do not allow and joint misfit that will be detrimental to



the strength and water tightness of the finished joint. Except for short runs that may be permitted by the ENGINEER, lay pipes in the direction of uphill on grades exceeding 10 percent. Block and hold pipe that is laid on a downhill grade in place until sufficient support is furnished by the following pipe to prevent movement. Install bends properly as indicated.

- D. Cold Weather Protection:** Do not install pipe upon a foundation into which frost has penetrated or at any time that there is a danger of the formation of ice or penetration of frost at the bottom of the excavation before backfilling occurs.
- E. Pipe and Specials Protection:** Protect all openings of pipe and specials with suitable bulkheads to prevent unauthorized access by persons, animals, water, or any undesirable substance. Provide means at all times to prevent the pipe from floating.
- F. Pipe Cleanup:** As pipe laying progresses, keep the pipe interior free of debris. Completely clean the interior of the pipe of sand, dirt, mortar splatter, and any other debris following completion of pipe laying and perform any necessary interior repairs prior to testing and disinfecting the completed pipeline.
- G. Rubber Gasketed Joints :** Immediately before jointing pipe, thoroughly clean the bell end of the pipe, and place a clean rubber gasket in the bell groove. Carefully clean and lubricate both the spigot end of the pipe and the inside surface of the gasket. Utilize lubricant suitable for lubricating the parts of the joint for assembly and be a compound listed as in compliance with NSF Standard 61. Furnish lubricant that is nontoxic, that will not support the growth of bacteria, and that will have no deleterious effects on the gasket material. Furnish lubricant that does not impart taste or odor to water in the pipe. Insert the spigot end of the pipe section into the bell of the previously laid joint and telescope the pipe into its proper position. Tilting of the pipe to insert the spigot into the bell will not be permitted.
- H. Polyethylene Sleeves :** Encase buried ductile iron fittings in accordance with the requirements of AWWA C105, CONTRACTOR's choice between Method A or Method B.
- I. Pipe Appurtenances :**
 - 1. Protection:** Encase buried appurtenances in polyethylene.
 - 2. Installation of Valves:** Handle and install valves in a manner to prevent any injury or damage to any part of the valve. Thoroughly clean and prepare joints to installation. Adjust stem packing and operate each valve prior to installation to insure proper operation. Install valves so that the valve stems are plumb and in the location indicated.
 - 3. Transition Couplings:** Install transition couplings in strict compliance with the manufacturer's written recommendations.

3.5 TRACE WIRE

- A.** Perform trace wire installation in such a manner that allows proper access for connection of line tracing equipment, proper locating of wire without loss or



deterioration of low frequency (512Hz) signal for distances in excess of 1,000 linear feet, and without distortion of signal caused by multiple wires being installed in close proximity to one another.

- B.** Trace wire systems must be installed as a single continuous wire, except where using approved connectors. No looping or coiling of wire is allowed.
- C.** Any damage occurring during installation of the trace wire must be immediately repaired by removing the damaged wire, and installing a new section of wire with approved connectors. Do not tape or utilize spray coating.
- D.** Install trace wire the bottom half of the pipe and secured (taped/tied) at 5' intervals.
- E.** Trace wire must be properly grounded as specified.
- F.** Trace wire on all service laterals/stubs must terminate at an approved trace wire access box located directly above the utility, at the edge of the road right-of-way, but out of the roadway. (See Trace wire Termination/Access)
- G.** At all mainline dead-ends, ground trace wire using an approved connection to a drive-in magnesium grounding anode rod, buried at the same depth as the trace wire.
- H.** Do not connect trace wire to existing conductive pipes. Treat as a mainline dead- end, ground using an approved waterproof connection to a grounding anode buried at the same depth as the trace wire.
- I.** Furnish service laterals a single trace wire, connected to the mainline trace wire using a mainline to lateral lug connector, installed without cutting/splicing the mainline trace wire.
- J.** In occurrences where an existing trace wire is encountered on an existing utility that is being extended or tied into, connect the new trace wire and existing trace wire connected using approved splice connectors, and properly ground the wire at the splice location as specified.
- K.** Water System
 - 1.** A mainline trace wire must be installed, with all service lateral trace wires properly connected to the mainline trace wire, to ensure full tracing/locating capabilities from a single connection point.
 - 2.** Lay mainline trace wire continuously, by-passing around the outside of valves and fittings on the North or East side.
 - 3.** Trace wire on all water service laterals must terminate at an approved trace wire access box color coded blue and located directly above the service lateral at the edge of road right of way.
 - 4.** Install above-ground tracer wire access boxes on all fire hydrants.
 - 5.** Furnish conductive and non-conductive service lines with tracer wire.



- L. Testing:** Locate all trace wite using typical low frequency (512Hz) line tracing equipment, as witnessed by the contractor, engineer and facility owner as applicable, prior to acceptance of ownership. Continuity testing in lieu of actual line tracing will not be accepted.

3.6 WATER METER INSTALLATION

- A.** Water meters, piping, and accessories shall be installed in accordance with the manufacturer's written instructions and the drawings.
- B.** Equipment installed in existing facilities with limited access shall be suitable for being installed through available openings. Contractor shall field verify existing opening dimensions and other provisions for installation prior to submittal of bids.
- C.** Meters shall be installed with the required upstream and downstream straight pipe lengths as recommended by the manufacturer.
- D.** Meters shall be calibrated and adjusted according to manufacturer's written instructions after installation. Meter faces shall be adjusted to proper angle for best visibility.
- E.** Meters and appurtenances shall be protected from damage immediately after installation. Scratched, cracked or broken components shall be replaced. Meters shall not be used during the construction.
- F.** After completion of testing and immediately before the final inspection, meters shall be thoroughly cleaned. Cleaning materials and methods shall be as recommended by the manufacturer.

3.7 FIRE HYDRANT INSTALLATION

- A.** Fire hydrants shall be installed in accordance with the manufacturer's written instructions and the drawings.
- B.** Raised pavement markers shall be placed in the roadway at the locations of fire hydrant installations. Markers shall be set in the center of the roadway on undivided and unmarked roadways or 6" to the hydrant side of the center stripe on striped divided roadways. Markers on divided roadways shall be set 6" to the side of the lane striping which is closest to the hydrant on divided roadways. Locations of markers shall be approved by the ENGINEER.
- C.** Pavement markers shall be affixed to the roadway with adhesive per the reflector and adhesive manufacturer's respective recommendations. Markers placed on asphalt pavement shall be secured with bituminous adhesive. Markers placed on concrete roadways shall be placed with epoxy adhesive.
- D.** Protect markers from impact until adhesive has hardened.



- END OF SECTION -



SECTION 43 30 00 - VALVES, GENERAL

PART 1 -- GENERAL

1.1 THE REQUIREMENT

- A.** Provide valves, actuators, and appurtenances, complete and operable, as indicated in accordance with the Contract Documents.
- B.** The provisions of this Section apply to all valves and valve actuators except where otherwise indicated.
- C.** Unit Responsibility
 - 1.** Assign a single manufacturer to be responsible for the supply, coordination of design, assembly, testing, and furnishing of each valve. Assume the full and sole responsibility for compliance with the requirements of these specifications.
- D.** Single Manufacturer
 - 1.** Where 2 or more valves of the same type and size are required, furnish valves manufactured by the same manufacturer.

1.2 CONTRACTOR SUBMITTALS

- A.** Furnish submittals in accordance with the requirements of Section 01 33 00 – Contractor Submittals.
- B.** Furnish the following information on Shop Drawings:
 - 1.** valve name, size, pressure rating, identification number (if any), and specification section number;
 - 2.** complete information on the valve actuator, including size, manufacturer, model number,
 - 3.** assembly drawings showing part nomenclature, materials, dimensions, weights, and relationships of valve handles, hand wheels, position indicators, limit switches, integral control systems, needle valves, and control systems;
- C.** Furnish a technical manual containing the required information for each valve, as indicated.
- D.** Furnish a spare parts list, containing the required information for each valve assembly, as indicated.
- E.** Factory Test Data
 - 1.** Where indicated, submit signed, dated, and certified factory test data for each valve requiring certification, before shipping the valve.
 - 2.** Furnish a certification of quality and test results for factory-applied coatings.



F. Field Test Data

1. Submit signed, dated, and certified field test data for each valve.

PART 2 -- PRODUCTS

2.1 PRODUCTS

A. General

1. Provide valves of new and current manufacture.
2. Provide valves 6-inch and larger with actuators with position indicators.

B. Protective Coating

1. Coat the exterior surfaces of valves and the wet interior surfaces of ferrous valves of sizes 2-inch and larger in accordance with the requirements of Section 09 96 00 – Protective Coating.
2. Require the manufacturer to certify in writing that the required coating has been applied and tested in the manufacturing plant prior to shipment, in accordance with the indicated requirements.
3. Do not coat the machined flange faces of valves except where such flanges are not adjoining a mating flange as shown in the Contract Documents. Apply rust inhibitor coating on machined surfaces of the flange prior to shipment.

C. Valve Testing

1. As a minimum, unless otherwise indicated or recommended by the reference standards, test valves 3 inches in diameter and smaller in accordance with the manufacturer's standard procedure.
2. Factory-test valves 4 inches in diameter and larger as follows:
 - a. Hydrostatic Testing
 - 1) Subject valve bodies to an internal hydrostatic pressure equivalent to twice the water-rated pressure of the valve.
 - 2) During the hydrostatic test, allow no visible leakage through the valve body, end joints, or shaft seals, nor may any part of the valve be permanently deformed.
 - 3) Allow test duration of at least 10 minutes, in order to allow visual examination for leakage.
 - b. Seat Testing
 - 1) Test the valves for leaks in the closed position, with the pressure differential across the seat equal to the water rated pressure of the valve.



- 2) Provide test duration of at least 10 minutes, in order to allow visual examination for leakage.
- 3) Take the leakage rate to be the more stringent of the following:
 - a) As recommended by the reference standard for that type of valve; or
 - b) Leakage past the closed valve not to exceed one fluid ounce per hour per inch diameter for metal seated valves, and drop-tight for resilient seated valves.

c. Performance Testing

- 1) Shop-operate the valves from the fully-closed to the fully-open position, and reverse under no-flow conditions in order to demonstrate that the valve assembly operates properly.

D. Certification

1. Prior to shipment of valves with sizes larger than 12-inches in diameter, submit certified, notarized copies of the hydrostatic factory tests, showing compliance with the applicable standards of AWWA, ANSI, or ASTM.

2.2 AWWA C509 GATE VALVES (3" AND LARGER)

- A. Furnish resilient seat gate valves which fully comply with the latest revision of AWWA C509, and which are UL 262 listed, and FM 1120/1130 approved. Furnish valves tested and certified to ANSI/NSF 61 & 372.
- B. Furnish valves with non – rising stem for buried applications and valves with outside stem and yoke (OS&Y) for above – grade locations.
- C. Furnish resilient seat gate valves with a 350 PSIG working pressure.
- D. Provide valves with a 2" square operating nut for non – rising stem and with a handwheel for OS&Y valves. Furnish valves having recessed bolt to attach the operating nut to the stem so as not to interfere with valve wrench operation.
- E. Furnish valves having Type 304 stainless steel bolts and nuts for the stuffing box and bonnet.
- F. Provide valves having stems made of bronze ASTM B-138 alloy C67600 H04 hard bar stock material. Furnish valves having at least one "anti-friction" thrust washer above and below the stem collar to reduce operating torque. Furnish valves designed such that if excessive operating torque is applied, stem failure occurs above the stuffing box at such a point as to enable the operation of the valve with a pipe wrench or other readily available tool. Furnish valves having stems with a minimum 73,000psi tensile strength with 8% elongation and yield strength of 48,000psi. Valves with cast stems or two-piece stem collars are not acceptable.
- G. Furnish NRS valves with O-ring sealed stuffing boxes with two integrally cast lifting lugs. Furnish valves having two O-rings above and one O-ring below the stem thrust



collar and a factory lubricated thrust collar. Furnish valves having thrust collar and lubrication isolated by the O-rings from the waterway and from outside contamination providing permanent lubrication for long term ease of operation. Valves without a stuffing box are unacceptable. Valves without at least three stem O-rings are also unacceptable

- H. Furnish valves having valve body, bonnet, and stuffing box composed of ASTM A536 ductile iron. Furnish valves having body and bonnet which adhere to the minimum wall thickness as set forth in Table 3, section 4.4.1.2 of AWWA C509. Wall thickness less than those in table 2 are not acceptable.
- I. Furnish valves having discs must be fully (100%) encapsulated in SBR ASTM D2000 rubber material. Furnish valves having guide caps of an acetal bearing material placed over solid guide lugs to prevent abrasion and to reduce the operating torque.
- J. Furnish gate valves have all internal ferrous surfaces coated with a fusion bonded thermosetting powder epoxy conforming to AWWA C550 of 10 mils nominal thickness. Coat exterior of valves in accordance with the requirements of Section 09 96 00 – Protective Coatings.
- K. **Tapping Valves:** Where tapping valves are required or indicated, furnish tapping valves having an inlet flange conforming to ANSI B16.1 Class 125 for attachment to a tapping sleeve or cross. In addition, furnish tapping valves having inlet flanges with a machined projection or raised face complying with MSS SP-60 for accurate alignment to the mating recess in the tapping sleeve flange. Furnish valves having seat opening at least .30" larger than the nominal pipe size to permit full diameter cuts.

L. **Manufacturers, or Equal:**

- 1. Mueller, Series 2362

2.3 AIR RELEASE VALVES

- A. Furnish and install ARI D-40, or approved equal.

2.4 DOUBLE CHECK ASSEMBLY

- A. Furnish and install lead free double check valve assemblies at locations indicated on the drawings. Furnish modular check assemblies with center stem guiding.
- B. Furnish double check assemblies having a captured spring accessible through a bolted cover plate. Furnish double check assemblies in which seats replaceable without special tools.
- C. Furnish complete assemblies including tight-closing resilient seated shutoff valves, test cocks, and strainer.
- D. Furnish double check assemblies meeting requirements for lead content.
- E. Furnish double check assemblies requirements of ASSE No. 1015; AWWA C510-92; CSA B64.5 and UL Classified File No. EX3185. Approved by the Foundation for Cross-



Connection Control and Hydraulic Research at the University of Southern California.

- F. Furnish double check assemblies with built-in electrochemical corrosion inhibitor and microbial inhibitor on all interior ferrous surfaces. Coat exterior surfaces in accordance with the requirements of Section 09 96 00 – Protective Coatings.

G. Manufacturers, or Equal:

1. Watts, LF709.

2.5 METAL BALL VALVES

- A. **Design:** Unless otherwise indicated, furnish general purpose metal ball valves in sizes up to 4-inches with actuators as specified herein. Furnish valves up to and including 1-1/2 inches in size with bronze 2 or 3 piece bodies with screwed ends for a pressure rating of not less than 600 psi WOG. Furnish valves 2-inches to 4-inches in size having bronze 2 or 3 piece bodies with flanged ends for a pressure rating of ANSI 125 psi or 150 psi unless otherwise indicated. Furnish valves having balls of solid chrome-plated brass or bronze, or stainless steel, with standard port (single reduction) or full port openings. Furnish valves having stems of the blow-out proof design, of bronze, stainless steel, or other acceptable construction, with reinforced teflon seal. Furnish valves with seats of teflon or Buna-N, for bi-directional service and easy replacement.

B. Manufacturers, or Equal

1. Conbraco Industries, Inc. (Apollo)
2. ITT Engineered Valves
3. Neles-Jamesbury, Inc.
4. Watts Regulator
5. Worcester Controls

PART 3 -- EXECUTION

3.1 VALVE INSTALLATION AND TRIAL OPERATION

A. General

1. Install valves, actuating units, stem extensions, valve boxes, and accessories in accordance with the manufacturer's written instructions and as indicated.
2. Firmly support valves in order to avoid undue stresses on the pipe.

B. Access

1. Install valves in a manner to provide easy access for actuation, removal, and maintenance, and to avoid interference between valve actuators and structural members, handrails, and other equipment.



C. Valve Accessories

1. Where combinations of valves, sensors, switches, and controls are indicated, properly assemble and install such items such that systems are compatible and operating properly.
2. Clearly note the relationship between interrelated items on Shop Drawing submittals.

D. Trial Operation

1. After installation, schedule trial operation witnessed by the ENGINEER and the OWNER representative.
2. Clean all thoroughly of all foreign materials and make final adjustments. Operate all valves through one complete cycle from a fully closed position to a fully open position and back to a fully closed position to verify that the assembly is functional.
3. Conduct a field leakage test meeting the maximum allowable specified requirement .
4. Furnish test certificate signed by the valve manufacturer and the CONTRACTOR to the ENGINEER.

END OF SECTION





September 12, 2024

Christopher Tissue
ST. TAMMANY PARISH DEPARTMENT OF UTILITIES
601 North Tyler Street
Covington , Louisiana, 70433

RE: Proposed installation of one (1) underground transverse 8" PVC potable water pipeline with a 16" steel casing

**Gulf Division, at Mile Post NO-163.54
Alton, St. Tammany County, Louisiana
Latitude / Longitude: 30.3303 / -89.7623
NS Activity No. 1319189**

Dear Christopher Tissue:

Attached for your records is a copy of the fully executed agreement countersigned by **The Alabama Great Southern Railroad Company** c/o Norfolk Southern Railway Company ("Railway").

For Scheduling of Flagging & Construction Monitoring submit a Protection Services Coordination request online at: <https://ns.railprosspermitting.com>

If you have questions regarding the Protection Service request process, the work plan requirements, or need assistance submitting a request, please send an email to NS.Info@RailPros.com or call (402) 965-0539. It is recommended that the contractor or construction field manager submit the request as information on specific construction means and methods are required. Projects are scheduled only after the construction work plan has been approved. **Entry onto Railway's property without the Division Engineer or their representative's prior approval is considered trespassing.**

Sincerely,

Betsy Williams

Betsy Williams
Real Estate Manager

LICENSE AGREEMENT

THIS LICENSE AGREEMENT (this “Agreement”), dated as of September 11, 2024 (the “Effective Date”) is made and entered into by and between

THE ALABAMA GREAT SOUTHERN RAILROAD COMPANY, ("Railway") a Virginia corporation, whose mailing address is 650 West Peachtree St. Box 22, Atlanta, Georgia 30308 (hereinafter called “Railway”), and **ST. TAMMANY PARISH DEPARTMENT OF UTILITIES**, a(n) Louisiana Government Entity, whose mailing address is 601 North Tyler Street, Covington , Louisiana 70433 (hereinafter called “Licensee”).

WITNESSETH

WHEREAS, Licensee has submitted to Railway an Application (as defined herein) related to the proposed installation and construction of one (1) underground transverse 8" PVC potable water pipeline with a 16" steel casing (hereinafter called the “Facilities”) located in, over or under, and across the right-of-way or property and any tracks of Railway at or near:

- Milepost NO-163.54, Gulf Division
- Latitude 30.3303, Longitude -89.7623
- Alton, St. Tammany County, Louisiana

the same to be located in accordance with and limited to the installation shown on the diagram set forth in **EXHIBIT A**, dated April 17, 2024, attached hereto and made a part hereof (such right-of-way or property of Railway, collectively, the “Premises”); and

WHEREAS, Railway has approved the Application for the initial installation and construction of the Facilities; and

WHEREAS, Licensee desires a license to use such right-of-way or property of Railway for the installation and construction, as well as the subsequent maintenance, operation and removal, of the Facilities.

NOW, THEREFORE, Railway and Licensee agree as follows:

1. **Grant; Consideration; Term.** Subject to Section 2(b) below, Railway hereby grants to Licensee, insofar as Railway has the right to do so, without warranty and subject to all encumbrances, covenants and easements to which the Railway’s title may be subject, the right to use and occupy so much of the Premises as may be necessary for the installation, construction, maintenance, operation and removal of the Facilities (collectively, “Operate” or “Operations”). Upon execution of this Agreement, Licensee shall pay to Railway (i) a non-refundable, non-assignable, one-time license fee in the amount of **TWELVE THOUSAND SEVENTY-FIVE AND 00/100 DOLLARS (\$12,075.00)**, and (ii) if applicable as determined by Railway pursuant to Section 12 below, the Risk Financing Fee (as defined in Section 12). The term of this Agreement shall commence on the Effective Date and shall continue for a period of twenty (20) years, subject to prior termination as hereinafter described (the “Term”).

2. Use and Condition of the Premises.

(a) The Premises shall be used by Licensee only for Operations and for no other purpose. Licensee accepts the Premises in their current “as is” condition, as suited for Operations, and without the benefit of any improvements to be constructed by Railway.

(b) With respect to each Operations project that requires access to the Premises after the initial installation and construction of the Facilities, Licensee shall submit to Railway an application conforming to Railway’s then-current standards and procedures (an “Application”) for review and approval.

3. Installation of the Facilities; Railway Support. Licensee shall, at its expense, Operate the Facilities (i) on a lien-free basis and in such a manner as will not interfere with the operations of Railway, or endanger persons or property of Railway and (ii) in accordance with (a) the plans and specifications (if any) shown on the prints attached hereto and any other specifications prescribed by Railway, (b) applicable laws, regulations, ordinances and other requirements of federal, state and local governmental authorities, and (c) applicable specifications adopted by the American Railway Engineering and Maintenance-of-Way Association, when not in conflict with the applicable plans, specifications, laws, regulations, ordinances or requirements mentioned in clauses (a) and (b) above. All underground pipes must have secondary pipe containment if the material flowing through the pipeline poses a safety or environmental hazard. Any change to the character, capacity or use of the Facilities shall require execution of a new agreement. In the event it becomes necessary for Licensee to deviate from the approved plans and specifications, Licensee shall seek prior approval from Railway’s Division Engineer or his or her authorized representative and, when applicable, an authorized representative of the Division Engineer in the field during Construction Monitoring. Licensee shall provide Railway with complete as-built drawings of the Facilities in an electronic format within thirty (30) days of (i) completion of the initial installation and construction of the Facilities and (ii) completion of any material change to the Facilities.

4. Railway Support. With respect to each Operations project that requires access to the Premises, Railway shall, at Railway’s option, furnish, at the sole expense of Licensee, Support Services. The term “Support Services” means such materials and services as necessary, in Railway’s sole judgment, to support Railway’s tracks and to protect Railway’s traffic, including without limitation flagging services and Construction Monitoring during Operations that require access to the Premises. Support Services shall be provided unless Railway’s Division Engineer or his or her authorized representative provides to Licensee a written waiver of Support Services, whether in whole or in any part, in a given instance. The term “Construction Monitoring” means services comprised of one or more Railway representatives being assigned and present to monitor construction activities of Licensee, which may include a preconstruction site assessment and a post-construction site assessment.

5. Electronic Interference. If the Facilities cause degradation of Railway’s signal, communications and other electronic systems (hereinafter collectively called the “Electronic Systems”) or endanger Railway’s personnel or other individuals entitled to be on or about the

Premises, through inductive or electrostatic interference or otherwise, Licensee, at its expense, will modify the Facilities to the satisfaction of Railway so as to eliminate such degradation or danger. Such modifications may include, without limiting the generality of the foregoing, transposing circuits or providing additional shielding, reactance or other corrective measures deemed necessary by Railway. The provisions of this Section 5 shall apply to the Electronic Systems existing as of the date of this Agreement and to any Electronic Systems that Railway may install in the future.

6. Corrective Measures. If Licensee fails to take any corrective measures requested by Railway in a timely manner, or if an emergency situation is presented which, in Railway's judgment, requires immediate repairs to the Facilities, Railway, at Licensee's expense, may undertake such corrective measures or repairs as it deems necessary or desirable.

7. Railway Changes. If Railway shall make any changes, alterations or additions to the line, grade, tracks, structures, roadbed, installations, right-of-way or works of Railway, or to the character, height or alignment of the Electronic Systems, at or near the Facilities, Licensee shall, upon not less than thirty (30) days prior written notice from Railway and at Licensee's sole expense, make such changes in the location and character of the Facilities as, in the opinion of the chief engineering officer of Railway, shall be necessary or appropriate to accommodate any construction, improvements, alterations, changes or additions of Railway.

8. Assumption of Risk. Unless caused solely by the negligence of Railway or caused solely by the willful misconduct of Railway, Licensee hereby assumes all risk of damage to the Facilities and Licensee's other property relating to its use and occupation of the Premises or business carried on the Premises and any defects to the Premises; and Licensee hereby indemnifies Railway, its officers, directors, agents and employees from and against any liability for such damage.

9. Entry Upon Premises. Licensee shall enter the Premises in any given instance only pursuant to an approved Application. Prior to commencement of any work to be performed on or about the Premises, Licensee shall notify the appropriate Division Engineer or their authorized representative for the scheduling of Support Services as determined pursuant to Section 4 above. Within seventy-two (72) hours after the Division Engineer's actual receipt of such notification, the Division Engineer shall review the necessity and availability of flagmen for the proposed work and advise Licensee of such matters and the estimated cost of Support Services. In the event of an emergency, Licensee shall call the Railway police emergency line at (800) 453-2530. No work shall be permitted on or about the Premises without the presence of Railway's flagman or the Division Engineer's waiver of the requirement for flag protection. Entry on or about the Premises or any other Railway right-of-way without the Division Engineer's prior approval shall be deemed trespassing. Licensee agrees to pay Railway, within thirty (30) days after delivery of an invoice therefor, for the cost of Support Services provided by or on behalf of Railway.

10. Liens; Taxes. Licensee will not permit any mechanic's liens or other liens to be placed upon the Premises, and nothing in this Agreement shall be construed as constituting the consent or request of Railway, express or implied, to any person for the performance of any labor or the furnishing of any materials to the Premises, nor as giving Licensee any right, power or

authority to contract for or permit the rendering of any services or the furnishing of any materials that could give rise to any mechanic's liens or other liens against the Premises. In addition, Licensee shall be liable for all taxes levied or assessed against the Facilities and any other equipment or other property placed by Licensee within the Premises. In the event that any such lien shall attach to the Premises or Licensee shall fail to pay such taxes, then, in addition to any other right or remedy available to Railway, Railway may, but shall not be obligated to, discharge the same. Any amount paid by Railway for any of the aforesaid purposes, together with related court costs, attorneys' fees, fines and penalties, shall be paid by Licensee to Railway within ten (10) days after Railway's demand therefor.

11. Indemnification. Licensee hereby agrees to indemnify and save harmless Railway, its officers, directors, agents and employees, from and against any and all liabilities, claims, losses, damages, expenses (including attorneys' fees) or costs for personal injuries (including death) and property damage to whomsoever or whatsoever occurring (hereinafter collectively, "Losses") that arise in any manner from (a) the presence of the Facilities on or about the Premises, (b) any Operations or any failure to conduct Operations properly, or (c) any act, omission or neglect of Licensee, its agents, servants, employees or contractors in connection therewith, unless caused solely by the negligence of Railway or caused solely by the willful misconduct of Railway.

12. Insurance.

(a) Insurance Requirements. Without limiting in any manner the liability and obligations assumed by Licensee under any other provision of this Agreement, and as additional protection to Railway, Licensee shall comply with the following provisions:

(i) Subject to subsection (ii) below, upon execution of this Agreement, Licensee shall pay Railway a risk financing fee of \$1,900 (the "Risk Financing Fee") to provide Railroad Protective Liability Insurance or such supplemental insurance (which may be self-insurance) as Railway, in its sole discretion, deems to be necessary or appropriate with respect to the initial construction and installation of the Facilities.

(ii) Prior to commencement of each Operations project that requires access to the Premises, unless Railway elects to make available and Licensee pays the then-current Risk Financing Fee for a given Operations project, Licensee shall furnish Railway with an original Railroad Protective Liability ("RPL") Insurance Policy naming Railway as the named insured and having a limit of (1) not less than a combined single limit of \$2,000,000 each occurrence and \$6,000,000 aggregate, or (2) if the value of a given operations project exceeds \$350,000, not less than a combined single limit of \$5,000,000 per occurrence and \$10,000,000 in the aggregate. Each RPL policy shall conform to CG 00 35 04 13 or equivalent and include coverage for Terrorism and the Physical Damage to Property Endorsement and shall name Norfolk Southern Corporation and its affiliates and subsidiaries as the insured. Licensee shall ensure that the project location, Licensee identification and work description appear on the declaration pages of a given RPL policy. Licensee shall provide an electronic copy of each RPL policy (and not merely the binder) to Railway at ns.permitting@railpros.com for review and approval prior to commencing any work on the associated Operations project. Licensee may

submit inquiries about RPL issues at ns.permitting@railpros.com.

(iii) Licensee shall maintain a Commercial General Liability (“CGL”) policy containing products and completed operations and contractual liability coverage, with a combined single limit of not less than \$2,000,000 for each occurrence. Any portion of this requirement may be satisfied by a combination of General Liability and/or Excess/Umbrella Liability Coverage. The policy shall not deny any obligation of any insured under the Federal Employer’s Liability Act, as amended. The CGL policy shall provide additional insured coverage equivalent to ISO CG 20 10 11/85.

(iv) Licensee shall maintain Automobile Liability Insurance with a current ISO occurrence form policy (or equivalent) and apply on an “any auto” (Symbol 1) basis, including coverage for all vehicles used in connection with the Work or Services on the leased property, providing annual limits of at least \$1,000,000 per occurrence for bodily injury and property damage combined including uninsured and underinsured motorist coverage, medical payment protection, and loading and unloading.

(v) Licensee shall maintain Workers’ Compensation Insurance to meet fully the requirement of any compensation act, plan or legislative enactment applicable in connection with the death, disability or injury of Licensee’s officers, agents, servants or employees arising directly or indirectly out of the performance of this Agreement;

(vi) Licensee shall maintain Employers’ Liability Insurance with limits of not less than \$1,000,000 each accident \$1,000,000 policy limit for disease, and \$1,000,000 each employee for disease;

(b) General Insurance Requirements. Each insurance policy referred to in subsection (a) above shall also comply with the following requirements:

(i) Additional Insureds. Each insurance policy (excluding any RPL policy and Workers’ Compensation policy) shall name Railway and its parent, subsidiary and affiliated companies as additional insureds with an appropriate endorsement to each policy.

(ii) Licensee’s Coverage Primary and Without Right to Contribution. All policies secured by Licensee, whether primary, excess, umbrella or otherwise, and providing coverage to the Railway as an additional insured (1) are intended to take priority in responding and to pay before any insurance policies Railway may have secured for itself must respond or pay and (2) may not seek contribution from any policies the Railway may have secured for itself.

(iii) Severability of Interests (Cross Liability). No cross-liability exclusions are permitted that would apply to the additional insureds, and there may not be any restrictions in any policy that limits coverage for a claim brought by an additional insured against a named insured.

(iv) Waiver of Subrogation. To the fullest extent permitted by law, all insurance furnished by Licensee pursuant to this Agreement shall include a waiver of subrogation in favor of Railway with an appropriate endorsement to each policy.

(v) Notice of Cancellation, Modification or Termination. Each insurance policy shall not be subject to cancellation, termination, modification, changed, or non-renewed except upon thirty (30) days' prior written notice to the additional insureds.

(vi) No Limitation. Each insurance policy shall not limit any of Licensee's indemnity obligations or other liabilities under this Agreement. The insurance available to Railway and its parent, subsidiary and affiliated companies as additional insureds shall not be limited by these requirements should Licensee maintain higher coverage limits.

(vii) Any deductibles or self-insured retentions of Licensee over \$50,000 must be declared and approved by Railway. Approval of such requests shall not be unreasonably withheld.

(viii) Licensee shall require all subcontractors who are not covered by the insurance carried by Licensee to maintain the insurance coverages set forth in subsection (a) above, except for the RPL insurance, including but not limited to additional insured status for Railway and its parent, subsidiary and affiliated companies.

(ix) Licensee shall furnish their memorandum of insurance and the RPL Insurance Policy to Railway's Managing Agent prior to execution of this Agreement at ns.permitting@railpros.com. The insurance coverage required herein shall in no way limit Licensee's liability under this Agreement.

13. Environmental Matters. Licensee assumes all responsibility for any environmental obligations imposed under applicable laws, regulations, ordinances or other requirements of federal, state and local governmental authorities relating to (a) any Operations, including notification and reporting of any releases, and (b) any contamination of any property, water, air or groundwater arising or resulting, in whole or in part, from Licensee's operation or use of the Premises pursuant to this Agreement. In addition, Licensee shall obtain any necessary permits to conduct Operations. Licensee agrees to indemnify and hold harmless Railway from and against any and all fines, penalties, demands or other Losses (including attorneys' fees) incurred by Railway or claimed by any person, company or governmental entity relating to (a) any contamination of any property, water, air or groundwater due to the use or presence of the Facilities on the Premises, (b) Licensee's violation of any laws, regulations or other requirements of federal, state or local governmental authorities in connection with the use or presence of the Facilities on the Premises or (c) any violation of Licensee's obligations imposed under this Section. Without limitation, this indemnity provision shall extend to any cleanup and investigative costs relating to any contamination of the Premises arising or resulting from, in whole or in part, Licensee's use of the Facilities or any other activities by or on behalf of Licensee occurring on or about the Premises. Licensee further agrees not to dispose of any trash, debris or wastes, including hazardous waste, on the Premises and will not conduct any activities on the Premises which would require a hazardous waste treatment, storage or disposal permit.

14. Assignments and Other Transfers.

(a) Licensee shall not assign, transfer, sell, mortgage, encumber, sublease or otherwise convey (whether voluntarily, involuntarily or by operation of law) this Agreement or any interest therein, nor license, mortgage, encumber or otherwise grant to any other person or entity (whether voluntarily, involuntarily or by operation of law) any right or privilege in or to the Premises (or any interest therein), in whole or in part, without the prior written consent of Railway, which consent may be withheld by Railway in its sole discretion. Any such assignment or other transfer made without Railway's prior written consent shall be null and void and, at Railway's option, shall constitute an immediate default of this Agreement. Notwithstanding the foregoing, upon prior written notice to Railway, Licensee may assign this Agreement to a parent, a wholly-owned subsidiary of Licensee or a wholly-owned subsidiary of Licensee's parent without Railway's consent; provided, however, that no such assignment shall relieve Licensee of its obligations under this Agreement.

(b) Railway shall have the right to transfer and assign, in whole or in part, all its rights and obligations hereunder and in or to the Premises. From and after the effective date of any such assignment or transfer, Railway shall be released from any further obligations hereunder; and Licensee shall look solely to such successor-in-interest of Railway for the performance of the obligations of "Railway" hereunder.

15. Meaning of "Railway". The word "Railway" as used herein shall include any other company whose property at the aforesaid location may be leased or operated by Railway. Said term also shall include Railway's officers, directors, agents and employees, and any parent company, subsidiary or affiliate of Railway and their respective officers, directors, agents and employees.

16. Default; Remedies.

(a) The following events shall be deemed to be events of default by Licensee under this Agreement:

(i) Licensee shall fail to pay the Fee or any other sum of money due hereunder and such failure shall continue for a period of ten (10) days after the due date thereof;

(ii) Licensee shall fail to comply with any provision of this Agreement not requiring the payment of money, all of which terms, provisions and covenants shall be deemed material, and such failure shall continue for a period of thirty (30) days after written notice of such default is delivered to Licensee;

(iii) Licensee shall become insolvent or unable to pay its debts as they become due, or Licensee notifies Railway that it anticipates either condition;

(iv) Licensee takes any action to, or notifies Railway that Licensee intends to file a petition under any section or chapter of the United States Bankruptcy Code, as

amended from time to time, or under any similar law or statute of the United States or any State thereof; or a petition shall be filed against Licensee under any such statute; or

(v) A receiver or trustee shall be appointed for Licensee's license interest hereunder or for all or a substantial part of the assets of Licensee, and such receiver or trustee is not dismissed within sixty (60) days of the appointment.

(b) Upon the occurrence of any event or events of default by Licensee, whether enumerated in this Section or not, Railway shall have the option to pursue any remedies available to it at law or in equity without any additional notices to Licensee. Railway's remedies shall include, but not be limited to, the following: (i) termination of this Agreement, in which event Licensee shall immediately surrender the Premises to Railway; (ii) entry into or upon the Premises to do whatever Licensee is obligated to do under the terms of this License, in which event Licensee shall reimburse Railway on demand for any expenses which Railway may incur in effecting compliance with Licensee's obligations under this License, but without rendering Railway liable for any damages resulting to Licensee or the Facilities from such action; and (iii) pursuit of all other remedies available to Railway at law or in equity, including, without limitation, injunctive relief of all varieties.

17. Railway Termination Right. Notwithstanding anything to the contrary in this Agreement, Railway shall have the right to terminate this Agreement and the rights granted hereunder, after delivering to Licensee written notice of such termination no less than sixty (60) days prior to the effective date thereof, upon the occurrence of any one or more of the following events:

(a) If Licensee shall fail to install the Facilities within one (1) year from the date of the Agreement, or if Licensee shall discontinue the use or operations of the Facilities for one (1) year; or

(b) If Railway shall be required by any governmental authority having jurisdiction over the Premises to remove, relocate, reconstruct or discontinue operation of its railroad on or about the Premises; or

(c) If Railway, in the good faith judgment of its Superintendent, shall require a change in the location or elevation of its railroad on or about the location of the Facilities or the Premises that might effectively prohibit the use or operation of the Facilities; or

(d) If Railway, in the good faith judgment of its Superintendent, determines that one or more aspects of Operations unduly interfere with the operation and maintenance of the facilities of Railway, or with the present or future use of such property by Railway, its lessees, affiliates, successors or assigns, for their respective purposes.

18. Condemnation. If the Premises or any portion thereof shall be taken or condemned in whole or in part for public purposes, or sold in lieu of condemnation, then this Agreement and the rights granted to Licensee hereunder shall, at the sole option of Railway, forthwith cease and terminate. All compensation awarded for any taking (or sale proceeds in lieu thereof) shall be the property of Railway, and Licensee shall have no claim thereto, the same being hereby expressly waived by Licensee.

19. Removal of Facilities; Survival. The Facilities are and shall remain the personal property of Licensee. Upon the expiration or termination of this Agreement, Licensee shall remove the Facilities from the Premises within thirty (30) days after the effective date thereof. In performing such removal, unless otherwise directed by Railway, Licensee shall restore the Premises to the same condition as existed prior to the installation or placement of Facilities, reasonable wear and tear excepted. In the event Licensee shall fail to so remove the Facilities or restore the Premises, the Facilities shall be deemed to have been abandoned by Licensee, and the same shall become the property of Railway for Railway to use, remove, destroy or otherwise dispose of at its discretion and without responsibility for accounting to Licensee therefor; provided, however, in the event Railway elects to remove the Facilities, Railway, in addition to any other legal remedy it may have, shall have the right to recover from Licensee all costs incurred in connection with such removal and the restoration of the Premises. Notwithstanding anything to the contrary contained in this Agreement, the expiration or termination of this Agreement, whether by lapse of time or otherwise, shall not relieve Licensee from Licensee's obligations accruing prior to the expiration or termination date, and such obligations shall survive any such expiration or other termination of this Agreement.

20. Entire Agreement. This Agreement contains the entire agreement of Railway and Licensee and supersedes any prior understanding or agreement between Railway and Licensee respecting the subject matter hereof, and no representations, warranties, inducements, promises or agreements, oral or otherwise, between the parties not embodied in this Agreement shall be of any force or effect.

21. Attorneys' Fees. If Railway should bring any action under this Agreement or consult or place the Agreement or any amount payable by Licensee hereunder, with an attorney concerning or for the enforcement of any of Railway's rights hereunder, then Licensee agrees in each and any such case to pay to Railway all costs, including but not limited to court costs and attorneys' fees, incurred in connection therewith.

22. Severability. If any clause or provision of this Agreement is illegal, invalid or unenforceable under present or future laws effective during the Term, then and in that event, it is the intention of the parties hereto that the remainder of this Agreement shall not be affected thereby; and it is also the intention of the parties to this Agreement that in lieu of each clause or provision of this Agreement that is illegal, invalid or unenforceable, there be added as a part of this Agreement a clause or provision as similar in terms to such illegal, invalid or unenforceable clause or provision as may be possible and be legal, valid and enforceable.

23. Modifications; Waiver; Successors and Assigns. This Agreement may not be altered, changed or amended, except by instrument in writing signed by both parties hereto. No provision of this Agreement shall be deemed to have been waived by Railway unless such waiver shall be in a writing signed by Railway and addressed to Licensee, nor shall any custom or practice that may evolve between the parties in the administration of the terms hereof be construed to waive or lessen the right of Railway to insist upon the performance by Licensee in strict accordance with the terms hereof. The terms and conditions contained in this Agreement shall apply to, inure to the benefit of, and be binding upon the parties hereto, and upon their respective successors in interest and legal representatives, except as otherwise herein expressly provided. If there shall be

more than one Licensee, the obligations hereunder imposed upon Licensee shall be joint and several.

24. Notice. Any and all other notices, demands or requests by or from Railway to Licensee, or Licensee to Railway, shall be in writing and shall be sent by (a) postage paid, certified mail, return receipt requested, or (b) a reputable national overnight courier service with receipt therefor, or (c) personal delivery, and addressed in each case as follows:

If to Railway:
c/o Norfolk Southern Corporation
650 West Peachtree Street, Box 22
Atlanta, Georgia 30308
Attention: Director Real Estate

If to Licensee:
ST. TAMMANY PARISH DEPARTMENT OF UTILITIES
601 North Tyler Street
Covington, Louisiana 70433
Attention: Christopher Tissue

Either party may, by notice in writing, direct that future notices or demands be sent to a different address. All notices hereunder shall be deemed given upon receipt (or, if rejected, upon rejection).

25. Miscellaneous. Time is of the essence with regard to each provision of this Agreement. This Agreement shall be construed and interpreted in accordance with and governed by the laws of the State in which the Premises are located. Each covenant of Railway and Licensee under this Agreement is independent of each other covenant under this Agreement. No default in performance of any covenant by a party shall excuse the other party from the performance of any other covenant. The provisions of this Agreement that, by their nature, are intended to survive the expiration or earlier termination of this Agreement, including Sections 8, 10, 11, 13 and 19, shall so survive.

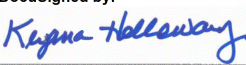
26. Limitations of Grant. Licensee acknowledges that the license granted hereunder is a quitclaim grant, made without covenants, representations or warranties with respect to Railway's (a) right to make the grant, (b) title in the Premises, or (c) right to use or make available to others the Premises for the purposes contemplated herein. Railway is the owner and/or holder of the Premises subject to the terms and limitations under which it is owned or held, including without limitation conditions, covenants, restrictions, easements (including any pre-existing fiber optic easements or licenses), encroachments, leases, licenses, permits, mortgages, indentures, reversionary interests, fee interests, zoning restrictions and other burdens and limitations, of record and not of record, and to rights of tenants and licensees in possession, and Licensee agrees that the rights licensed hereunder are subject and subordinate to each and all of the foregoing. Licensee accepts this grant knowing that others may claim that Railway has no right to make it, and Licensee agrees to release, hold harmless and indemnify (and, at Railway's election, defend, at Licensee's sole expense, with counsel approved by Railway) Railway, its affiliated companies, and its and their respective officers, directors, agents and employees, from and against any detriments to, or

liabilities of, any type or nature arising from such claims, including punitive damages and any forfeitures declared or occurring as a result of this grant.

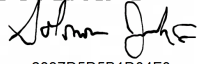
27. Limitations Upon Damages. Notwithstanding any other provision of this Agreement, Railway shall not be liable for breach of this Agreement or under this Agreement for any consequential, incidental, exemplary, punitive, special, or business damages or lost profits, or for any claims for death, personal injury, and property loss and damage which occurs by reason of, or arises out of, or is incidental to the interruption in or usage of the Facilities placed upon or about the Premises by Licensee, including without limitation any damages under such claims that might be considered consequential, incidental, exemplary, punitive, special, or business damages or lost profits. It is understood and agreed by Licensee that Railway cannot and will not make any warranties, representations or guarantees that Licensee's communication system (if any), as located on Railway's property, will not be interrupted.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement in duplicate, each part being an original, as of the date first above written.

Witness:

DocuSigned by:

 953F8C948034405...
 As to Railway

**THE ALABAMA GREAT SOUTHERN
RAILROAD COMPANY**

By: 
 2837D5D5B1D04F0...
 Real Estate Manager

Witness:


 As to Licensee SARAH MEYER

**ST. TAMMANY PARISH
GOVERNMENT**

By: 
 Michael B. Cooper, President

Activity Number: 1319189
 VAt: 04/20/2024

DS


The Alabama Great Southern Railroad Company

Accompanying Agreement With

St. Tammany Parish Department of Utilities

Activity No.: 1319189

Division: Gulf

Val Sec: 1

City: Alton

State: Louisiana

Lat: 30.3303

E.S.: 36+80

Mile Post: NO-163.54

Map No.: 3

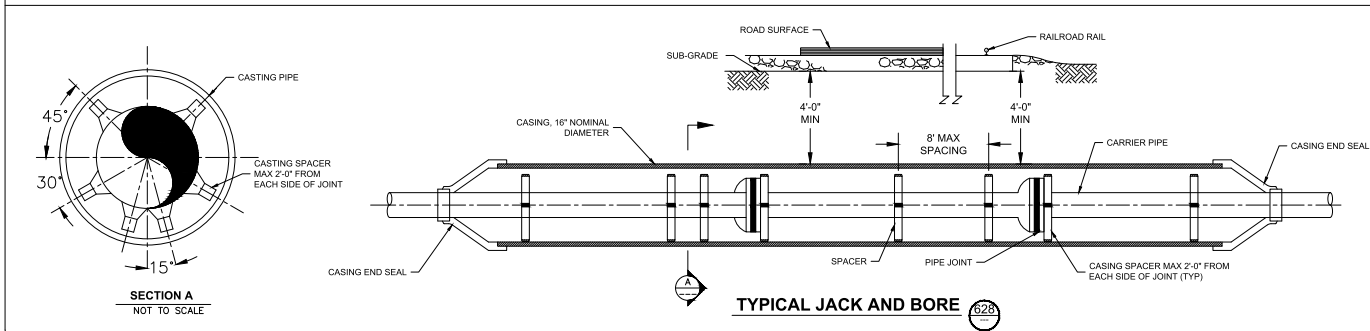
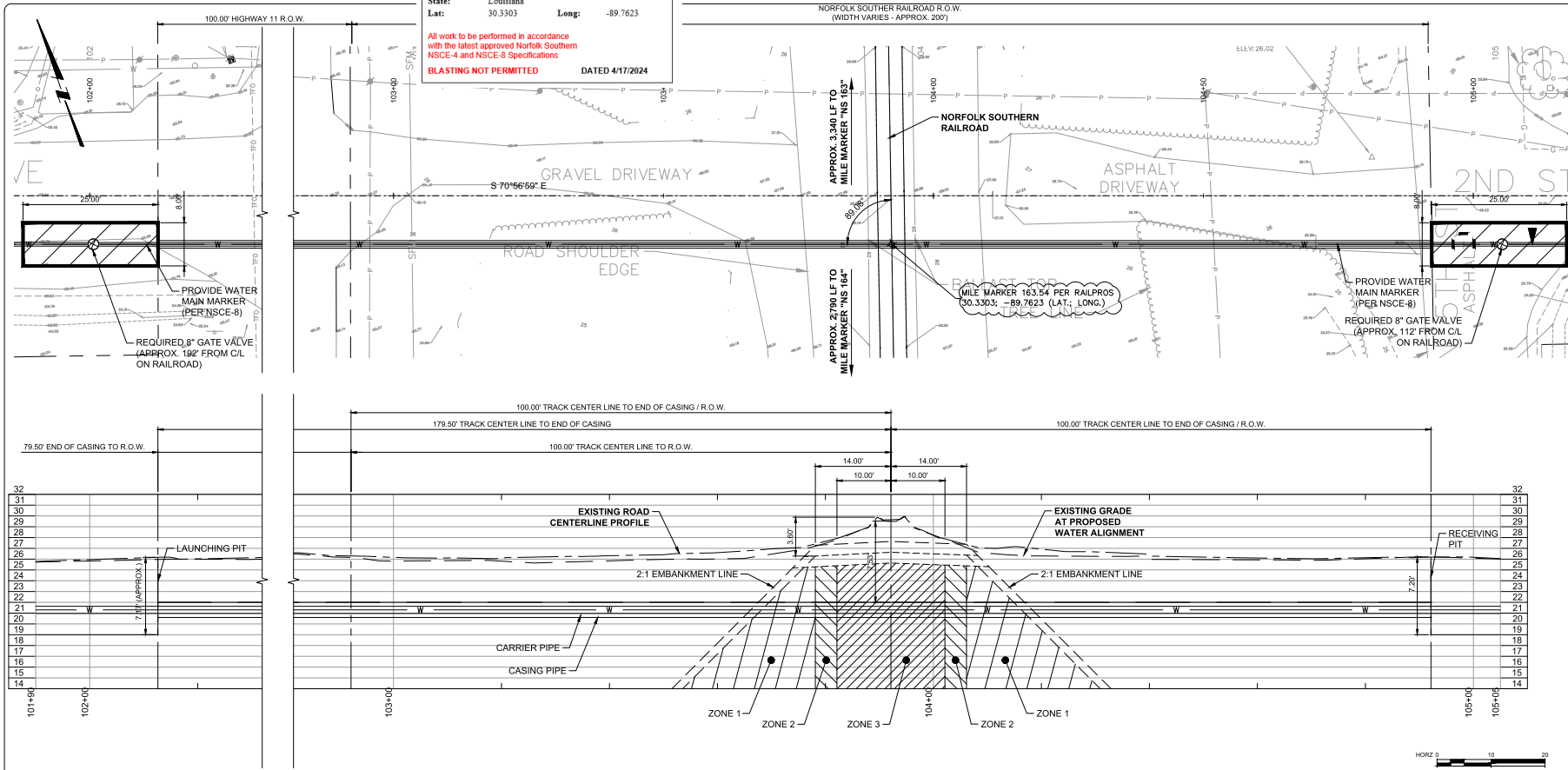
County: St. Tammany

Long: -89.7623

All work to be performed in accordance with the latest approved Norfolk Southern NSCE-4 and NSCE-8 Specifications

BLASTING NOT PERMITTED

DATED 4/17/2024



ST. TAMMANY PARISH GOVERNMENT
DEPARTMENT OF UTILITIES
601 NORTH TYLER STREET
COVINGTON, LOUISIANA
CONTACT 985 - 893 - 1717 IN CASE OF EMERGENCY
POTABLE WATER PIPELINE 90 PSI

NOTES:

1. CONSTRUCT SIGN OF ALUMINUM, BLACK LEGEND ON WHITE BACKGROUND. ALL TYPEFACE TO BE 1\"/>

DEPT. OF UTILITIES
ST. TAMMANY PARISH GOVERNMENT
620 N. TYLER STREET
COVINGTON, LA 70433

DATE:					
04/02/24					
03/19/24					
10/19/23					
02/14/23					

No.	DESCRIPTION OF REVISION
4	PERMIT DELIVERABLE (REVISIONS)
3	PERMIT DELIVERABLE (REVISIONS)
2	PERMIT DELIVERABLE
1	60% DESIGN SUBMITTAL

DESIGNED BY: MSL	CHECKED BY: DJ	ISSUE DATE: 02/14/2023
DRAWN BY: DJ	SUBMITTED BY: FARWAY CE	APPROVED BY: [Signature]
PROJECT No.: TU21000154	PROJECT No.: TU21000154	SHEET SIZE: ANSI D 34x22

ALTON WATER SYSTEM
INTERCONNECTION
SLIDELL, LOUISIANA
PROJECT No.: TU21000154

RAILROAD PROFILE

SHEET NO.
C-101

SHEET 6 of 22

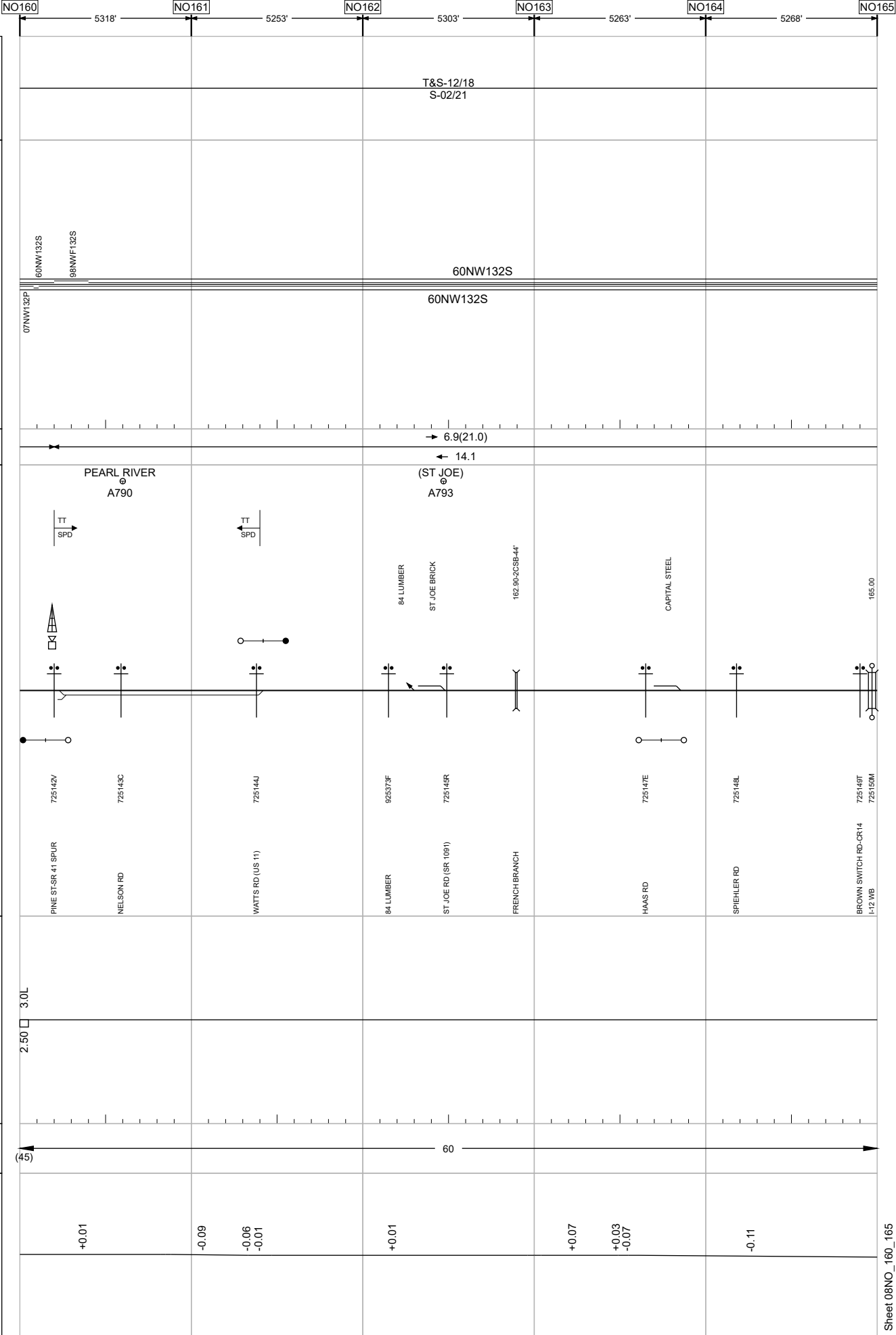
PIPE DATA SHEET

	CARRIER PIPE	CASING PIPE
CONTENTS TO BE HANDLED	Potable Water	N/A
MAX. ALLOWABLE OPERATING PRESSURE	N/A	N/A
NOMINAL SIZE OF PIPE	8	16
OUTSIDE DIAMETER	9.05	16
INSIDE DIAMETER	8	15.438
WALL THICKNESS	0.535	0.281 min
WEIGHT PER FOOT	9.2	
MATERIAL	C900 PVC	Steel
PROCESS OF MANUFACTURE	Extrusion	Electric Resistance Welding
SPECIFICATION	AWWA C900	ASTM A53 GradeB
GRADE OR CLASS (Specified Minimum Yield Strength)	SDR 18	35,000
TEST PRESSURE	100PSI	N/A
TYPE OF JOINT	Mechanical Joint Fully Restrained	Electric Resistance Weld
TYPE OF COATING	None	Asphalt coating
DETAILS OF CATHODIC PROTECTION	None	N/A
DETAILS OF SEALS OR PROTECTION AT END OF CASING	N/A	Brick and Mortar
CHARACTER OF SUBSURFACE MATERIAL		
APPROXIMATE GROUND WATER LEVEL		
SOURCE OF INFORMATION ON SUBSURFACE CONDITIONS		

Proposed method of installation (refer to NSCE-8 Specification):

- ☒ Bore & Jack
- ☐ Jacking
- ☐ Tunneling (with Tunnel Liner Plate)
- ☐ Directional Bore/Horizontal Direction Drilling – Method A
- ☐ Directional Bore/Horizontal Direction Drilling – Method B
- ☐ Open Cut – *All installations directly under any track must be designed as a bored installation. Open cut installations will be considered on a case-by-case basis by Norfolk Southern's Division Superintendent at the time of installation.*
- ☐ Other – Please Specify: _____

NO&NE



Sheet 08NO_160_165

Attachment - B

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

PERMIT NUMBER 8-2035136
CONTROL 018 SECTION 04

INITIAL AND DATE

STATE OF LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

UTILITY PERMIT

(Required by State Law) Rev 3/23

A copy of this permit shall be available at the site where and when work is performed.

Whereas St. Tammany Parish Gov. Department of Utilities

(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. US 11

in St. Tammany Parish, located as follows:

from: West side of Intersection of US 11 and N. 2nd Ave. / Hwy 1091 Lat: 30.330467 Long: -89.762726
to: East side of Intersection of US 11 and N. 2nd Ave. / South 1.05 mile Lat: 30.330424 Long: -89.762574

(in Decimal Degrees, e.g. Lat: 30.459, Long: -91.178)

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

Installation of an interconnecting water main between Atton and Resolve water systems. Installation will begin along N. 2nd Ave. and will consist of jack and bore across US-11 and Norfolk Southern railroad tracks. The water main will consist of 8" PVC pipe with a 16" steel casing. The entire stretch of water main that will be located within DOTD right of way will include casing.

Estimated number of times this facility will be accessed each year after construction has been completed, including meter readings: Est. 12

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 Attachment A and the following conditions (use additional sheets as necessary):

Permit ONLY Covers Dotd Right of Way **CALL BEFORE YOU DIG 800-272-3020**

RECOMMENDED FOR APPROVAL

(Check box if review required)

Egon M. [Signature] 10-27-23
☒ District Permit Specialist / Date

(Signed)

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

Christopher Tissue 10/26/23
(Owner) (Date)

☐ District Traffic Operation Engineer / Date
(Printed or Typed)

Christopher Tissue P.E.

(Name of Person Signing Permit)

Director - Department of Utilities

(Title)

620 N. Tyler Street

(Street or P.O. Box)

Covington LA 70433

(City or Town) (State) (Zip Code)

985-893-1717

(Telephone Number)

ctissue@stogov.org

(E-mail Address)

☐ District Administrator (or Designee) / Date
Print Name Imp Grant Berne

3 DAYS
Applicant must notify District Permit Specialist at phone number: 985-325-0195 prior to beginning work and after work is completed.

Final inspection and approval by: _____

Issue Date: 10-27-23

Installation to be completed by: 4-27-24
(Date)

DOTD APPROVAL:

[Signature] 10/27/23
Headquarters Right-of-Way Permit Engineer / Date or

District Administrator (or Designee) / Date

Print Name Yvonne D. Branton

HEADQUARTERS (original)

pc DISTRICT

pc PERMITTEE
Page 1 of 5

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 any time 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 shall 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 EDSM IV 2.1.6 and Vegetation Manual, as revised.

SEVENTH: The applicant shall indemnify and save harmless the Department, its officers, agents, employees, contractors and assigns against any and all costs, expenses, claims, losses, liabilities, demands, suits, causes of action, damages, and judgments of any sums of money to any party accruing against the Department, its officers, agents, employees, contractors and assigns, growing out of, resulting from, or by reason of the presence or operation of the proposed facilities or any act or omission of the applicant, its officers, employees, agents, contractors and assigns while engaged in, about, or in connection with the discharge or performance of the terms of this permit or the operation, maintenance and use of the proposed facilities, whether by the applicant or third parties. Such indemnification shall include, without limitation, attorney's fees, court costs, fines, penalties, legal, consulting, accounting, engineering, and other expenses. The applicant shall provide and bear the expenses of all personal, professional, or other applicable insurance related to its ownership and operation of the proposed facilities and its duties arising under the permit.

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 insofar 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 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.

ATTACHMENT A

The applicant/permittee hereby acknowledges and agrees that the following, additional special conditions and standards shall apply:

FIRST: That, the applicant/permittee shall not conduct any activities within twenty (20) feet from the edge of travel lane without written authorization obtained by the LA DOTD.

SECOND: That, the applicant/permittee expressly shall not have the authority to close a lane, unless granted by the LA DOTD.

THIRD: That, for regularly scheduled maintenance, the applicant/permittee shall notify the LA DOTD in writing of any access to the right-of-way, at least fourteen (14) days in advance when such access is for regularly scheduled maintenance. Applicant/permittee acknowledges that the failure to comply with these notification requirements may result in permit revocation.

FOURTH: That, for emergency maintenance, the applicant/permittee shall notify the LA DOTD in writing of any access to the right-of-way as soon as is practically known, but in any event, at least concurrently with the emergency event. Applicant/permittee acknowledges that the failure to comply with these notification requirements may result in permit revocation.

FIFTH: That, the applicant/permittee's access to right-of-way shall be in compliance with all existing laws and regulations and shall not adversely impact traffic.

SIXTH: That, the applicant/permittee shall be responsible for all of LA DOTD's assets that are damaged or affected in any manner, and shall be required to restore the right-of-way and/or affected facility to the condition that it was previously in prior to access.

PERMIT NUMBER **62035136**
CONTROL **018** SECTION **04**

STATE OF LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
UTILITY PERMIT SUPPLEMENT
Rev 1/17

PIPE DATA SHEET

Highway No. **US 11** Owner of Proposed Facility **St. Tammany Parish Gov. Dept. of Utilities**

Data	Carrier Pipe	Casing (If Used)
Contents to be handled	Potable Water	Potable Water
Pipe Material	PVC	Steel
Specification & Grade of Pipe	AWWA C900	ASTM A53 (B)
Outside Diameter (inches)	9.05-in	16.0 in
Dimension Ratio (DR) for Non-Metallic Pipe	DR 18	N/A
Nominal Pipe Size (NPS) (inches)	8-in	16-in
Wall Thickness(inches)	0.535-in	0.375 in
Specified Minimum Yield Strength (SMYS) (PSI)	7,000 psi	35,000 psi
Average Temperature of Transmittant	73° F	73° F
Hydrostatic Design Basis (HDB) (PSI) for Non-Metallic Carrier Pipe	4000 psi	N/A
*^Maximum Allowable Operating Pressure (MAOP) (PSI)	N/A	N/A
Surge Pressure Allowance (PSI) for Pipe Carrying Liquid	100 psi	N/A
^Class Location	12454	N/A
Type of Joint (welded, mechanical, etc.)	Mechanical	Welded
Method of Installation (bore, open cut, horizontal directional drilling, etc.)	Bore	Jack and bore
Location (crossing or parallel)	Crossing	Crossing
Crossing Angle (if crossing highway)	90°	90°
Minimum Depth beneath roadway surface (feet)	N/A	N/A
Minimum Depth beneath ditches or drainage structures (feet)	N/A	N/A
Pipe Vertical Deflection by Spangler Equation (inches)	0.043	0.113 in
Coating Material	N/A	N/A
Cathodic Protection	N/A	N/A

*This is not design pressure. MAOP is the highest pressure a pipeline may be operated under US DOT regulations.

^Required for all pipelines (liquid and gas) except those not regulated by US DOT (i.e. water, sewage, brine, etc.).

This proposed installation is in compliance with Louisiana Department of Transportation and Development Standards.

Christy Turner

(Signature of Owner, required)

Headquarters (original)

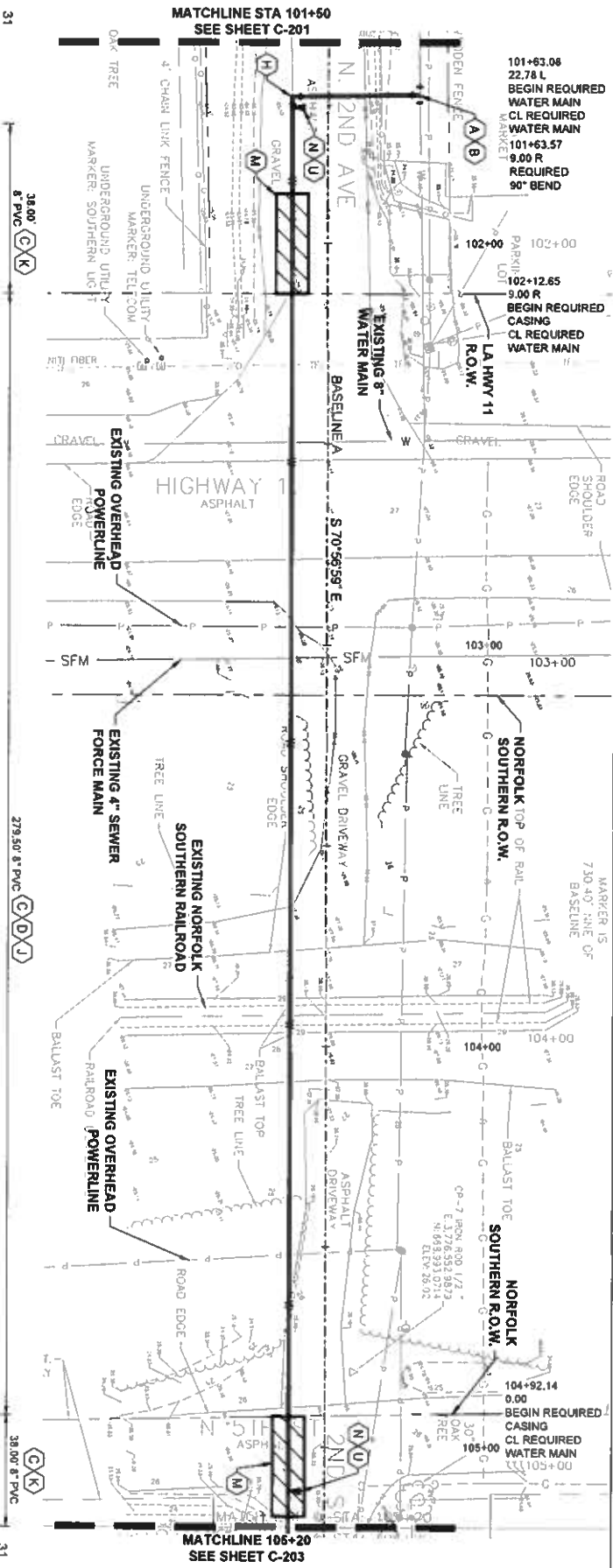
10/26/23

(Date)

pc: District

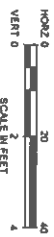
pc: Permittee

Page 1 of 1



STATION	101+50	102+00	103+00	104+00	105+00	105+20
EXIST GND EL		25.83	25.83	28.20	26.09	25.41
PIPE GEOMETRY	101+63.57					
PIPE ELEV DATA (COVER INV)	4.07(C) 20.97(I)					4.09(C) 20.97(I)

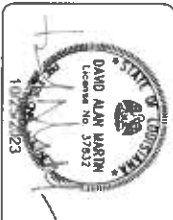
- PLAN AND PROFILE GENERAL NOTES**
- TOPOGRAPHIC AND APPARENT RIGHT-OF-WAY INFORMATION TAKEN FROM SURVEY PREPARED BY ALL SOUTH CONSULTING ENGINEERS, L.L.C. DATED 12/29/2022.
 - AT EACH LOCATION WHERE THE REQUIRED WATER PIPELINE CROSSES AN EXISTING UTILITY OR WHERE IT TIES INTO AND EXISTING UTILITY, CONDUCT EXPLORATORY EXCAVATIONS AS NECESSARY TO POSITIVELY DETERMINE LOCATION, ELEVATION, AND SIZE OF UTILITY. CONDUCT SUCH EXPLORATORY EXCAVATIONS AND REPORT FINDINGS TO ENGINEER PRIOR TO ANY HORIZONTAL DIRECTIONAL DRILLING OPERATIONS.
 - COORDINATE WITH THE ENGINEER IN ADJUSTING THE ALIGNMENT OF THE REQUIRED PIPELINE TO MAINTAIN REQUIRED CLEARANCES. THE CONTRACTOR WILL NOT BE ENTITLED TO ANY ADJUSTMENT IN PAY FOR SUCH ADJUSTMENTS EXCEPT FOR ADDITIONAL QUANTITIES.
 - INSTALL THRUST BLOCKING AT ALL FITTINGS PER DETAIL.
 - PROVIDE BEDDING AND BACKFILL FOR ALL PIPELINES INSTALLED BY OPEN CUT PER DETAILS.
 - PROVIDE TEMPORARY TRAFFIC CONTROL PER ACCEPTED SPECIFICATIONS AND MINIMUM STANDARDS FOR TRAFFIC CONTROL FOR ADDITIONAL REQUIREMENTS.
 - PIPE SIZES NOTED ON PLANS REFERENCE NOMINAL PIPE DIAMETER.
- PLAN AND PROFILE NOTES BY SYMBOLS**
- A. BEGIN REQUIRED WATER PIPELINE (REFER TO DETAIL).
 - B. PRIOR TO PROCUREMENT OF TRANSITION SLEEVES AND ADAPTERS, CONDUCT EXPLORATORY EXCAVATION TO DETERMINE TYPE OF PIPE, ELEVATION OUTSIDE DIAMETER AND LOCATION OF PIPE TO BE JOINED. REPORT FINDINGS TO ENGINEER PRIOR TO PROCUREMENT OF MATERIALS FOR CONNECTION.
 - C. REQUIRED WATER PIPELINE
 - D. REQUIRED 16" I.D. STEEL CASING
 - E. REQUIRED FULLY RESTRAINED ELBOW (11.25')
 - F. REQUIRED FULLY RESTRAINED ELBOW (22.5')
 - G. REQUIRED FULLY RESTRAINED ELBOW (45')
 - H. REQUIRED FULLY RESTRAINED ELBOW (90')
 - I. REQUIRED FULLY RESTRAINED GATE VALVE WITH STEM EXTENSION PER DETAIL
 - J. WATER PIPELINE TO BE INSTALLED BY JACK AND BORE
 - K. WATER PIPELINE TO BE INSTALLED BY OPEN CUT
 - L. CASING END SEAL
 - M. REQUIRED LAUNCHING AND RECEIVING PIT FOR HORIZONTAL DIRECTIONAL DRILL
 - N. REQUIRED AIR RELEASE VALVE AND VAULT PER DETAIL
 - O. END REQUIRED WATER PIPELINE
 - P. REMOVE AND DISPOSE OF PORTLAND CEMENT CONCRETE PAVEMENT FROM JOINT TO JOINT. VERIFY LIMITS WITH ENGINEER PRIOR TO REMOVAL.
 - Q. REQUIRED RESTORATION OF PORTLAND CEMENT CONCRETE PAVEMENT AND CURBS PER DETAIL
 - R. REQUIRED SERVICE CONNECTION STUB OUT PER DETAIL
 - S. CONTRACTOR TO POT-HOLE UTILITY TO VERIFY SIZE, MATERIAL, TYPE, AND VERTICAL AND HORIZONTAL LOCATION
 - T. REQUIRED WATER MAIN MARKER PER DETAIL
 - U. FIELD ROUTE ARV PIPING TO RIGHT-OF-WAY AS DIRECTED PER ENGINEER.



SHEET NO.
C-202
SHEET 7 of 22

ALTON WATER SYSTEM
INTERCONNECTION
SLIDELL, LOUISIANA
PROJECT No.: TU21000154

PROPOSED WATER MAIN
PLAN AND PROFILE
2ND STREET-II



DESIGNED BY: MSL
DRAWN BY: DJ
CHECKED BY: DAM
SUBMITTED BY: FAIRWAY CE
PROJECT No.: TU21000154
ISSUE DATE: 2/14/2023
APPROVED BY: ---
SHEET SIZE: ANSI D 34x22
SCALE:

No.	DESCRIPTION OF REVISION	DATE:
1	PERMIT DELIVERABLE 60% DESIGN SUBMITTAL	10/16/23 02/14/23
2		

DEPT. OF UTILITIES
ST. TAMMANY PARISH
GOVERNMENT
620 N. TYLER STREET
COVINGTON, LA 70433



Attachment - C

SPECIFICATIONS

FOR

PIPELINE OCCUPANCY

OF

NORFOLK SOUTHERN CORPORATION

PROPERTY

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Specifications for Pipeline Occupancy of Norfolk Southern Property

1.0 GENERAL

1.1 Scope

- A. This specification shall apply to the design and construction of pipelines carrying flammable or non-flammable substances. This specification shall also apply to tracks owned by others (sidings, industry tracks, etc.) over which NS operates its equipment.
- B. It is to be clearly understood that NS owns its right-of-way for the primary purpose of operating a railroad. All occupancies shall therefore be designed and constructed so that rail operations and facilities are not interfered with, interrupted or endangered. In addition, the proposed facility shall be located to minimize encumbrance to the right-of-way so that the railroad will have unrestricted use of its property for current and future operations.

1.2 Definitions

- A. NS - Norfolk Southern Corporation
- B. Applicant - Individual, corporation or municipality desiring occupancy of NS property
- C. Professional Engineer - Engineer licensed in the state where the facilities are to be constructed
- D. Carrier Pipe - Pipe used to transport the product
- E. Casing Pipe - Pipe through which the carrier pipe is installed
- F. Sidings or industry tracks - Tracks located off NS's right-of-way, serving an industry

1.3 Application for Occupancy

- A. Individuals, corporations, or municipalities desiring occupancy of NS property by pipeline occupations must agree, upon approval of the engineering and construction details by NS, to execute an appropriate NS occupational license and pay any required fees and/or rentals specified therein.
- B. The application process and guidelines for a pipeline crossing occupancy can be found at www.nscorp.com, then follow links for "Customers", "Real Estate", "Wireline/Pipeline and Fiber Optics"
- C. All applications shall be submitted through the web based application portal at <https://ns.railprospecting.com> with a PDF copy of all design and construction plans, and a PDF copy of all specifications and engineering computations for the proposed occupancy. On extensive projects, only those plans involving work on, or affecting NS property and operations, shall be submitted. Included shall be a plan showing the extent of the total project upon which that portion of the work affecting NS is clearly defined.
- D. All of the above plans, specifications and computations must be prepared by and bear the seal of a Professional Engineer licensed in the state the project is located.

1.4 Right of Entry

- A. No entry upon NS property for the purpose of conducting surveys, field inspections, obtaining soils information or any other purposes associated with the design and construction for the proposed occupancy, will be permitted without a proper entry permit prepared by NS. The applicant must pay the associated fees and execute the entry permit.
- B. It is to be clearly understood that the issuance of an entry permit does not constitute authority to proceed with any construction. Construction cannot begin until a formal agreement is executed by NS and the applicant receives permission to proceed with the work, from the designated construction monitoring agency of NS.
- C. The application for a Right of Entry permit shall be obtained at www.nscorp.com, then follow links for Real Estate > NS Services > Access NS Property.

1.5 Site Inspection

- A. For longitudinal occupancy of NS property, a site inspection along the proposed pipeline route may be required before final design plans are prepared. When a site inspection is required, the applicant and/or his engineer must meet with representatives of NS to view the entire length of the proposed occupancy.
- B. Prior to the site inspection the applicant must submit the following information through the application portal:
 - (1) A plan view of the proposed route showing all tracks, both NS right-of-way lines and all other facilities located on the right-of-way. The distance from the proposed pipeline to the adjacent track and to the right-of-way lines must be shown.
 - (2) A complete "Pipe Data Sheet" (See Plate I)
 - (3) Typical cross sections along the proposed route. (See Plate V)
- C. Site inspections for pipe crossings are not required unless, in the opinion of NS, the size and location of the facility warrant an inspection.

1.6 Information Required for Submission

1.6.1 Plans and Computations

- A. Plans for proposed pipeline occupancies shall be submitted to and approved by NS prior to NS issuance of an agreement and start of construction.
- B. **Plans are to be prepared in 11" x 17" size and submitted in a PDF format. Failure of the applicant to comply with these requirements may be sufficient cause for rejection of the application.**
- C. Plans shall be drawn to scale, dimensioned with US Customary Units, and shall include the following (See Plates I to IX):
 - (1) Plan view of proposed pipeline in relation to all NS facilities and facilities immediately adjacent to

NS including, but not limited to, tracks, buildings, signals, pole lines, other utilities and all other facilities that may affect or influence the pipeline design and construction. (See Plate II)

- (2) The location, in feet, of the pipe crossing from the nearest centerline of an NS bridge, giving the NS bridge number. If the above is not available, provide distance to the nearest highway grade crossing of the railroad and the DOT number posted at the highway grade crossing, if available.
- (3) In all cases, the name of the State and County in which the proposed facilities are located must be shown. In States where Townships, Ranges and Sections are used, show the distance in feet to the nearest Section line and identify the Section number, Township and Range.
- (4) The profile of the ground above the centerline of the pipe, from field survey, showing relationship of the pipeline and/or casing pipe to the ground levels, the tracks and other facilities, (See Plate III). For longitudinal occupations, the top of rail profile of the adjacent track shall be shown on the pipeline profile, (see Plate IV).
- (5) All NS property lines indicated by dimensions, in feet, to the centerline of adjacent track, as well as the overall width of the NS right-of-way. If the pipeline is in a public highway, the limits of the dedicated highway right-of-way, as well as the limits of any paving, sidewalks etc., shall be defined, by dimensions in feet, from the centerline of the dedicated right-of-way,
- (6) The angle of the crossing in relation to the centerline of the tracks(s). (See Plate II)
- (7) On pipelines having valves, the distance in feet along the pipeline from the crossing to the nearest valves and/or control stations.
- (8) A separate "Pipe Data Sheet" (See Plate I) shall be submitted on an 8 ½" x 11" sheet, for each crossing.

D. The plan shall be specific, on NS property and under tracks that are not on NS property, as to the:

- (1) Method of installation. (See Section 5.1)
- (2) Size and material of the casing pipe. (See Section 4.3)
- (3) Size and material of the carrier pipe. (See Section 4.4)

These items **cannot** have an alternative and any application that is received that indicates options in any of the above items **will not be processed.**

- E.** Once the application has been approved by NS, no variance from the plans, specifications, method of installation, construction, etc., as approved in the occupancy document, will be considered or permitted without the payment to NS of additional fees for the re-processing of the application.
- F.** All plans and computations associated with the work under the agreement shall be prepared by, and bear the seal of, a licensed Professional Engineer in the state where the work will take place. If not so imprinted, the application will be given no further consideration. This requirement also applies to all data submitted by the applicant's contractor. Contractor's plans and computations that are not stamped will be returned and construction will not be permitted to proceed.

1.6.2 Specifications

- A. Project specifications, for all work on and affecting the NS right-of-way, shall be included with the submission. All pertinent requirements of this document shall be included.

1.7 Notification to Proceed with Construction

- A. After approval of the engineering plans and specifications and execution of the occupational agreement, the applicant will be notified of the appropriate NS representative that must be contacted prior to start of construction. The NS representative will coordinate all other construction aspects of the project that relate to NS, including but not limited to, construction monitoring, flagging, track work, and protection of signal cables.

2.0 GENERAL REQUIREMENTS

2.1 Use of a Casing Pipe

- A. A casing pipe will be required for all pipeline crossings carrying liquid flammable or non-flammable substances under pressure.
- B. For flammable and nonflammable gas pipelines the casing pipe may be omitted provided the carrier pipe meets the requirements provided in the AREMA Manual Chapter 1, Part 5, Section 5.2.3. NS may require use of a casing pipe at locations where increased risks from specific site conditions (track speed, traffic density, etc.) are present.
- C. Pressure pipelines that do not cross under the track but are located within 30 feet of the centerline of any track or closer than 45 feet to nearest point of any bridge, building or other important structure, shall be encased.
- D. The casing pipe shall be laid across the entire width of the right-of-way, except where a greater length is required to comply with Section 4.3.1.F. of this specification, even though such extension is beyond the right-of-way. For non-pressure sewer or drainage crossing, where a casing is used for carrier pipe installation purposes only, the casing need only to extend from the boring pit to the receiving pit.

2.2 Location of Pipeline on the Right-of-Way

- A. Pipelines laid longitudinally on NS right-of-way shall be located as far as practicable from any tracks or other important structures and as close to the railroad property line as possible. Longitudinal pipelines must not be located in earth embankments or within ditches located on the right-of-way.
- B. Pipelines shall be located, where practicable, to cross tracks at approximate right angles to the track, but preferably at not less than 45 degrees.
- C. Pipelines shall not be placed within a culvert, under railroad bridges, nor closer than 50 feet to any portion of any railroad bridge, building, or other important structure, except in special cases, and then by special design, as approved by NS Engineering.
- D. Pipelines shall not be located within 50 feet of a turnout (switch) when crossing the track. The limits of the turnout extend from the point of the switch to the last long timber.
- E. Pipeline shall not be located within 50 feet of a control point area. The limits of the control point area are governed by the signal system regulating the control point.

- F. Pipeline installations shall not be designed as an open cut installation where the pipeline is to be located within the limits of a grade crossing. If it is shown that no other method of installation is possible, the applicant will be responsible for reimbursing NS for all costs associated with the removal and reconstruction of the grade crossing.
- G. Pipelines carrying liquefied petroleum gas shall, where practicable, cross the railroad where tracks are carried on embankment.
- H. Longitudinal uncased gas pipelines must not be located within 30 feet of any track.

2.3 Depth of Installation

2.3.1 Pipelines Conveying Non-Flammable Substances

- A. Casing/carrier pipes placed under NS track(s) shall be not less than 5 ½ feet from base of rail to top of pipe at its closest point, except that under sidings or industry tracks this distance may be 4 ½ feet as approved by NS. On other portions of the right-of-way, where the pipe is not directly beneath any track, the depth from ground surface will be 4 feet or from bottom of ditch to top of pipe shall not be less than 3 feet.
- B. Pipelines laid longitudinally on NS right-of-way, 50 feet or less from centerline track, shall be buried not less than 4 feet from ground surface to top of pipe. Where the pipeline is laid more than 50 feet from centerline of track, the minimum cover shall be at least 3 feet.

2.3.2 Pipelines Conveying Flammable Substances

- A. Casing pipes under NS track(s) shall be not less than 5 ½ feet from base of rail to top of pipe at its closest point, except that under sidings or industry tracks this distance may be 4 ½ feet as approved by NS. On other portions of the right-of-way, where the pipe is not directly beneath any track, the depth from ground surface will be 4 feet or from bottom of ditch to top of pipe shall not be less than 3 feet.
- B. Uncased gas pipelines, under NS track(s), shall not be less than 10 feet from the base of rail to the top of the pipe at its closest point. At all other locations where crossing the right-of-way, the minimum ground cover must be 6 feet. Where it is not possible to obtain the above depths, use of a casing pipe will be required.
- C. Pipelines laid longitudinally on NS's right-of-way, 50 feet or less from centerline track, shall be buried not less than 6 feet from ground surface to top of pipe. Where the pipeline is laid more than 50 feet from centerline of track, the minimum cover shall be at least 5 feet.

2.4 Pipelines Within Limits of a Dedicated Highway

- A. Pipelines within the limits of a dedicated highway are subject to all the requirements of this specification and must be designed and installed in accordance with them.
- B. The limits of the dedicated highway (right-of-way) must be clearly shown on the plans.
- C. Construction cannot begin until an agreement has been executed between NS and the applicant and proper notification has been given to NS's authorized representative. (See Section 1.7)
- D. Pipelines shall maintain a minimum horizontal clearance of 4-feet, or if within 4-feet, a minimum vertical clearance of 10-feet from the base of any railroad signal apparatus.

2.5 Modification of Existing Facilities

- A. Any replacement or modification of an existing carrier pipe and/or casing shall be considered as anew installation, subject to the requirements of this specification.

2.6 Abandoned Facilities

- A. The owner of all abandoned pipe crossings and other occupancies shall notify NS in writing of the intention to abandon. The owner of pipe crossings and other occupancies shall submit to NS a request to abandon through the application portal and shall include its abandonment plans.
- B. Abandoned pipelines shall be removed or completely filled with cement grout, compacted sand or other methods as approved by NS.
- C. Abandoned manholes and other structures shall be removed to a minimum distance of 3 feet below finished grade and completely filled with cement grout or compacted sand.

2.7 Conflict of Specifications

- A. Where laws or orders of public authority prescribe a higher degree of protection than specified herein, then the higher degree so prescribed shall be deemed a part of this specification.

2.8 Insulation

- A. Pipelines and casings shall be suitably insulated from underground conduits carrying electric wires on NS property.

2.9 Corrosion Protection and Petroleum Leak Prevention

- A. Pipelines on NS property that carry petroleum products or hazardous liquids shall be designed in accordance with current federal, state and/or local regulations that mandate leak detection automatic shutoff, leak monitoring, and sacrificial anodes and/or exterior coatings to minimize corrosion and prevent petroleum releases.

3.0 SOIL INVESTIGATION

3.1 General

- A. Test borings or other soil investigations approved by NS shall be made to determine the nature of the underlying material for all pipe crossings 60 inches in diameter and larger under track(s). (See section 1.4 relative to procedures)
- B. Test borings or other soil investigations, approved by NS, may be required when, in the judgement of NS, they are necessary to determine the adequacy of the design and construction of pipe crossings less than 60 inches in diameter and for other facilities located on the right-of-way.

3.2 Location

- A. Borings shall be made on each side of the track(s), on the centerline of the pipe crossing, and as close to the track(s) as practicable. (See Section 1.4 relative to procedures)

- B. Test boring logs shall be accompanied with a plan, drawn to scale, showing the location of the borings in relation to the track(s) and the proposed pipe.

3.3 Sampling

- A. Test borings shall be conducted by a qualified firm using current methods approved by ASTM for soil sampling. Boring logs and soil data shall be accompanied by an analysis of the pertinent soil characteristics and their impact on the project as it relates to the railway by a certified Geologist or licensed Professional Engineer

3.4 Boring Logs

- A. Test boring logs shall clearly indicate all of the following:
 - (1) Boring number as shown on the required boring location plan.
 - (2) Ground elevation at each boring using same datum as the pipeline construction plans.
 - (3) Engineering description of soils or rock encountered.
 - (4) Depth and percent recovery of all soil samples.
 - (5) Depth from surface for each change in strata.
 - (6) Blows for each 6 inches (152mm) of penetration for the standard penetration test described in ASTM D 1586. Blows for lesser penetrations should be recorded.
 - (7) Percent recovery and Rock Quality Designation (RQD) for all rock cores.
 - (8) Depth to ground water while sampling and when it has stabilized in the bore hole.
- B. The location of the carrier pipe and/or casing pipe shall be superimposed on the boring logs before submission to NS.
- C. All borings shall be sealed, for their full depth, with a 4-3-1 bentonite-cement-sand grout after accurate ground water readings have been taken and recorded.
- D. Soil samples taken from auger vanes or return wash water are not acceptable.

3.5 Additional Information

- A. When directed by NS, additional borings may be required for the purpose of taking undisturbed thin-wall piston samples or Dennison type samples for laboratory testing to determine the index and engineering properties of certain soil strata.
- B. The geotechnical report shall assess the risk of frac-out. Information required to evaluate such a risk includes but not limited to the following:
 - (1) Maximum allowable fluid pressure
 - (2) Minimum depth of bore
 - (3) Expected drilling fluid pressure
 - (4) Pressure exerted by overburden
 - (5) Potential for type of soil to have fissures

4.0 DESIGN REQUIREMENTS

4.1 Design Loads

4.1.1 General Requirements

- A. All pipes, manholes and other facilities shall be designed for the external and internal loads to which they will be subjected.
- B. To allow for placement of additional track(s) or shifting of the existing track(s), all proposed pipelines or structures shall be designed as if a railroad loading is directly above the facility.

4.1.2 Earth Load

- A. The dead load of the earth shall be considered as 120 pounds per cubic foot unless soil conditions warrant the use of a higher value.

4.1.3 Railroad Load (Live Load Impact)

- A. The railroad live load used shall be a Cooper E-80 loading. This loading consists of 80-kip axle loads spaced 5 feet on centers.
- B. An impact factor of 1.75 (multiply live load by the impact factor) shall be used for depth of cover up to 5 feet. Between 5 and 30 feet, the impact factor is reduced by 0.03 per foot of depth. Below a depth of 30 feet, the impact factor is one.
- C. The values shown in Table shall be used for the vertical pressure on a buried structure for the various heights of cover.

Table 1

Live loads, including impact, for various heights of cover for a Cooper E-80 loading.

Height of Cover	Load
Feet	lb/sq ft
2	3800
3	3150
4	2850
5	2550
6	2250
7	1950
8	1700
9	1500
10	1300
12	1000
14	800
16	625
18	500
20	400
25	250
30	150

- D.** To determine the horizontal pressure caused by the railroad loading on a sheet pile wall or other structure adjacent to the track, the Boussinesq analysis shall be used. The load on the track shall be taken as a strip load with a width equal to the length of the ties, 8 ½ feet. The vertical surcharge, q (psf), caused by each axle, shall be uniform and equal to the axle load divided by the tie length and the axle spacing, 5 feet. For the E-80 loading results in;

$$Q = 80,000 / (8.5 \times 5) = 1882 \text{ psf.} \quad (q = 356 / (2.591 \times 1.524) = 90.1 \text{ kPa})$$

The horizontal pressure due the live load surcharge at any point on the wall or other structure is p_h and can be calculated by the following:

$$p_h = (2q/\pi) (\beta - \sin \beta (\cos 2\alpha)) \quad (\text{See PLATE IX})$$

- E.** The vertical and horizontal pressures given above shall be used unless an alternate design method is approved by NS. Proposals to use an alternate design method must include acceptable references and a statement explaining the justification for choosing the alternate method.

4.2 Design Assumptions

- A.** To design a casing pipe or an uncased carrier pipe for the external loads on NS's right-of-way, the following design assumptions shall be used, unless site conditions indicate more conservative values are required:

B. Flexible Pipe (Steel, DIP, CMP, Tunnel Liner Plate)

(1) Steel Pipe (Bored and jacked in place)

- Spangler's Iowa formula shall be used for design with:
 - (a) Deflection lag factor - $D_9 = 1.5$
 - (b) Modulus of soil reaction - $E' = 1080 \text{ psi}$
 - (c) Bedding constant - $K_b = 0.096$
 - (d) Soil loading constant - $K_{w'} = 0.13$
 - (e) Allowable deflection of pipe - 3% of pipe diameter

(2) Ductile Iron Pipe (Open Cut)

- ANSI Specification A 21.50 shall be used for design with:
 - (a) Pipe laying condition = type 3 (see Sec. 5.1.2 for backfill requirements on RR R/W)
 - (b) Earth load – ANSI A 51.50 prism method

(3) Corrugated Steel Pipe & Corrugated Structural Steel Plate Pipe (Open Cut)

- AREMA Chapter 1, Part 4, Sections 4.9 & 4.10 shall be used for design with:
 - (a) Soil stiffness factor - $K = 0.33$
 - (b) Railroad impact as per Section 4.1.3b. of this specification

(4) Tunnel Liner Plate (Tunneled)

- AREMA
 - (a) Soil stiffness factor - $K = 0.33$
 - (c) Railroad impact as per Section 4.1.3.b. of this specification.

4.3 Casing Pipe

4.3.1 General Requirements

- A. Casing pipe shall be so constructed as to prevent leakage of any substance from the casing throughout its length, except at ends of casing where ends are left open, or through vent pipes when ends of casing are sealed. Casing shall be installed so as to prevent the formation of a waterway under the railroad, and with an even bearing throughout its length, and shall slope to one end (except for longitudinal occupancy).
- B. The casing pipe and joints shall be of steel and of leakproof construction when the pipeline is carrying liquid flammable products or highly volatile substances under pressure.
- C. The inside diameter of the casing pipe shall be such as to allow the carrier pipe to be removed subsequently without disturbing the casing or the roadbed. For steel pipe casings, the inside diameter of the casing pipe shall be at least 2 inches greater than the largest outside diameter of the carrier pipe joints or couplings, for carrier pipe less than 6 inches in diameter; at least 4 inches greater for carrier pipe 6 inches and over in diameter.
- D. A maximum vertical deflection of the casing pipe of 3 percent of its diameter, plus ½ inch clearance shall be provided so that no loads from the roadbed, track, traffic or casing pipe itself are transmitted to the carrier pipe. When insulators are used on the carrier pipe, the inside diameter of the flexible casing pipe shall be at least 2 inches greater than the outside diameter of the carrier pipe for pipe less than 8 inches in diameter; at least 3 ¼ inches greater for pipe 8 inches to 16 inches, inclusive, in diameter and at least 4 ½ inches greater for pipe 18 inches and over in diameter.
- E. The casing pipe diameter shall not be larger than is necessary to permit the insertion of the carrier pipe.
- F. Casing pipe under railroad tracks and across NS's right-of-way shall extend the **greater** of the following distances, measured at right angle to centerline of track:
 - (1) Across the entire width of the NS right-of-way
 - (2) 3 feet beyond ditch line
 - (3) 2 feet beyond toe of slope
 - (4) A minimum distance of 30 feet from each side of centerline of outside track when casing is sealed at both ends.
 - (5) A minimum distance of 45 feet from centerline of outside track when casing is open at both ends.
 - (6) Beyond theoretical railroad embankment line. This line begins at a point, on existing grade, 14 feet horizontally from centerline track and extends downward on a 2 (H) to 1 (V) slope. (See Plate III)
The 14 feet is measured from 19 inches below the base of the rail.
- G. If additional tracks are constructed in the future, the casing shall be extended correspondingly at the applicant's expense.

4.3.2 Steel Pipe

- A. Steel pipe may be installed by open cut, boring or jacking.
- B. Steel pipe shall have a specified minimum yield strength, SMYS, of at least 35,000 psi. The ASTM or API specification and grade for the pipe are to be shown on the Pipe Data Sheet (Plate I).
- C. Joints between the sections of pipe shall be fully welded around the complete circumference of the pipe.

- D.** In situations where the applicant can demonstrate a situational need, interlocked joints (commonly known as “Permalok” joints) may be considered in place of fully welded joints. Submissions shall include an engineering analysis of the suitability of the proposed interlocked joint for railroad loading and jacking stresses in the given soil.
- E.** Steel casing pipe, with a minimum cover of 5 ½ ft., shall have a **minimum** wall thickness as shown in Table 2, unless computations indicate that a thicker wall is required.

Table 2

Pipe Diameter	Cathodically Protected	Uncoated and Unprotected
Nominal Pipe Size	Nominal Wall Thickness	Nominal Wall Thickness
Inches	Inches	Inches
10 and under	0.188	0.188
12 & 14	0.188	0.250
16	0.219	0.281
18	0.250	0.312
20 & 22	0.281	0.344
24	0.312	0.375
26	0.344	0.406
28	0.375	0.438
30	0.406	0.469
32	0.438	0.500
34 & 36	0.469	0.532
38	0.500	0.562
40	0.531	0.594
42	0.562	0.625
44 & 46	0.594	0.657
48	0.625	0.688
50	0.656	0.719
52	0.688	0.750
54	0.719	0.781
56 & 58	0.750	0.812
60	0.781	0.844
62	0.812	0.875
64	0.844	0.906
66 & 68	0.875	0.938
70	0.906	0.969
72	0.938	1.000

- F. Coated steel pipe that is bored or jacked into place shall conform to the wall thickness requirements for uncoated steel pipe since the coating may be damaged during installation.
- G. Smooth wall steel pipes with a nominal diameter over 72 inches will not be permitted.

4.3.3 Corrugated Steel Pipe and Corrugated Structural Steel Plate Pipe

- A. Corrugated steel pipe and corrugated structural steel plate pipe may be used for a casing only when placed by the open cut method. Jacking or boring through the railroad embankment is not permitted.
- B. Corrugated steel pipe and corrugated structural steel plate pipe may be used for a casing provided the pressure in the carrier pipe is less than 100 psi.
- C. Pipe shall be bituminous coated and shall conform to the current American Railway Engineering and Maintenance-of-Way Association Specifications Chapter 1, Part 4.
- D. Corrugated steel pipe shall have a minimum sheet thickness as shown in Table 4. Corrugated structural steel plate pipe shall have a minimum plate thickness of 8 gage, 0.168 in. If computations indicate that a greater thickness is required, the thicker sheet or plate shall be used.

Table 4

Pipe Diameter		Sheet Thickness
Inches	Gage	Inches
12 to 30	14	0.079
36	12	0.109
42 to 54	10	0.138
60 to 120	8	0.168

4.3.4 Steel Tunnel Liner Plates

- A. Liner plates shall be installed by the tunneling method as detailed in Section 5.15 of this specification.
- B. Tunnel liner plates shall be galvanized and bituminous coated and shall conform to current AREMA Specification Chapter 1, Part 4, Section 4.16. If the tunnel liner plates are used only to maintain a tunneled opening until the carrier pipe is installed, and the annular space between the carrier pipe and the tunnel liner is completely filled with cement grout within a reasonably short time after completion of the tunnel, then the tunnel liner plates need not be galvanized and coated.
- C. Tunnel liner plates are to be a minimum of 12 gage and shall be fabricated from structural quality, hot-rolled, carbon-steel sheets or plates conforming to ASTM Specification A 569.
- D. The following liner plate information must be shown on the Pipe Data Sheet (plate I):
 - (1) Number of flanges (2 or 4)
 - (2) Width of plate
 - (3) Type of plate (smooth or corrugated)

4.3.5 Concrete Encasement

- A. At locations where the installation is by open cut and a casing pipe is required but cannot be installed due to elbows or other obstructions, concrete encasement may be used when approved by NS.
- B. The concrete encasement must provide a minimum cover of 6 inches of concrete around the pipe. A 6 x 6 – W 2.9 x W 2.9 (152 x 152 MW 18.7 x MW 18.7) welded wire fabric shall be placed in the concrete on all sides.

4.4 Carrier Pipe

4.4.1 General Requirements

- A. The pipe shall be laid with sufficient slack so that it is not in tension.
- B. Steel pipe shall not be used to convey sewage, storm water or other liquids which could cause corrosion.
- C. Carrier pipes which are not encased and are located on NS's right-of-way or under tracks which NS operates, shall be manufactured in accordance with the following specifications:
 - (1) Steel Pipe – The ASTM or API specification and grade for the pipe is to be shown on the Pipe Data Sheet. The specified minimum yield strength is to be at least 35,000 psi (241 MPa). For flammable substances see Sections 4.42 and 4.43 for additional requirements.
 - (2) Ductile Iron Pipe – ANSI A21.51/AWWA C151
 - (3) Corrugated Metal Pipe – AREMA Chapter 1, Part 4
- D. Carrier pipes installed within a casing pipe shall be designed for the internal pressure to which it will be subjected.
- E. Gravity flow carrier pipes, installed without a casing pipe, shall meet the requirements, of the particular pipe material, as given in Section 4.3 of this specification.

4.4.2 Pipelines Carrying Flammable Substances

- A. Pipelines carrying oil, liquefied petroleum gas and other flammable liquid products shall be of steel and conform to the requirements of the current ANSI B 31.4 Liquid Transportation Systems for Hydrocarbons, Liquid Petroleum Gas, Anhydrous Ammonia, and Alcohols, and other applicable ANSI codes, except that the maximum allowable stresses for design of steel pipe shall not exceed the following percentages of the specified minimum yield strength (multiplied by the longitudinal joint factor) of the pipe as defined in the above codes:
 - (1) The following percentages apply to hoop stress in steel pipe within a casing under railroad tracks, across NS right-of-way and longitudinally on NS right-of-way:
 - (a) Seventy-two percent on oil pipelines.
 - (b) Fifty percent for pipelines carrying condensate, natural gasoline, natural gas liquids, liquefied petroleum gas, and other liquid petroleum products.
 - (c) Sixty percent for installations on gas pipelines.

(2) The following percentages apply to hoop stress in steel pipe laid longitudinally on NS right-of-way without a casing:

- (a) Sixty percent for oil pipelines.
- (b) Forty percent for pipelines carrying condensate, natural gasoline, natural gas liquids, liquefied petroleum gas, and other liquid petroleum products.
- (c) For gas pipelines see Section 4.4.3.b.

B. Computations, based on the above requirements and stamped by a P.E., shall be submitted with the application occupancy.

4.4.3 Uncased Pipelines Carrying Gas

- A.** Pipelines carrying flammable and nonflammable gas products shall be steel and shall conform to the requirements of the current ANSI B 31.8 Gas Transmission and Distribution Piping Systems, and other applicable ANSI codes.
- B.** The minimum wall thickness for uncased carrier pipe shall be in accordance with the values provided in AREMA, Chapter 1, Part 5, Section 5.2, Tables 5.2.3 (a through j).
- C.** A durable coating, which will resist abrasion (fusion bonded epoxy or other suitable material), shall be used to protect the uncased pipeline when the boring method of installation is used.
- D.** If NS determines there is the potential for damage to the uncased pipeline (foreign material in the subgrade, third party damage, etc.) special protection of the pipeline will be required. Special may include the use of a protection slab over the pipeline, increased depth of bury or other means.

4.5 Casing Pipe End Seals

- A.** Casings for carrier pipes of flammable and hazardous substances shall be suitably sealed to the outside of the carrier pipe. Details of the end seals shall be shown on the plans.
- B.** Casings for carrier pipes of non-flammable substances shall have both ends of the casing blocked up in such a way as to prevent the entrance of foreign material but allowing leakage to pass in the event of a carrier break.
- C.** The ends of a casing pipe may be left open when the ends are at or above ground surface and above high water level, provided drainage is affordable in such a manner that leakage will be conducted away from railroad tracks and structures.

4.6 Vents

- A.** Sealed casings for flammable substances shall be properly vented. Vent pipes shall be of sufficient diameter, but in no case less than two inches in diameter, and shall be attached near each end of the casing and project through the ground surface at right-of-way lines or not less than 45 feet, measured at right angles from centerline of nearest track.
- B.** Vent pipes shall extend not less than 4 feet above the ground surface. Top of vent pipe shall have a down-turned elbow, properly screened, or a relief valve. Vents in locations subject to high water shall

be extended above the maximum elevation of high water and shall be supported and protected in a manner approved by NS.

- C. Vent pipes shall be at least 4 feet, vertically, from aerial electric wires or greater if required by national Electrical Safety Code (ANSI C2).
- D. When the pipeline is in a public highway, street-type vents shall be installed.

4.7 Signs

- A. All pipelines (except those in streets or access roads where it would not be practical to do so) shall be prominently marked at right-of-way lines (on both sides of track for crossings) by durable, weatherproof signs located over the centerline of the pipe. Signs shall show the following:
 - (1) Name and address of applicant
 - (2) Contents of pipe
 - (3) Pressure in pipe
 - (4) Emergency telephone number
- B. For pipelines running longitudinally on NS property, signs shall be placed over the pipe (or offset and appropriately marked) at all changes in direction of the pipeline. Such signs should also be located so that when standing at one sign the next adjacent marker in either direction is visible. In no event shall they be placed more than 500 feet apart unless otherwise specified by NS.
- C. The applicant must maintain all signs on NS right-of-way as long as the occupational agreement is in effect.

4.8 Warning Tape

- A. All pressure pipelines installed on NS right-of-way by open cut shall have detectable underground warning tape placed a minimum distance of 18 inches directly above the pipeline with the tape placed not less than 12" below grade.

4.9 Shut-off Valves

- A. Accessible emergency shut off valves shall be installed within effective distances each side of the railroad at locations selected by NS where hazard to life and property must be guarded against. No additional valves will be required where pipelines are provided with automatic control stations and within distances approved by NS.

4.10 Cathodic Protection

- A. Cathodic protection shall be applied to all pipelines carrying flammable substances on NS's right-of-way.
- B. For crossings and at other locations where the pipeline must be placed within a casing, the casing is to have cathodic protection, or the wall thickness is to be increased to the requirements of Section 4.3.2 Table 2.

- C. Uncased gas carrier pipes must be coated and cathodically protected to industry standards and test sites, for monitoring the pipeline, provided within 50 feet of the crossing.
- D. Where casing and/or carrier pipes are cathodically protected by other than anodes, NS shall be notified and a suitable test made to ensure that other railroad structures and facilities are adequately protected from the cathodic current in accordance with the recommendation of current Reports of Correlating committee on Cathodic Protection, published by the National Association of Corrosion Engineers.
- E. Where sacrificial anodes are used the locations shall be marked with durable signs.

4.11 Manholes

- A. Manholes shall not be located on NS property where possible. At locations where this is not practical, including longitudinal occupancies, manholes shall be precast concrete sections conforming to ASTM Designation C 478, "Specification for Precast Concrete Manhole Sections".
- B. The top of manholes located on NS property shall be flush with the top of ground and shall not be located with service or access roads.
- C. The distance from centerline of adjacent track to centerline of proposed manhole shall be shown on the plans.

4.12 Box Culverts

- A. Reinforced concrete box culverts shall conform to the requirements of the most recent edition of Norfolk Southern's Public Projects Manual, available here:
<http://www.nscorp.com/content/nscorp/en/transportation-terms/other-requirements/public-project-guidelines.html>.

4.13 Drainage

- A. Occupancies shall be designed, and their construction shall be accomplished, so that adequate and uninterrupted drainage NS right-of-way is maintained.
- B. All pipes, ditches, spillways, overflows, and other structures carrying surface drainage on or to NS property and/or under NS track(s) shall be designed to carry the run-off from a one hundred (100) year storm. Computations indicating this design, prepared by a Professional Engineer, and suitable topographic plans, outlining the total drainage area, shall be submitted.
- C. If the drainage is to discharge into an existing drainage channel on NS's right-of-way and/or through a drainage structure under NS track(s), the computations must include the hydraulic analysis of any existing ditch and/or structure.
- D. When calculating the capacity of existing or proposed drainage structures, under NS track(s), the headwater at the structure shall not be greater than 1.5.
- E. Pipe(s) used to carry surface drainage on NS right-of-way shall have a minimum diameter of 36 inches.
- F. Detention ponds must not be placed on any part of NS's right-of-way. Also, the railroad embankment must not be used as any part of a detention pond structure.
- G. Formal approval of the proposed design, by the appropriate governmental agency having jurisdiction, shall be submitted with the drainage computations.

4.14 Pipelines on Bridges

- A. Pipelines of any types shall not be installed on any bridge carrying NS tracks.
- B. New overhead pipe bridges shall not be constructed over NS's right-of-way where underground installation of the pipeline is possible. Where the applicant can show that no practicable alternative is available, this type of structure will be permitted provided the following conditions are met:
 - (1) The vertical clearance, distance from top of rail to bottom of structure, is shown and is a minimum of 23 feet, measured at a point 6 feet horizontally from centerline track.
 - (2) The support bents for the overhead structure are located off of NS's right-of-way or a minimum clear distance of 18 feet from centerline track, whichever distance is greater.
 - (3) Support bents within 25 feet of centerline track have pier protection in accordance with AREMA requirements.
 - (4) Complete structural plans and design computations for the structure and foundations, stamped by a Professional Engineer, are submitted with the application.
 - (5) A fence (with barbed wire) or other measures are provided which will prevent access to the bridge by unauthorized personnel or vandals.
- C. Pipelines carrying flammable substances or non-flammable substances, which by their nature might cause damage if escaping on or near railroad facilities or personnel, shall not be installed on bridges over NS tracks. In special cases when it can be demonstrated to NS's satisfaction that such an installation is necessary and that no practicable alternative is available, NS may permit the installation and only by special design approved by NS.
- D. When permitted, pipelines on bridges over NS tracks shall be so located as to minimize the possibility of damage from vehicles, railroad equipment, vandalism and other external causes. Leak protection extending across the NS right-of-way shall be provided as directed by NS (See Plate VII).

5.0 CONSTRUCTION REQUIREMENTS

5.1 Method of Installation

5.1.1 General Requirements

- A. Bored, jacked or tunneled installations shall have a bore hole essentially the same as the outside diameter of the pipe plus the thickness of the protective coating.
- B. The use of water or other liquids to facilitate casing emplacement and spoil removal is prohibited except when used in conjunction with Directional Boring Method "A" (see section 5.1.6).
- C. If during installation an obstruction is encountered which prevents installation of the pipe in accordance with this specification, the pipe shall be abandoned in place and immediately filled with grout. A new installation procedure and revised plans must be submitted to, and approved by, NS before work can resume.

5.1.2 Track and Ground Monitoring

- A. General track and ground monitoring requirements

- (1) General requirement
 - a. Temporary lighting may also be required by the NS to identify tripping hazards to train crewmen and other NS personnel.
 - b. Any excavation, holes or trenches on the NS property shall be covered, guarded and/or protected. Handrails, fence, or other barrier methods must meet OSHA and FRA requirements.
- (2) Track and ground monitoring are required as follows:
 - a. For crossings with pipe diameter and depth (below base of rail) as shown below in
 - b. For shoring within Zone 1 of any track, as shown below in PLATE VIII.
 - c. Additional monitoring may be required by the NS on a case by case basis.
- (3) Monitoring schedule
 - a. Monitoring shall commence once any construction activity is within Zone 1. See PLATE VIII.
 - b. Monitoring shall continue through completion of installation and may be required after completion for a period of time determined by NS or its representative.

Table 5.1.2-1

		Final Bore Hole, inches						
		1-5	6-12	12-24	24 - 42	42 - 54	54 - 60	>60
Depth, feet (below base of rail)	5	X	X	X	X	X	X	X
	10	X	X	X	X	X	X	X
	15		X	X	X	X	X	X
	20			X	X	X	X	X
	25				X	X	X	X
	30					X	X	X
	>30						X	X

X = Track Monitoring is required

B. Track Monitoring

- (1) Track Deflection Limits
- (2) Targets
 - a. Track monitoring shall not require track access other than to place the track monitoring targets.
 - b. Monitoring targets should be placed such that monitoring is possible when a train is present. However, monitoring during the passing of a train is not required as the train will temporarily deflect the track.
 - c. Adhesive backed reflective targets may be attached to the side of the rail temporarily. Targets should be removed once monitoring phase is complete.
- (3) Monitoring Plan
- (4) If the top of rail does deflect more than values listed below, all operations shall stop until the matter is resolved.

- a. Track monitoring values for Class 3 through Class 4:
 1. Threshold value = 1/8 inch permanent vertical or horizontal deflection
 2. Installation Shutdown value = 1/4 inch permanent vertical or horizontal deflection
- b. Track monitoring values for Class 1 through Class 2:
 1. Threshold value = 1/4 inch permanent vertical or horizontal deflection
 2. Installation Shutdown value = 1/2 inch permanent vertical or horizontal deflection
- c. Provide established contingency plan, see Section D, in the event of ground loss and/or the rail deviates 1/4 inch vertical or horizontal.
- d. Establish a benchmark in the vicinity of the construction. Establish locations for shooting elevations on the top of rail at each area of construction.
 1. Example locations for shooting rail elevations would be at:
 - At the centerline of an under-track crossing.
 - At both outside edges of the crossing i.e. for a wide excavation.
 - At multiple locations from the crossing/excavation edge but no less than 10, 20, 30, 40 and 50 feet from the crossing.
- e. Monitoring shall be continuous and recorded in a field logbook dedicated for this purpose. Copies of these field log entries can be made available to all concerned parties upon request at any time during construction.

C. Ground Monitoring

- (1) Provide means for monitoring ground settlement. Submit monitoring plan for NS review.
- (2) Ground monitoring points should be in alignment above the proposed construction activities.

D. Contingency Plans

- (1) The Contractor shall supply Contingency Plan(s), which anticipate reaching the Threshold and Installation Shutdown values, for all construction activities which may result in horizontal and/or vertical track deflection.
 - a. Track monitoring values for Class 3 through Class 4:
 1. Threshold value = 1/8 inch permanent vertical or horizontal deflection
 2. Installation Shutdown value = 1/4 inch permanent vertical or horizontal deflection
 - b. Track monitoring values for Class 1 through Class 2:
 1. Threshold value = 1/4 inch permanent vertical or horizontal deflection
 2. Installation Shutdown value = 1/2 inch permanent vertical or horizontal deflection
- (2) The Contingency Plans shall provide means and methods, with options if necessary.
- (3) The Contractor should anticipate the need to implement each Contingency Plan with required materials, equipment and personnel.
 - a. Once the Threshold value is met, the contractor shall determine the appropriate Contingency Plan(s) and immediately discuss this plan with, and receive approval confirmation from, the NS.
 - b. Once the Installation Shutdown value is exceeded all project work shall stop and the chosen

Contingency Plan shall commence. NS may choose to allow and/or require the immediate implementation of ~~specific~~ approved Contingency Plans, submitted by the contractor, once the Installation Shutdown value is exceeded.

5.1.3 Open Cut

- A. Open cut is a non-standard procedure that should be avoided whenever possible. The applicant must request a variance for open cut approval when making application for occupancy. Applicant should be aware that open cut applications and procedures have the potential to result in additional NS charges.
- B. Installations beneath the track by open trench methods will be permitted only with the approval of the AVP Maintenance of Way & Structures.
- C. Installations by open cut will not be permitted under mainline tracks, tracks carrying heavy tonnage or tracks carrying passenger trains. Also, open cut shall not be used within the limits of a highway/railroad grade crossing or its approaches, 25 feet either side of traveled way, wherepossible.
- D. At locations where open cut is permitted, the trench is to be backfilled with crushed stone with a top size of the aggregate to be a maximum of 2 inches and to have no more than 5% passing the number 200 sieve. The gradation of the material is to be such that a dense stable mass is produced.
- E. The backfill material shall be placed in loose 6 inch lifts and compacted to at least 95% of its maximum density with a moisture content that is no more than 1% greater than or 2% less than the optimum moisture as determined in accordance with current ASTM Designation D – 1557 (Modified Proctor). When the backfill, material is within 3 feet of the subgrade elevation (the interface of the ballast and the subsoil) a compaction of at least 98% will be required.
- F. All backfilled pipes laid either perpendicular or parallel to the tracks must be designed so that the backfill material will be positively drained. This may require the placement of lateral drains on pipes laid longitudinally to the track and the installation of stub perforated pipes at the edge of the slopes.
- G. Unless otherwise agreed upon, all work involving rail, ties and other track material will be performed by NS employees, at such times as are consistent with NS work schedules regarding the availability of said employees, and at the sole expense of the applicant.

5.1.4 Bore and Jack (Steel Pipe)

- A. This method consists of pushing the pipe into the earth with a boring auger rotating within the pipe to remove the spoil.
- B. The boring operation shall be progressed on a 24-hour basis without stoppage in Zone 1, 2, and 3 as indicated in Plate VIII (except for adding lengths of pipe) until the leading edge of the pipe has reached the receiving pit.
- C. The front of the pipe shall be provided with mechanical arrangements or devices that will positively prevent the auger from leading the pipe so that no unsupported excavation is ahead of the pipe.
- D. The auger and cutting head arrangement shall be removable from within the pipe in the event an obstruction is encountered. If the obstruction cannot be removed without excavation in advance of the pipe, procedures as outlined in Section 5.1.1c. must be implemented immediately.
- E. The over-cut by the cutting head shall not exceed the outside diameter of the pipe by more than ½ inch. If voids should develop or if the bored hole diameter is greater than the outside diameter of the pipe (plus coating) by more than approximately 1 inch, grouting (see Section 5.2) or other methods approved

by NS, shall be employed to fill such voids.

- F. The face of the cutting head shall be arranged to provide a reasonable obstruction to the free flow of soft or poor material.
- G. Plans and description of the arrangement to be used shall be submitted to NS for approval and no work shall proceed until such approval is obtained.
- H. Any method that employs simultaneous boring and jacking for pipes over 8 inches in diameter that does not have the above approved arrangement **will not be permitted**. For pipe 8 inches and less in diameter, augering or boring without this arrangement may be considered for use only as approved by NS.

5.1.5 Jacking (Steel Pipe)

- A. This method consists of pushing sections of pipe into position with jacks placed against a backstop and excavation performed by hand from within the jacking shield at the head of the pipe. Ordinarily 36-inch pipe is the least size that should be used, since it is not practical to work within smaller diameter pipes.
- B. Jacking shall be in accordance with the current American Railway Engineering Association Specifications, Chapter 1, Part 4 "Jacking Culvert Pipe Through Fills." This operation shall be conducted without hand-mining ahead of the pipe and without the use of any type of boring, auguring, or drilling equipment.

Bracing and backstops shall be so designed and jacks of sufficient rating used so that the jacking can be progressed on a 24-hour basis without stoppage in Zone 1, 2, and 3 as indicated Plate VIII.(except for adding lengths of pipe) until the leading edge of the pipe has reached the receiving pit.

- C. Immediately upon completion of jacking operation, the installation shall be pressure grouted as per Section 5.2 of this specification.

5.1.6 Tunneling (Tunnel Liner Plate)

- A. This method consists of placing rings of liner plate within the tail section of a tunneling shield or tunneling machine. A tunneling shield shall be used for all liner plate installations unless otherwise approved by NS.
- B. The shield shall be of steel construction, designed to support a railroad track loading as specified in Section 4.1.3 of this specification, in addition to the other loadings imposed. The advancing face shall be provided with a hood, extending no less than 20 inches beyond the face and extending around no less than the upper 240 degrees of the total circumference. It shall be of sufficient length to permit the installation of at least one complete ring of liner plates within the shield before it is advanced for the installation of the next ring of liner plates. The shield shall conform to and not exceed the outside dimensions of the liner plate tunnel being placed by more than 1 inch at any point on the periphery unless otherwise approved by NS.
- C. The shield shall be adequately braced and provided with necessary appurtenances for completely bulkheading the face with horizontal breast boards and arranged so that the excavation can be benched as may be necessary. Excavation shall not be advanced beyond the edge of the hood, except in rock.
- D. Manufacturer's shop detail plans and manufacturer's computations showing the ability of the tunnel liner plates to resist the jacking stresses shall be submitted to NS for approval.
- E. Unless otherwise approved by NS, the tunneling shall be conducted continuously, on a 24-hour basis,

until the tunnel liner extends at least beyond the theoretical railroad embankment line with no stoppage within Zone 1, 2, and 3 as indicated (See Plate VIII).

- F. At any interruption of the tunneling operation, the heading shall be completely bulkheaded.
- G. The liner plates shall have tapped grout holes for no smaller than 1 ½ inch pipe, spaced at approximately 3 feet around the circumference of the tunnel liner and 4 feet longitudinally.
- H. Grouting behind the liner plates shall be in accordance with Section 5.2 of this specification.

5.1.7 Directional Boring / Horizontal Directional Drilling (Steel Pipe)

Method "A"

- A. This method consists of setting up specialized drilling equipment on existing grade (launching and receiving pits are not required) and boring a small diameter pilot hole on the desired vertical and horizontal alignment, using a mechanical cutting head with a high pressure fluid (bentonite slurry) to remove the cuttings. The drill string is advanced with bentonite slurry pumped through the drill string to the cutting head and then forced back along the outside of the drill string, carrying the cuttings back to the surface for removal. When the cutting head reaches the far side of the crossing, it is removed and a reamer (with a diameter greater than the cutting head) is attached to the lead end of the drill string. The

pipeline is attached to the reamer and the pilot hole is then back reamed while the pipeline is pulled into place.

- B. This method is used to place pipelines under rivers, wetlands and other obstructions which would be difficult to cross by conventional methods. The length of the bore is generally several hundred feet in length, with installations over a thousand feet possible.
- C. Consideration will be given where the depth of cover is greater than 10 feet below the base of the rail, or the bore is in rock. Factors considered will be track usage, pipe size, contents of pipeline, soil conditions, etc.
- D. The following preliminary information must be submitted with the request for consideration of this type of installation:
 - (1) A site plan of the area.
 - (2) A plan view and profile of the crossing
 - (3) A Pipe Data Sheet
 - (4) Appropriately spaced soil borings along the proposed pipeline route
 - (5) A construction procedure, including a general description of equipment to be used

If NS determines this method of installation is acceptable, final design plans and specifications are to be prepared and submitted for approval.

- E. The project specifications must require the contractor to submit, to NS for approval, a complete construction procedure of the proposed boring operation. Included with the submission shall be the manufacturer's catalog information describing the type of equipment to be used.
- F. Maximum pipe size for HDD application shall be 36" in diameter.
- G. Any over-cut by the cutting head should be minimized to match the pipe being installed. Any over-cut shall be no more than 2" larger than the installed pipeline. If voids should develop or if the bored

hole diameter is greater than the outside diameter of the pipe (plus coating) by more than approximately 1 inch, grouting (see Section 5.2) or other methods approved by NS, shall be employed to fill such voids. HDD can be progressed on a 24- hour basis without stoppage in Zone 1, 2, and 3 as indicated Plate VIII.

- H. The applicant's engineer shall provide the project geotechnical analysis to the NS representative for review. Specify the maximum drilling fluid pressures so that applicant's engineer can ensure that frac-out does not occur. As a general rule of thumb, the fluid pressure must not exceed the uplift capacity of the soil (nominally 1 psi per foot of depth).

Reference National Utility Contractors Association (NUCA) "*Trenchless Construction and Rehabilitation Methods*" (4th Edition) and ASCE's "*Pipeline Design for Installation by Horizontal Directional Drilling*" (4th Edition). Per NUCA, "Important physical properties that need to be determined include strength, grain size, moisture content, plasticity characteristics, compressibility, and permeability of the deposits".

Further geotechnical analysis by the applicant may be required to verify that railroad tracks, property and facilities will not be affected by the proposed bore.

Method "B"

- A. This method is used to place small diameter conduit for electric lines and other utilities. This method consists of using hydraulic jacking equipment to push a solid steel rod under the railroad from a launching pit to a receiving pit. At the receiving pit, a cone shaped "expander" is attached to the end of the rod and the conduit (casing pipe) is attached to the expander. The rod, expander and conduit are then pulled back from the launching pit until the full length of the conduit is in place.
- B. This method may be used to place steel conduit (casing pipe), up to and including 6 inches in diameter, under the railroad.
- C. The project specifications must require the contractor to submit, to NS for approval, a complete construction procedure of the proposed boring operation. Included with the submission shall be the manufacture's catalog information describing the type of equipment to be used.
- D. Maximum pipe size for HDD application shall be 36" in diameter.
- E. Any over-cut by the cutting head should be minimized to match the pipe being installed. Any over-cut shall be no more than 2" larger than the installed pipeline. If voids should develop or if the bored hole diameter is greater than the outside diameter of the pipe (plus coating) by more than approximately 1 inch, grouting (see Section 5.2) or other methods approved by NS, shall be employed to fill such voids. HDD can be progressed on a 24- hour basis without stoppage in Zone 1, 2, and 3 as indicated Plate VIII.
- F. The applicant's engineer shall provide the project geotechnical analysis to NS representative for review. Specify the maximum drilling fluid pressures so that applicant's engineer can ensure that frac-out does not occur. As a general rule of thumb, the fluid pressure must not exceed the uplift capacity of the soil (nominally 1 psi per foot of depth).

Reference National Utility Contractors Association (NUCA) "*Trenchless Construction and Rehabilitation Methods*" (4th Edition) and ASCE's "*Pipeline Design for Installation by Horizontal Directional Drilling*" (4th Edition). Per NUCA, "Important physical properties that need to be determined include strength, grain size, moisture content, plasticity characteristics, compressibility, and permeability of the deposits".

Further geotechnical analysis by the applicant may be required to verify that railroad tracks, property

and facilities will not be affected by the proposed bore.

5.1.8 Tunnel Boring Machines and Microtunneling

- A. A tunnel boring machine (TBM), also known as a "mole", is a machine used to excavate tunnels with a circular cross section through a variety of soil and rock strata. May also be used called Microtunneling for smaller tunnels.
- B. Use of TBM will be considered for installations of pipelines at least 20-feet below base of rail.
- C. Plans must indicate locations and depth of boring and receiving pits and shoring details as required in Section 5.8, below.
- D. The submission must include a detailed soil analysis and the details of the machine to be used, including the type of boring head, type of slurry to be used (if applicable), and type of guidance system.

5.1.9 Slip Lining

- A. Slip-lining is the process of replacing an existing carrier pipe within an existing casing pipe.
- B. The submission must demonstrate that the existing casing is constructed of a material described in section 4 of this specification, including appropriate wall thickness and joints.
- C. The submission must demonstrate that the existing casing is of an adequate length to meet the requirements of section 4.3.1 of this Specification.
- D. The submission must include documentation that clearly demonstrates that the casing has not deteriorated to a point where it no longer complies with items B and C, above. If necessary, the applicant may apply for a right-of-entry permit as outlined in Section 1.4 of this Specification in order to excavate the ends of the existing casing for a thorough inspection.

5.1.10 Cured In Place Pipe (CIPP)

- A. CIPP is a trenchless rehabilitation method used to repair existing pipelines from existing access points.
- B. CIPP will be considered for rehabilitation of existing non-pressurized sewer and storm drain only.
- C. Submission must include details of proposed access to existing pipe on either side of the Railroad right-of-way, and a detailed assessment and analysis of the condition of the existing pipe.
- D. Submission must include details of the proposed pipe bypass system to be used during construction.
 - (1) The submission must include documentation that clearly demonstrates that the casing has not deteriorated to a point where it no longer complies with items B and C, above. If necessary, the applicant may apply for a right-of-entry permit as outlined in Section 1.4 of this Specification in order to excavate the ends of the existing casing for a thorough inspection.

5.1.11 Pipe Bursting and Pipe Ramming

- A. Pipe Bursting is a trenchless method of replacing buried pipelines such as sewer, water, or natural gas pipes without the need for a traditional trenching by expanding the diameter of the current pipe to receive a new pipe.
- B. Pipe Ramming uses pneumatic percussive blows to drive the pipe through the ground without the use of an auger.

- C. Neither Pipe Bursting nor Pipe Ramming will be considered for installations beneath railroad track. Both methods may be considered at NS's discretion if the installation will not come closer than 25-feet to the centerline of any railroad track or closer than 50-feet to any other railroad structure.

5.2 Grouting

- A. For jacked and tunneled installations, a uniform mixture of 1:6 (cement: sand) cement grout shall be placed under pressure through the grout holes to fill any voids which exist between the pipe or liner plate and the undisturbed earth.
- B. Grouting shall start at the lowest hole in each grout panel and proceed upwards simultaneously on both sides of the pipe.
- C. A threaded plug shall be installed in each grout hole as the grouting is completed at that hole.
- D. When grouting tunnel liner plates, grouting shall be kept as close to the heading as possible, using grout stops behind the liner plates if necessary. Grouting shall proceed as directed by NS, but in no event shall more than 6 lineal feet (1.8 m) of tunnel be progressed beyond the grouting.

5.3 Soil Stabilization

- A. Pressure grouting of the soils or freezing of the soils before jacking, boring, or tunneling may be required at the direction of NS to stabilize the soils, control water, prevent loss of material and prevent settlement or displacement of embankment. Grout shall be cement, chemical or other special injection material selected to accomplish the necessary stabilization.
- B. The materials to be used and the method of injection shall be prepared by a Registered Professional Soils Engineer or by an experienced and qualified company specializing in this work and submitted for approval to NS before the start of work. Proof of experience and competency shall accompany the submission.

5.4 Dewatering

- A. When water is known or expected to be encountered, pumps of sufficient capacity to handle the flow shall be maintained at the site, provided the contractor has received approval from NS to operate them. Pumps in operation shall be constantly attended on a 24-hour basis until, in the sole judgement of NS, the operation can be safely halted. When dewatering, close observation shall be maintained to detect any settlement or displacement of railroad embankment, tracks, and facilities.

5.5 Safety Requirements

All operations shall be conducted so as not to interfere with, interrupt, or endanger the operation of trains nor damage, destroy, or endanger the integrity of railroad facilities. All work on or near NS property shall be conducted in accordance with NS safety rules and regulations. The contractor shall secure and comply with the NS safety rules and shall give written acknowledgement to NS that they have been received, read, and understood by the contractor and its employees. Operations will be subject to NS monitoring at any and all times.

- A. All cranes, lifts, or other equipment that will be operated in the vicinity of NS's electrification and power transmission facilities shall be electrically grounded as directed by NS.
- B. At all times when the work is being progressed, a field supervisor for the work with no less than twelve (12) months experience in the operation of the equipment being used shall be present. If boring equipment or similar machines are being used, the machine operator also shall have no less than twelve (12) months experience in the operation of the equipment being used.

- C. Whenever equipment or personnel are working closer than 15 feet from the centerline of an adjacent track, that track shall be considered as being obstructed. Insofar as possible, all operations shall be conducted no less than this distance. Operations closer than 15 feet from the centerline of a track shall be conducted only with the permission of, and as directed by, a duly qualified NS railroad employee or an authorized NS representative present at the site of the work.
- D. Construction near switching areas may require lighting.
- E. Crossing of tracks at grade by equipment and personnel is prohibited except by prior arrangement with and as directed by NS.

5.6 Blasting

- A. Blasting will not be permitted.

5.7 Protection of Drainage Facilities

- A. If, in the course of construction, it may be necessary to block a ditch, pipe or other drainage facility, temporary pipes, ditches or other drainage facilities shall be installed to maintain adequate drainage, as approved by NS. Upon completion of the work, the temporary facilities shall be removed, and the permanent facilities restored.
- B. Soil erosion methods shall be used to protect railroad ditches and other drainage facilities during construction on and adjacent to NS right-of-way.

5.8 Support of Excavation Adjacent to Track

5.8.1 Launching and Receiving Pits

- A. The location and dimensions of all pits or excavations shall be shown on the plans. The distance from centerline of adjacent track to face of pit or excavation shall be clearly labeled. Also, the elevation of the bottom of the pit or excavation must be shown on the profile.
- B. The face of all pits shall be located a minimum of 25 feet from centerline of adjacent track, **measured at right angles to track**, unless otherwise approved by NS.
- C. NS Typical Drawing No. 4 – Shoring Requirements shall govern the limits and type of required excavation support.
- D. All plans and calculations for shoring shall be prepared, signed and sealed by a Registered Professional Engineer licensed in the state of the project. The Engineer will be responsible for the accuracy for all controlling dimensions as well as the selection of soil design values which will accurately reflect the actual field conditions.
- E. The plans shall contain details of the shoring system showing sizes of all structural members, details of connection, *and* embedment depth. The plans shall include a plan view showing all the proposed excavations and distances from centerline of track to face of excavation. Plans shall show a section normal to the track showing the shoring location relative to the centerline of track and showing the height of sheeting and track elevation in relation to the bottom of excavation. The plans must be complete and accurately describe the nature of the work.
- F. Shoring in Zone 1 or 2, AREMA recommended practice is to be used for design. No increase in temporary stresses is permitted. Refer to AREMA Load Section.

- G. Design shall include 2 feet of spoils adjacent to the shoring and the first 1 foot below the dredge line is to be neglected for passive resistance
- H. Shoring location in Zone 2 as shown on NS Typical Drawing No. 4 – Shoring Requirements shall be designed using interlocking sheeting. Soldier piles and lagging will be considered only when its use is specifically approved by NS. Consideration for the use of soldier piles and lagging will only be made if the required penetration of steel sheet piling cannot be obtained and when dry, stable material will be encountered.
- I. All excavations with the limits shown on NS Typical Drawing No. 4 – Shoring Requirements shall be designed for railroad live load surcharge. All shoring designed for railroad live load surcharge shall be based on Cooper's E-80 live load. AREMA Chapter 8, Part 20, Section 3, Paragraph 2(b), refers to the Boussinesq equation as a method to determine lateral pressure values for railroad surcharge loading. NS Typical Drawing No. 5 – Shoring Design Guide – Lateral Pressures from Train Loads indicates the lateral pressures associated with various depths of excavation and distances from centerline of track as determine by the Boussinesq equation.
- J. Calculations for the proposed shoring shall include deflection calculations. The maximum deflection for excavations within 18'-0" of the centerline of the nearest track shall be 3/8". For all other cases, the max deflections shall not exceed 1/2".
- K. Railings shall be constructed around all excavations on NS property. Walkways with railings shall be constructed over open excavations adjacent to the tracks located within the normal walkway. Refer to AREMA Section 15 for walkway and railing design criteria. Railings shall not be closer than 10'-0" horizontally from centerline of track. Railing shall be indicated on plans submitted for NS acceptance.
- L. Approval of the excavation plan does not relieve the applicant of ultimate responsibility and liability for the excavation plan.
- M. If the excavation pit design and shoring system will be submitted by the applicant's contractor, the applicant's contract specifications must require the applicant's contractor to obtain NS approval prior to beginning any excavation.

5.8.2 Parallel Trenching and Other Excavation

- A. NS Typical Drawing No. 4 – Shoring Requirements shall govern the limits and type of excavation support.
- B. The design and construction requirements for this construction shall be in accordance with the requirements of Section 5.8.1.

5.9 Inspection and Testing

- A. For pipelines carrying flammable or hazardous materials, ANSI Codes, current at time of constructing the pipeline, shall govern the inspection and testing of the facility on NS property, except as follows:
 - (1) One hundred percent of all field welds shall be inspected by radiographic examinations, and such field welds shall be inspected for 100 percent of the circumference.
 - (2) The proof testing of the strength of carrier pipe shall be in accordance with ANSI requirements.

5.10 Reimbursement of Costs

- A. All costs incurred by NS or its representative associated with the pipe installation (construction

monitoring, flagging, track work, protection of signal cables, etc.) shall be reimbursed by the applicant.

PUBLICATION STANDARDS SOURCES

ANSI	American National Standards Institute, Inc. 1899 L Street, NW, 11th Floor Washington, DC 20036 Tel: 202.293.8020
AREMA	American Railway Engineering Maintenance-of-Way Association 4501 Forbes Blvd., Suite 130 Lanham, MD 20706 Tel: 301.459.3200
ASTM	American Society for Testing and Materials 100 Barr Harbor Drive, PO Box C700 West Conshohocken, PA 19428 Tel: 610.832.9500
AWWA	American Water Works Association, Inc. 6666 West Quincy Avenue Denver, CO 80235 Tel: 303.794.7711 or 800.926.7337
NACE	National Association of Corrosion Engineers 15835 Park Ten Place Houston, TX 77084 Tel: 281.228.6200

NOTE: If other than ANSI, AREMA, ASTM, AWWA or NACE specifications are referred to for design, materials or workmanship on the plans and specifications for the work, then copies of the applicable sections of such other specifications referred to shall accompany the plans and specifications for the work.

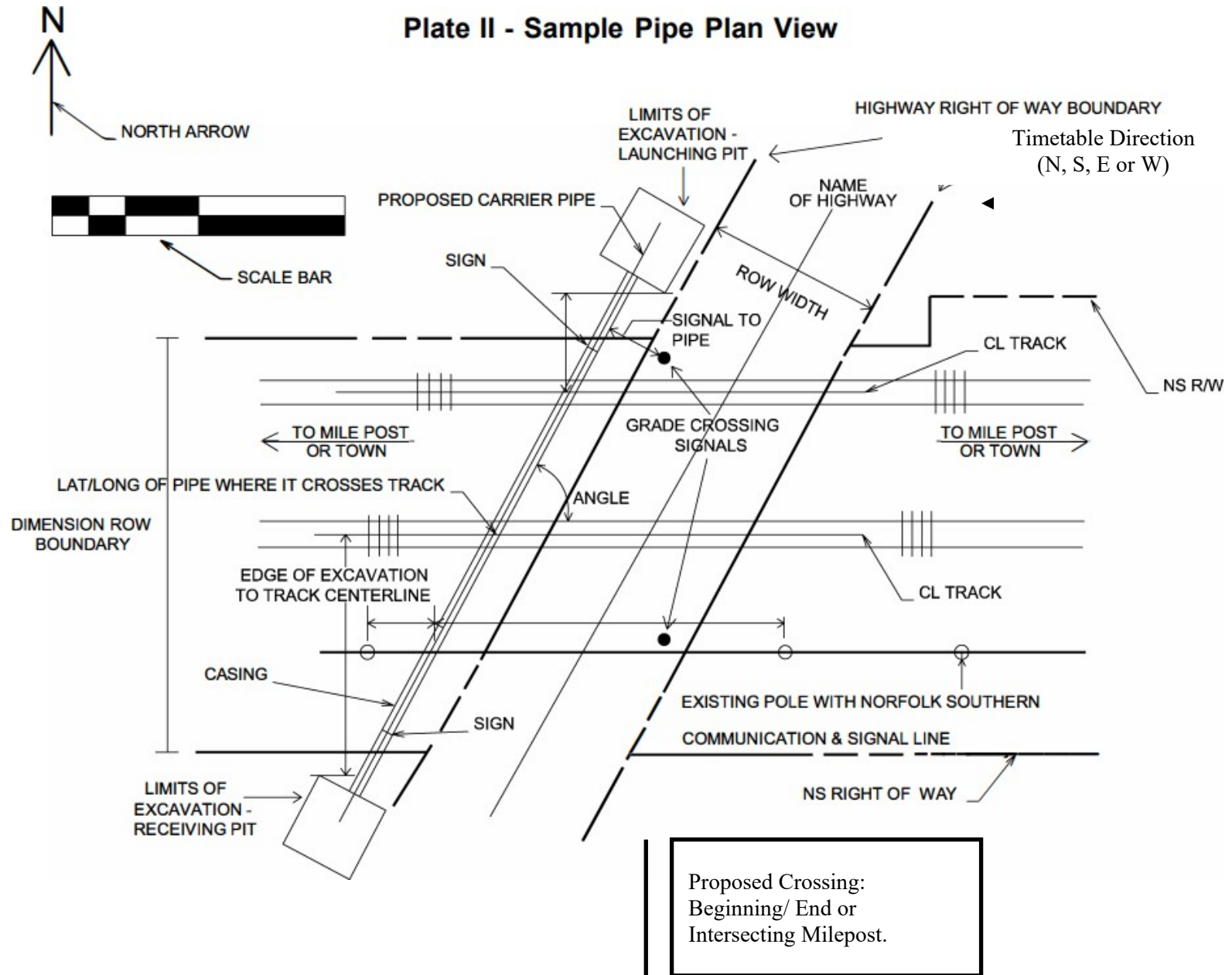
Plate I - Pipe Data Sheet

	CARRIER PIPE	CASING PIPE
CONTENTS TO BE HANDLED		
MAX. ALLOWABLE OPERATING PRESSURE		
NOMINAL SIZE OF PIPE		
OUTSIDE DIAMETER		
INSIDE DIAMETER		
WALL THICKNESS		
WEIGHT PER FOOT		
MATERIAL		
PROCESS OF MANUFACTURE		
SPECIFICATION		
GRADE OR CLASS (Specified Minimum Yield Strength)		
TEST PRESSURE		
TYPE OF JOINT		
TYPE OF COATING		
DETAILS OF CATHODIC PROTECTION		
DETAILS OF SEALS OR PROTECTION AT END OF CASING		
CHARACTER OF SUBSURFACE MATERIAL		
APPROXIMATE GROUND WATER LEVEL		
SOURCE OF INFORMATION ON SUBSURFACE CONDITIONS		

Proposed method of installation:

- ☐ Bore and jack (per Section 5.1.3 of NSCE-8)
☐ Jacking (per Section 5.1.4 of NSCE-8)
☐ Tunneling (with Tunnel Liner Plate) (per Section 5.1.5 of NSCE-8)
☐ Directional Bore/Horizontal Direction Drilling – Method A (per Section 5.1.6 of NSCE-8)
☐ Directional Bore/Horizontal Direction Drilling – Method B (per Section 5.1.6 of NSCE-8)
☐ Open Cut (per Section 5.1.2 of NSCE-8). *All installations directly under any track must be designed as a bored installation. Open cut installations will be considered on a case-by-case basis by Norfolk Southern's Division Superintendent at the time of installation.*
☐ Other (Specify): _____

Last Revised: 12/20/17



Looking Direction should be
Increasing and Decreasing Milepost

Plate III - Sample Pipe Profile View

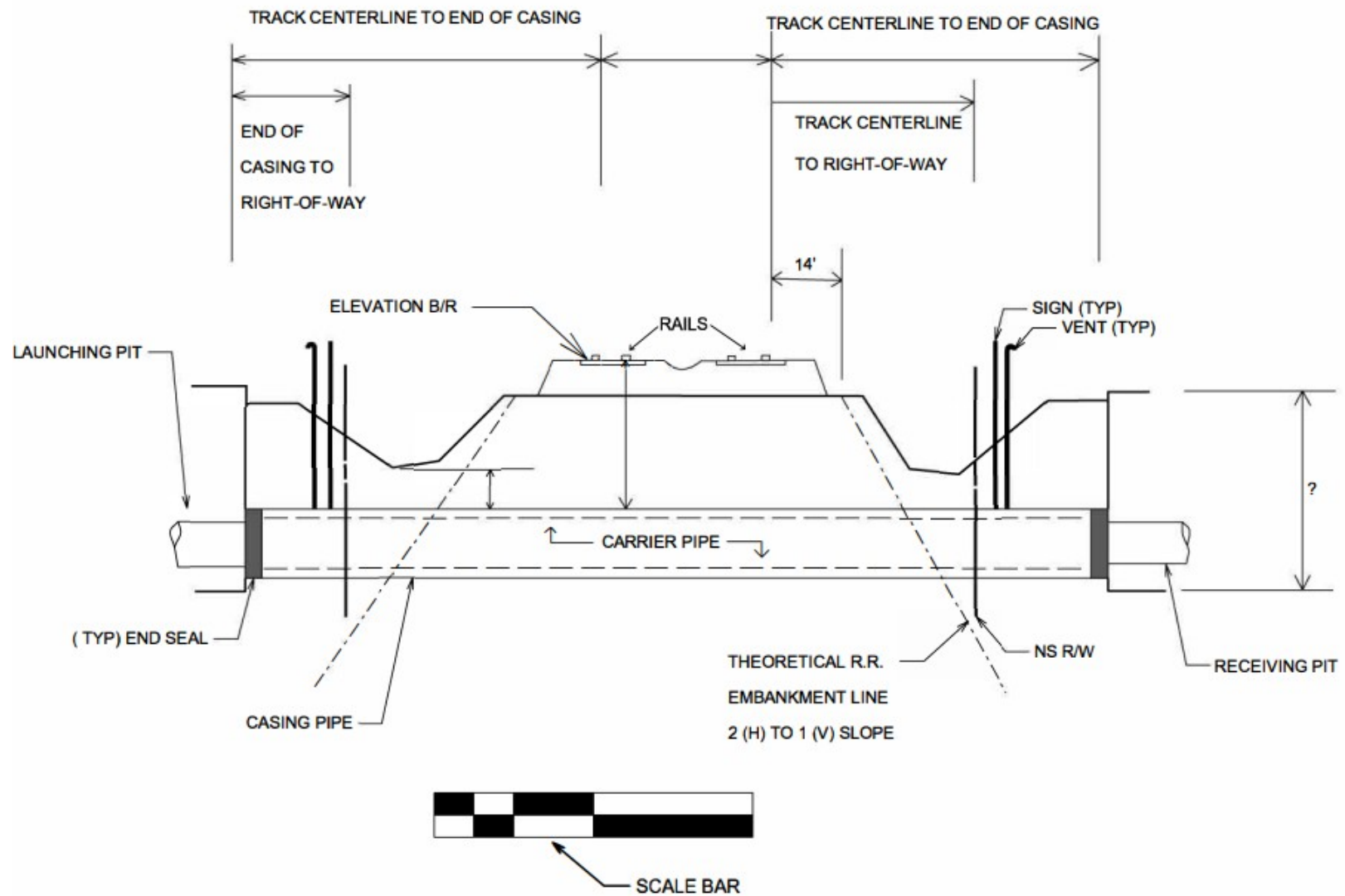
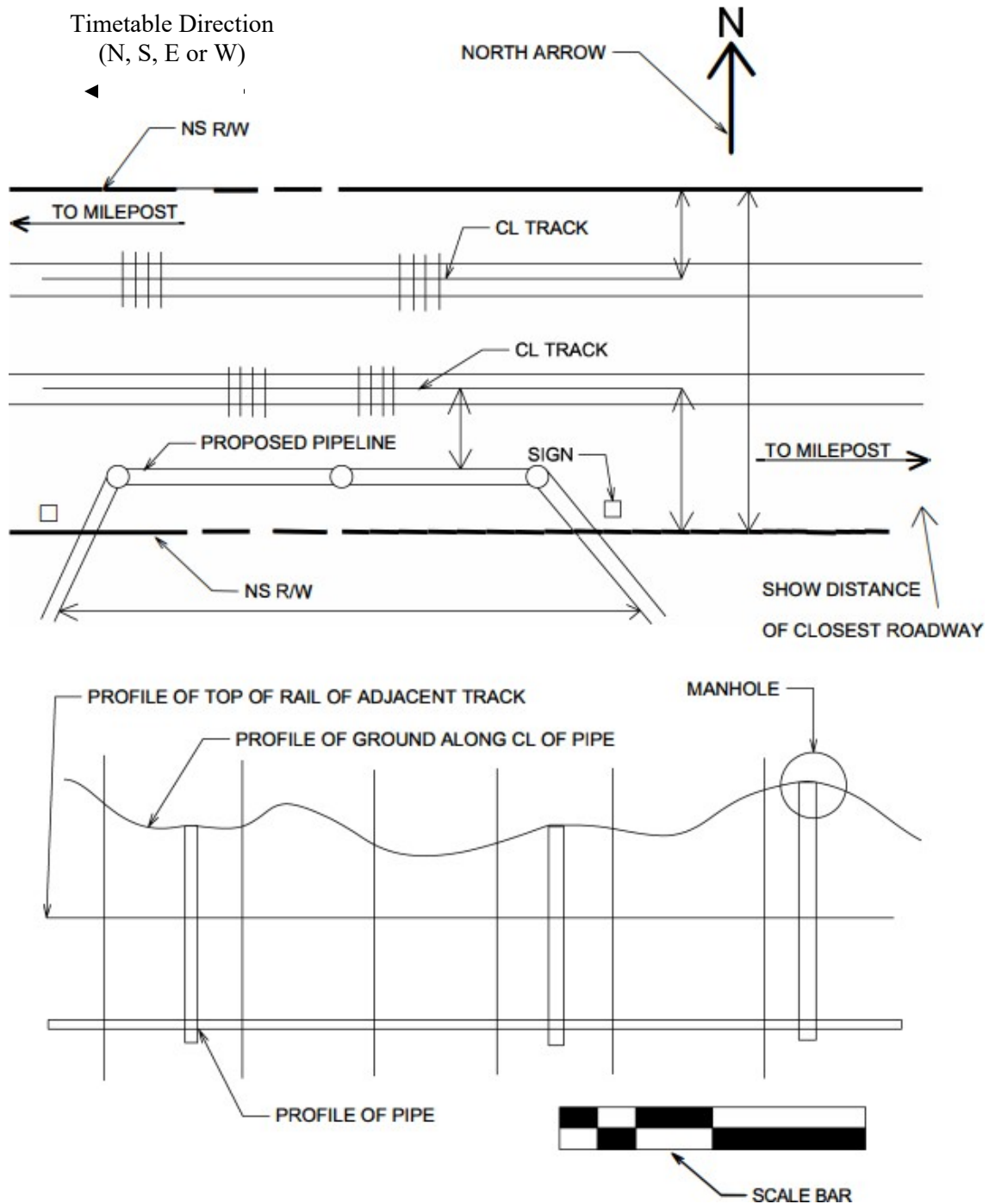
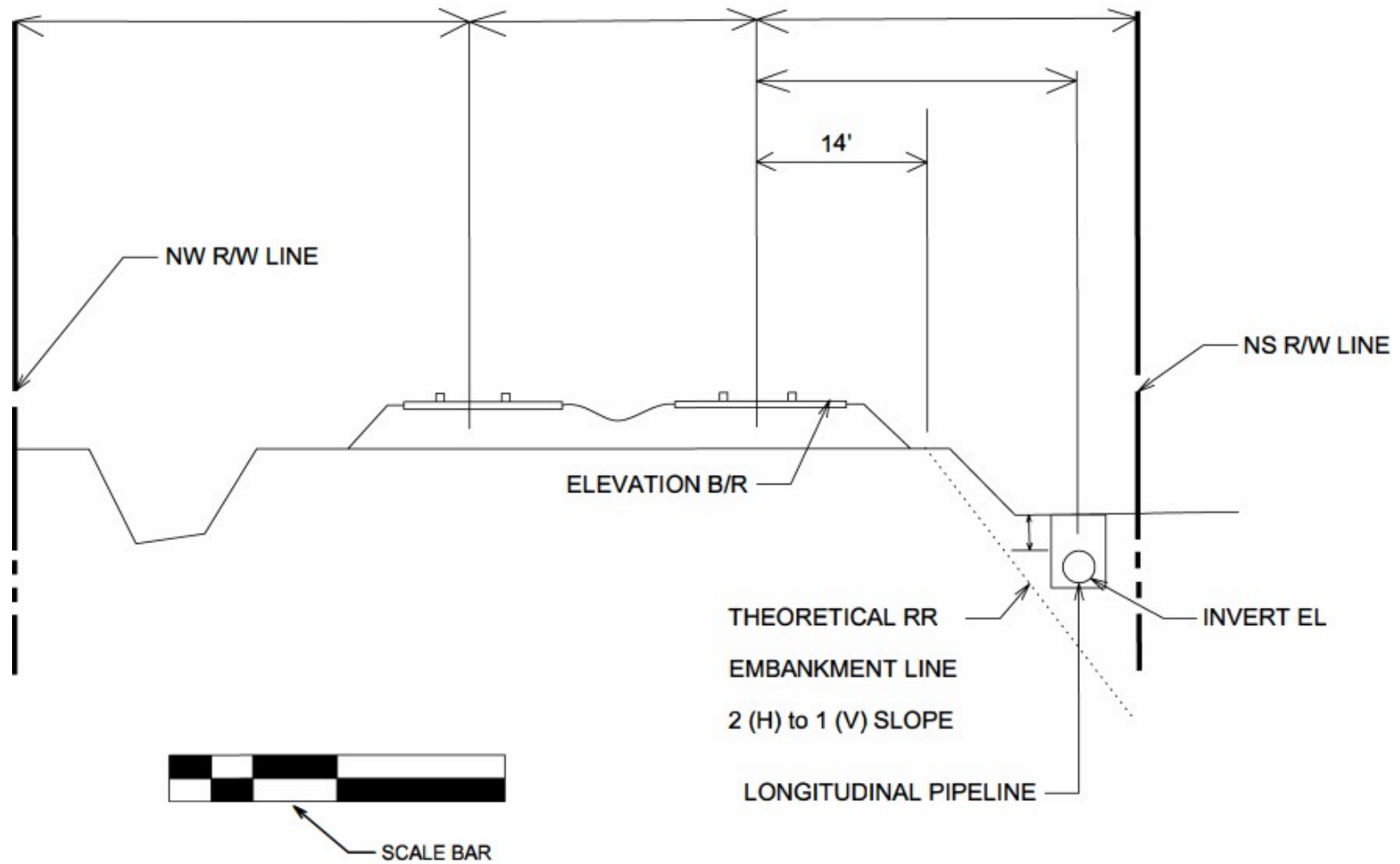


Plate IV - Sample Pipe Parallel Plan and Profile Views



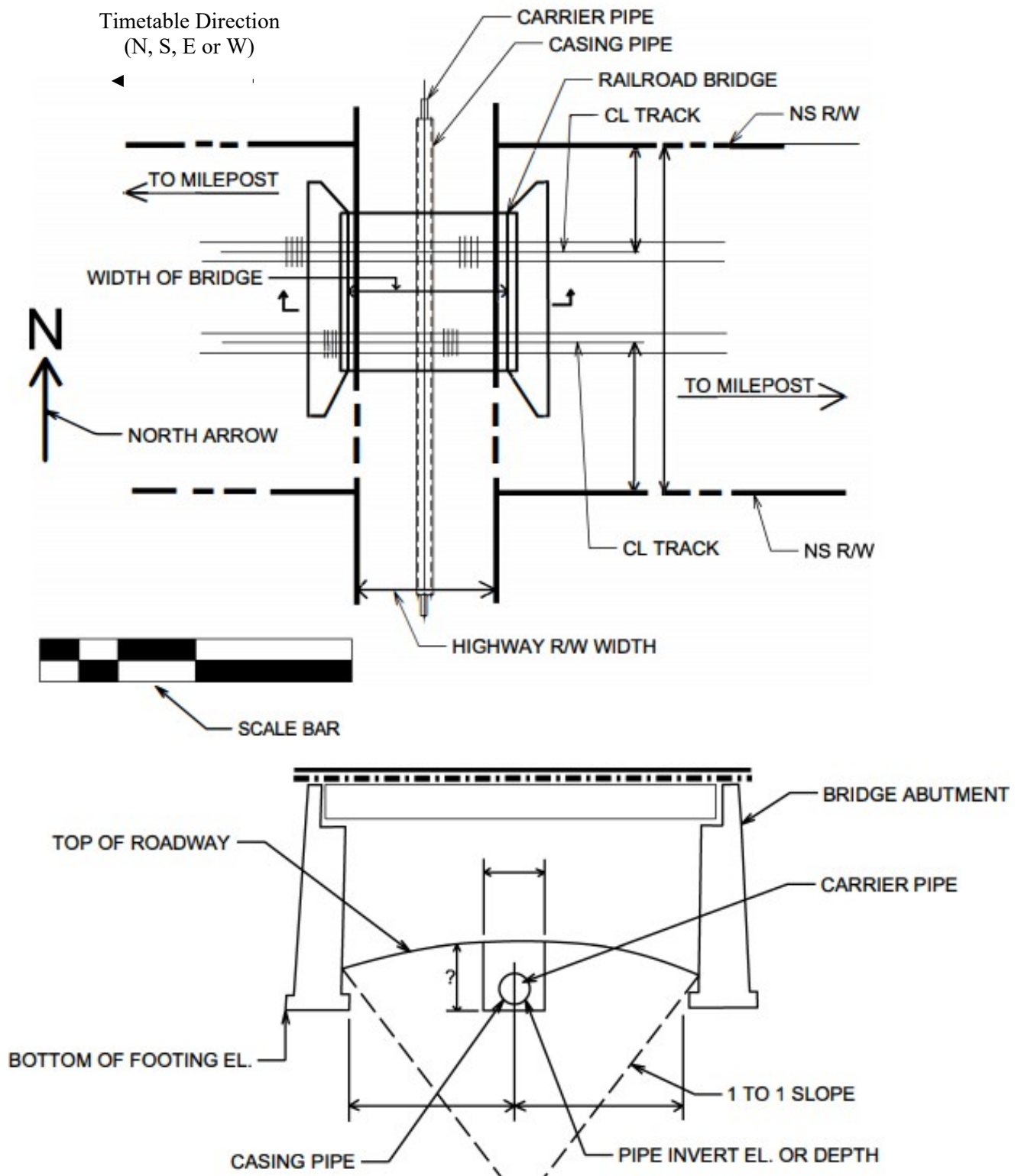
Looking Direction should be
Increasing and Decreasing Milepost

Plate V - Sample Pipe Parallel Section View



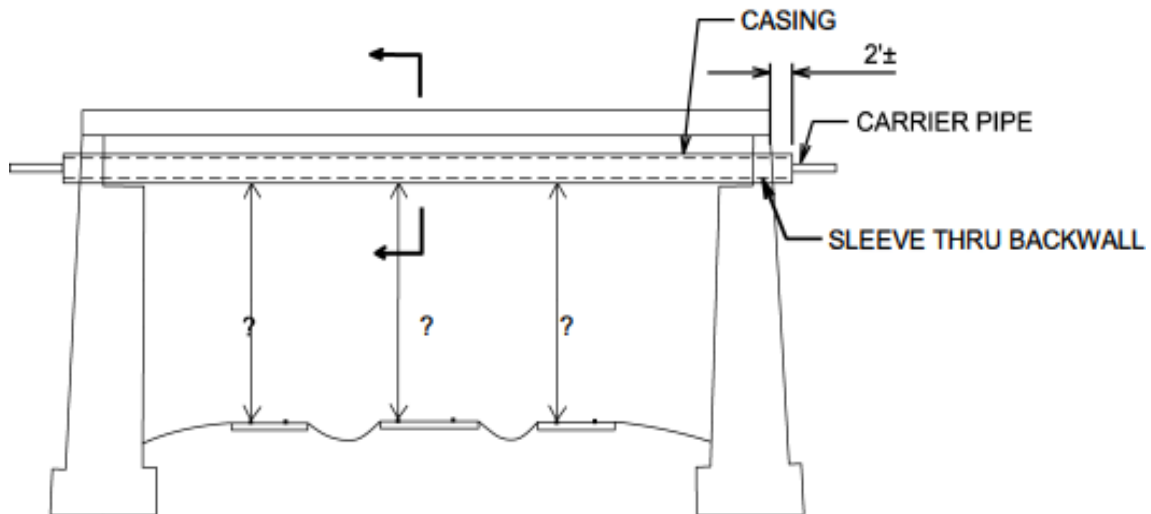
Looking Direction should be
Increasing and Decreasing Milepost

Plate VI - Sample Pipe Plan and Section Under Railway Bridge



Looking Direction should be
Increasing and Decreasing Milepost

PLATE VII - Sample Pipe Profile and Section Views Pipe in Highway Over Railway



Looking Direction should be
Increasing and Decreasing Milepost

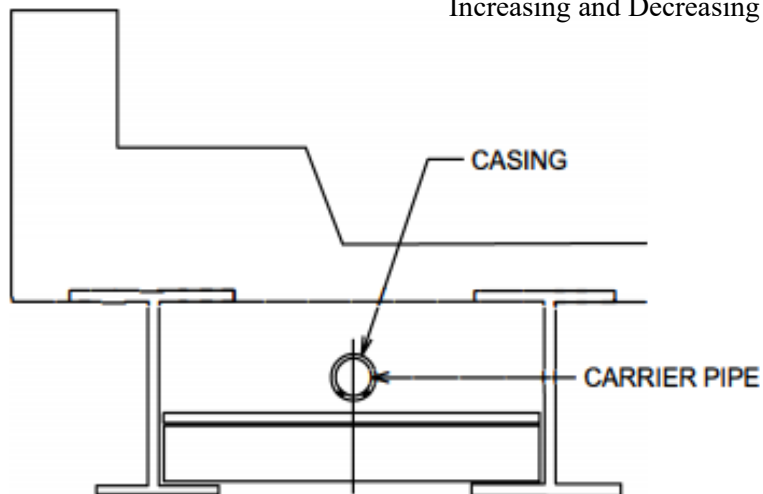
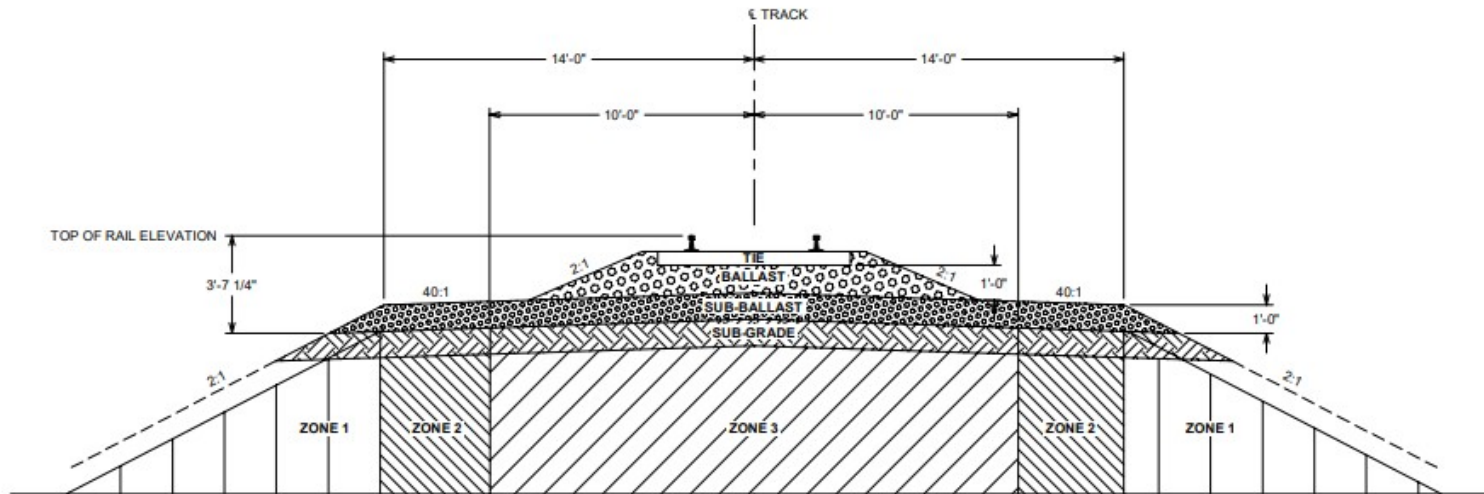


PLATE VIII - Railway Shoring Requirements



ROADBED PROFILE - SHORING REQUIREMENTS (NTS)

- ZONE 1** EXCAVATION WITHIN ZONE 1 WILL REQUIRE SHORING FOR THE PROTECTION OF THE RAILROAD
- ZONE 2** EXCAVATION WITHIN ZONE 2 WILL REQUIRE SHORING CONSISTING OF INTERLOCKING SHEETING FOR THE PROTECTION OF THE RAILROAD
- ZONE 3** NO EXCAVATIONS WILL BE ALLOWED IN ZONE 3

NOTES:

- EXCAVATIONS OUTSIDE OF ZONE 1 MAY REQUIRE SHORING FOR SAFETY. LATERAL PRESSURES DUE TO TRAIN LOADINGS DO NOT AFFECT SHORING DESIGN OUTSIDE OF ZONE 1.
- REFER TO PUBLIC PROJECTS MANUAL APPENDIX H, SECTION H.1.6.A. (OVERHEAD BRIDGE) OR SECTION H.2.8.A. (UNDERPASS BRIDGE) AND APPENDIX H FOR ADDITIONAL SHORING LOCATION REQUIREMENTS.

REVISIONS		
DATE	LTR	DESCRIPTION
9/23/2013	1	REVISE ZONE 2 DIMENSION AND AREA
1/1/15	2	REVISED NOTE 2

NORFOLK SOUTHERN

PUBLIC PROJECTS MANUAL
TYPICAL DRAWINGS

SHORING DESIGN GUIDE
SHORING REQUIREMENTS

REF. NO.: SEC 1 - ONE - S - SHT 4

DATE: AUGUST 1, 2015 DRAWING NO.: 4

PLATE IX - Lateral Pressures for Sheet Pile Design

LATERAL PRESSURES FROM COOPERS E-80 TRAIN LOADS

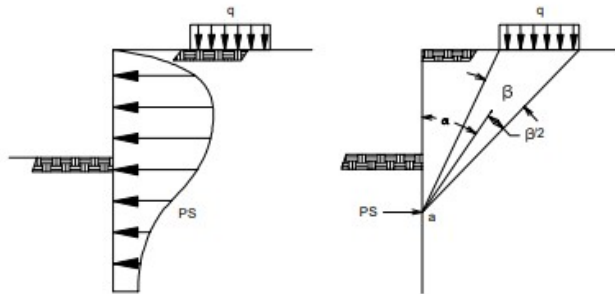
THE BOUSSINESQ EQUATION FOR STRIP LOADS IS SHOWN IN THE AREMA MANUAL FOR RAILWAY ENGINEERING, CHAPTER 8, SECTION 20.3.2.2

BOUSSINESQ EQUATION:

$$PS = (2q/\pi) * (\beta - (\sin\beta) * \cos(2\alpha))$$

WHERE:

- PS = ACTIVE PRESSURE FROM SURCHARGE LOADING
- β = $\text{ATAN}((CLT+TL/2)/HS) - \text{ATAN}((CLT-TL/2)/HS)$ IN RADIANS
- α = $\beta/2 + \text{ATAN}((CLT-TL/2)/HS)$ IN RADIANS
- q = UNIFORM SURCHARGE LOAD FROM TRAINS = 80 KIPS/(5) (TL)
- CLT = DISTANCE FROM FACE OF RETAINING WALL TO CENTERLINE OF TRACK
- TL = TIE LENGTH = 8.5' STANDARD
- HS = DEPTH BELOW APPLIED SURCHARGE LOADING



NOTES:

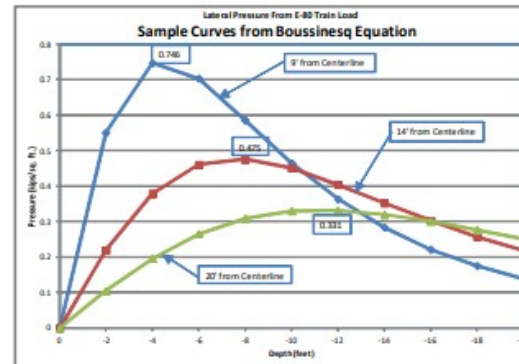
- TABLE 1 PROVIDES THE RESULTANT LATERAL PRESSURES FOR VARIOUS DEPTHS AND DISTANCES FROM THE CENTERLINE OF TRACK. THREE REPRESENTATIVE PRESSURE CURVES ARE ALSO SHOWN ON THE PROVIDED SAMPLE CURVES FROM BOUSSINESQ EQUATION.
- FOR A SIMPLIFIED ENGINEERING ANALYSIS, THE RAILROAD LOADING SURCHARGE PRESSURE MAY BE ASSUMED RECTANGULAR WITH WIDTH (P) EQUAL TO 0.8 OF THE MAXIMUM PRESSURE ORDINATE AS GIVEN BY THE APPROPRIATE RAILROAD CURVE.
- WORK THIS DRAWING WITH PUBLIC PROJECTS MANUAL APPENDIX H, SECTION H.1.6 (OVERHEAD BRIDGE) OR SECTION H.2.8 (UNDERPASS BRIDGE).

Table 1 - Lateral Pressure from E-80 Train Loads
(From Boussinesq Equation)

		0	-2	-4	-6	-8	-10	-12	-14	-16	-18	-20
	Depth (Feet)											
8	0	0.7	0.596	0.732	0.576	0.439	0.333	0.253	0.195	0.152	0.12	
9	0	0.55	0.736	0.703	0.585	0.464	0.363	0.283	0.221	0.175	0.139	
10	0	0.44	0.635	0.603	0.579	0.478	0.385	0.307	0.245	0.196	0.158	
11	0	0.36	0.555	0.523	0.501	0.482	0.399	0.326	0.265	0.215	0.176	
12	0	0.301	0.492	0.508	0.536	0.477	0.406	0.339	0.281	0.232	0.192	
14	0	0.218	0.378	0.48	0.475	0.45	0.404	0.352	0.302	0.257	0.218	
16	0	0.165	0.297	0.38	0.413	0.411	0.386	0.35	0.311	0.272	0.236	
18	0	0.13	0.239	0.315	0.357	0.389	0.36	0.338	0.309	0.278	0.247	
20	0	0.104	0.196	0.265	0.309	0.329	0.315	0.319	0.3	0.276	0.251	
22	0	0.078	0.15	0.208	0.25	0.276	0.287	0.287	0.279	0.265	0.247	
26	0	0.061	0.118	0.166	0.205	0.232	0.248	0.255	0.254	0.247	0.237	
29	0	0.049	0.095	0.136	0.17	0.196	0.214	0.224	0.228	0.227	0.222	
32	0	0.04	0.078	0.113	0.143	0.167	0.185	0.197	0.205	0.207	0.203	
35	0	0.034	0.066	0.095	0.122	0.144	0.161	0.174	0.183	0.188	0.189	
39	0	0.027	0.053	0.078	0.1	0.119	0.135	0.148	0.158	0.164	0.166	
43	0	0.022	0.044	0.064	0.083	0.1	0.115	0.127	0.137	0.144	0.149	
47	0	0.019	0.037	0.054	0.07	0.085	0.098	0.11	0.119	0.127	0.133	
51	0	0.016	0.031	0.046	0.06	0.073	0.085	0.095	0.104	0.112	0.118	
55	0	0.014	0.027	0.04	0.052	0.063	0.074	0.084	0.092	0.099	0.105	

All pressures shown are in kips per sq. ft.

Values represent the maximum pressure ordinate for each value of "CLT".



REVISIONS		
DATE	LTR	DESCRIPTION

NS
NORFOLK SOUTHERN
PUBLIC PROJECTS MANUAL
TYPICAL DRAWINGS

SHORING DESIGN GUIDE
LATERAL PRESSURES FROM
TRAIN LOADS

REF. NO.: SEC 3 - MISC 1

DATE: AUGUST 1, 2015

DRAWING NO.: 5



State of Louisiana
Louisiana Department of Health
Office of Public Health

March 20, 2024

St. Tammany Parish Department of Utilities
620 N. Tyler Street
Covington, LA 70433

c/o David A. Martin, P.E.
Fairway Consulting and Engineering
827 West 22nd Avenue
Covington, LA 70433

Re: Alton Water System Interconnection to serve
➤ St. Tammany Parish Alton Water System (LA1103145) and Magnolia Water Utilities Resolve Whisperwood (LA1103046)
➤ Mutual connection made near US-11 down 2nd Ave to Haas Rd at Ashton Parc
➤ Approximately 2160 L.F. of Proposed 8" C900 DR18 Water Line, Valves, and Appurtenances
Alton, LA
St. Tammany Parish
LDH/OPH Permit No. P24-09-103-113

Dear Applicant:

Plans and specifications of the above named project have been reviewed and found to be in substantial conformity with applicable provisions of the Louisiana Administrative Code. The design is, therefore, approved.

This approval refers to sanitary features of the design only, and is not to be taken as an approval of structural details, except insofar as they may affect sanitation.

This approval is issued with the stipulation that this water system will be owned, operated, and maintained by:

St. Tammany Parish Alton Water System
PWS_ID#LA1103145
620 N. Tyler Street
Covington, LA 70433

The plans and specifications are being sent to the St. Tammany Parish Health Unit.

This approval is automatically canceled if construction of the project has not been started within two (2) years after the date of this letter.

March 20, 2024

Page 2 of 2

Re: Alton Water System Interconnection
St. Tammany Parish

After construction is completed, the engineer(s) and contractor(s) responsible for the design and construction of the project shall complete and submit the Certification of Construction Form to this Office (Southeast Region IX Office of Public Health, 42354 West Club Deluxe Road, Suite #12, Hammond, LA 70403) certifying that the project was constructed in accordance with the plans and specifications approved (or to which “no objection” was issued) by this Office. As of February 1, 2007, this Certification of Construction Form shall be required prior to occupancy. Please be reminded that this permit is not considered final until the completed Certification of Construction Form is received by this office.

If construction commences before a permit is granted, a Notice of Violation will be issued for the project. A letter of “no objection” will not be issued on any pre-constructed project unless the project fully complies with the requirements of the Sanitary Code.

In the event that it is determined at some point in the future that a design error escaped our detection during our review of these plans and specifications, that oversight shall not relieve you, the applicant, of the responsibility for complete compliance with the requirements of the Louisiana Administrative Code [particularly, LAC 51 (Public Health-Sanitary Code) and LAC 48 (Public Health-General)], specifically including correcting the violations inadvertently overlooked.

Please be reminded that it is the responsibility of the owner of the public water system to obtain all necessary permits and rights-of-way for the proposed water distribution system.

Please be reminded that mandatory containment practices, including but not limited to backflow prevention methods or devices, shall be utilized to protect water supply customers and on-site users of the water system against potential contamination, as required by LAC 51:XII.344.

If you have any questions or require additional information, please call me at (985) 543-4957.

Respectfully,



Corey Harris Jr., P.E.
Region 9 Engineer

ec: Chance Wooton, St. Tammany Parish Sanitarian Manager, LDH/OPH
Lisa de la Fuente, P.E., LDH/OPH Region 9 Engineer
Jennifer Dewitt, P.E., LDH/OPH Region 9 Engineer

1.	G-001	TITLE SHEET
2.	G-002	GENERAL NOTES
3.	G-101	WATER STANDARD NOTES I
4.	G-102	WATER STANDARD NOTES II
5.	C-001	PROJECT OVERVIEW MAP
6.	C-201	PLAN & PROFILE 2ND STREET-I
7.	C-202	PLAN & PROFILE 2ND STREET-II
8.	C-203	PLAN & PROFILE 2ND STREET-III
9.	C-204	PLAN & PROFILE 2ND STREET-IV
10.	C-205	PLAN & PROFILE 2ND STREET-V
11.	C-206	PLAN & PROFILE HAAS ROAD-I
12.	C-207	PLAN & PROFILE HAAS ROAD-II
13.	C-208	PLAN & PROFILE HAAS ROAD-III
14.	C-209	PLAN OF ALTERNATES
15.	G-501	WATER MAIN DETAILS I
16.	G-502	WATER MAIN DETAILS II
17.	G-503	WATER MAIN DETAILS III
18.	G-504	WATER MAIN DETAILS IV
19.	G-505	WATER MAIN DETAILS V
20.	G-506	WATER MAIN DETAILS VI
21.	G-507	APPROVED WATER FITTINGS



(NOT TO SCALE)

LDH/OPH PERMIT NO.: P-24-09-103-113

MICHAEL B. COOPER

JOE IMPASTATO
COUNCIL CHAIRMAN
DISTRICT 7

JEFF CORBIN
COUNCIL VICE-CHAIRMAN
DISTRICT 13

RICK SMITH
LARRY ROLLING
MARTHA J. CAZAUBON
KATHY SEIDEN
PAT PHILLIPS
CHERYL TANNER
JOE IMPASTATO
PAT BURKE
DAVID COUGLE
MAUREEN "MO" O'BRIEN
ARTHUR LAUGHLIN
JERRY BINDER
JEFF CORBIN
JIMMY STRICKLAND

DISTRICT 1
DISTRICT 2
DISTRICT 3
DISTRICT 4
DISTRICT 5
DISTRICT 6
DISTRICT 7
DISTRICT 8
DISTRICT 9
DISTRICT 10
DISTRICT 11
DISTRICT 12
DISTRICT 13
DISTRICT 14

08/12/2025
PLANS PREPARED BY AND RECOMMEND FOR
APPROVAL:

FAIRWAY CONSULTING AND ENGINEERING DATE
EF 6211
DAVID ALAN MARTIN, P.E.

PLANS APPROVED BY:

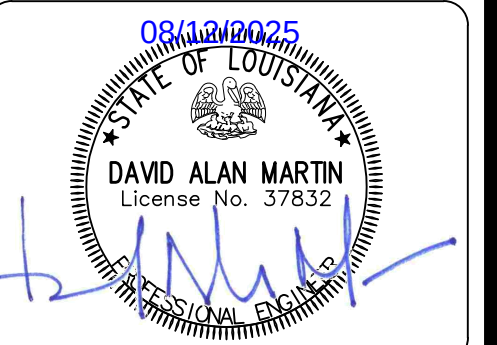
ST. TAMMANY PARISH GOVERNMENT
DEPARTMENT OF UTILITIES
CHRISTOPHER P. TISSUE, P.E., DIRECTOR



DEPT. OF UTILITIES
ST. TAMMANY PARISH
GOVERNMENT
620 N. TYLER STREET
COVINGTON, LA 70433

No.	DESCRIPTION OF REVISION	DATE:
D	CONSTRUCTION DOCUMENTS	08/25

DESIGNED BY:	MSL
DRAWN BY:	DAT
CHECKED BY:	DAM
SUBMITTED BY:	FAIRWAY CE
PROJECT No.:	TU21000154
ISSUE DATE:	04/17/2024
APPROVED BY:	---
SHEET SIZE:	ANSI D 34x22
SCALE:	---



ALTON WATER SYSTEM
INTERCONNECTION
SLIDELL, LOUISIANA
PROJECT No.: TU21000154

TITLE SHEET

SHEET NO.

G-001

LICENSE CLASSIFICATION:
MUNICIPAL & PUBLIC WORKS CONSTRUCTION

CONSTRUCTION TYPE:
CONSTRUCT NEW WATER MAIN USING
OPEN-CUT AND TRENCHLESS
METHODS.

GENERAL NOTES:

1. THE WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS.
2. SUBMIT SHOP DRAWINGS OF ALL PIPING, VALVES, ETC. TO THE ENGINEER FOR APPROVAL PRIOR TO COMMENCING WORK.
3. THE WORK SHALL BE CONFINED TO LIMITS OF CONSTRUCTIONS AS SHOWN ON THE PLANS. THE CONTRACTOR’S STAGING AND STORAGE AREAS SHALL BE LOCATED WITH IN THE LIMITS OF CONSTRUCTION. IF THE CONTRACTOR REQUIRES ADDITIONAL STAGING OR STORAGE SPACE, THE CONTRACTOR SHALL MAKE HIS OWN ARRANGEMENTS FOR REQUIRED STORAGE AND STAGING AREAS.
4. THE CONTRACTOR SHALL NOT DISTURB ANY WETLANDS.
5. CONTRACTOR OPERATIONS SHALL NOT INTERFERE OR RESTRICT THE OWNER’S ACCESS AND OPERATION OF THE FACILITY.
6. ALL MATERIALS AND COMPONENTS OF THE WATER SYSTEM SHALL BE MANUFACTURED, PRODUCED OR OTHERWISE BE OF DOMESTIC ORIGIN, HAVING BEEN MANUFACTURED WITHIN THE UNITED STATES OF AMERICA.
7. NEW WATER MAINS SHALL BE NO SMALLER THAN 8” INSIDE DIAMETER PVC PIPE. THE MINIMUM RESIDUAL PRESSURE AT PEAK DEMAND SHALL BE NO LESS THAN 25 PSIG, AND THE MINIMUM VELOCITY FOR A FULL FLOWING PIPE SHALL BE NO LESS THAN 2 FEET PER SECOND.
8. CONSTRUCTION PLANS ARE IN LOUISIANA STATE PLANE SOUTH COORDINATE SYSTEM. THE VERTICAL DATUM FOR ALL ELEVATIONS ARE REFERENCED TO NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88).
9. TEMPORARY BENCHMARKS HAVE BEEN ESTABLISHED. THE HORIZONTAL AND VERTICAL LOCATION OF THE TEMPORARY BENCHMARKS ARE AS SHOWN ON SHEET C–001.
10. THE CONTRACTOR SHALL USE THE HORIZONTAL AND VERTICAL CONTROLS ESTABLISHED FOR PROJECT.
11. THE CONTRACTOR SHALL FIELD VERIFY ALL ELEVATIONS, GRADES AND MEASUREMENTS PRIOR TO STARTING ANY CONSTRUCTION.
12. TO ENSURE THE CONSTRUCTION OPERATIONS REMAIN IN THE RIGHT–OF–WAY OR UTILITY SERVITUDE, THE CONTRACTOR SHALL STAKE THE RIGHT–OF–WAY AND/OR SERVITUDE LINE PRIOR TO COMMENCING WORK.
13. NEW WATER MAINS SHALL BE INSTALLED USING OPEN–CUT METHODS UNLESS WHERE SPECIFIED ON THE PLANS.
14. MINIMUM COVER OVER THE NEW WATER MAIN SHALL BE AT LEAST 3 FEET UNLESS OTHERWISE STATED IN THE PLANS OR AS APPROVED BY THE DU IN WRITING.
15. THE CONTRACTOR SHALL PROVIDE RED–LINE DRAWINGS TO BE USED BY THE ENGINEER OF RECORD FOR THE PROJECT IN THE PREPARATION OF RECORD DRAWINGS / DRAWINGS. RECORD DRAWINGS / DRAWINGS SHALL BE SUBMITTED AS PART OF THE PROJECT CLOSE–OUT DOCUMENTS.
16. EXISTING UTILITY LOCATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THE CONTRACTOR SHALL CONTACT LOUISIANA ONE CALL TO LOCATE AND MARK SUBSURFACE UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND RESOLVING CONFLICTS WITH THE RESPECTIVE UTILITY OWNERS. A LIST OF UTILITY OWNERS AND POINTS OF CONTACT ARE PROVIDED ON THE UTILITY DISPOSITION TABLE ON THIS SHEET.

17. THE CONTRACTOR SHALL VERIFY THE REQUIRED HORIZONTAL AND VERTICAL CLEARANCES WITH THE RESPECTIVE UTILITY OWNER PRIOR TO BEGINNING WORK.
18. CONCERNS REGARDING THE DEPARTMENT OF UTILITIES FACILITIES SHALL BE DIRECTED TO THE FOLLOWING PERSON:

FIELD OPERATIONS SUPERVISOR
(985) 893–1717
19. THE CONTRACTOR SHALL PROTECT SURROUNDING FACILITIES, INCLUDING BUT NOT LIMITED TO BUILDINGS, PAVEMENT, LANDSCAPING AND UTILITIES FROM DAMAGE. THE CONTRACTOR SHALL REPAIR OR REPLACE DAMAGED FACILITIES AT NO ADDITIONAL COST TO THE OWNER. THE CONTRACTOR SHALL REPAIR OR REPLACE DAMAGED FACILITIES TO THE OWNERS SATISFACTION.
20. LOCATIONS OF UTILITIES IDENTIFIED BY DEPARTMENT OF UTILITIES ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY ALL AFFECTED UTILITIES (I.E. WATER, SEWER) PRIOR TO DIGGING AND/OR BORING. ANY DAMAGE SHALL BE REPAIRED IMMEDIATELY BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE PROJECT.
21. SERVICE INTERRUPTIONS ASSOCIATED WITH FINAL CONNECTIONS SHALL BE APPROVED BY THE DEPARTMENT OF UTILITIES PRIOR TO COMMENCING THE TIE–IN WORK. THE CONTRACTOR SHALL CONTACT THE DEPARTMENT AT LEAST 5 DAYS PRIOR TO HIS PROPOSED SERVICE INTERRUPTION DATE.
22. THE CONTRACTOR SHALL RESTORE THE GROUND IN AND AROUND THE WORK AREA TO THE SATISFACTION OF THE OWNER. THE WORK AREA SHALL BE CLEANED AND MADE READY FOR RE–OCCUPANCY BY THE OWNER UPON COMPLETING ALL CONSTRUCTION ACTIVITIES.
23. THE WORK AREA SHALL BE KEPT CLEAN THROUGHOUT THE DURATION OF THE PROJECT. THE CONTRACTOR SHALL COLLECT AND REMOVE ANY DEBRIS OR TRASH FROM WORK AREA ON DAILY BASIS. DEBRIS OR TRASH SHALL BE STORED IN REFUSE CONTAINERS OR BINS UNTIL REMOVAL FROM THE SITE.
24. THE CONTRACTOR SHALL MAKE HIS OWN ARRANGEMENTS FOR STORAGE OF EQUIPMENT AND MATERIAL FOR STAGING AND STORAGE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SAFE KEEPING AND SECURITY OF ALL MATERIAL AND EQUIPMENT STORED IN THIS LOCATION.
25. THE LOCATION AND CONDITION OF EACH TIE–IN IS APPROXIMATE. IT IS THE CONTRACTOR’S RESPONSIBILITY, AS THE FIRST ORDER OF BUSINESS TO FIELD VERIFY THE LOCATION AND THE CONDITIONS OF EACH TIE–IN PRIOR TO ORDERING ANY MATERIALS AND INFORM THE ENGINEER.

ADDITIONALLY, ONCE THE TIE–INS ARE EXPOSED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND PARISH’S DEPARTMENT OF UTILITIES (DU) TO OPERATE AND EXERCISE THE ISOLATION VALVES AT EITHER END TO SEE IF THEY ARE OPERABLE AND LINES ARE FLUSHED AND CLEANED (ALL VALVES SHALL BE OPERATED BY OPERATIONS PERSONNEL OF DU ONLY). IN THE EVENT THAT THE VALVES ARE NOT OPERABLE AS DETERMINED BY THE ENGINEER, NEW VALVES SHALL BE INSTALLED UNDER APPLICABLE UNIT PRICES.
26. PORTION OF THIS PROJECT ARE TO BE CONSTRUCTED WITHIN THE RIGHTS OF WAY OF THE LOUISIANA DOTD AND THE NORFOLK SOUTHERN RAILROAD, AND UNDER RESPECTIVE LICENSE/ PERMIT AGREEMENTS. SEE SPECIFICATION FOR SPECIFIC REQUIREMENTS.

UTILITY DISPOSITION TABLE				
UTILITY OWNER	POINT OF CONTACT	PHONE NO.	DESCRIPTION OF FACILITY	DISPOSITION
AT&T	STEVE BERGERON	(985) 327–6432	COMMUNICATIONS–FIBER OPTIC	DO NOT DISTURB
CLECO	PAUL GITZ	(985) 807–3755	ELECTRICAL (OVERHEAD, UNDERGROUND)	DO NOT DISTURB
WSTE	HERB GORNOR	(985) 643–6612	ELECTRICAL (OVERHEAD, UNDERGROUND)	DO NOT DISTURB
ATMOS	RODNEY BABIN	(985) 290–0897	NATURAL GAS	DO NOT DISTURB
CAMELLIA FIBER	KORY MOSS	(318) 484–4124	COMMUNICATIONS–FIBER OPTIC	DO NOT DISTURB
CHARTER/SPECTRUM	CURTIS SELTERS	(985) 406–7063	COMMUNICATIONS–FIBER OPTIC	DO NOT DISTURB
UNITI FIBER	LESLIE BUTTS	(985) 643–6612	COMMUNICATIONS–FIBER OPTIC	DO NOT DISTURB
COX COMMUNICATIONS	NOT AVAILABLE	NOT AVAILABLE	COMMUNICATIONS–CABLE TV	DO NOT DISTURB
LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT	ERNEST MATHERNE	800–545–9280	ROADWAY (US 11), DRAINAGE, TRAFFIC SIGNALS, SIGNAGE, PAVEMENT MARKINGS	NOT APPLICABLE
LOUISIANA ONE CALL	NOT APPLICABLE	811	COMMUNICATIONS–FIBER OPTIC	NOT APPLICABLE
ST. TAMMANY PARISH GOVERNMENT	DANIEL HILL	(985) 898–2552	ROADWAY, DRAINAGE,	REMOVE AND RECONSTRUCT ROADWAY PER CONTRACT DOCUMENTS, TIE IN TO WATER MAINS, DO NOT DISTURB OTHERS.

CONTRACTOR SHALL CONTACT EACH AGENCY AND COMPANY RELATIVE TO THE EXACT LOCATION OF ITS UNDERGROUND INSTALLATION PRIOR TO ANY RELIANCE UPON THE ACCURACY OF SUCH LOCATION SHOWN. AT LEAST 72 HOURS PRIOR TO EXCAVATING, THE CONTRACTOR SHALL CALL LOUISIANA ONE CALL TO MARK THE UTILITIES THROUGH THE CONSTRUCTION AREA. EXISTING UTILITIES SHALL BE MARKED WITH SPRAY PAINT OR STAKES IN THE FIELD PRIOR TO EXCAVATION.

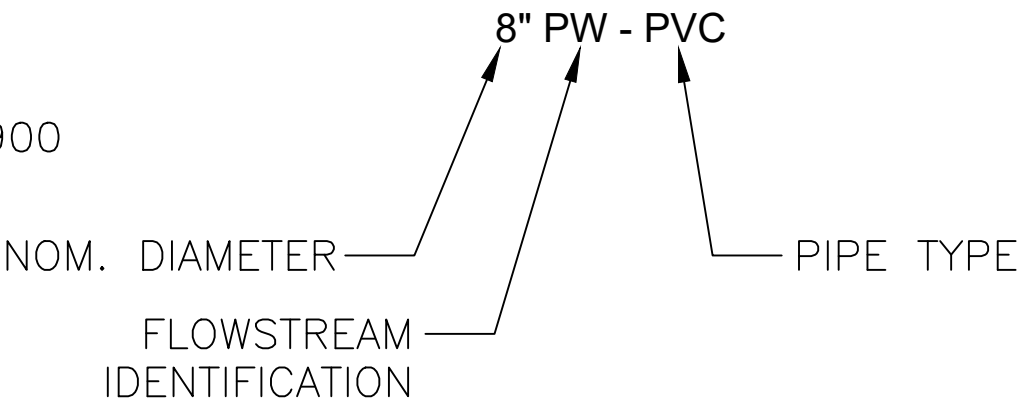
PIPE SCHEDULE/IDENTIFICATION

SERVICE	FLOWSTREAM ID	TEST PRESSURE	DIAMETER (INCHES)	PIPE TYPE	INSTALLATION	SPECIFICATION SECTION
POTABLE WATER	PW	125–H	6, 8	PVC	BURIED	33 99 50
			6, 8	CLDI		

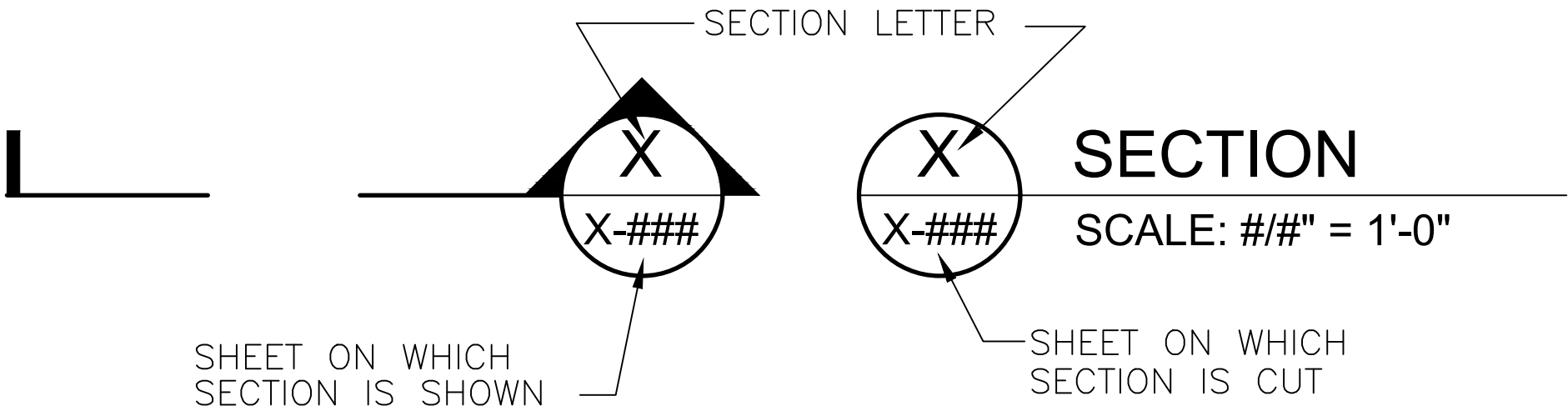
ABBREVIATIONS

CLDI – Cement Lined Ductile Iron
PVC – Polyvinyl Chloride, AWWA C–900
H– Hydrostatic

TYPICAL PIPE DESIGNATION



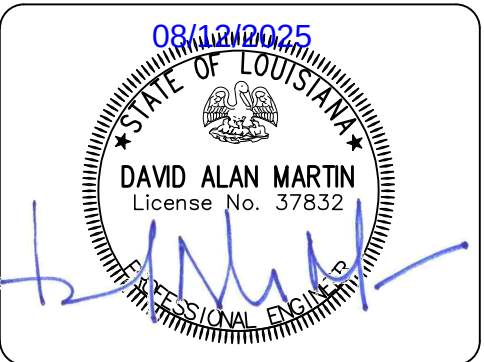
SECTION IDENTIFICATION



DEPT. OF UTILITIES
ST. TAMMANY PARISH
GOVERNMENT
620 N. TYLER STREET
COVINGTON, LA 70433

DATE:										08/25
DESCRIPTION OF REVISION										
No.										D

DESIGNED BY:	MSL
DRAWN BY:	DAT
CHECKED BY:	DAM
SUBMITTED BY:	FAIRWAY CE
PROJECT No.:	TU21000154
ISSUE DATE:	04/17/2024
APPROVED BY:	---
SHEET SIZE:	ANSI D 34x22
SCALE:	---



ALTON WATER SYSTEM INTERCONNECTION SLIDELL, LOUISIANA PROJECT No.: TU21000154	GENERAL NOTES

SHEET NO.
G–002

1. NEW WATER MAINS SHALL BE NO SMALLER THAN 6" INSIDE DIAMETER. HYDRANT LATERALS SHALL BE NO SMALLER THAN 6" INSIDE DIAMETER.
2. NEW WATER MAINS BETWEEN 8" AND 30" DIAMETER SHALL BE AWWA C900 POLYVINYL CHLORIDE (PVC) PIPE AND SHALL HAVE A PRESSURE CLASS OF 235 PSI (DR18). NEW WATER MAINS SHALL BE THE COLOR BLUE AND LABELED AS "WATER". CONNECTIONS TO OTHER WATER MAINS, INCLUDING THOSE OF DIFFERENT MATERIAL, SHALL BE MADE USING THE APPROPRIATE ADAPTERS AND FITTINGS.
3. NEW WATER MAINS INSTALLED USING AN OPEN CUT/TRENCH METHOD SHALL BE POLYVINYL CHLORIDE (PVC) PIPE CONFORMING TO AWWA C900. NEW WATER MAINS BETWEEN 8" AND 48" DIAMETER SHALL HAVE A PRESSURE CLASS OF 235 PSI (DR18). CONNECTIONS BETWEEN PIPE LENGTHS SHALL BE OF AN INTEGRATED "BELL AND SPIGOT" PUSH-ON DESIGN WITH A RUBBER GASKET SEAL. RUBBER SEAL SHALL CONFORM TO AWWA C111. NEW WATER MAINS SHALL BE THE BLUE AND LABELED AS "WATER".
4. TRACER WIRE AND IDENTIFICATION TAPE SHALL BE INSTALLED ALONG THE ENTIRE LENGTH OF THE WATER MAIN FOR ALL LINES INSTALLED USING THE OPEN CUT METHOD. THE TRACER WIRE AND IDENTIFICATION TAPE SHALL BE INSTALLED SIMULTANEOUSLY WITH THE WATER MAIN.
5. JOINT RESTRAINTS FOR PVC PIPE INSTALLED BY OPEN CUT BELL JOINTS SHALL BE RESTRAINED WITH A SERIES 1900 SERRATED RESTRAINT HARNESS MANUFACTURED BY EBAA, INC. OR APPROVED EQUAL.
6. ALL APPLICABLE WATER MAIN JOINTS SHALL BE RESTRAINED IN ACCORDANCE WITH THE PROVIDED DETAIL. THE MINIMUM RESTRAINT LENGTH FOR PVC PIPE JOINTS SHALL BE IN ACCORDANCE WITH THE PROVIDED DETAIL.
7. NEW WATER MAINS INSTALLED USING HORIZONTAL DIRECTIONAL DRILLING (HDD) METHODS SHALL BE FULLY RESTRAINED AWWA C900 POLYVINYL CHLORIDE (PVC) PIPE WITH NON-METALLIC JOINT RESTRAINT SYSTEM, AND SHALL HAVE A PRESSURE CLASS OF 235 (DR 18). CONNECTIONS TO OTHER WATER MAINS, INCLUDING THOSE OF DIFFERENT MATERIAL, SHALL BE MADE USING THE APPROPRIATE ADAPTERS AND FITTINGS.
8. UPON COMPLETION OF WATER MAIN CONSTRUCTION, THE DRILLING LOGS FOR ALL HDD INSTALLED WATER MAINS SHALL BE PROVIDED WITH THE RECORD DRAWINGS/AS-BUILT PLANS. THE DRILLING LOGS SHALL CONTAIN, AT MINIMUM, THE SIZE OF THE WATER MAIN, THE DEPTH OF INSTALLATION, AND THE LENGTH OF THE SEGMENT.
9. NEW WATER MAIN FITTINGS SHALL BE DUCTILE IRON FITTINGS CONFORMING TO AWWA C110/A21.10 WITH FITTING JOINTS CONFORMING TO AWWA C111/A21.11. THE DUCTILE IRON FITTING SHALL BE CEMENT LINED. BURIED FITTINGS SHALL BE MECHANICAL JOINT (MJ) FITTINGS. THE CONNECTION BETWEEN THE PVC WATER MAIN AND THE FITTING SHALL BE RESTRAINED WITH A 2000PV OR 2000SV MEGA-LUG MECHANICAL JOINT THRUST RESTRAINT MANUFACTURED BY EBAA, INC. OR AN APPROVED EQUAL. THE NUTS AND BOLTS SHALL BE TEFLON COATED COR-TEN FASTENERS. ABOVE GROUND FITTINGS SHALL BE FLANGED, AND FASTENERS SHALL BE STAINLESS STEEL.
10. THE CONTRACTOR SHALL INSTALL IDENTIFICATION TAPE ALONG THE ENTIRE LENGTH OF THE NEW WATER MAIN. IDENTIFICATION TAPE SHALL BE INSTALLED BY THE CONTRACTORS ONCE THE BACKFILL HAS BEEN PLACED AND COMPACTED TO AT LEAST 12" ABOVE THE TOP OF THE PIPE AND NOT MORE THAN 18" ABOVE THE CONNECTION.
11. ALL NEW WATER MAINS SHALL UNDERGO HYDROSTATIC TESTING TO VERIFY LEAK TIGHTNESS. NEW WATER MAINS SHALL TESTED AT 125 PSI FOR 2 HOURS. THERE SHALL BE NO PRESSURE DROPS DURING THE TEST. IN THE EVENT THE WATER MAIN FAILS THE TEST, THE WATER MAIN PIPES SHALL BE CHECKED AND REPAIRED ACCORDINGLY. THE WATER MAIN SHALL BE RE-TESTED.
12. AFTER SUCCESSFUL PRESSURE TESTING, WATERLINES AND WATER MAINS SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA C-601. DISINFECTED LINES SHALL BE TESTED AND APPROVED BY THE LOUISIANA DEPARTMENT OF HEALTH BEFORE BEING PLACED INTO SERVICE. ALL LOUISIANA DEPARTMENT OF HEALTH TEST SAMPLES SHALL BE COLLECTED FROM AN INSTALLED KUPFERLE FOUNDRY

WATER FITTINGS AND VALVES NOTES

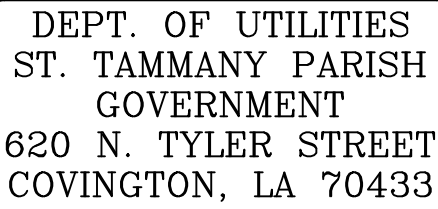
1. WATER VALVES THREE INCHES (3") OR LARGER SHALL BE AWWA C-509 RESILIENT-SEATED GATE VALVE FOR POTABLE WATER SUPPLY SERVICE. WATER VALVES SHALL BE FUSION BONDED EPOXY AND LINED PER AWWA C-550. VALVES SHALL BE MUELLER SERIES 2360 OR DEPARTMENT OF UTILITIES APPROVED EQUAL. WATER VALVES SHALL BE RESTRAINED JOINT WITH MEGALUG AND TEFLON COATED CORE-TEN BOLTS AND NUTS.
2. BURIED VALVES, INCLUDING TWO INCH (2") VALVES, SHALL HAVE A 3-PIECE CAST IRON BOX INSTALLED AND ADJUSTED TO FINISHED GRADE. BURIED VALVES SHALL HAVE AN AWWA OPERATING NUT AND A COVER LABELLED "WATER". EACH VALVE BOX SHALL HAVE A PRECAST OR CAST-IN-PLACE VALVE MEASURING AT LEAST 4" THICK BY 24" BY 24" SQUARE OR 4" THICK BY 24" ROUND.
3. MANHOLE AND VALVE COVERS SHALL HAVE DIAMOND TREAD PATTERN AND HAVE WORD "WATER" CAST ON THE COVER.
4. A HORIZONTAL CLEARANCE OF MINIMUM THREE FEET (3') SHALL BE MAINTAINED BETWEEN THE TOP OF DITCH (OR SUBSURFACE DRAINAGE FEATURE) AND EDGE OF THE MAIN AND/OR VALVE. IF THE CLEARANCE REQUIREMENT CANNOT BE MET DUE TO FIELD CONDITIONS, THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER TO DETERMINE AN ACCEPTABLE LOCATION OF THE MAIN AND/OR THE VALVE, ALL AT NO ADDITIONAL COST TO THE PROJECT. UNDER NO CIRCUMSTANCES VALVES AND THEIR ACCESS BE CONSTRUCTED IN DITCHES OR UNDER SUBSURFACE DRAINAGE FEATURES ARE ACCEPTABLE.
5. FITTINGS SHALL BE RESTRAINED JOINT DUCTILE IRON USING MEGALUGS AND TEFLON COATED CORE-TEN BOLTS AND NUTS. FITTINGS SHALL CONFORM TO ALL APPLICABLE AWWA/ANSI SPECIFICATIONS REGARDING USE IN POTABLE WATER SYSTEMS.
6. BRASS FITTINGS SHALL BE LEAD FREE. BRASS FITTINGS SHALL BE MUELLER, FORD METER BOX COMPANY, OR DEPARTMENT OF UTILITIES APPROVED EQUAL. REFER TO SHEET C-503 FOR APPROVED MODELS FROM MUELLER AND FORD METER BOX COMPANY.
7. CONNECTIONS TO EXISTING WATERLINES SHALL BE MADE USING MUELLER STAINLESS STEEL TAPPING SLEEVE AND VALVE, MODEL NO. H-304SS. CONNECTION TO EXISTING WATERLINES USING OTHER TAPPING SLEEVES AND VALVES OTHER THAN MUELLER H-304SS SHALL BE APPROVED BY DEPARTMENT OF UTILITIES PRIOR TO USE.
8. WATER SERVICE CONNECTIONS SHALL HAVE A BRASS TAPPING SADDLE, BRASS CORPORATION STOP, AND A MINIMUM 1" CONNECTION SIZE. SERVICE CONNECTION PIPING SHALL BE AWWA C901 POLYETHYLENE TUBING, PE3408 DR9. WATER SERVICE CONNECTION SHALL HAVE MAXIMUM COVER OF 2'. A U-BRANCH SHALL BE INSTALLED ON WATER SERVICE CONNECTION WHIP. THE LOCATION OF THE WATER SERVICE CONNECTIONS SHALL BE STAMPED IN THE CURB FACE OR ROAD SURFACE USING THE "W1" SYMBOL, AND THE LETTERING SHALL BE AT LEAST 4" BY 8".
9. ALL WATER SERVICE CONNECTION SHALL BE LOCATED AT THE LOT LINE. WATER SERVICE CONNECTIONS SHALL NOT BE LOCATED WITHIN THE DRIVEWAY.

	EXISTING RIGHT OF WAY
	SERVITUDE
	EDGE OF WATER BODY
	EDGE OF SWAMP
	EDGE OF MARSH
	CATCH BASIN ON VERTICAL CURB
	CATCH BASIN ON MOUNTABLE CURB
	CULVERT
	DROP INLET, DRAIN LINE
	DRAIN MANHOLE, DRAIN LINE
	DITCH WITH CENTERLINE
	LEVEE TOP AND TOE
	EDGE OF WOODS (THICK COVERAGE)
	TREE ROW
	TREE (WITH DRIP LINE), TREE STAND, BUSH
	HEDGE ROW
	SHRUBBERY BED OR BOX
	BUILDING, WITH PORCH AND STAIRS
	FENCE WITH GATE
	PROPERTY CORNER FOUND
	PROPERTY CORNER SET
	UNLESS NOTED, 5/8" IRON ROD
	TEMPORARY BENCHMARK (TBM)
	TV PEDESTAL, TV MANHOLE/VAULT
	TV UTILITY MARKER, BORE HOLE
	POWER LINE, UNDERGROUND
	POWER LINE, ABOVEGROUND
	POWER POLE, DEADMAN
	COMBINATION POLE, GUY POLE
	POWER JUNCTION, VAULT
	POWER DROP, TRANSFORMER
	POWER UTILITY MARKER, BORE HOLE
	GAS LINE, UNDERGROUND
	GAS LINE, ABOVEGROUND
	GAS LINE CASING, UNDERGROUND
	GAS LINE CASING, ABOVEGROUND
	GAS RISER, REGULATOR, VENT
	GAS SERVICE WITH METER, WITHOUT METER
	GAS VALVE, UTILITY MARKER, BORE HOLE
	RAILROAD MILE POST, SWITCH
	RAILROAD SIGNAL, CONTROL BOX
	SEWER MANHOLE, LINE
	SEWER BLOWOUT, FORCE MAIN LINE
	SEWER CLEANOUT, PUMP
	SEWER UTILITY MARKER, BORE HOLE
	SEWER LIFT STATION, TREATMENT STATION
	TRAFFIC SIGNAL POWER, UNDERGROUND
	TRAFFIC SIGNAL POWER, ABOVEGROUND
	TRAFFIC INTERCONNECT, LOOP DETECTOR
	TRAFFIC SIGNAL, SUSPENDED, CANTILEVER
	TRAFFIC DEADMAN, MISC. POLE
	TRAFFIC POWER VAULT, CONTROL BOX
	TRAFFIC SIGN, FEDERAL AID MARKER
	PARKING METER, LIGHT STANDARD, VAULT
	TRAFFIC CAMERA POLE, CONTROL BOX, POLE
	TELEPHONE LINE, UNDERGROUND
	TELEPHONE FIBER OPTIC LINE, UNDERGROUND
	TELEPHONE BOOTH, CROSS CONNECT
	TELEPHONE PEDESTAL, MANHOLE
	TELEPHONE UTILITY MARKER, BORE HOLE
	WATER LINE, UNDERGROUND
	WATER LINE, ABOVEGROUND
	WATER LINE CASING, UNDERGROUND
	WATER LINE CASING, ABOVEGROUND
	FIRE HYDRANT, WATER VALVE VAULT
	WATER METER, CLEANOUT, WELL
	WATER UTILITY MARKER, BORE HOLE
	BILLBOARD SUPPORT, SIGN POLE
	MAILBOX, STORAGE TANK VENT
	FLAGPOLE, MONITORING WELL
	MECHANICAL POINT
	E.G. A/C, COMPRESSOR, PUMP, ETC.
	TOP OF SILT ELEVATION

AC	ASBESTOS CONCRETE	PVC	POLYVINYL CHLORIDE
BOS	BOTTOM OF STRUCTURE	RCP	REINFORCED CONCRETE
CI	CAST IRON		PIPE
CMP	CORRUGATED METAL PIPE	RCPA	REINFORCED CONCRETE
CPP	CORRUGATED PLASTIC PIPE		ARCH PIPE
CSW	CONCRETE SIDEWALK	STL	STEEL
EOP	EDGE OF PAVEMENT	TC	TERRACOTTA OR CLAY
FCA	FIELD CONNECTION ASSUMED	TM	TOP OF METER
GI	GALVANIZED IRON	TN	TOP OF NUT
POCA	POINT OF CONNECTION ASSUMED	TP	TOP OF PIPE
		TV	TOP OF VALVE
		UNK	UNKNOWN
		UPOC	UNKNOWN POINT OF CONNECTION

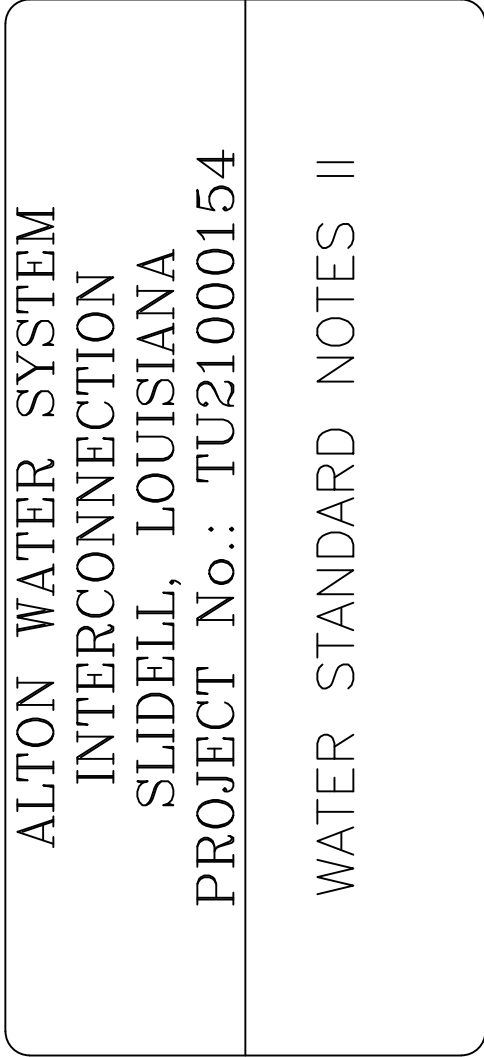
SYMBOL	MEANING

	WATER MAIN
	SINGLE WATER SERVICE CONNECTION
	DUAL WATER SERVICE CONNECTION
	WATER METER
	FIRE HYDRANT
	WATER VALVE & MANHOLE
	BACK FLOW PREVENTER
	WATER VALVE
	AIR RELEASE VALVE

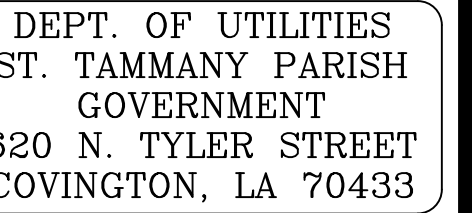


No.	DESCRIPTION OF REVISION	DATE:
D	CONSTRUCTION DOCUMENTS	08/25

DESIGNED BY:	MSL
DRAWN BY:	DAT
CHECKED BY:	DAM
SUBMITTED BY:	FAIRWAY CE
PROJECT No.:	TU2T000154
ISSUE DATE:	04/17/2024
APPROVED BY:	---
SHEET SIZE:	ANSI D 34x22
SCALE:	

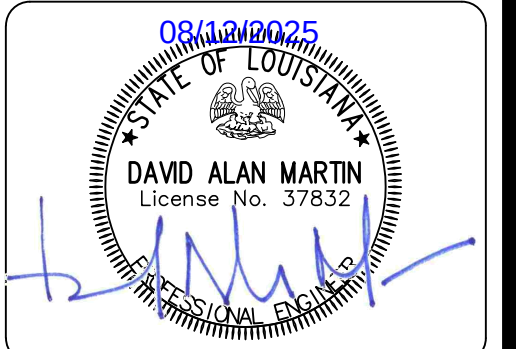


G-102



No.	DESCRIPTION OF REVISION	DATE:
D	CONSTRUCTION DOCUMENTS	08/25

DESIGNED BY:	MSL
DRAWN BY:	DAT
CHECKED BY:	DAM
SUBMITTED BY:	FAIRWAY CE
PROJECT No.:	TU21000154
ISSUE DATE:	04/17/2024
APPROVED BY:	---
SHEET SIZE:	ANSI D 34x22
SCALE:	

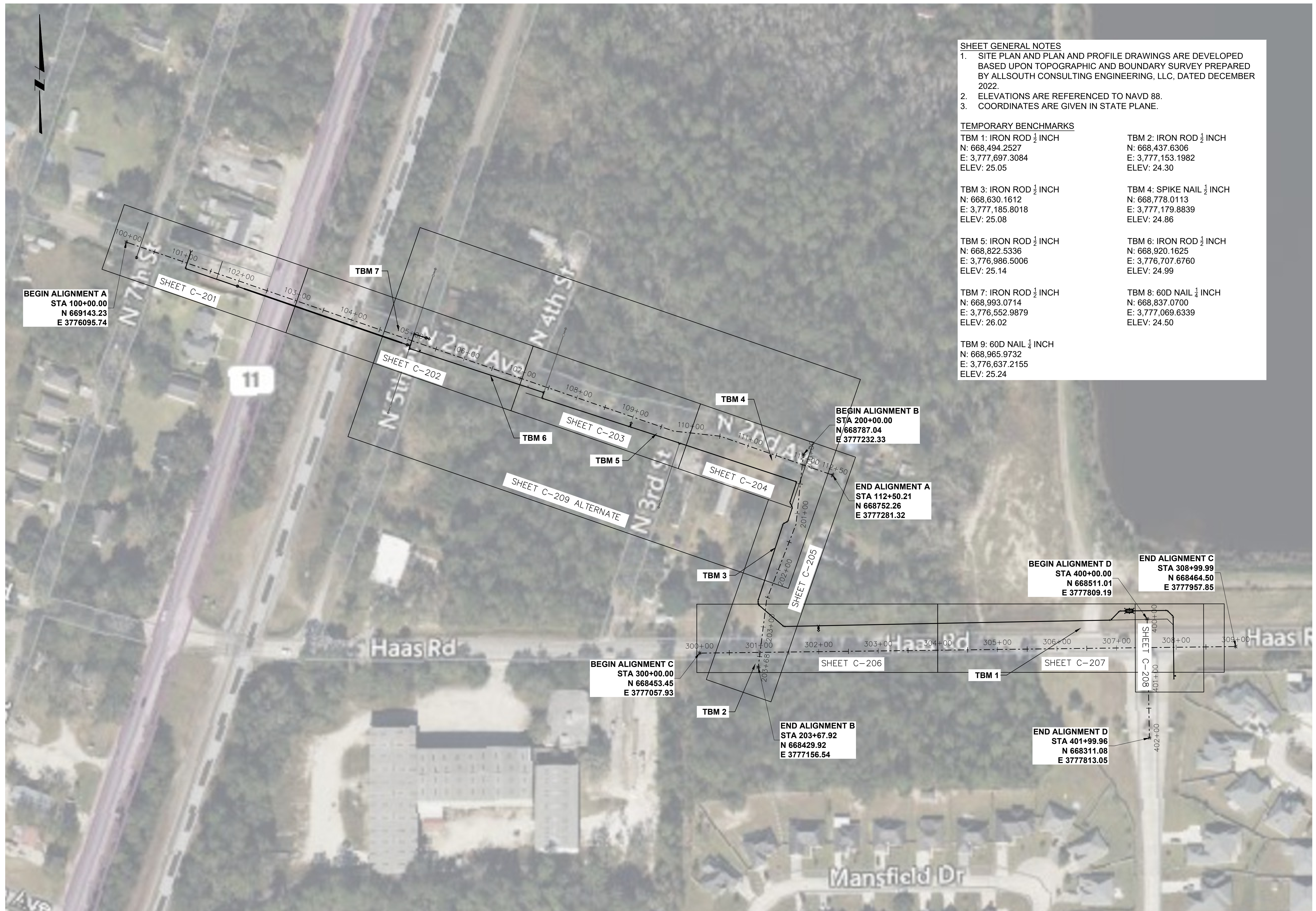


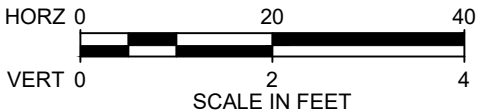
ALTON WATER SYSTEM
INTERCONNECTION
SLIDELL, LOUISIANA
PROJECT No.: TU21000154

PROJECT OVERVIEW MAP

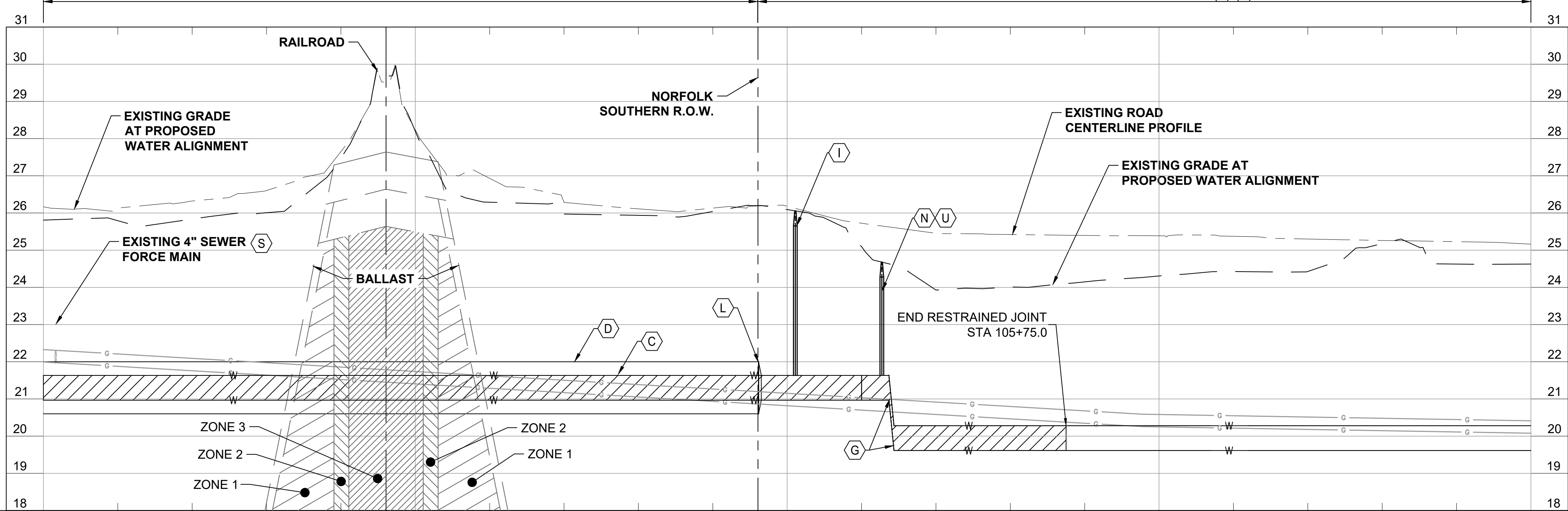
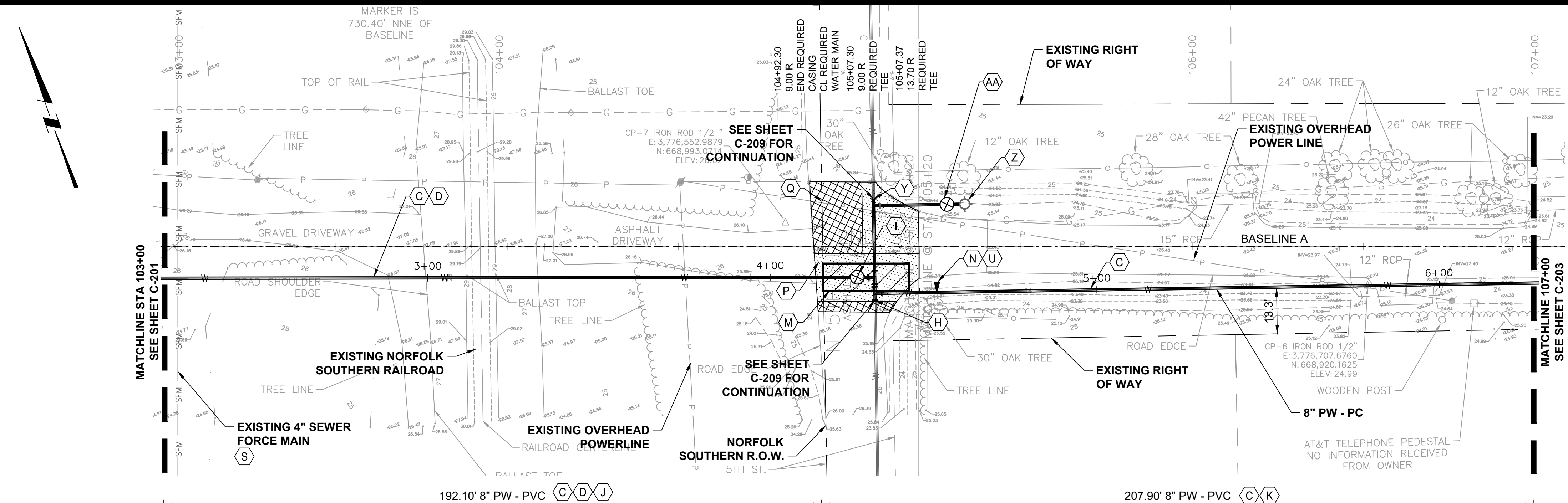
SHEET NO.

C-001





C-201



STATION	103+00	104+00	105+00	106+00	107+00
EXIST GND EL			24.63	24.31	24.63
PIPE GEOMETRY	4.53(C) 103+00.00		5.33(C) 105+27.36		4.88(C) 107+00.00
PIPE ELEV DATA (COVER INV)	20.97(I)		19.61(I)		19.61(I)

PAVEMENT RESTORATION LEGEND

- FULL DEPTH AC RESTORATION AND BASE COURSE (76 SY) FOLLOWED BY MILL AND OVERLAY
- MILL AND OVERLAY ONLY (43 SY)

PLAN AND PROFILE GENERAL NOTES

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PLAN AND PROFILE NOTES BY SYMBOLS

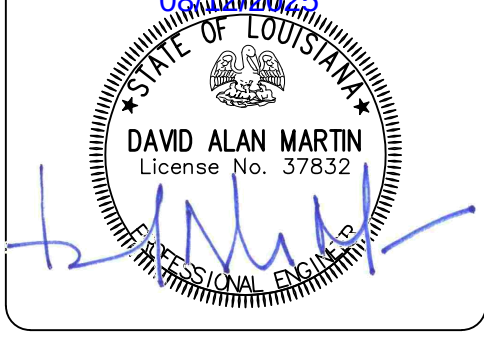
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- D. REQUIRED 16" I.D. STEEL CASING
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- G. REQUIRED FULLY RESTRAINED 8" M.J.M.J ELBOW (45°)
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- R. WATER PIPELINE TO BE INSTALLED BY HORIZONTAL DIRECTIONAL DRILLING
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- T. REQUIRED WATER MAIN MARKER PER WATER MAIN DETAILS
- U. FIELD ROUTE ARV PIPING TO RIGHT-OF-WAY AS DIRECTED PER ENGINEER.
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- W. REQUIRED MECHANICAL JOINT PLUG
- X. REQUIRED AGGREGATE SURFACE COURSE
- Y. REQUIRED MECHANICAL JOINT 8" X 8" X 6" TEE
- Z. REQUIRED FIRE HYDRANT
- AA. REQUIRED FULLY RESTRAINED 6" GATE VALVE WITH STEM EXTENSION PER WATER MAIN DETAILS
- AB. REQUIRED MECHANICAL JOINT 8"X6" REDUCER



DEPT. OF UTILITIES
ST. TAMMANY PARISH
GOVERNMENT
620 N. TYLER STREET
COVINGTON, LA 70433

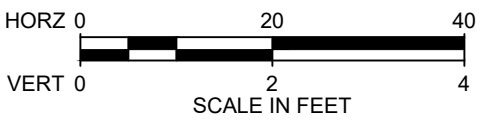
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DESCRIPTION OF REVISION	
No.	D

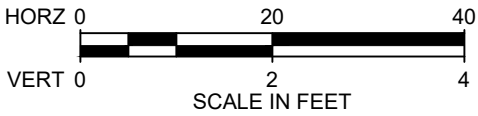
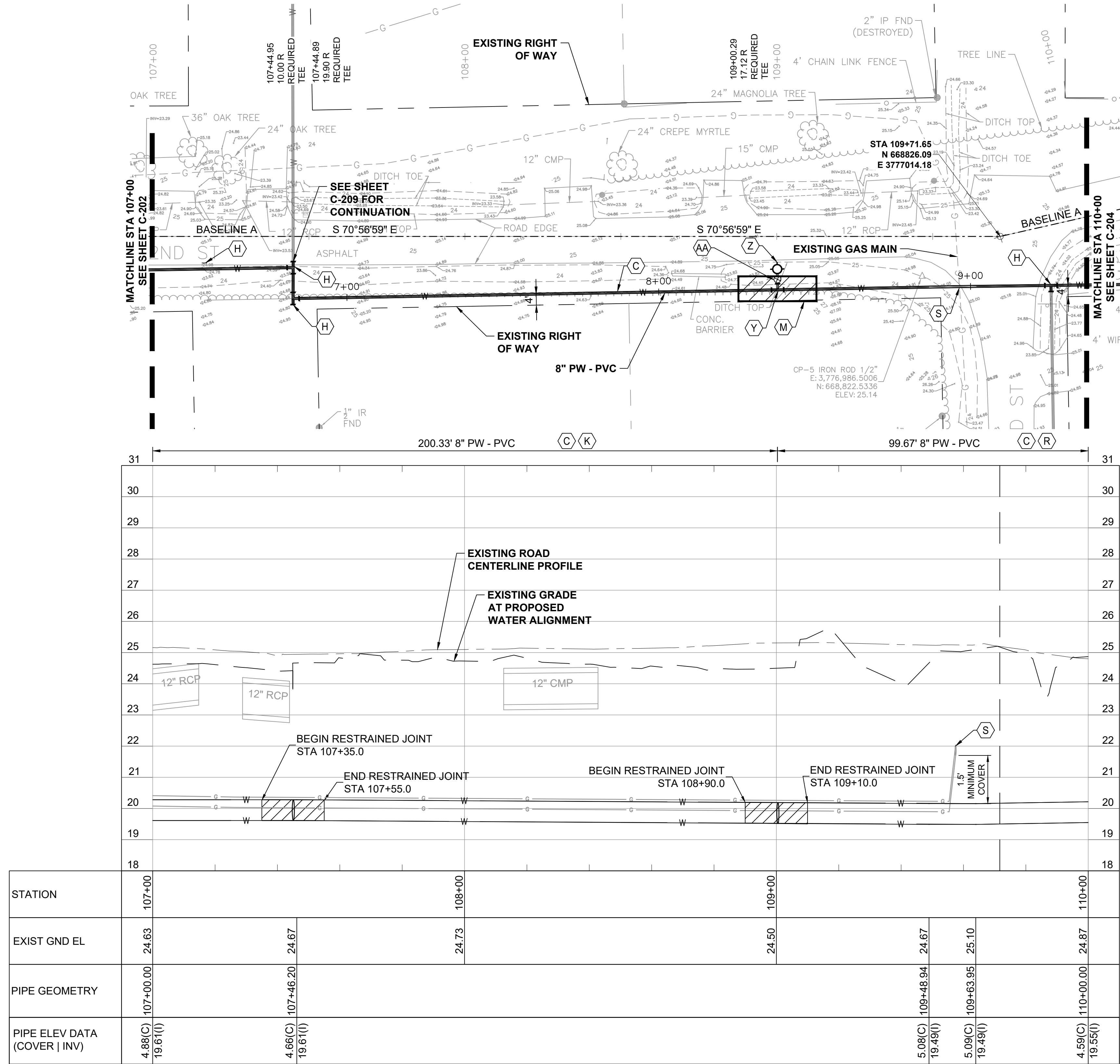
DESIGNED BY: MSL	DRAWN BY: DAT	CHECKED BY: DAM	SUBMITTED BY: FAIRWAY CE	PROJECT No.: TU21000154	ISSUE DATE: 10/29/2024	APPROVED BY: ---	SHEET SIZE: ANSI D 34x22	SCALE:



ALTON WATER SYSTEM
INTERCONNECTION
SLIDELL, LOUISIANA
PROJECT No.: TU21000154
PLAN AND PROFILE
2ND STREET-II

SHEET NO.
C-202





PLAN AND PROFILE GENERAL NOTES

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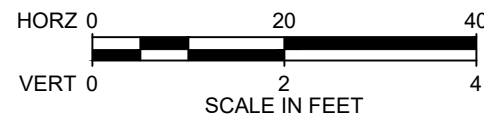
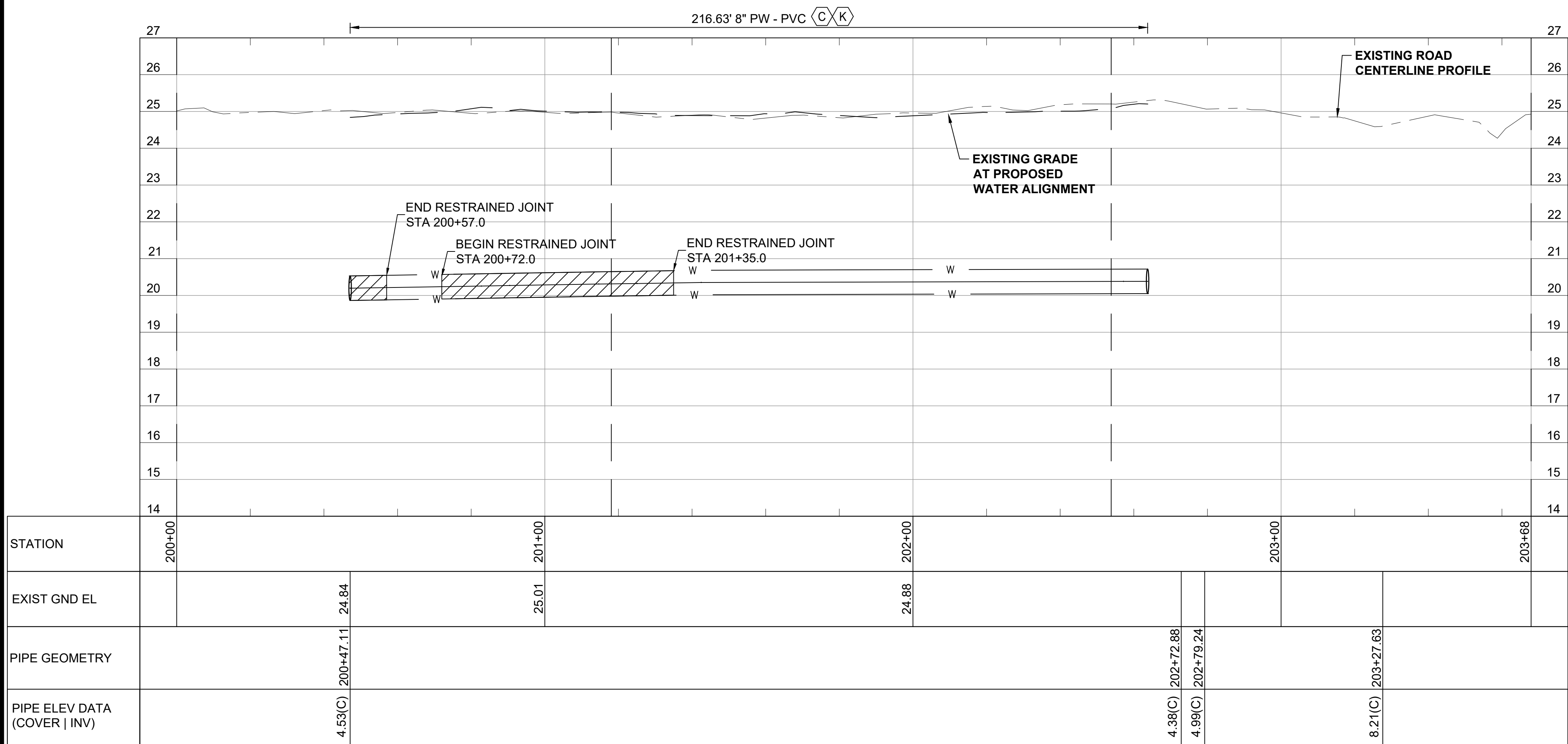
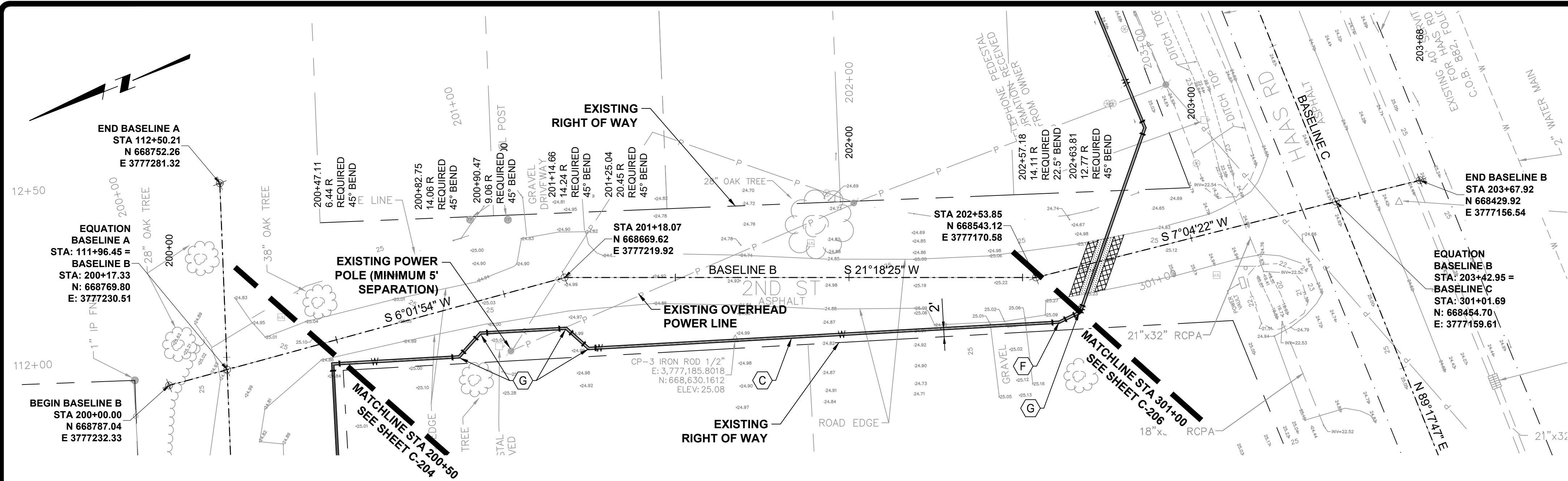
DEPT. OF UTILITIES
ST. TAMMANY PARISH
GOVERNMENT
620 N. TYLER STREET
COVINGTON, LA 70433

DATE:	08/25
DESCRIPTION OF REVISION	
No.	D

DESIGNED BY: MSL
DRAWN BY: DAT
CHECKED BY: DAM
SUBMITTED BY: FAIRWAY CE
PROJECT No.: TU21000154
ISSUE DATE: 10/29/2024
APPROVED BY: ---
SHEET SIZE: ANSI D 34x22
SCALE:

ALTON WATER SYSTEM
INTERCONNECTION
SLIDELL, LOUISIANA
PROJECT No.: TU21000154
PLAN AND PROFILE
2ND STREET - III

SHEET NO.
C-203



PLAN AND PROFILE GENERAL NOTES

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- L. CASING END SEAL
- M. REQUIRED LAUNCHING AND RECEIVING PIT FOR JACK AND BORE OR HORIZONTAL DIRECTIONAL DRILLING
- N. REQUIRED AIR RELEASE VALVE AND VAULT PER WATER MAIN DETAILS
- O. END REQUIRED WATER PIPELINE
- P. REQUIRED REMOVAL AND FULL DEPTH RESTORATION OF ASPHALT CONCRETE PAVEMENT
- Q. REQUIRED MILLING AND OVERLAY
- R. WATER PIPELINE TO BE INSTALLED BY HORIZONTAL DIRECTIONAL DRILLING
- S. CONTRACTOR TO POTHOLE UTILITY TO VERIFY SIZE, MATERIAL, TYPE, AND VERTICAL AND HORIZONTAL LOCATION
- T. REQUIRED WATER MAIN MARKER PER WATER MAIN DETAILS
- U. FIELD ROUTE ARV PIPING TO RIGHT-OF-WAY AS DIRECTED PER ENGINEER.
- V. REQUIRED FULLY RESTRAINED TEE FITTING
- W. REQUIRED MECHANICAL JOINT PLUG
- X. REQUIRED AGGREGATE SURFACE COURSE
- Y. REQUIRED MECHANICAL JOINT 8" X 8" X 6" TEE
- Z. REQUIRED FIRE HYDRANT
- AA. REQUIRED FULLY RESTRAINED 6" GATE VALVE WITH STEM EXTENSION PER WATER MAIN DETAILS
- AB. REQUIRED MECHANICAL JOINT 8"x6" REDUCER

DEPT. OF UTILITIES
ST. TAMMANY PARISH GOVERNMENT
620 N. TYLER STREET
COVINGTON, LA 70433

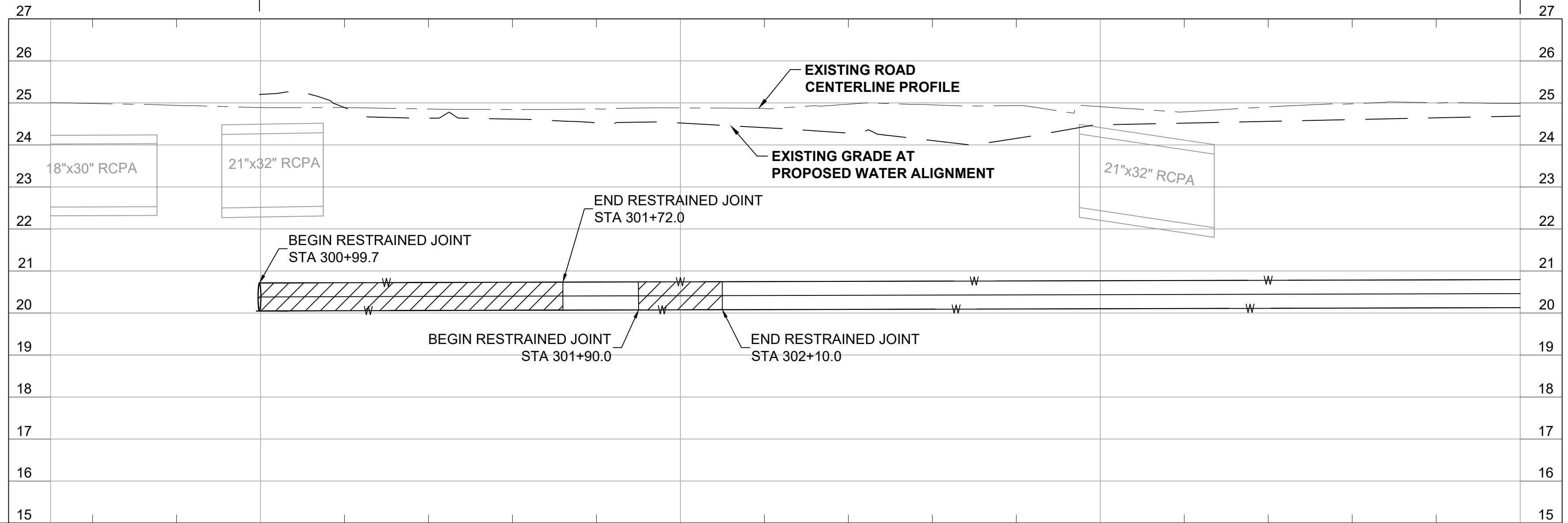
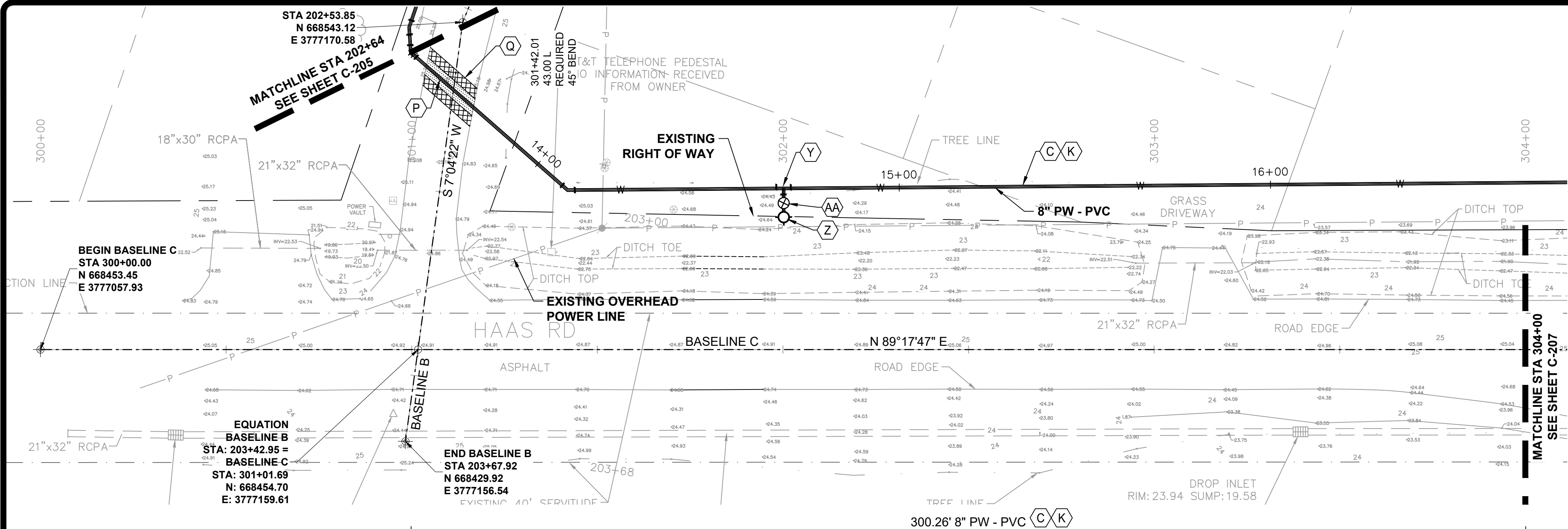
DATE:	DESCRIPTION OF REVISION	CONSTRUCTION DOCUMENTS
		08/25

DESIGNED BY:	MSL
DRAWN BY: <td>DAT</td>	DAT
CHECKED BY: <td>DAM</td>	DAM
SUBMITTED BY: <td>FAIRWAY CE</td>	FAIRWAY CE
PROJECT No.: <td>TU21000154</td>	TU21000154
ISSUE DATE: <td>10/29/2024</td>	10/29/2024
APPROVED BY: <td>---</td>	---
SHEET SIZE: <td>ANSI D 34x22</td>	ANSI D 34x22
SCALE: <td></td>	

08/13/2025

ALTON WATER SYSTEM
INTERCONNECTION
SLIDELL, LOUISIANA
PROJECT No.: TU21000154
PLAN AND PROFILE
2ND STREET - V

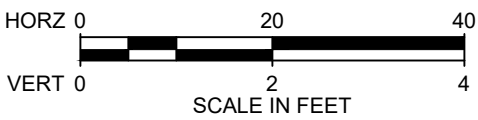
SHEET NO.
C-205



STATION	300+50	301+00	302+00	303+00	304+00
EXIST GND EL		20.72	20.74	20.77	20.79
PIPE GEOMETRY		300+99.74		304+00.00	
PIPE ELEV DATA (COVER INV)		4.18(C) 20.05(I)		4.19(C) 20.13(I)	

PAVEMENT RESTORATION LEGEND

- FULL DEPTH AC RESTORATION AND BASE COURSE (7 SY) FOLLOWED BY MILL AND OVERLAY (P)
- MILL AND OVERLAY ONLY (10 SY) (Q)



PLAN AND PROFILE GENERAL NOTES

- TOPOGRAPHIC AND APPARENT RIGHT-OF-WAY INFORMATION TAKEN FROM SURVEY PREPARED BY ALL SOUTH CONSULTING ENGINEERS, L.L.C.
- AT EACH LOCATION WHERE THE REQUIRED WATER PIPELINE CROSSES AN EXISTING UTILITY, OR WHERE IT TIES INTO AND EXISTING UTILITY, CONDUCT EXPLORATORY EXCAVATIONS AS NECESSARY TO POSITIVELY DETERMINE LOCATION, ELEVATION, AND SIZE OF UTILITY. CONDUCT SUCH EXPLORATORY EXCAVATIONS AND REPORT FINDINGS TO ENGINEER PRIOR TO ANY HORIZONTAL DIRECTIONAL DRILLING OPERATIONS.
- COORDINATE WITH THE ENGINEER IN ADJUSTING THE ALIGNMENT OF THE REQUIRED PIPELINE TO MAINTAIN REQUIRED CLEARANCES. THE CONTRACTOR WILL NOT BE ENTITLED TO ANY ADJUSTMENT IN PAY FOR SUCH ADJUSTMENTS EXCEPT FOR ADDITIONAL QUANTITIES.
- INSTALL THRUST BLOCKING AT ALL FITTINGS PER WATER MAIN DETAILS.
- PROVIDE BEDDING AND BACKFILL FOR ALL PIPELINES INSTALLED BY OPEN CUT PER WATER MAIN DETAILS.
- PROVIDE TEMPORARY TRAFFIC PER ACCEPTED TEMPORARY TRAFFIC CONTROL PLAN. SEE SPECIFICATIONS AND MINIMUM STANDARDS FOR TRAFFIC CONTROL FOR ADDITIONAL REQUIREMENTS.
- PIPE SIZES NOTED ON PLANS REFERENCE NOMINAL PIPE DIAMETER.

PLAN AND PROFILE NOTES BY SYMBOLS

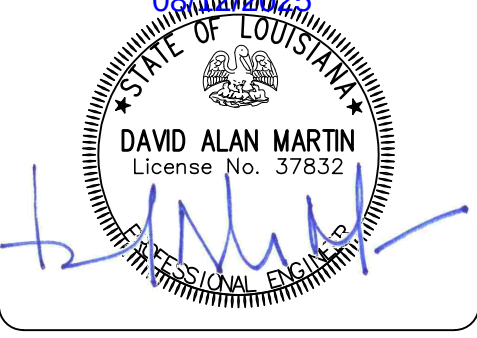
- A. BEGIN REQUIRED WATER PIPELINE (REFER TO WATER MAIN DETAILS).
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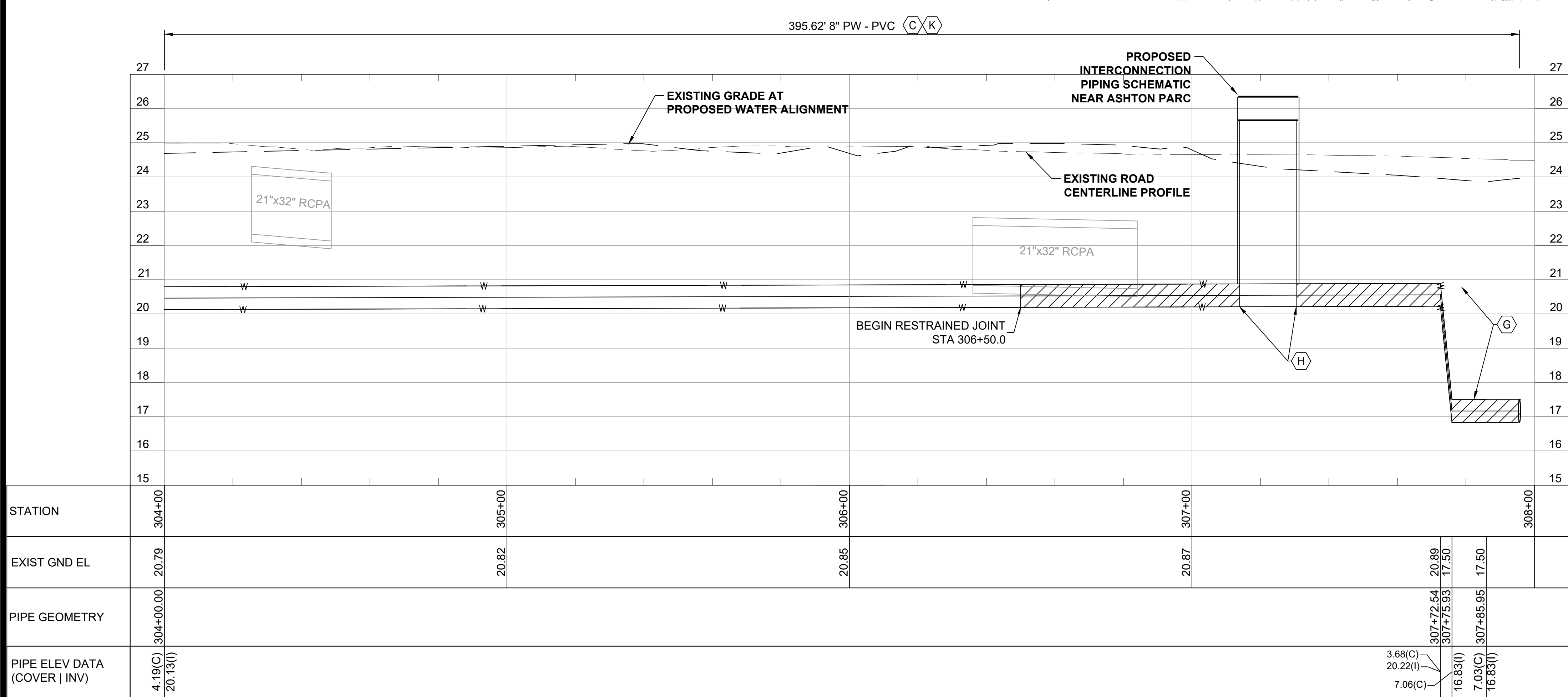
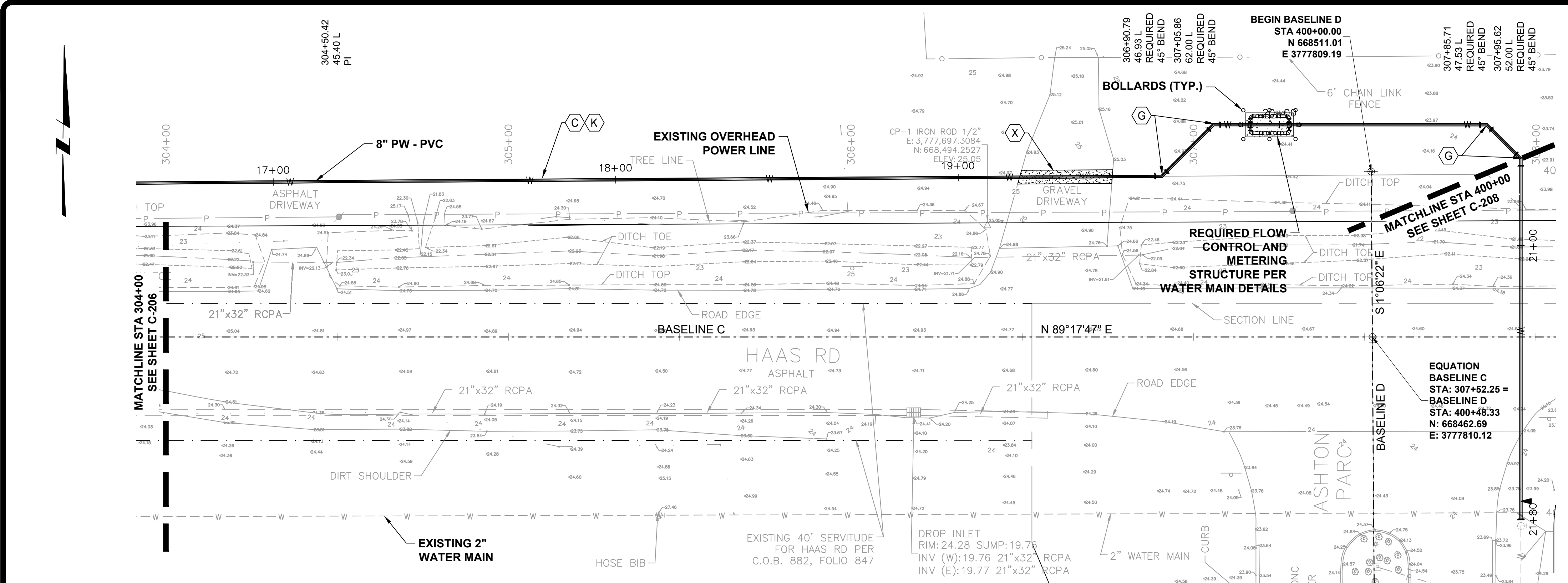
DATE:	DESCRIPTION OF REVISION	No.	CONSTRUCTION DOCUMENTS
		D	

DESIGNED BY:	MSL
DRAWN BY:	DAT
CHECKED BY:	DAM
SUBMITTED BY:	FAIRWAY CE
PROJECT No.:	TU21000154
ISSUE DATE:	10/29/2024
APPROVED BY:	---
SHEET SIZE:	ANSI D 34x22
SCALE:	



ALTON WATER SYSTEM
INTERCONNECTION
SLIDELL, LOUISIANA
PROJECT No.: TU21000154
PLAN AND PROFILE
HAAS ROAD-I

SHEET NO.
C-206



PAVEMENT RESTORATION LEGEND

AGGREGATE SURFACE COURSE (9 SY) (X)

HORIZ 0 20 40

VERT 0 4

SCALE IN FEET

- PLAN AND PROFILE GENERAL NOTES
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ST. TAMMANY
PARISH GOVERNMENT

DEPT. OF UTILITIES
ST. TAMMANY PARISH
GOVERNMENT
620 N. TYLER STREET
COVINGTON, LA 70433

DATE:

DESCRIPTION OF REVISION

No.

CONSTRUCTION DOCUMENTS

08/25

DESIGNED BY: MSL

DRAWN BY: DAT

CHECKED BY: DAM

SUBMITTED BY: FAIRWAY CE

PROJECT No.: TU21000154

ISSUE DATE: 10/29/2024

APPROVED BY: ---

SHEET SIZE: ANSI D 34x22

SCALE:

08/13/2025

STATE OF LOUISIANA

DAVID ALAN MARTIN

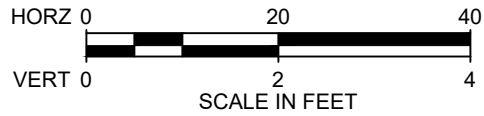
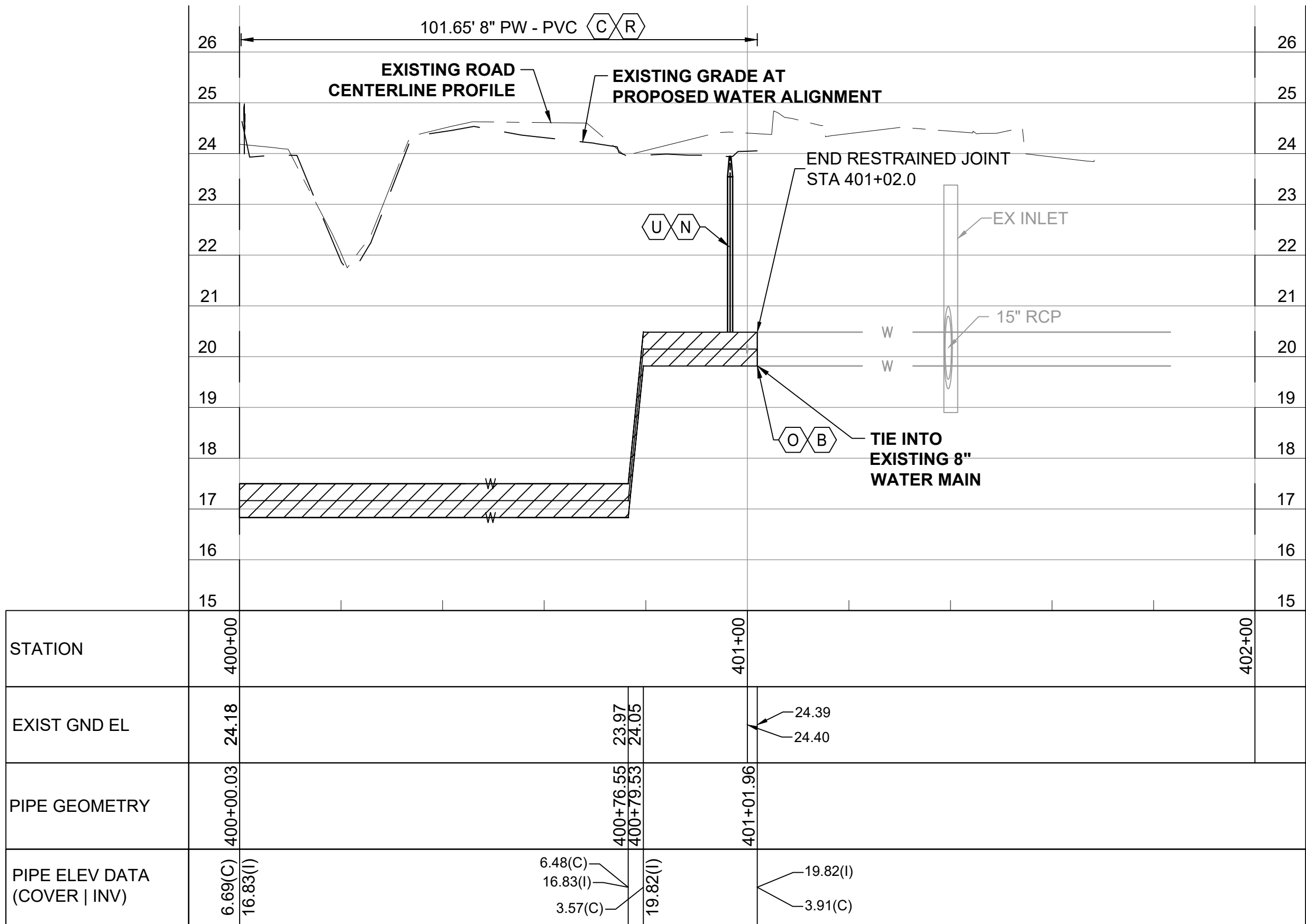
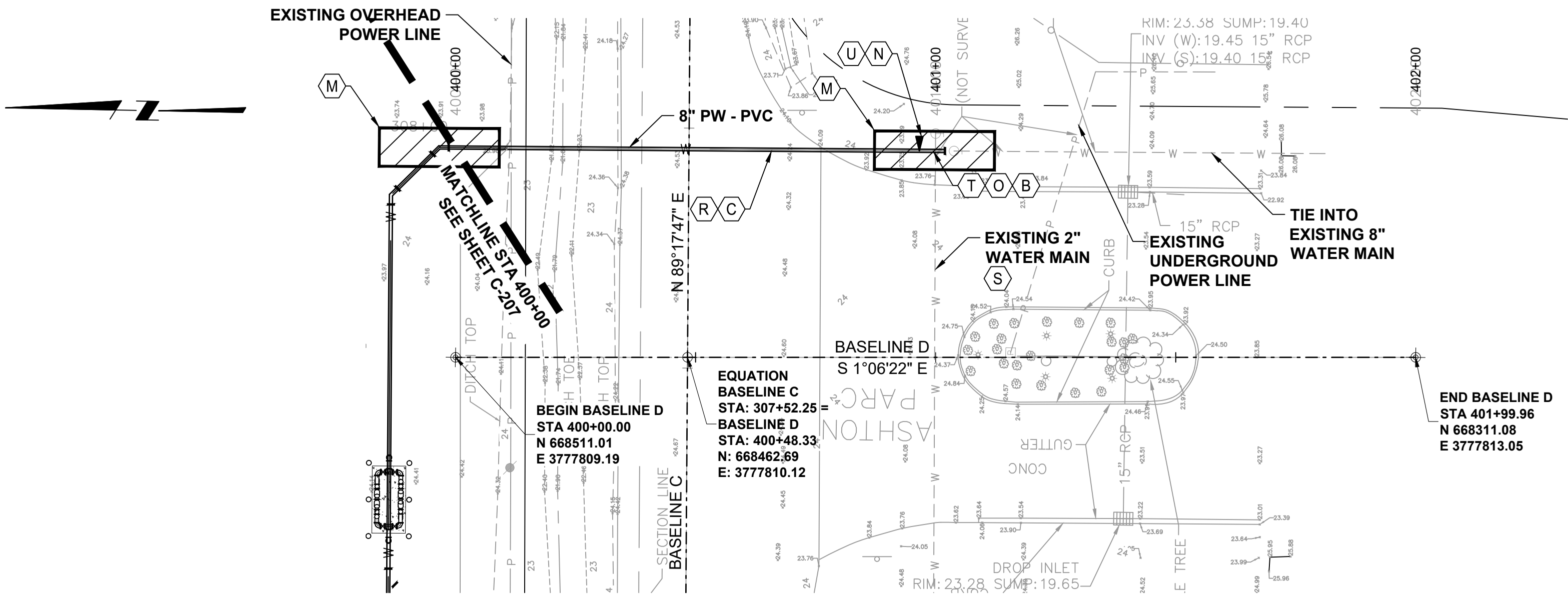
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ALTON WATER SYSTEM
INTERCONNECTION
SLIDELL, LOUISIANA
PROJECT No.: TU21000154

PLAN AND PROFILE
HAAS ROAD-II

SHEET NO.

C-207



PLAN AND PROFILE GENERAL NOTES

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PLAN AND PROFILE NOTES BY SYMBOLS

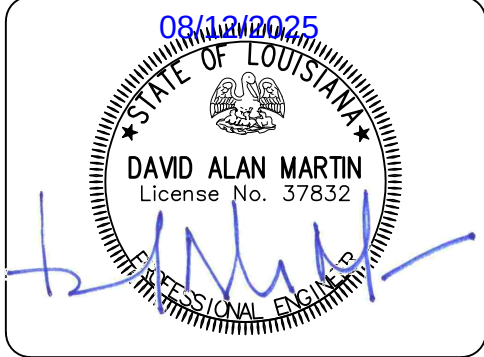
- A. BEGIN REQUIRED WATER PIPELINE (REFER TO WATER MAIN DETAILS).
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DEPT. OF UTILITIES
ST. TAMMANY PARISH
GOVERNMENT
620 N. TYLER STREET
COVINGTON, LA 70433

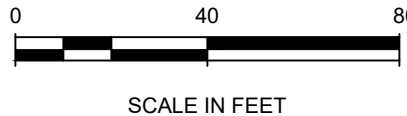
DATE:	08/25
DESCRIPTION OF REVISION	
No.	D
CONSTRUCTION DOCUMENTS	

DESIGNED BY:	MSL
DRAWN BY:	DAT
CHECKED BY:	DAM
SUBMITTED BY:	FAIRWAY CE
PROJECT No.:	TU21000154
ISSUE DATE:	10/29/2024
APPROVED BY:	---
SHEET SIZE:	ANSI D 34x22
SCALE:	

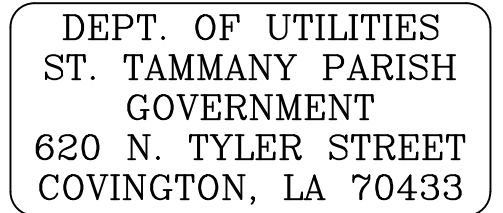


ALTON WATER SYSTEM
INTERCONNECTION
SLIDELL, LOUISIANA
PROJECT No.: TU21000154
PLAN AND PROFILE
HAAS ROAD - III

SHEET NO.
C-208

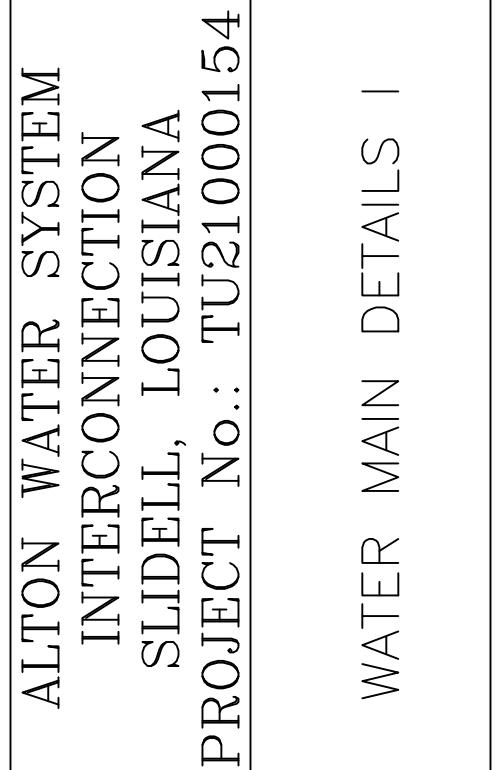


C-209



No.	DESCRIPTION OF REVISION	DATE:
D	CONSTRUCTION DOCUMENTS	08/25

DESIGNED BY:	MSL
DRAWN BY:	DAT
CHECKED BY:	DAM
SUBMITTED BY:	FAIRWAY CE
PROJECT No.:	TU21000154
ISSUE DATE:	04/17/2024
APPROVED BY:	---
SHEET SIZE:	ANSI D 34x22
SCALE:	AS NOTED

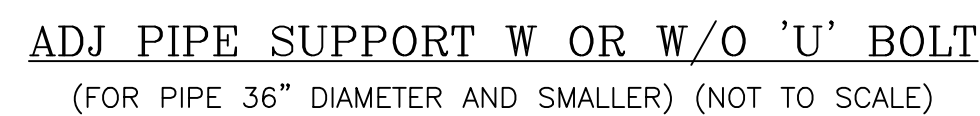


G-501



MINIMUM THRUST BLOCK SIZES BY FITTING TYPE			
FITTING TYPE	DIMENSION "W"	DIMENSION "H"	DIMENSION "L"
11.25'	6" MIN. OR 3 "D" / 2	2 "D" + PIPE O.D.	"D" MIN.
22.5'	6" MIN. OR 3 "D" / 2	2 "D" + PIPE O.D.	"D" MIN.
45'	6" MIN. OR 3 "D" / 2	2 "D" + PIPE O.D.	2 "D" MIN.
90"	6" + 2 "D"	2 "D" + PIPE O.D.	3 "D" MIN.
TEE	6" MIN. OR 3 "D" / 2	2 "D" + PIPE O.D.	2 "D" MIN.
WYE	6" MIN. OR 3 "D" / 2	2 "D" + PIPE O.D.	2 "D" MIN.
PLUG	6" MIN. OR 3 "D" / 2	3 "D"	3 "D"

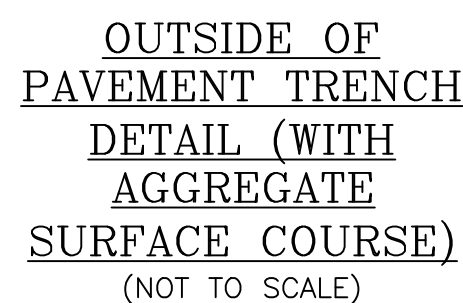
NOTE:
D = NOMINAL PIPE DIAMETER



DIMENSIONS IN INCHES													
NOMINAL PIPE DIAMETER	'A' (SCH 40 UNO)	'B'	'C'	'D'	'E'	'F' (APPROX)		'G'	'H'	'J'	'K'	'L'	LOAD MAX (LBS)
						(MINIMUM)	(MAXIMUM)						
2 1/2	* 2 / 2 1/2	1 1/2	1	8	7/16	7	11 1/2	1/2	4	6	3/8	13/16	1400
3	* 2 / 2 1/2	1 1/2	1	8	7/16	7 5/16	11 13/16	1/2	4	6	3/8	13/16	1400
3 1/2	* 2 / 2 1/2	1 1/2	1	8	7/16	7 9/16	12 1/16	1/2	4	6	3/8	13/16	1400
4	3	* 2 1/2 / 3	1 1/4	10	5/8	10 1/4	14 3/4	5/8	5	8	7/16	1 1/16	2650
6	3	* 2 1/2 / 3	1 1/4	10	5/8	11 9/16	16 1/16	5/8	5	8	7/16	1 1/16	2650
8	* 2 1/2 / 3	1 1/4	10	5/8	13 9/16	18 1/16	5/8	5	8	7/16	1 1/16	2650	
10	3	* 2 1/2 / 3	1 1/4	10	5/8	14 5/8	19 1/8	5/8	5	8	7/16	1 1/16	2650
12	3	* 2 1/2 / 3	1 1/4	10	5/8	15 5/8	20 1/8	5/8	5	8	7/16	1 1/16	2650
14	4	3	1 3/8	12	3/4	18 7/8	23 3/8	3/4	7	10.5	1/2	1 5/16	4200
16	4	3	1 3/8	12	3/4	19 7/8	24 3/8	3/4	7	10.5	1/2	1 5/16	4200
18	6 (SCH 80)	* 4 / 3 1/2	1 5/8	14	1 1/4	22 1/4	26 3/4	7/8	8	12	11/16	1 9/16	6050
20	6 (SCH 80)	* 4 / 3 1/2	1 5/8	14	1 1/4	23 1/4	27 3/4	7/8	8	12	11/16	1 9/16	6050
24	6 (SCH 80)	4	1 5/8	14	1 1/4	26 1/2	31	7/8	8	12	11/16	1 9/16	6050
30	6 (SCH 80)	4	1 7/8	16	1 1/4	29 5/8	34 1/8	1	8	12	11/16	1 13/16	8150
32	6 (SCH 80)	4	1 7/8	16	1 1/4	30 5/8	35 1/8	1	8	12	11/16	1 13/16	8150
36	6 (SCH 80)	4	1 7/8	16	1 1/4	32 5/8	37 1/8	1	8	12	11/16	1 13/16	8150

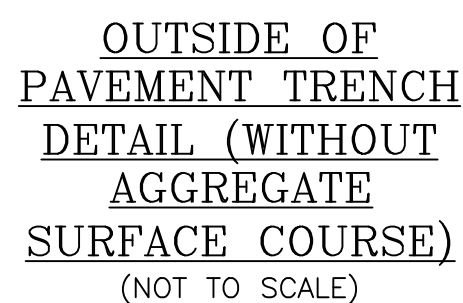
1. HOT DIP GALVANIZE PARTS AFTER FABRICATION, UNO, PROVIDE 316 SS
PARTS AND BOLTS IN SUBMERGED OR CORROSIVE CONDITIONS,
2. PROVIDE CAST-IN-PLACE HEAVY HEAVY HEAD ASTM F1554 GR 36 ANCHORS, UNO,
3. REFER TO TABLE FOR MAXIMUM ALLOWABLE STRESS LOAD ON EACH SUPPORT.
4. USE MIN. UNLESS OTHERWISE INDICATED.
5. FOR 3/4" ANCHORS AND LARGER, PROVIDE SQUARE WASHERS PER AISC
MANUAL OF STEEL CONSTRUCTION TABLE 14-2 WITH STD HOLS WELDED TO
PLATE WITH 3/16" BOLLETS. USE 1/4" SQX3/16" THICK WASHERS FOR 5/8" ANCHORS.
6. ADD HEAVY ADHESIVE TO ANCHORS, UNO, XI, OR REDUCED
MAX LOADS IN COLUMN "M". OVERSIZED HOLS AND WASHERS ARE NOT REQUIRED.

* SEE MANUFACTURER

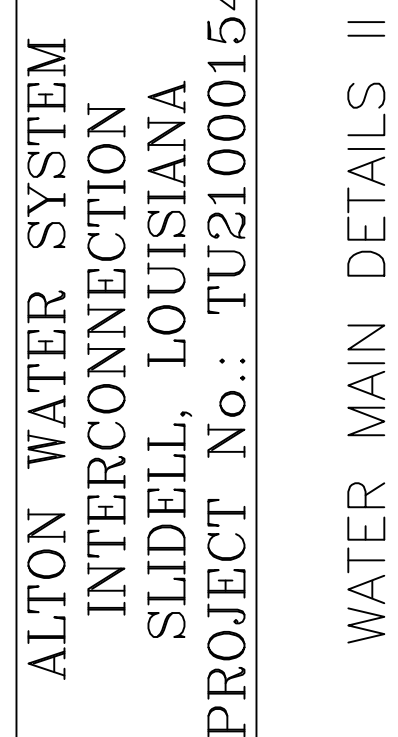


- TRENCH DETAIL
(NOT TO SCALE)

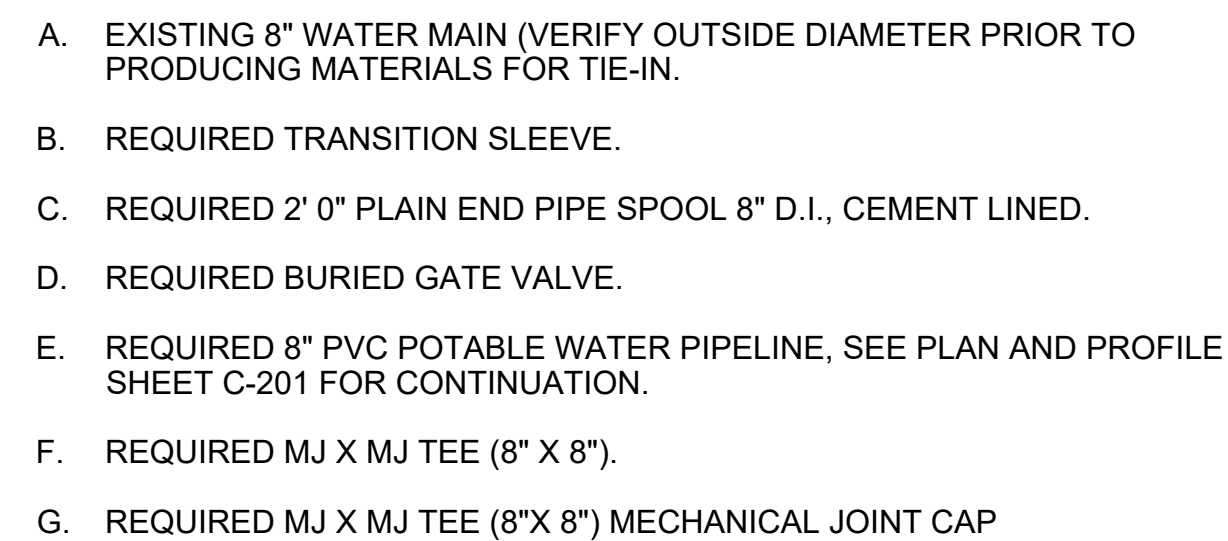
TYP. TRENCH PLAN
(NOT TO SCALE)



1. SELECT FILL SHALL BE A SILTY OR CLAYEY SAND COMPLYING WITH AASHTO GROUP CLASSIFICATION A-2-4. IN-SITU SOILS USED AS SELECT FILL SHALL MEET AASHTO GROUP CLASSIFICATION A-2-4 AND SHALL BE FREE OF LARGE DEBRIS, LARGE ROCKS, ROOTS, AND OTHER DELETERIOUS MATERIALS. SELECT FILL SHALL HAVE MINIMUM COMPACTION OF 95% OF THE MAXIMUM DRY UNIT WEIGHT AS DETERMINED BY ASTM D698.
2. BEDDING MATERIALS FOR WATER LINES SHALL BE A CLEAN SAND COMPLYING WITH AASHTO GROUP CLASSIFICATION A-3. ALL BEDDING MATERIALS SHALL BE PLACED IN LOOSE LIFTS NOT EXCEEDING A THICKNESS OF EIGHT INCHES (8") PER LIFT. SANDY BEDDING MATERIALS SHALL HAVE MINIMUM COMPACTION OF 95% OF THE MAXIMUM DRY UNIT WEIGHT AS DETERMINED BY ASTM D698.
3. A CRUSHED NO. 57 LIMESTONE FOUNDATION SHALL BE USED TO STABILIZE SOFT AND/OR WET BOTTOM OF EXCAVATION. A MINIMUM OF 6 INCHES OF SOFT AND/OR WET NATIVE MATERIAL SHALL BE REMOVED PRIOR TO PLACING THE CRUSHED LIMESTONE FOUNDATION. CRUSHED NO. 57 LIMESTONE SHALL BE PLACED IN LOOSE LIFTS NOT EXCEEDING A THICKNESS OF EIGHT INCHES (8") PER LIFT. CRUSHED LIMESTONE FOUNDATION SHALL HAVE MINIMUM COMPACTION OF 90% OF THE MAXIMUM DRY UNIT WEIGHT AS DETERMINED BY ASTM D4253.
4. THE PLACEMENT OF GEOGRID SHALL BE AS SHOWN ON THE DETAIL. ALL GEOGRID SHALL BE A BIAXIAL GEOGRID SUCH AS TENSAR BX1200, SYNTEC SBX12 OR APPROVED EQUAL. TRANSVERSE AND LONGITUDINAL OVERLAP SHALL BE A MINIMUM OF 24 INCHES.
5. THE PLACEMENT OF GEOTEXTILE FABRIC SHALL BE AS SHOWN ON THE DETAIL. GEOTEXTILE FABRIC SHALL BE MIRAFI 500X, PROPEX GEOTEXT 200ST OR APPROVED EQUAL. TRANSVERSE AND LONGITUDINAL OVERLAP SHALL BE A MINIMUM OF 24 INCHES.
6. CONCRETE THRUST BLOCK SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3,000 PSI.



G-502



1. SEE STANDARD DETAIL FOR BURIED WATER VALVE.

- A. PROPOSED 8" WATER MAIN
- B. EXISTING VALVE TO TIE-INTO
- C. EXISTING 8" WATER MAIN

1. SEE STANDARD DETAIL FOR BURIED WATER VALVE.

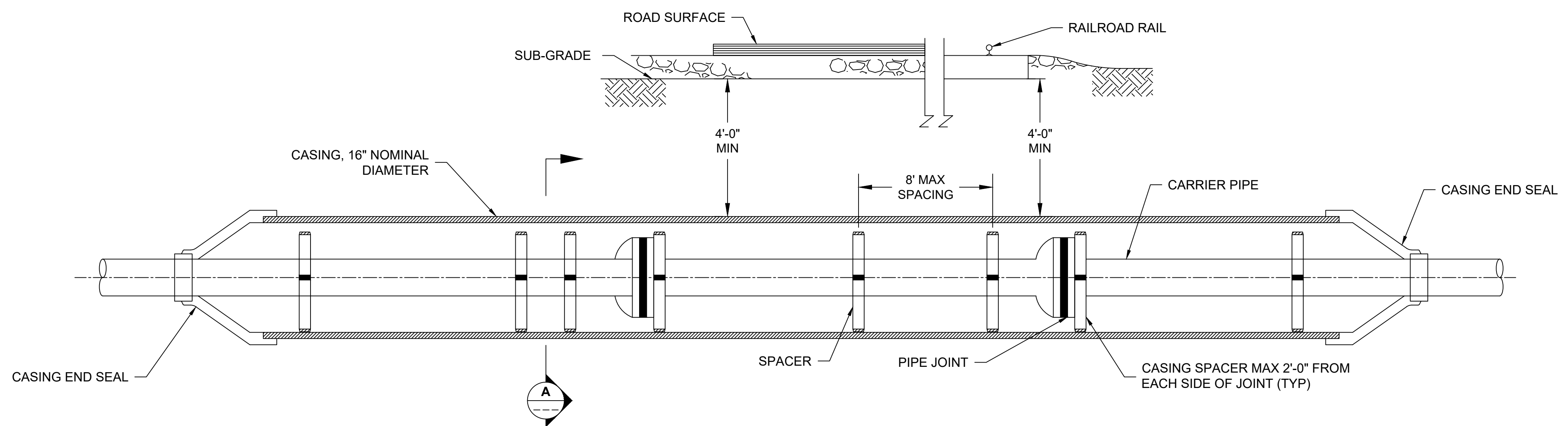
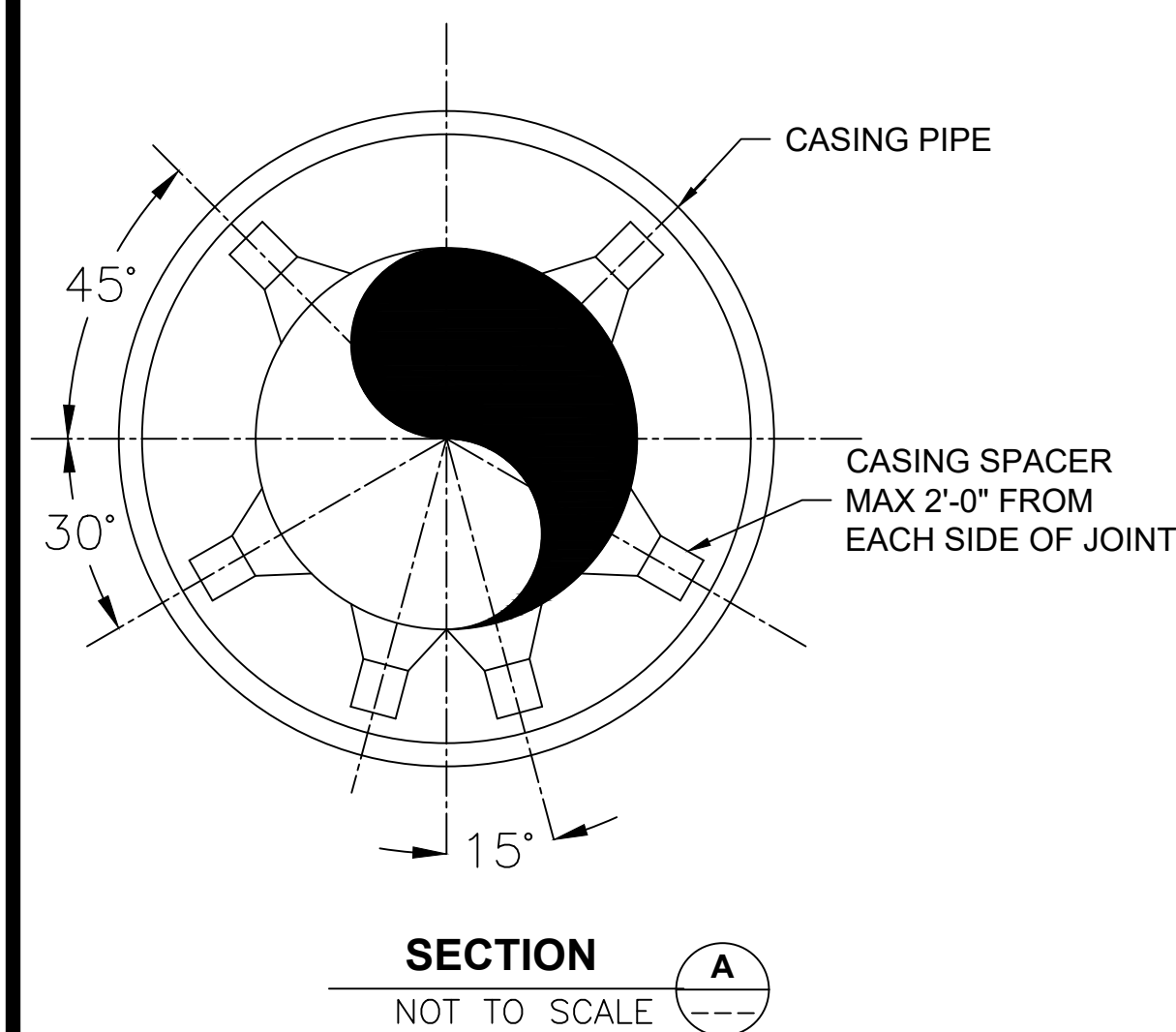
ST. TAMMANY PARISH GOVERNMENT
DEPARTMENT OF UTILITIES
601 NORTH TYLER STREET
COVINGTON LOUISIANA
CONTACT 985 - 893 - 1717 IN CASE OF EMERGENCY
POTABLE WATER PIPELINE 90 PSI

1. CONSTRUCT SIGN OF ALUMINUM, BLACK LEGEND ON WHITE BACKGROUND. ALL TYPEFACE TO BE 1" AND $\frac{1}{2}$ " FHWA SERIES C. USE DOTD TYPE X SHEETING WITH LEGEND APPLIED BY METHODS ALLOWED IN SIGNAGE SPECIFICATION. 12" X 24" WITH 1" RADIUS.

2. INSTALL SIGNS AT RIGHT OF WAY ON SQUARE TUBE POST WITH SOIL ANCHOR, FASTENED WITH BRASIER TYPE RIVETS. BOTTOM OF SIGN TO BE 4'-0" ABOVE GRADE UNLESS OTHERWISE DIRECTED.

DEPT. OF UTILITIES
ST. TAMMANY PARISH
GOVERNMENT
620 N. TYLER STREET
COVINGTON, LA 70433

DESIGNED BY:	MSL
DRAWN BY:	DAT
CHECKED BY:	DAM
SUBMITTED BY:	FAIRWAY CE
PROJECT No.:	TU21000154
ISSUE DATE:	04/17/2024
APPROVED BY:	---
SHEET SIZE:	ANSI D 34x22
(SCALE:	AS NOTED



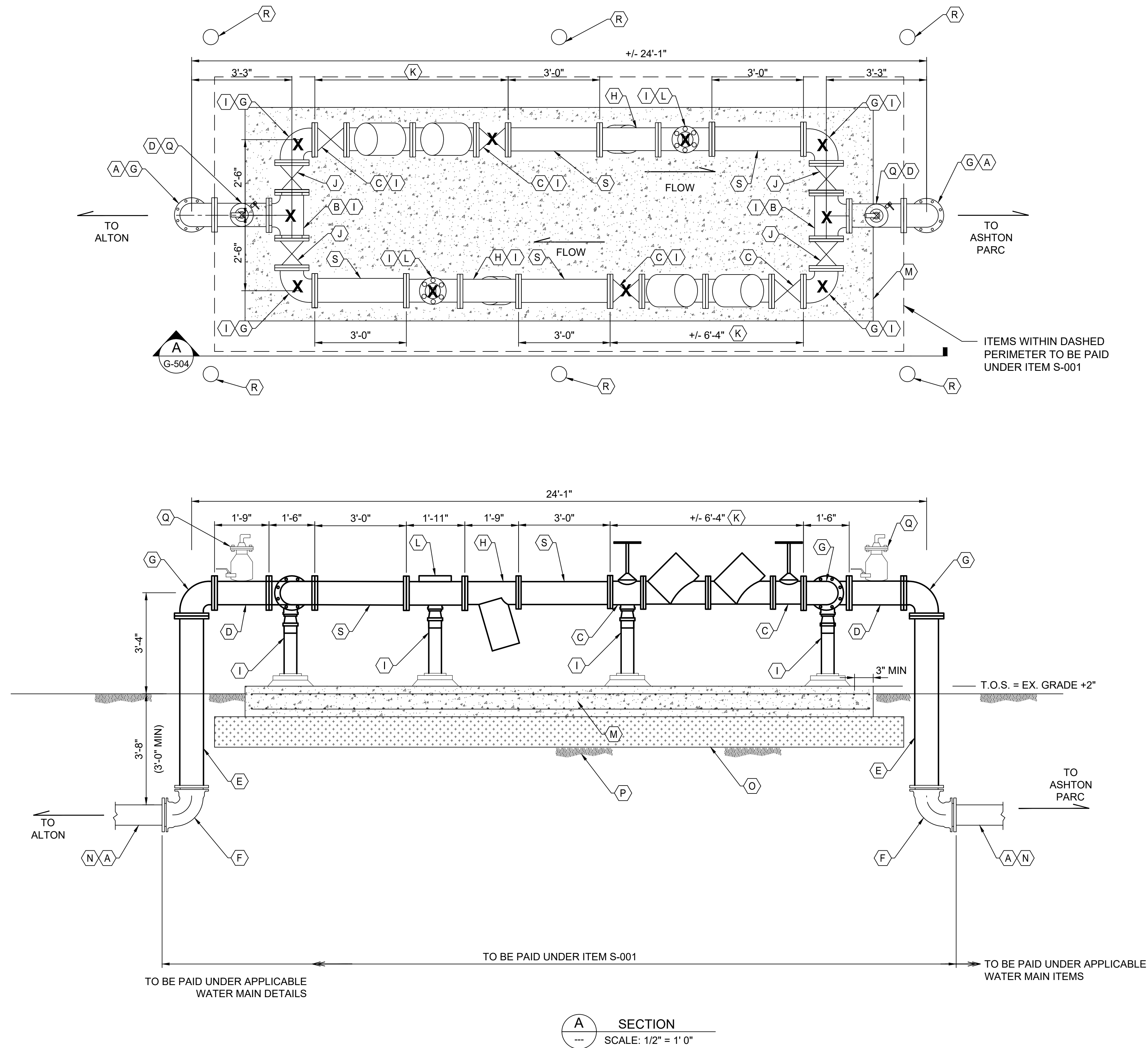
TYPICAL JACK AND BORE
(NOT TO SCALE)

ALTON WATER SYSTEM
INTERCONNECTION
SLIDELL, LOUISIANA
PROJECT No.: TU21000154

WATER MAIN DETAILS III

SHEET NO.

G-503



PROPOSED INTERCONNECTION PIPING SCHEMATIC NEAR ASHTON PARC
(NOT TO SCALE)

GENERAL NOTES

1. REFER TO PLAN AND PROFILE DRAWINGS FOR LOCATION OF TIE IN
2. SEE PLAN AND PROFILE FOR CONTINUATION
3. ALL FITTING/JOINTS ON THIS PAGE TO BE FULLY RESTRAINED OR FLANGED
4. INSULATE ALL ABOVE GRADE PIPING WITH ALUMINUM JACKETED INSULATION PER SECTION 43 50 00 - PIPING - GENERAL

SHEET KEY NOTES

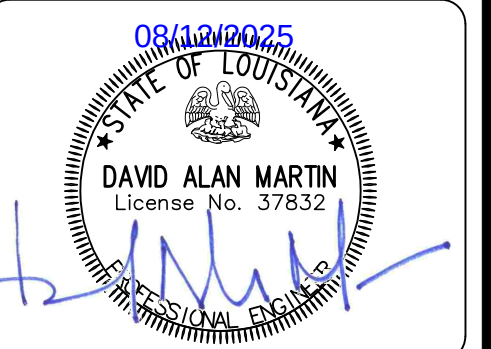
- A. REQ'D 8" WATER MAIN
- B. REQ'D 8" TEE, FLANGED
- C. REQ'D 8" RESILIENT WEDGE GATE VALVE, FLANGED
- D. REQ'D 8" SPOOL, 18" LONG, FL X FL
- E. REQ'D 8" SPOOL, MJ X FLANGED
- F. REQ'D 90° ELBOW, MECHANICAL JOINT
- G. REQ'D 90° ELBOW, FLANGED
- H. REQ'D STRAINER
- I. REQ'D PIPE SUPPORT (DENOTED AS "X" IN PLAN VIEW)
- J. REQ'D GATE VALVE, NON RISING STEM, PLAIN END
- K. REQ'D DOUBLE CHECK VALVE ASSEMBLY
- L. REQ'D 8" DISPLACEMENT WATER METER
- M. REQ'D 6" THICK CONCRETE SLAB, 7' x 14' DIMENSION, REINFORCED WITH NO. 6 BARS O.C.E.W., T&B
- N. SEE SHEET C-207 FOR CONTINUATION
- O. REQUIRED BEDDING MATERIAL, ENCAPSULATED IN GEOTEXTILE (12" THICK)
- P. UNDISTURBED SUBGRADE
- Q. REQ'D AIR RELEASE VALVE
- R. REQ'D (6) BOLLARDS
- S. REQ'D 8" SPOOL, 36" LONG, FL X FL



DEPT. OF UTILITIES
ST. TAMMANY PARISH
GOVERNMENT
620 N. TYLER STREET
COVINGTON, LA 70433

DATE:	08/25
DESCRIPTION OF REVISION	
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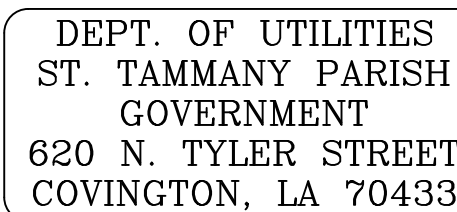
DESIGNED BY:	MSL
DRAWN BY:	DAT
CHECKED BY:	DAM
SUBMITTED BY:	FAIRWAY CE
PROJECT No.:	TU21000154
ISSUE DATE:	04/17/2024
APPROVED BY:	---
SHEET SIZE:	ANSI D 34x22
SCALE:	AS NOTED



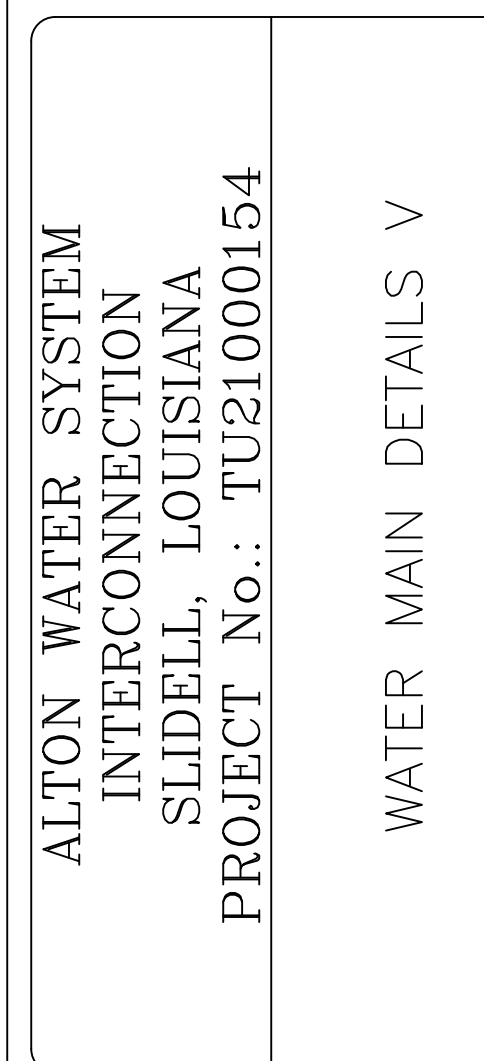
ALTON WATER SYSTEM
INTERCONNECTION
SLIDELL, LOUISIANA
PROJECT No.: TU21000154
WATER MAIN DETAILS IV

SHEET NO.

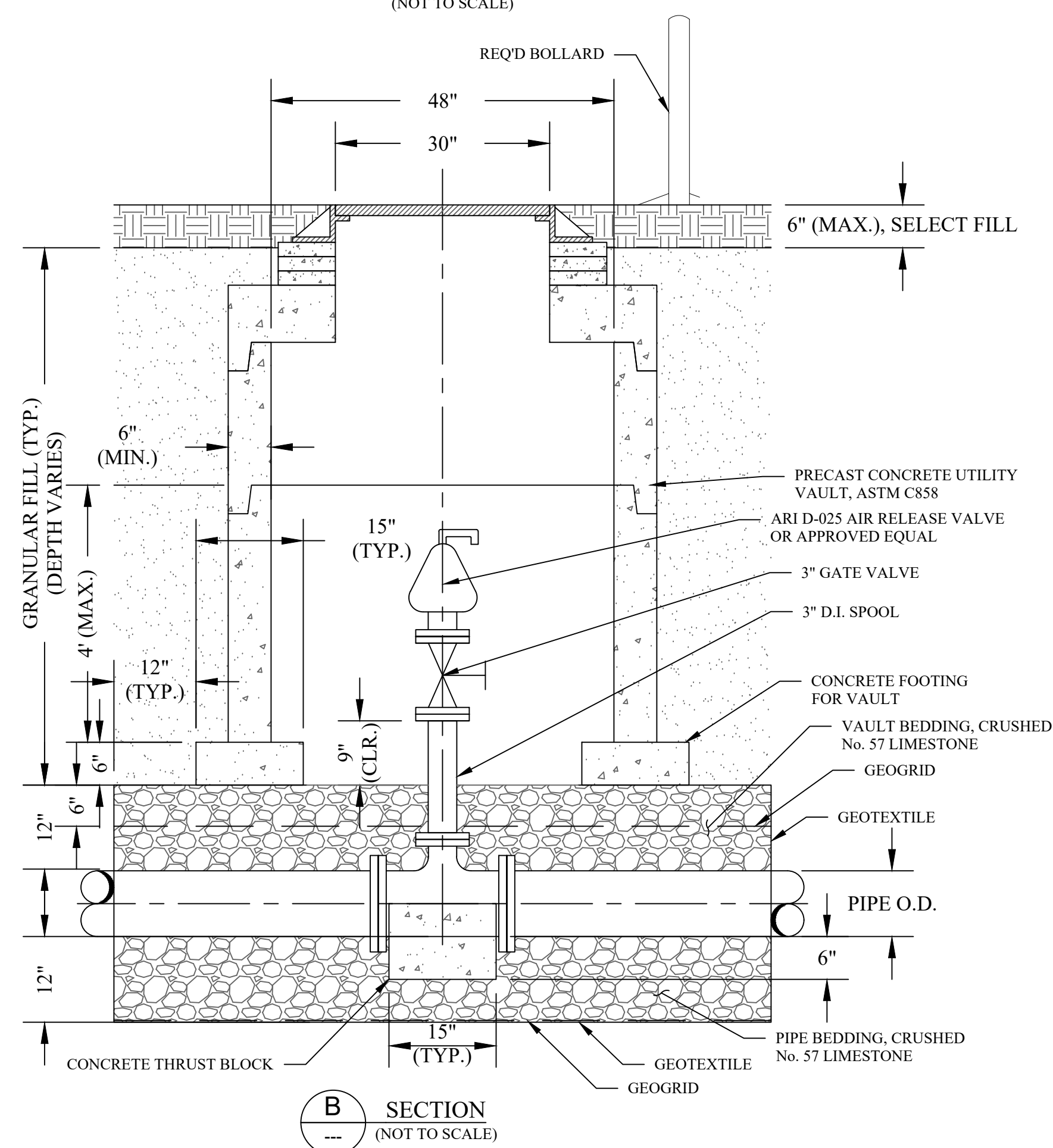
G-504



DESIGNED BY:	MSL
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SUBMITTED BY:	FAIRWAY CE
PROJECT No.:	TU21000154
ISSUE DATE:	04/17/2024
APPROVED BY:	---
SHEET SIZE:	ANSI D 34x22

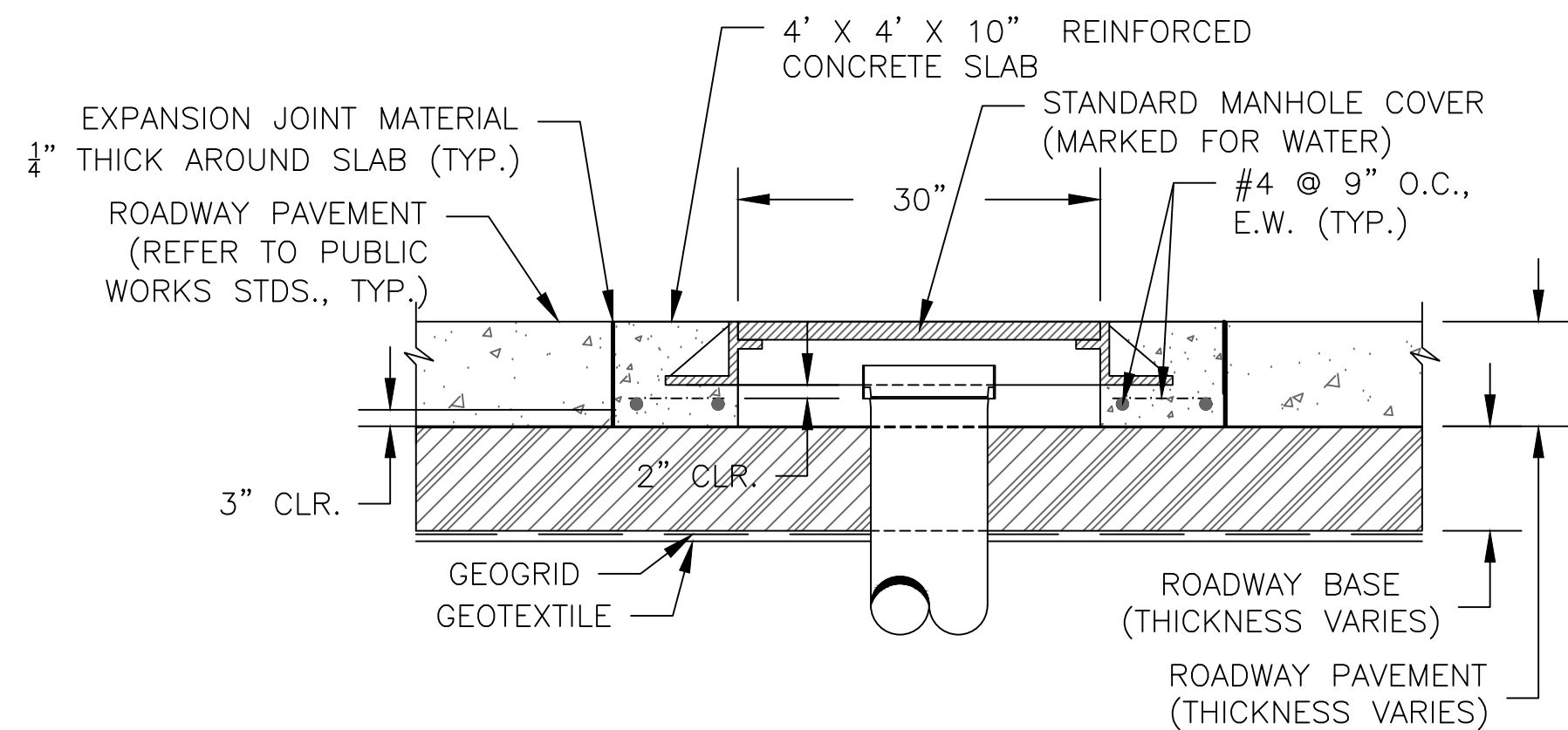


SHEET NO.
G-505

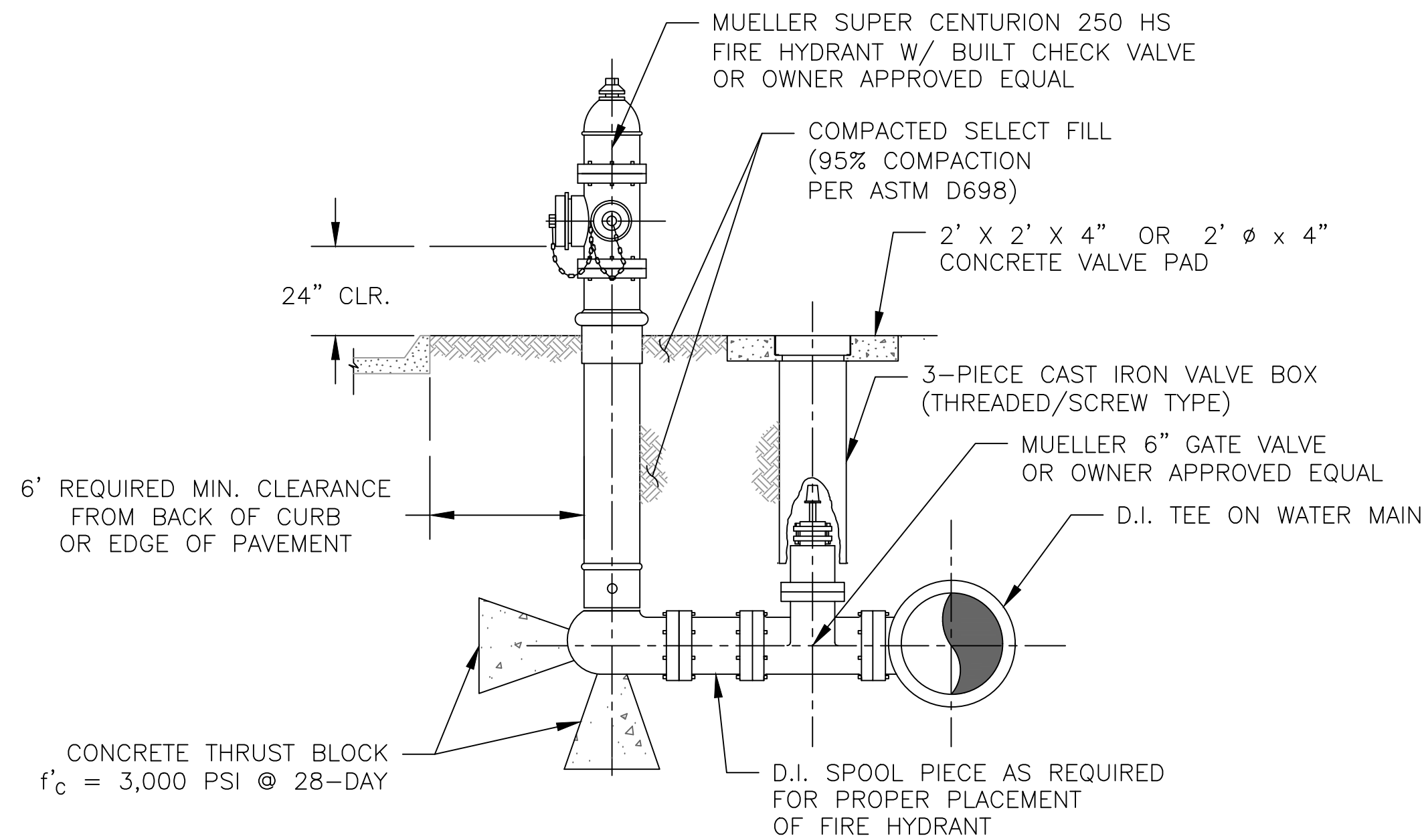


1.	PRE-CAST CONCRETE, OPEN-BOTTOM VAULTS SHALL BE USED TO CONSTRUCT THE ARV VAULTS. VAULTS SHALL BE CONSTRUCTED OF PRE-CAST, REINFORCED CONCRETE STRUCTURE CONFORMING TO ASTM C858. ALL COMPONENTS OF THE VAULTS (I.E. FOOTING, RISER, AND TOP) SHALL CONFORM TO ASTM C858. THE PRE-CAST VAULT STRUCTURE SHALL BE DESIGNED TO MEET OR EXCEED AASHTO HS-20 LOADING.		SYNTEC SBX12 OR APPROVED EQUAL. TRANSVERSE AND LONGITUDINAL OVERLAP SHALL BE A MINIMUM OF 24 INCHES.
2.	CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4,000 PSI. CONCRETE SHALL CONTAIN XYPEX CONTENT OF AT LEAST 3% BY WEIGHT. REINFORCING STEEL SHALL BE GRADE 60 AND CONFORM TO ASTM A615.	11.	THE PLACEMENT OF GEOTEXTILE FABRIC SHALL BE AS SHOWN ON THE DETAIL. GEOTEXTILE FABRIC SHALL BE MIRAFI 500X, PROPEX GEOTEXT 200ST OR APPROVED EQUAL. TRANSVERSE AND LONGITUDINAL OVERLAP SHALL BE A MINIMUM OF 24 INCHES.
3.	CONCRETE SHALL BE FORTIFIED WITH "CON-SHIELD" CON-SHIELD SHALL BE ADDED IN ADDITION TO XYPEX.	12.	CONCRETE THRUST BLOCK SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3,000 PSI.
4.	JOINTS IN THE VAULT SECTIONS SHALL BE SEALED WITH "RAM-NEK" OR A RUBBER GASKET CONFORMING TO ASTM C433.	13.	AIR RELEASE VALVES SHALL BE ARI D-025 AIR RELEASE VALVE FOR WASTEWATER OR APPROVED EQUAL.
5.	MANHOLE FRAMES AND COVERS SHALL BE GRAY IRON CONFORMING TO ASTM A48. MANHOLE FRAMES AND COVERS SHALL EAST JORDAN IRON WORKS OR US FOUNDRY. ALL MANHOLE FRAMES AND COVERS SHALL BE RATED FOR AASHTO HS-20 LOADING.	14.	DETAIL SHOWS FLANGE-BY-FLANGE JOINT CONNECTION OF PIPE AND FITTINGS. MJ FITTINGS SHALL BE ALLOWED IF THE JOINT AT THE FITTINGS CAN BE ADEQUATELY RESTRAINED.
6.	MANHOLE COVERS SHALL HAVE DIAMOND TREAD PATTERN AND HAVE WORD "WATER" CAST ON THE COVER.		
7.	SELECT FILL SHALL BE A SILTY OR CLAYEY SAND COMPLYING WITH AASHTO GROUP CLASSIFICATION A-2-4. IN-SITU SOILS USED AS SELECT FILL SHALL MEET AASHTO GROUP CLASSIFICATION A-2-4 AND SHALL BE FREE OF LARGE DEBRIS, LARGE ROCKS, ROOTS, AND OTHER DELETERIOUS MATERIALS. SELECT FILL SHALL HAVE MINIMUM COMPACTION OF 95% OF THE MAXIMUM DRY UNIT WEIGHT AS DETERMINED BY ASTM D698.		
8.	GRANULAR BACKFILL AROUND THE ARV VAULT SHALL BE CLEAN SAND COMPLYING WITH AASHTO GROUP CLASSIFICATION A-3. GRANULAR BACKFILL SHALL BE PLACED IN LOOSE LIFTS NOT EXCEEDING A THICKNESS OF EIGHT INCHES (8") PER LIFT. GRANULAR BACKFILL SHALL HAVE MINIMUM COMPACTION OF 95% OF THE MAXIMUM DRY UNIT WEIGHT AS DETERMINED BY ASTM D698.		
9.	BEDDING MATERIALS FOR ARV VAULT AND SEWER FORCE MAIN SHALL BE A CRUSHED No. 57 LESTONE. BEDDING MATERIALS SHALL BE PLACED IN LOOSE LIFTS NOT EXCEEDING A THICKNESS OF EIGHT INCHES (8") PER LIFT. GRANULAR BACKFILL SHALL HAVE MINIMUM COMPACTION OF 90% OF THE MAXIMUM DRY UNIT WEIGHT AS DETERMINED BY ASTM D4253.		
10.	THE PLACEMENT OF GEOGRID SHALL BE AS SHOWN ON THE DETAIL.		

AIR RELEASE VALVE
(NOT TO SCALE)



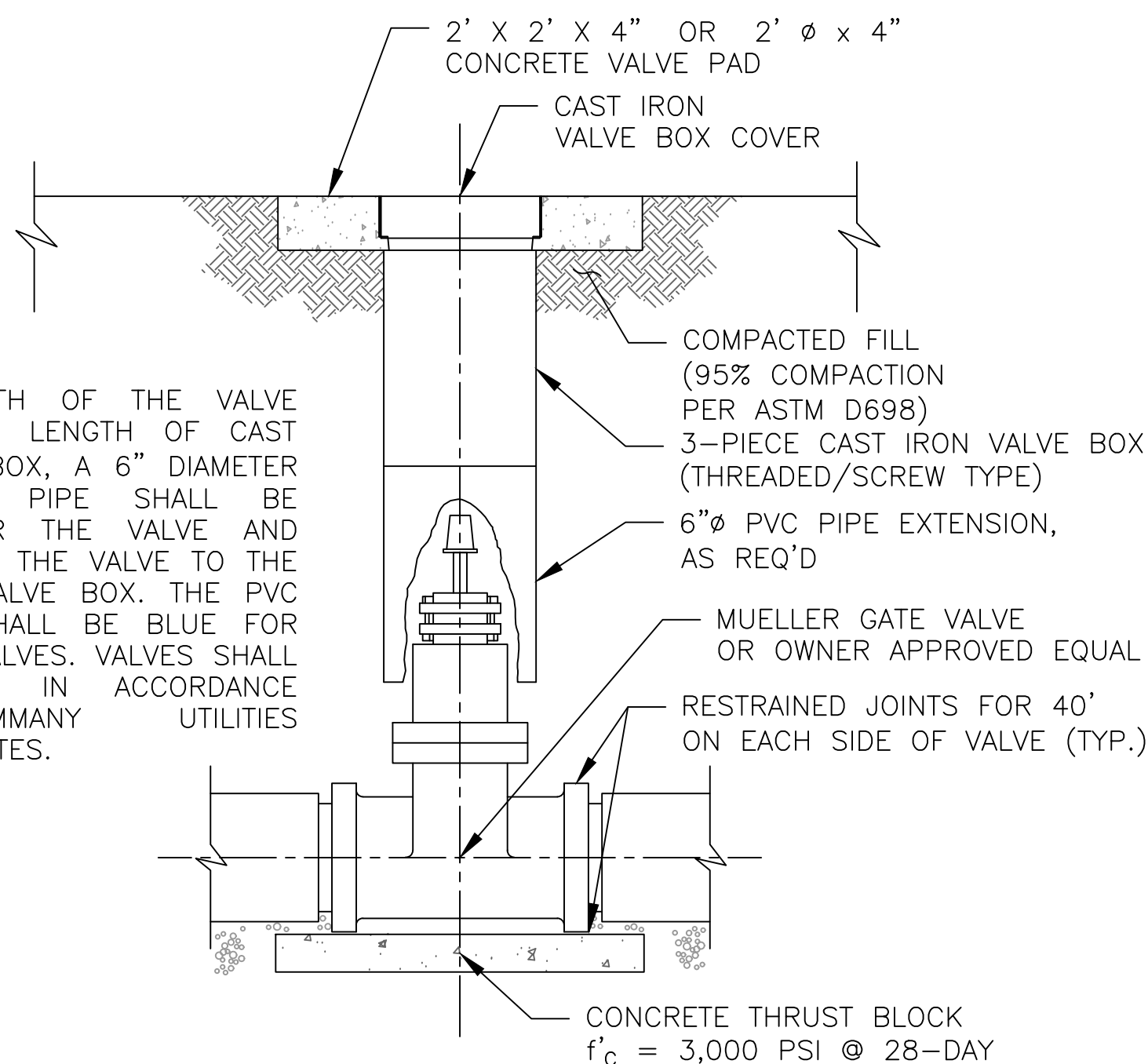
**WATER VALVE BOX MANHOLE
COVER FOR TRAFFIC AREAS**
(NOT TO SCALE)



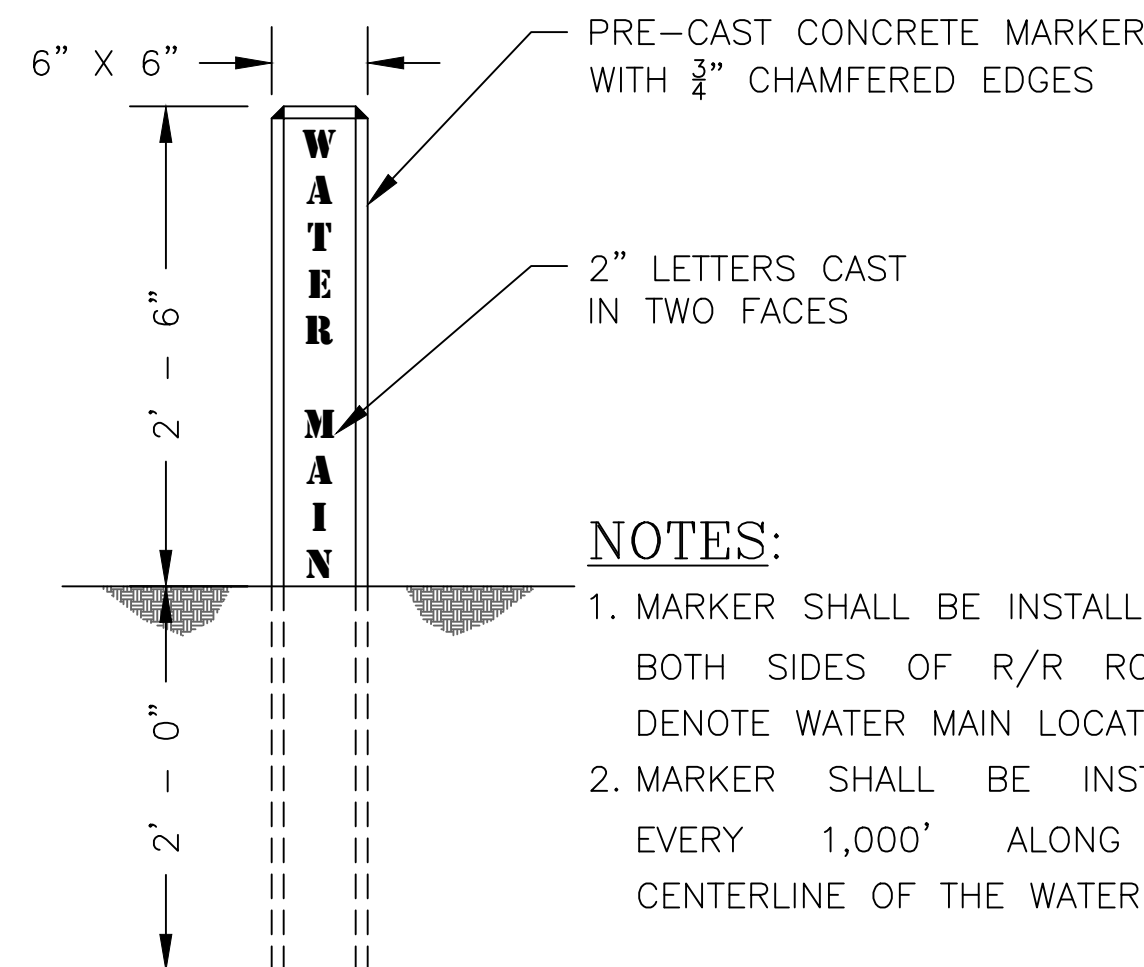
FIRE HYDRANT DETAIL
(NOT TO SCALE)

NOTE:

IF THE DEPTH OF THE VALVE EXCEEDS THE LENGTH OF CAST IRON VALVE BOX, A 6" DIAMETER SDR26 PVC PIPE SHALL BE PLACED OVER THE VALVE AND EXTEND FROM THE VALVE TO THE CAST IRON VALVE BOX. THE PVC EXTENSION SHALL BE BLUE FOR ALL WATER VALVES. VALVES SHALL BE LOCATED IN ACCORDANCE WITH TAMMANY UTILITIES STANDARD NOTES.



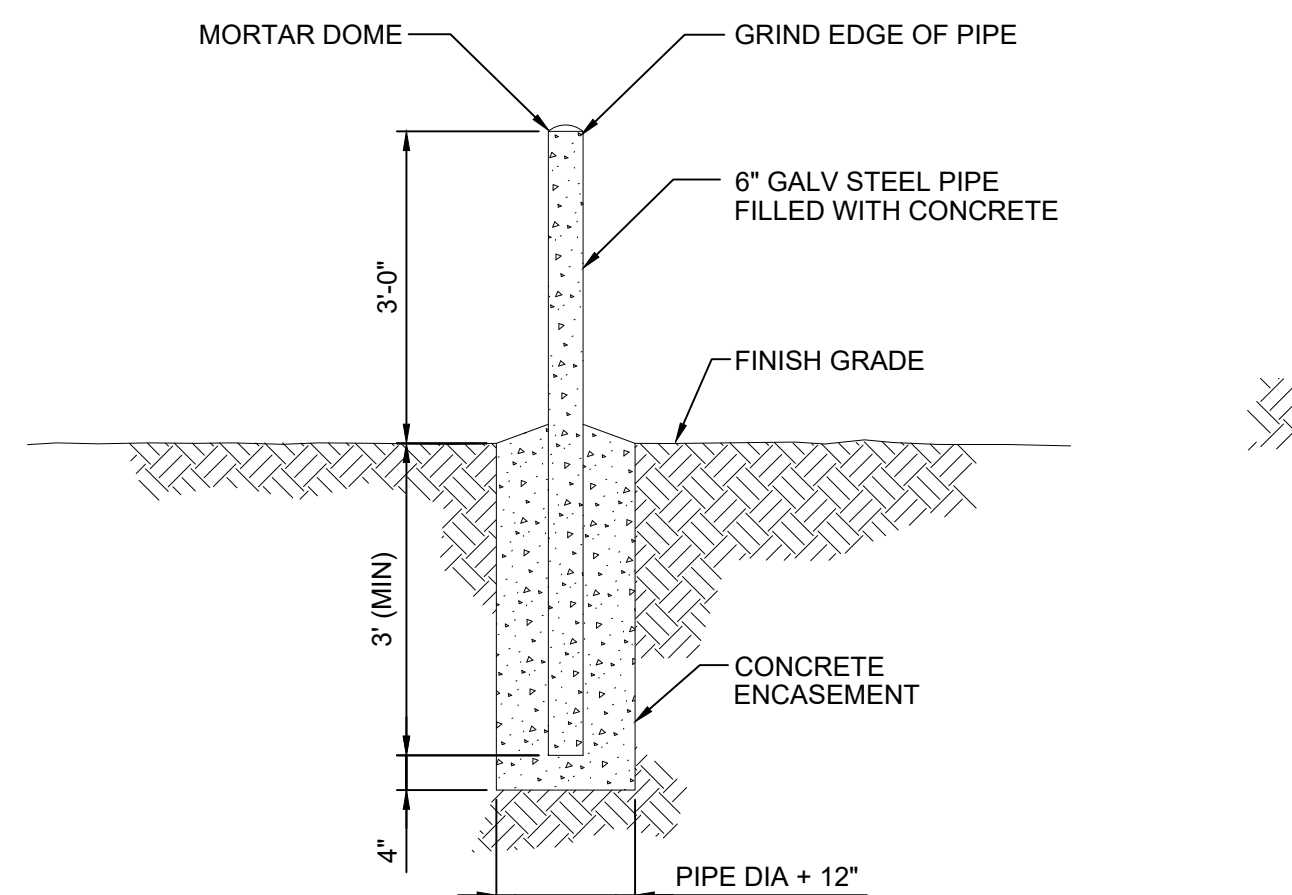
**VALVE BOX FOR
NON-TRAFFIC AREAS**
(NOT TO SCALE)



WATER MAIN MARKER DETAIL
(NOT TO SCALE)

NOTES:

1. MARKER SHALL BE INSTALLED ON BOTH SIDES OF R/R ROW TO DENOTE WATER MAIN LOCATION.
2. MARKER SHALL BE INSTALLED EVERY 1,000' ALONG THE CENTERLINE OF THE WATER MAIN.



GUARD POST
(NOT TO SCALE)

FIRE HYDRANT NOTES:

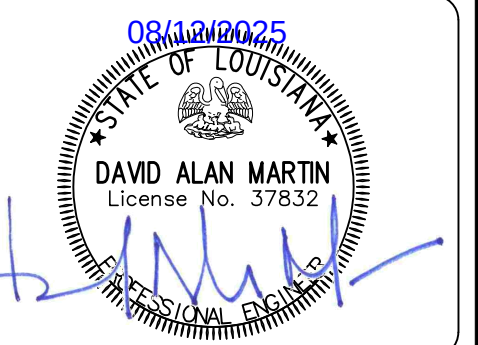
1. FIRE HYDRANTS SHALL BE MUELLER SUPER CENTURION 250 HS WITH BUILT-IN CHECK VALVE MEETING AWWA C-502.
2. SELECT FILL SHALL BE A SILTY OR CLAYEY SAND COMPLYING WITH AASHTO GROUP CLASSIFICATION A-2-4. IN-SITU SOILS USED AS SELECT FILL SHALL MEET AASHTO GROUP CLASSIFICATION A-2-4 AND SHALL BE FREE OF LARGE DEBRIS, LARGE ROCKS, ROOTS, AND OTHER DELETERIOUS MATERIALS. SELECT FILL SHALL HAVE MINIMUM COMPACTION OF 95% OF THE MAXIMUM DRY UNIT WEIGHT AS DETERMINED BY ASTM D698.
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6. CONCRETE THRUST BLOCK SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3,000 PSI.



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ST. TAMMANY PARISH
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620 N. TYLER STREET
COVINGTON, LA 70433

DATE:	08/25
DESCRIPTION OF REVISION	
No.	D

DESIGNED BY: MSL	DAT
DRAWN BY: DAM	DAM
CHECKED BY: FAIRWAY CE	TU21000154
PROJECT No.:	04/17/2024
ISSUE DATE:	---
APPROVED BY:	ANSI D 34x22
SHEET SIZE:	AS NOTED
SCALE:	



ALTON WATER SYSTEM
INTERCONNECTION
SLIDELL, LOUISIANA
PROJECT No.: TU21000154
WATER MAIN DETAILS VI

SHEET NO.

G-506

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