COLLIER COUNTY PUBLIC UTILITIES
NAPLES, FL

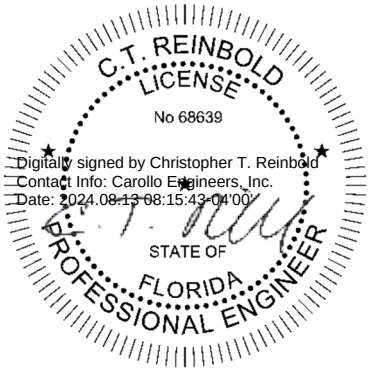
GOLDEN GATE CITY WTP DEMOLITION

CLIENT PROJECT NO. 70263.1

CONTRACT/TECHNICAL SPECIFICATIONS

BID SET SUBMITTAL

AUGUST 2024



This item has been digitally signed and sealed by C. T. Reinbold on the date adjacent to the seal.

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COLLIER COUNTY PUBLIC UTILITIES

GOLDEN GATE CITY WTP DEMOLITION

TABLE OF CONTENTS

DIVISION 01 – GENERAL REQUIREMENTS

SECTION NO.	TITLE	RESPONSIBLE ENGINEER
01_11_00	SUMMARY OF WORK	C. T. REINBOLD
01_11_02	CONTRACT DOCUMENT LANGUAGE	C. T. REINBOLD
01_14_00	WORK RESTRICTIONS	C. T. REINBOLD
01_20_20	MEASUREMENT AND PAYMENT	C. T. REINBOLD
01_29_73	SCHEDULE OF VALUES	C. T. REINBOLD
01_29_77	APPLICATIONS FOR PAYMENT	C. T. REINBOLD
01_31_19	PROJECT MEETINGS	C. T. REINBOLD
01_32_21	SCHEDULES AND REPORTS	C. T. REINBOLD
01_33_00	SUBMITTAL PROCEDURES	C. T. REINBOLD
01_35_21	SELECTIVE ALTERATIONS AND DEMOLITION	C. T. REINBOLD
01_35_44	HAZARDOUS MATERIAL PROCEDURES	C. T. REINBOLD
01_41_00	REGULATORY REQUIREMENTS	C. T. REINBOLD
01_45_00	QUALITY CONTROL	C. T. REINBOLD
01_45_17	CONTRACTOR QUALITY CONTROL PLAN	C. T. REINBOLD
01_50_00	TEMPORARY FACILITIES AND CONTROLS	C. T. REINBOLD
01_77_00	CLOSEOUT PROCEDURES	C. T. REINBOLD

DIVISION 02 – EXISTING CONDITIONS

SECTION NO.	TITLE	RESPONSIBLE ENGINEER
02_83_19	LEAD-BASED PAINT REMEDIATION	C. T. REINBOLD

DIVISION 03 – CONCRETE

SECTION NO.	TITLE	RESPONSIBLE ENGINEER
03_60_00	GROUTING	C. T. REINBOLD

DIVISION 31 – EARTHWORK

SECTION NO.	TITLE	RESPONSIBLE ENGINEER
31_00_00	EARTHWORK	C. T. REINBOLD
31_05_15	SOILS AND AGGREGATES FOR EARTHWORK	C. T. REINBOLD
31_10_00	SITE CLEARING	C. T. REINBOLD
31_23_19	DEWATERING	C. T. REINBOLD

APPENDICES

APPENDIX A	ARF ENVIRONMENTAL, INC., LEAD XRF REPORT, PROJECT 2021-2115, JANUARY 2023
APPENDIX B	ARF ENVIRONMENTAL, INC., ASBESTOS REPORT, PROJECT 2021-2115, JANUARY 2023

SECTION 01_11_00

SUMMARY OF WORK

PART 1 GENERAL

1.01 SUMMARY

A. Section includes: Detailed description of the Work.

1.02 THE WORK

A. The Work consists of:
   1. Demolition of the Golden Gate Water Treatment Plant (WTP) including, but is not limited to, the following facilities:
      a. Well 2A - Demolition of above grade concrete equipment and piping supports; grouting and abandoning of existing well casing piping.
      b. Well 3 - Demolition of above grade concrete equipment, piping supports and slab on grade; grouting and abandoning of existing well casing piping.
      c. Well 5 - Demolition of above grade concrete equipment and piping supports and slab on grade; grouting and abandoning of existing well casing piping; demolition of chain link fencing; demolition of electrical panel, conduits, and cabling.
      d. Well 8 - Demolition of above grade concrete equipment and piping supports and slab on grade; grouting and abandoning of existing well casing piping; demolition of chain link fencing; demolition of electrical panel, conduits, and cabling.
      e. Lime Softening Clarifier - Demolition of lime softening clarifier in its entirety, including tank, foundation, and all platform walkways; process equipment, piping and supports; electrical panel, conduits, and cabling. Removal and disposal of all residual chemical and water in tank and containment area.
      f. West Filters - Demolition of all tank filters in their entirety, including filter tanks, foundations and all platforms and walkways; piping and pipe supports, concrete pad supports, and process equipment; all electrical and control equipment and panels, conduit and cabling. Removal and disposal of all residual chemical, media and water in tanks.
      g. Injection Point 1 - Demolition of above grade piping and pipe supports.
      h. Injection Point 2 - Demolition of above grade piping and pipe supports; electrical panel, conduits, and cabling; bollards and valve boxes.
      i. Backwash Return Basin - Demolition of interior and exterior walls, hand railing and above grade concrete slabs; process equipment, piping, and pipe supports; electrical panel, conduits, and cabling. Removal and disposal of all residual chemical and water in basin area.
      j. Filter backwash tank - Demolition of filter backwash tank in its entirety, including tank, foundation, concrete slabs and supports; all process equipment, piping and pipe supports. Removal and disposal of all residual chemical and water in tank.

k. Lime Softening Building - Demolition of entire building and its contents in their entirety, including all structures, tanks, and walkways; all equipment, piping, and building mechanical; all electrical and instrumentation panels, building electrical and lighting, conduits, and cables. Removal and disposal of all residual chemical and water in silo.
l. Lime Silo and Slaker Building - Demolition of entire building and its contents in their entirety, including all structures, tank, foundation, and walkways; process equipment, piping and pipe supports; building appurtenances and supports; all electrical and instrumentation panels, building electrical and lighting, conduits, and cables. Removal and disposal of all residual chemical and water in tank and containment area.
m. Fluoride Building - Demolition of entire building and its contents in their entirety, including all structure, tanks, and foundation; process equipment, piping and pipe supports; all electrical and instrumentation panels, building electrical and lighting, conduits, and cables. Removal and disposal of all residual chemical and water in tank.
n. Chemical Storage Tanks - Demolition of tanks in their entirety, including tanks, foundation, and concrete slab; process equipment, piping and pipe supports. Removal and disposal of all residual chemical and water in tank.
o. Chlorine building - Demolition of entire building and its contents in their entirety, including all structure, tanks, walkways and foundation; process equipment, piping and pipe supports; all electrical and instrumentation panels, building electrical and lighting, conduits, and cables. Removal and disposal of all residual chemical and water in tanks.
p. Diesel Fuel Storage Tank - Demolition of tank and containment area in its entirety, including tank, concrete containment walls, foundation, concrete supports, and metal stairway; below grade vault and all its contents; process equipment, piping and pipe supports. Removal and disposal of all residual chemical and water in tank and containment area.
q. High Service Pumps #1, 2, 3, and 4 - Demolition of all pumps in their entirety, including pump and motor, piping and pipe supports; concrete equipment pads and foundations.
r. Submersible Pump Station - Demolition of above grade structure, piping, pipe supports, electrical panel, conduits, and cabling; below grade piping, process equipment, conduits and cabling. Removal and disposal of all residual chemical and water in underground vaults.
s. Sulfuric Acid Storage Tank - Demolition of sulfuric acid storage tank and containment in its entirety, including tank, concrete containment walls, concrete supports, foundation and ladders; process equipment, piping and pipe supports; electrical panel, conduits, and cabling. Removal and disposal of all residual chemical and water in tank and containment area.
t. Sulfuric Acid Containment Basin - Demolition of entire containment structure in its entirety, including concrete containment walls, tank supports, and foundation; above grade piping and pipe supports. Removal and disposal of all residual chemical and water in containment area.
u. RO Membrane Filtration Building - Demolition of all process equipment within the existing building, including all equipment, tanks, piping, pipe supports, electrical and instrumentation panel, conduits, and cabling. Demolition of above grade exterior piping connections to equipment inside the building.

2. Excavation and isolation of existing 0.5 million gallon ground storage tank influent and effluent piping.
3. Removing and disposing equipment located within the existing RO Membrane Building, including membrane vessels and membranes.
4. Repair and reconstruction of existing improvements affected by the Work, and incidentals for complete and usable facility.
5. All work is to be performed as indicated in the Specification and on the Drawings.

1.03 LOCATION OF PROJECT

A. The Work is located at the Golden Gate Water Treatment Plant, 4300 Golden Gate Pkwy, Naples, FL 34116.

1.04 LICENSING REQUIREMENTS

A. At a minimum, a building permit to perform demolition is required to be obtained through the Collier County Growth Management Division (GMD). Contractor shall be a licensed General Contractor, Underground Utility and Excavation Specialty Contractor, Building Contractor, Demolition or Wrecking Specialty Contractor, or other licensed Contractor in accordance with Collier County Code of Ordinances Chapter 22 Article V and apply for the permit.

1.05 ACTIVITIES BY OTHERS

A. Owner, utilities, and others may perform activities within Project area while the Work is in progress.
   1. Schedule the Work with Owner, utilities, and others to minimize mutual interference.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01_11_02

CONTRACT DOCUMENT LANGUAGE

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Explanation of arrangement, language, reference standards, and format.

1.02 REFERENCES

A. Construction Specifications Institute (CSI):
   1. MasterFormat™.
   2. SectionFormat™.
   3. PageFormat™.

1.03 PROJECT MANUAL ARRANGEMENT

A. Document and Section numbers used in Project Manual, and Project Manual arrangement are in accordance with CSI MasterFormat™, except where departures have been deemed necessary.

B. Sections are written in CSI SectionFormat™, Three-Part Section Format, except where departures have been deemed necessary.

C. Page format for Sections in the Project Manual is in PageFormat™, except where departures have been deemed necessary.

1.04 CONTRACT DOCUMENT LANGUAGE

A. Specification Section Paragraphs entitled "Section Includes" summarize briefly what is generally included in the section.
   1. Requirements of Contract Documents are not limited by "Section Includes" paragraphs.

B. Specifications have been partially streamlined by intentionally omitting words and phrases, such as "the Contractor shall," "in conformity therewith," "shall be" following "as indicated," "a," "an," "the" and "all."
   1. Assume missing portions by inference.

C. Phrase "by Engineer" modifies words such as "accepted," "directed," "selected," "inspected," and "permitted," when they are unmodified.

D. Phrase "to Engineer" modifies words such as "submit," "report," and "satisfactory," when they are unmodified.

E. Colons (:) are used to introduce a list of particulars, an appositive, an amplification, or an illustrative quotation:
   1. When used as an appositive after designation of product, colons are used in place of words "shall be."

F. Word "provide" means to manufacture, fabricate, deliver, furnish, install, complete, assemble, erect in place, test, or render ready for use or operation, including necessary related material, labor, appurtenances, services, and incidentals.

G. Words "Contractor shall" are implied when direction is stated in imperative mood.

H. Term "products" includes materials and equipment as specified in Section 01_60_01 - Product Requirements.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01_14_00

WORK RESTRICTIONS

PART 1 GENERAL

1.01 SUMMARY

A. Section includes: Requirements for sequencing and scheduling the Work affected by existing site and facility, work restrictions, and coordination between construction operations and plant operations.

1.02 SUBMITTALS

A. Baseline Schedule.

1.03 GENERAL CONSTRAINTS ON WORK AND SCHEDULING OF WORK

A. Plant access for Contractor will be provided at the southwest gate.

B. Perform abandoned pipe Work as specified in Section 01_35_21 - Selective Alterations and Demolition.

1.04 COMPLIANCE WITH DRINKING WATER PERMIT

A. The existing facility is currently not operational and is not under the terms of a Drinking Water permit.

1.05 REQUIREMENTS FOR MAINTAINING CONTINOUS OPERATION OF EXISTING FACILITIES

A. Facilities or conditions required to keep the existing facilities operational include, but are not limited to, the following:
   1. Administration Building.
   2. Electrical power including transformers, distribution wiring, and motor control centers.
   3. Fencing, gates, and controls.
   4. Lighting.
   5. Sewer system.
   6. Storm drainage.

B. Conduct the Work and provide temporary facilities required to keep the in-use existing plant facilities continuously operational.

C. Do not remove or demolish existing facilities required to keep the existing plant operational until the existing facilities are replaced by temporary, new, or upgraded facilities or equipment.
   1. Test replacement facilities to demonstrate operational success prior to removing or demolishing existing facilities.

1.06 UTILITIES

A. Provide advance notice to and utilize services of Sunshine State One Call of Florida, Inc Utilities Notification Center for location and marking of underground utilities operated by utility agencies other than the Owner.

B. Maintain electrical, telephone, water, sanitary facilities, and other utilities within existing facilities in service. Provide temporary utilities when necessary.

1.07 WORK BY OTHERS

A. Where proper execution of the Work depends upon work by others, inspect and promptly report discrepancies and defects.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

ATTACHMENT A - READINESS CHECKLIST

READINESS CHECKLIST
(5 days prior to work)

Checklist provided as a guide but is not all inclusive.

1. Confirm all parts and materials are on site: _____
2. Review work plan: _____
3. Review contingency plan: _____

ATTACHMENT B - SAFETY CHECKLIST

SAFETY CHECKLIST
(Just prior to commencing work)

Checklist provided as a guide but is not all inclusive.

1. Location awareness:
   a. Emergency exits: _____
   b. Emergency shower and eyewash: _____
   c. Telephones and phone numbers: _____
   d. Shut-off valve: _____
   e. Electrical disconnects: _____
2. Inspect work area:
   a. Take time to survey the area you are working in. Ensure that what you want to do will work. Do you have enough clearance? Is your footing secure? Do you have adequate lighting and ventilation? Are surrounding utilities out of the way for you to perform your work?
3. SDS (Safety Data Sheets):
   a. Understand the chemicals and substances in the area you are working in by reading the SDS.
4. Lockout/Tagout Procedure:
   a. Lockout/tagout energy sources before beginning work.
   b. Make sure all valves associated with the work are locked out and tagged out on each side of the penetration.
   c. Make sure the lines are depressurized.
5. Overhead work:
   a. Use appropriate personal protective equipment; i.e., safety harness, lifeline, etc.
   b. Select appropriate tie-off points; i.e., structurally adequate, not a pipe or conduit, etc.
   c. Spotter assigned and in position.
   d. Pipe rack access; i.e., check design capacity, protective decking or scaffolding in place, exposed valves or electrical switches identified and protected.
6. Safety equipment:
   a. Shepherd's hook.
   b. ARC flash protection.
   c. Fire extinguisher.
   d. Other: _____.
7. Accidents:
   a. Should accidents occur, do not shut off and do not attempt to correct the situation, unless you are absolutely positive that your action will correct the problem and not adversely affect other people or equipment.
8. Review process start-up documents:
   a. In the event the system is shutdown, the Control Center should have a working knowledge of the process start-up procedures in order to deal effectively with unforeseen events.
9. Evacuation procedures:
   a. Do not obstruct evacuation routes.
   b. Take time to survey the area for evacuation routes.

SECTION 01_20_20

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.01 SUMMARY

A. Section includes: Procedures for measurement and payment of Work under this Contract for lump sum items and unit prices.

1.02 REFERENCES

A. Occupational Safety and Health Administration (OSHA).

1.03 LUMP SUM ITEMS

A. Item 1: Mobilization and Demobilization:
   1. Measurement:
      a. Limit amounts included under mobilization to the following items:
         1) Moving on the site any equipment required for first month operations.
         2) Installing temporary construction power, wiring, and lighting facilities.
         3) Establish and submit fire protection plan and safety program.
         4) Provide temporary facilities as specified in Section 01_50_00 - Temporary Facilities and Controls
            a) Providing on-site sanitary facilities and potable water facilities.
            b) Developing construction water supply.
         5) Arranging for and erection of Contractor's work and storage yard, and employee parking facilities.
         6) Submit required insurance certificates and bonds.
         7) Obtaining required permits, licenses, and fees.
         8) Submit preliminary schedule of values of the Work.
         9) Submit preliminary schedule and develop baseline schedule.
         10) Submit cash flow in tabular and graphical formats.
         11) Submit Schedule of Submittals.
         12) Post OSHA, Department of Labor, state, and other required notices.
         13) Location and flagging of construction and clearing.
         14) Submit Contractor's quality control plan.
         15) Submit pre-construction photographs and videos.
         16) Have Contractor's project manager and/or general superintendent on job site full-time.
         17) Removal of temporary facilities as specified in Section 01_50_00 - Temporary Facilities and Controls.
         18) Completion of closeout submittals as specified in Section 01_77_00 - Closeout Procedures.
   2. Payment:
      a. Furnish data and documentation to substantiate the amounts claimed under mobilization costs.

b. Payment for mobilization shall not be made until mobilization items listed above have been completed as specified and not exceed 75% of the scheduled value. The remaining amount shall be paid for demobilization upon completion of the closeout submittals.
c. Lump sum.

B. Item 2: Hazardous Materials Removal:
1. Measurement:
a. Removal and proper disposal of hazardous materials as indicated on drawings.
b. Items include:
1) Lead-based paint remediation.
2) On-site stored chemical removal as indicated on drawings.
2. Payment:
a. Lump sum.

C. Item 3: Facility Demolition:
1. Measurement:
a. Demolition and removal of all items and materials as indicated on drawings.
2. Payment:
a. Lump sum.

D. Item 4: Grading and Restoration:
1. Measurement:
a. Includes all grading activities shown on the drawings for grading and area restoration.
b. Includes restoration of areas back to grade.
2. Payment:
a. Lump sum.

E. Item 5: Ground Storage Tank Yard Demolition and Abandonment:
1. Measurement:
a. Includes demolition of existing ground storage tank piping and valves, installing MJ plugs on remaining piping connected to tank, and installing grout plugs on disconnected yard piping to abandon in place.
2. Payment:
a. Lump sum.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01_29_73

SCHEDULE OF VALUES

PART 1 GENERAL

1.01 SUMMARY

A. Section includes: Requirements for preparation, format, and submittal of Schedule of Values.

1.02 PREPARATION

A. Schedule of Values shall be a listing of all cost loaded, on-site construction activities from the progress schedule, listed in numerical order, showing that the sum total of all cost-loaded activities equal the Contract value.

B. When the schedule is changed or revised to include added or deleted work, the Schedule of Values shall also be revised such that the sum total of all cost-loaded activities continuously equal the current Contract value.
   1. Equate the aggregate of these costs to the Lump Sum Contract Price.

C. Prepare Schedule of Values identifying costs of Major Items of Work.

1.03 SUBMITTALS

A. Submit Schedule of Values for the Preliminary Schedule as specified in, Section 01_32_21 - Schedules and Reports.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01_29_77

APPLICATIONS FOR PAYMENT

PART 1 GENERAL

1.01 SUMMARY

A. Section includes: Procedures for preparation and submittal of Applications for Payment.

1.02 FORMAT

A. Develop satisfactory spreadsheet-type form generated by downloading cost data from the Progress Schedule.
   1. Submit payment requests using the County's preferred Application for Payment forms and attach spreadsheet with cost data related to Progress Schedule.

B. Fill in information required on form.

C. When Change Orders are executed, add Change Orders at end of listing of scheduled activities:
   1. Identify change order by number and description.
   2. Provide cost of change order in appropriate column.

D. After completing, submit Application for Payment.

E. Engineer will review application for accuracy. When accurate, Engineer will return application to Contractor for submission to the County Clerk for processing of payment.

F. Execute application with signature of responsible officer of Contractor.

1.03 SUBSTANTIATING DATA

A. Provide Substantiating Data identifying:
   1. Project.
   2. Application number and date.
   3. Cost flow summary.
   4. Updated schedule of values.
   5. Progress schedule.
   6. Detailed list of enclosures.
   7. Stored products log.
   8. Equipment log.
   9. Submit "certified" payroll, if applicable.
   10. Record (as-built) documents.
   11. Photos and videos from current pay period.
   12. Applicable unconditional waiver and release on progress payment for previous payment made by Owner.

1.04 SUBMITTALS

A. Submit four copies of Application for Payment and Substantiating Data with cover letter.

1.05 PAYMENT REQUESTS

A. Prepare progress payment requests on a monthly basis. Base requests on the breakdowns of costs for each scheduled activity and the percentage of completion for each activity.

B. Indicate total dollar amount of work planned for every month of the project. Equate sum of monthly amounts to Lump Sum Contract Price.

C. Generate Progress Payment request forms by downloading cost data from the schedule information to a spreadsheet type format.

D. Identify each activity on the Progress Schedule that has a cost associated with it, the cost for each activity, the estimated percent complete for each activity, and the value of work completed for both the payment period and job to date.

E. Prepare summary of cost information for each Major Item of Work listed in the Schedule of Values. Identify the value of work completed for both the payment period and job to date.

F. Payment period:
   1. Monthly Application for Payment period shall begin on the first day of each month, and end on the last day of each month.
   2. Submit Application for Payment to Engineer no later than the fifth day of each month for work completed the previous month.
   3. Engineer will finalize and submit recommendation for Application for Payment to Owner by the 15th day of each month to allow time for processing and approval.

1.06 COST SUMMARIES

A. Prepare Summary of Cost Information for each Major Item of Work listed in the Schedule of Values. Identify the Value of Work Completed for both the payment period and job to date.

B. Cash flow summary: Prepare cash flow summary, indicating total dollar amount of work planned for each month of the project. Equate sum of monthly amounts to Lump Sum contract price.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01_31_19

PROJECT MEETINGS

PART 1 GENERAL

1.01 SUMMARY

A. Section includes: Requirements for conducting conferences and meetings for the purposes of addressing issues related to the Work, reviewing and coordinating progress of the Work and other matters of common interest, and includes the following:
   1. Qualifications of Meeting Participants.
   2. Basic Meeting Requirements
   3. Pre-construction Conference.
   4. Pre-construction Safety Conference.
   5. Pre-submittal Conference.
   6. Web Based Construction Document Management Software Training.
   7. Progress Meetings.
   8. Schedule Update Meetings.
   9. Quality Control Meetings.
   10. Pre-Installation Meetings.
   11. Maintenance Of Plant Operations (MOPO) Meetings.
   12. Commissioning Coordination Meetings.
   13. Instrumentation and Control Coordination Meetings.
   14. Close-out Meeting.
   15. Post Construction Meeting.

1.02 QUALIFICATIONS OF MEETING PARTICIPANTS

A. Representatives of entities participating in meetings shall be qualified and authorized to act on behalf of entity each represents.

1.03 BASIC MEETING REQUIREMENTS

A. Attendees:
   1. Meeting leader shall require attendance of parties directly affecting, or affected by, Work being discussed at the meeting.

B. Location:
   1. In location convenient for most invitees.

C. Notification:
   1. Meeting leader shall notify attendees of meeting, including an agenda, a minimum of 7 days prior to meeting.

D. Agenda:
   1. Meeting leader shall prepare copies of agenda for participants and distribute at the meeting.
   2. Minimum requirements:
      a. Meeting purpose.
      b. Review minutes of previous meeting.
      c. Safety and security.
      d. Discuss issues.
      e. Action items.
      f. Next meeting.

E. Meeting minutes:
   1. Meeting leader shall provide draft minutes within one day of meeting and send to all attendees for comment.
   2. Meeting leader shall incorporate comments from attendees and submit final meeting minutes to attendees within two days of receipt of comments.

1.04 PRE-CONSTRUCTION CONFERENCE

A. Engineer leads the meeting.

B. Timing:
   1. Upon issuance of Notice to Proceed, or earlier when mutually agreeable.

C. Attendees:
   1. Contractor's project manager and superintendent, Owner, Engineer, representatives of utilities, major subcontractors and others involved in performance of the Work, and others necessary to agenda.

D. Agenda minimum requirements:
   1. Meeting purpose:
      a. To establish working understanding between parties and to discuss Construction Schedule, shop drawing and other submittals, cost breakdown of major lump sum items, processing of submittals and applications for payment, and other subjects pertinent to execution of the Work.
   2. Adequacy of distribution of Contract Documents.
   3. Distribution and discussion of list of major subcontractors and suppliers.
   4. Proposed progress schedules and critical construction sequencing.
   5. Project coordination.
   6. Designation of responsible personnel.
   7. Procedures and processing of:
      a. Field decisions.
      b. Proposal requests.
      c. Submittals - separate, meeting.
      d. Change Orders.
      e. Request for Information/Interpretations.
      f. Applications for Payment.
      g. Record Documents.

8. Use of premises:
    a. Office, construction, and storage areas.
    b. Owner's requirements.
9. Construction facilities, controls, and construction aids.
10. Temporary utilities.
11. Safety and first aid procedures.
12. Security procedures.
13. Housekeeping procedures.
14. Safety and security.
15. Review proposed photographer submittal.
16. Action items.
17. Next meeting.

1.05 PROGRESS MEETINGS

A. Engineer will lead the meeting.

B. Timing:
    1. Hold meetings throughout progress of the Work at maximum bi-weekly intervals.

C. Attendees:
    1. Owner, Engineer, Contractor, Contractor's Project Manager, superintendent, quality control manager, project scheduler, major subcontractors and suppliers as appropriate to agenda topics for each meeting.
    2. Additional invitees:
        a. Owner utility companies when the Work affects their interests, and others necessary to agenda.

D. Agenda minimum requirements:
    1. Meeting purpose:
        a. To discuss project progress.
    2. Review minutes of previous meeting.
    3. Safety and security.
    4. Construction schedule summary.
    5. Review of six weeks schedule.
        a. Contractor shall provide printed hard copies for each attendee.
    6. Review of off-site fabrication and delivery schedules.
    7. Review of submittals schedule and status of submittals.
    8. Request for information (RFI) status.
    9. MOP's/shutdown coordination.
    10. Change order management status.
    11. Maintenance of quality standards (QA/QC).
    12. Field observations, problems, and conflicts.
    13. Commissioning.
    14. Partnering recognition status (optional).
    15. General Items.
    16. Action items.
    17. Next meeting.

1.06 SCHEDULE UPDATE MEETINGS

A. Contractor leads the meeting.

B. Timing:
   1. Hold meetings throughout progress of the Work at maximum monthly intervals.

C. Attendees:
   1. Owner, Engineer, Contractor, Contractor's Project Manager, General Superintendent, project scheduler, major subcontractors, and suppliers as appropriate to agenda topics for each meeting.
   2. Additional invitees:
      a. Owner utility companies when the Work affects their interests and others necessary to the agenda.

D. Agenda minimum requirements:
   1. Meeting purpose:
      a. Discuss project schedule.
   2. Review minutes of previous meeting.
   3. Review Monthly Schedule, (Actual Progress and Variance).
      a. "Activities Started/Completed" this period.
      b. "Activities Started/Completed" "Variance" Baseline vs. current.
      c. "Added/Deleted Activities".
      d. "Revised Activity Descriptions".
      e. Any significant Proposed Logic Changes.
   4. Review milestone "Substantial Completion" Schedule:
      a. "Critical" Activities - "Critical Area, Float and Vital Statistics".
   5. Review "Cumulative and Monthly Costs" graph.
   6. Review "Budgeted Cost" indicating the Current Project Budgeted Cost.
   7. Safety and security.
   8. Action items.
   9. Next meeting.

1.07 CLOSE-OUT MEETING

A. Engineer leads the meeting.

B. Timing:
   1. After punch list items are completed.

C. Attendees:
   1. Owner, Engineer, Contractor, Contractor's Project Manager, and Superintendent.

D. Agenda minimum requirements:
   1. Meeting purpose:
      a. Coordinate close-out activities.
   2. Review minutes of previous meeting.
   3. Review punch list completion.
   4. Transfer of record documents.
   5. Finalize payment.

6. Safety and security.
7. Action items.
8. Next meeting.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01_32_21

SCHEDULES AND REPORTS

PART 1 GENERAL

1.01 SUMMARY

A. Section includes: Schedules and reports.

1.02 SUBMITTAL REQUIREMENTS

A. Submit preliminary and baseline schedule.

B. Submit preliminary and baseline schedule of values.

C. Submit preliminary and baseline schedule of submittals.

D. Submit, on a monthly basis, updated schedules as specified.

E. Submit final schedule update as specified.

F. Submit revised schedules and time impact analyses as specified.

G. Submit schedules in the media and number of copies as follows:
   1. Provide each submittal in PDF format and in other formats specified in this Section.
   2. 3 sets of the CPM network and/or bar chart (as specified by the Owner) on D-size sheets.
      a. Color-coding to be specified by the Owner.
   3. 3 sets of tabular reports listing all activities sorted numerically identifying duration, early start, late start, early finish, late finish, total float, and all predecessor/successor information.
   4. 2 sets of CPM Schedule data electronic files in a native backed-up file (.xer).

1.03 SCHEDULER

A. Designate, in writing and within 5 calendar days after Notice of Award, the person responsible for preparation, maintenance, updating, and revision of all schedules.

B. Qualifications of scheduler:
   1. Authority to act on behalf of Contractor.
   2. A minimum of 5 years verifiable experience in preparation of construction schedules for projects of similar value, size, and complexity.
   3. Knowledge of critical path method (CPM) scheduling utilizing Primavera P6 Professional software.

C. Owner reserves the right to disapprove scheduler when submitted by Contractor if not qualified.

D. Owner reserves the right to remove scheduler from the project if found to be unqualified.

1.04 SCHEDULING FORMAT AND SOFTWARE

A. Schedule format: Utilize CPM format.

B. Prepare computerized schedule utilizing Primavera P6 software, most current version.
   1. Provide 1 licensed copy of the scheduling software to the engineer, registered in the Engineer's name, for the duration of the project.
   2. The provided copy of the software shall be a standalone version for installation on a standalone computer.

C. Contractor and Engineer must agree on the format.

1.05 PRECONSTRUCTION SCHEDULING MEETING

A. Engineer will conduct Preconstruction Scheduling Meeting with Contractor's Project Manager, General Superintendent, and scheduler within 7 calendar days after Notice to Proceed.
   1. This meeting is separate from the Preconstruction Conference Meeting and is intended to exclusively cover schedule issues.

B. At the meeting, review scheduling requirements:
   1. These include schedule preparation, reporting requirements, labor and equipment loading, updates, revisions, and schedule delay analysis.
   2. Present schedule methodology, planned sequence of operations, cost and resource loading methodology, and proposed activity coding structure.
   3. Naming convention: Name schedule files with the year, month and day of the data date, revision identifier, and a description of the schedule.
      a. Example 1: 2014_07_30 rev 1 draft baseline schedule.xer.
      b. Example 2: 2014_09_30 rev 2 sep final update.xer.

C. Filing: Post submitted files to Owner's construction document control system.

1.06 REVIEW AND ACCEPTANCE OF SCHEDULES

A. Engineer will review Baseline Schedule, Schedule Updates, Schedule Revisions and Time Impact Analyses to ascertain compliance with specified project constraints, compliance with milestone dates, reasonableness of durations and sequence, accurate inter-relationships, and completeness.

B. Engineer and Owner will issue written comments following completion of review of Baseline Schedule within 10 calendar days after receipt.

C. Written comments on review of Schedule Updates and Schedule Revisions and Time Impact Analyses will be returned to Contractor within 10 calendar days after receipt by Engineer.

D. Revise and resubmit schedule in accordance with Engineer's comments within 7 calendar days after receipt of such comments or request joint meeting to resolve objections.

E. If Engineer requests a meeting, the Contractor and all major subcontractors must participate in the meeting with Engineer.
   1. Revise and resubmit schedule within 7 calendar days after meeting.

F. Use accepted schedule for planning, organizing, and directing the work and for reporting progress.

G. Engineer's submittal review response:
   1. When schedule reflects Owner's and Contractor's agreement of project approach and sequence, schedule will be accepted by Owner.
   2. Engineer's submittal review response for schedule submittal will be "Receipt Acknowledged - Filed for Record" including applicable comments.
   3. Acceptance of the schedules by the Owner is for general conformance with the Contract Documents and for Owner's planning information and does not relieve the Contractor of sole responsibility for planning, coordinating, and executing the Work within the contract completion dates. Omissions and errors in the accepted schedules shall not excuse performance less than that required by the Contract Documents. Acceptance by the Owner in no way constitutes an evaluation or validation of the Contractor's plan, sequence or means, methods, and techniques of construction.

1.07 SCHEDULE UPDATES

A. Any update:
   1. Prepare update using most recent accepted version of schedule including:
      a. Actual start dates of activities that have been started.
      b. Actual finish dates of activities that have been completed.
      c. Percentage of completion of activities that have been started but not finished.
      d. Actual dates on which milestones were achieved.
      e. Update activities by inputting percent complete figures with actual dates.
      f. Use retained logic in preparing Schedule Updates.
      g. When necessary, input remaining durations for activities whose finish dates cannot be calculated accurately with a percent complete figure only.
      h. Revisions to the schedule may be included that have been previously approved as specified in this Section under Revisions to Schedule.

B. Monthly updates:
   1. Submit written narrative report in conjunction with each Schedule Update including descriptions of the following:
      a. Activities added to or deleted from the schedule are to adhere to cost and other resource loading requirements.
         1) Identify added activities in manner distinctly different from original activity designations.
      b. Changes in sequence or estimated duration of activities.
      c. Current or anticipated problems and delays affecting progress, impact of these problems and delays and measures taken to mitigate impact.

d. Assumptions made and activities affected by incorporating change order work into the schedule.

2. Submit updated schedule and materials specified under Submittal of Progress Schedules, 5 calendar days before the monthly schedule update meeting.
3. Since Monthly Schedule Update is the application for progress payment required as specified in Section 01_29_77 - Applications for Payment, submittal and acceptance of the monthly Schedule Update is a condition precedent to the making of any progress payments.

C. Weekly progress meeting:
1. Update the schedule prior to weekly progress meeting.
   a. Identify overall progress of each Major Item of Work in the Summary Schedule.
   b. If there are significant changes to the schedule, submit a written report at the weekly progress meeting.
2. Should monthly Schedule Update show project completion earlier than current Contract completion date, show early completion time as schedule activity, identified as “Project Float”.
3. Should monthly Schedule Update show project completion later than current Contract completion date, prepare and submit a Schedule Revision in accordance with the Revisions to Schedule.

1.08 REVISIONS TO SCHEDULE

A. Submit Revised Schedule within 5 days:
1. When delay in completion of any activity or group of activities indicates an overrun of the Contract Time or milestone dates by 20 working days or 5 percent of the remaining duration, whichever is less.
2. When delays in submittals, deliveries, or work stoppages are encountered making necessary the replanning or rescheduling of activities.
3. When the schedule does not represent the actual progress of activities.
4. When any change to the sequence of activities, the completion date for major portions of the work, or when changes occur which affect the critical path.
5. When Contract modification necessitates schedule revision, submit schedule analysis of change order work with cost proposal.

B. Create a separate submittal for Schedule Revisions.
1. Comply with schedule updates as specified in this Section.
2. Do not submit with Schedule Updates.

C. Schedule Revisions will not be reflected in the schedule until after the revision is accepted by the Owner.
1. This includes Schedule Revisions submitted for the purpose of mitigating a Contractor-caused project delay (Recovery Schedule).

1.09 ADJUSTMENT OF CONTRACT TIMES

A. Contract Time will be adjusted only for causes specified in Contract Documents.
   1. Non-excusable delay:
      a. Non-excusable delays include actions or inactions of the Contractor, or events for which the Contractor has assumed contractual responsibility (including actions or inactions of subcontractors, suppliers, or material manufacturers at any tier) that would independently delay the completion of the Work beyond the current Contract completion date).
      b. No time extensions will be granted for non-excusable delays.
   2. Excusable delay:
      a. Events which are unforeseeable, outside the control of, and without the fault or negligence of either the Owner or the Contractor (or any party for whom either is responsible), which would independently delay the completion of the Work beyond the current Contract completion date.
      b. The Contractor is entitled to a time extension only.
      c. No other damages will be approved.
   3. Compensable delay:
      a. Actions or inactions of the Owner, or events for which the Owner has assumed contractual responsibility, which would independently delay the completion of the Work beyond the current Contract completion date.
      b. The Contractor is entitled to a time extension and delay damages.
   4. Concurrent delay:
      a. Concurrent delay is any combination of the above 3 types of delay occurring on the same calendar date.
      b. Exception to concurrent delay: Cases where the combination consists of 2 or more instances of the same type of delay occurring on the same calendar date. When one cause of delay is Owner-caused or caused by an event which is beyond the control and without the fault or negligence of either the Owner or the Contractor and the other Contractor-caused, the Contractor is entitled only to a time extension and no delay damages.

B. If the Contractor believes that the Owner has impacted its work, such that the project completion date will be delayed, the Contractor must submit proof demonstrating the delay to the critical path.
   1. This proof, in the form of a Time Impact Analysis, may entitle the Contractor to an adjustment of Contract Time.

C. Time Impact Analysis:
   1. Use the accepted schedule update that is current relative to the time frame of the delay event (change order, third party delay, or other Owner-caused delay). Represent the delay event in the schedule by:
      a. Inserting new activities associated with the delay event into the schedule.
      b. Revising activity logic.
      c. Revising activity durations.
   2. If the project schedule's critical path and completion date are impacted as a result of adding this delay event to the schedule, a time extension equal to the magnitude of the impact may be warranted.
   3. The Time Impact Analysis submittal must include the following information:
      a. A fragment of the portion of the schedule affected by the delay event.

b. A narrative explanation of the delay issue and how it impacted the schedule.
c. A schedule file used to perform the Time Impact Analysis.

D. When a delay to the project as a whole can be avoided by revising preferential sequencing or logic, and the Contractor chooses not to implement the revisions, the Contractor will be entitled to a time extension and no compensation for extended overhead.

E. Indicate clearly that the Contractor has used, in full, all project float available for the work involved in the request, including any float that may exist between the Contractor's planned completion date and the Contract completion date.
1. Utilize the latest version of the Schedule Update accepted at the time of the alleged delay, and all other relevant information, to determine the adjustment of the Contract Time.

F. Adjustment of the Contract Times will be granted only when the Contract Float has been fully utilized and only when the revised date of completion of the Work has been pushed beyond the Contract completion date.
1. Adjustment of the Contract Times will be made only for the number of days that the planned completion of the work has been extended.

G. Actual delays in activities which do not affect the critical path work or which do not move the Contractor's planned completion date beyond the Contract completion date will not be the basis for an adjustment to the Contract Time.

H. If completion of the project occurs within the specified Contract Time, the Contractor is not entitled to jobsite or home office overhead beyond the Contractor's originally planned occupancy of the site.

I. Notify Engineer of a request for Contract Time adjustment.
1. Submit request as specified in the Contract Documents.
2. In cases where the Contractor does not submit a request for Contract Time adjustment for a specific change order, delay, or Contractor request within the specified period of time, then it is mutually agreed that the particular change order, delay, or Contractor request has no time impact on the Contract completion date and no time extension is required.

J. The Engineer will, within 30 calendar days after receipt of a Contract Time adjustment, request any supporting evidence, review the facts, and advise the Contractor in writing.
1. Include the new Progress Schedule data, if accepted by the Owner, in the next monthly Schedule Update.
2. When the Owner has not yet made a final determination as to the adjustment of the Contract Time, and the parties are unable to agree as to the amount of the adjustment to be reflected in the Progress Schedule, reflect that amount of time adjustment in the Progress Schedule as the Engineer may accept as appropriate for such interim purpose.

3. It is understood and agreed that any such interim acceptance by the Engineer shall not be binding and shall be made only for the purpose of continuing to schedule the Work, until such time as a final determination as to any adjustment of the Contract Time acceptable to the Engineer has been made.
4. Revise the Progress Schedule prepared thereafter in accordance with the final decision.

1.10 SCHEDULE PREPARATION

A. Preparation and submittal of Progress Schedule represents Contractor's intention to execute the Work within specified time and constraints.
   1. Failure to conform to requirement may result in termination for cause.

B. Contractor's bid covers all costs associated with the execution of the Work in accordance with the Progress Schedule.

C. During preparation of the preliminary Progress Schedule, Engineer will facilitate Contractor's efforts by being available to answer questions regarding sequencing issues, scheduling constraints, interface points, and dependency relationships.

D. Prepare schedule utilizing Precedence Diagramming Method (PDM).

E. Prepare schedule utilizing activity durations in terms of working days.
   1. Do not exceed 15 working day duration on activities except concrete curing, submittal review, and equipment fabrication and deliveries.
   2. Where duration of continuous work exceeds 15 working days, subdivide activities by location, stationing, or other sub-element of the Work.
   3. Coordinate holidays to be observed with the Owner and incorporate them into the schedule as non-working days.

F. Failure to include an activity required for execution of the Work does not excuse Contractor from completing the Work and portions thereof within specified times and at price specified in Contract.
   1. Contract requirements are not waived by failure of Contractor to include required schedule constraints, sequences, or milestones in schedule.
   2. Contract requirements are not waived by Owner’s acceptance of the schedule. In event of conflict between accepted schedule and Contract requirements, terms of Contract govern at all times, unless requirements are waived in writing by the Owner.

G. Reference schedule to working days with beginning of Contract Time as Day "1".

H. Baseline Schedule and Project Completion:
   1. Should Contractor submit a Baseline Schedule showing project completion more than 20 working days prior to Contract completion date, Owner may issue Change Order, at no cost to Owner, revising time of performance of Work and Contract completion date to match Contractor’s schedule completion date.
   2. Adjust accordingly any Contract milestone dates.

I. Imposed dates, hidden logic prohibited: Do not use imposed dates or hidden logic in preparation of schedule.

J. Interim milestone dates, operational constraints:
   1. In event there are interim milestone dates and/or operational constraints set forth in Contract, show them on schedule.
   2. Do not use Zero Total Float constraint or Mandatory Finish Date on such Contract requirements.

K. Contract float is for the mutual benefit of both Owner and Contractor.
   1. Changes to the project that can be accomplished within this available period of float may be made by Owner without extending the Contract Time, by utilizing float.
   2. Time extensions will not be granted nor delay damages owed until Work extends beyond currently accepted Contract completion date.
   3. Likewise, Contractor may utilize float to offset delays other than delays caused by Owner.
   4. Mutual use of float can continue until all available float shown by schedule has been utilized by either Owner or Contractor, or both. At that time, extensions of the Contract Time will be granted by Owner for valid Owner-caused or third party-caused delays which affect the planned completion date and which have been properly documented and demonstrated by Contractor.
   5. Non-sequestering of float: Pursuant to float sharing requirements of Contract, schedule submittals can be rejected for, use of float suppression techniques such as preferential sequencing or logic, special lead or lag logic restraints, extended activity durations or imposed dates.

L. Commissioning schedule:
   1. Commissioning activities and milestones shall be an integral part of the overall project schedule.
   2. Commissioning activities and milestones shall be extracted from the main project schedule to provide a separate commissioning schedule that is submitted each time the project schedule is submitted.

M. Cost loading: All schedules:
   1. Only on-site construction activities.
   2. The sum total of all cost loaded activities equal to the current value of the Contract, including change orders, at all times.
   3. Payment for mobilization or payment for materials or equipment delivered to the site, not yet incorporated into the Work,
   4. Owner acceptance of the Baseline Schedule creates the Schedule of Values required as specified in Section 01_29_73 - Schedule of Values.
   5. Provide updated Schedule of Values as the monthly Payment Application as specified in Section 01_29_77 - Applications for Payment.
   6. Payments will not be made until updated Schedule of Values is accepted.

1.11 NETWORK DETAILS AND GRAPHICAL OUTPUT

A. Produce a clear, legible, and accurate calendar based, time scaled, and graphical network diagram.
   1. Group activities related to the same physical areas of the Work. Produce the network diagram based upon the early start of all activities.

B. Include for each activity, the description, activity number, estimated duration in working days, total float, and all activity relationship lines.

C. Illustrate order and interdependence of activities and sequence in which Work is planned to be accomplished.
   1. Incorporate the basic concept of the precedence diagram network method to show how the start of 1 activity is dependent upon the start or completion of preceding activities and its completion restricts the start of following activities.

D. Indicate the critical path for the project.

E. Delineate the specified contract duration and identify the planned completion of the Work as a milestone.
   1. Show the time period between the planned and Contract completion dates, if any, as an activity identified as project float unless a Change Order is issued to officially change the Contract completion date.

F. Identify system shutdown dates, system tie-in dates, specified interim completion or milestone dates and contract completion date as milestones.

G. Include, in addition to construction activities:
   1. Submission dates and review periods for major equipment submittals, shoring submittals, and indicator pile program:
      a. Shoring reviews: Allow 4-week review period for each shoring submittal.
      b. Pile indicator program: Allow 3-week review period for analysis of program.
   2. Any activity by the Owner or the Engineer that may affect progress or required completion dates.
   3. Equipment and long-lead material deliveries over 8 weeks.
   4. Approvals required by regulatory agencies or other third parties.

H. Produce network diagram on 22-inch by 34-inch sheets with grid coordinate system on the border of all sheets utilizing alpha and numeric designations.

1.12 WEATHER DAY ALLOWANCE

A. Definition:
   1. Weather conditions that prevent or inhibit the Contractor’s performance of the Work and affect the Critical Path indicated on the Schedule shall be referred to as a Weather Day.
   2. A Weather Day is defined as the Contractor being unable to perform at least 4 hours of work on the Critical Path.

B. Allowance:
   1. Include as a separate identifiable activity on the critical path, an activity labeled "Weather Days Allowance". Insert this activity at the end of the schedule.
   2. At least 15 calendar days per calendar year shall be included, to be prorated over the length of the Contract period.

C. Actual weather day:
   1. Insert a weather delay activity in critical path to reflect actual weather day occurrences when weather days are experienced and accepted by Engineer.
   2. Reduce duration of Weather Days Allowance activity as weather delays are experienced and inserted into the Schedule. Remaining weather days in Weather Day Allowance at completion of project is considered float.
   3. The Contractor shall provide a written notice to the Engineer of the occurrence of a weather day within 2 days after the onset of such weather and shall describe in reasonable detail the type of weather encountered and the Work interfered with or interrupted.
      a. A schedule update will not suffice as a written notice.
      b. The Engineer will determine if the weather day constitutes a use of a portion of the Weather Day Allowance.
      c. After use of all the Weather Day Allowance, the Engineer will determine if the Contractor is entitled to an extension of the Contract Time due to weather conditions.
      d. Weather days are considered excusable delay as defined in this Section.

1.13 PRELIMINARY SCHEDULE AND PRELIMINARY SCHEDULE OF VALUES

A. Due date:
   1. Submit proposed preliminary schedule and Preliminary Schedule of Values within 14 calendar days after Notice to Proceed.
   2. Meet with Engineer within 7 calendar days after receipt of Preliminary Schedule and Preliminary Schedule of Values to review and make necessary adjustments.
   3. Submit revised preliminary schedule and Preliminary Schedule of Values within 5 calendar days after meeting.
   4. Update Preliminary Schedule and Preliminary Schedule of Values monthly during first 90 calendar days after Notice to Proceed.
      a. Use Preliminary Schedule and Preliminary Schedule of Values as the payment application as specified in Section 01_29_77 - Applications for Payment.

B. Format:
   1. Schedule of manpower and costs for all activities for first 90 calendar days of Work after receipt of Notice to Proceed.
      a. Provide realistic and level manpower and costs so as not to have unusual manpower requirements.
   2. Schedule of costs:
      a. Schedule of Values as specified in Section 01_29_73 - Schedule of Values for first 90 calendar days of Work.

b. Submittal and acceptance of Preliminary Schedule is condition precedent to making of progress payments as specified in Section 01_29_77 - Applications for Payment and payments for mobilization costs otherwise provided for in the Contract.
c. Proceed with pay item Work after Preliminary Schedule and schedule of costs have been accepted by Owner.

C. Incorporate unchanged, the accepted Preliminary Schedule as first 90 calendar days of activity in Contractor's Baseline Schedule.

1.14 SCHEDULE OF SUBMITTALS

A. Schedule of Submittals shall include submittals required in the Contract Documents but not limited to test plans, training plans, test procedures, operation and maintenance manuals, shop drawings, samples, record documents, and specifically required certificates, warranties, and service agreements.
1. Data for "Or Equals" or substitutions shall be submitted with the Schedule of Submittals.

B. Preliminary Schedule of Submittals:
1. Due date: After Preliminary Schedule has been submitted and accepted by Owner.
2. Format:
a. Include submittals anticipated in the first 90 calendar days after award of contract using early start dates.
b. Indicate week and month anticipated for submittal to Engineer.
c. Indicate "Priority" submittals where review time can impact Contractor's schedule.
1) "Priority" indication will not alter review times specified in Section 01_33_00 - Submittal Procedures.
2) Engineer will endeavor to provide early review of "Priority" submittals where possible.
d. List of "Or Equals" or substitutions.
3. Submittal of Preliminary Schedule of Submittals shall be a condition precedent to Owner making progress payments during the first 90 calendar days after award of contract.

C. Final Schedule of Submittals:
1. Due date: 30 days after Baseline Schedule has been submitted and accepted by Owner.
2. Format:
a. Include submittals using early start dates.
b. Include all submittals, including those required in the Preliminary Schedule of Submittals.
c. Indicate week and month anticipated for submittal to Engineer.
d. Indicate "Priority" submittals where review time can impact Contractor's schedule.
1) "Priority" indication will not alter review times specified in Section 01_33_00 - Submittal Procedures.
e. Data for "Or Equals" or substitutions.

3. Submittal of Final Schedule of Submittals shall be a condition precedent to Owner making progress payments after the first 90 calendar days after Notice to Proceed.

D. Provide updated Schedule of Submittals with updated schedules if schedule revisions change listing and timing of submittals.

1.15 BASELINE SCHEDULE AND BASELINE SCHEDULE OF VALUES

A. Due date: No more than 45 calendar days after Notice to Proceed.

B. Format:
   1. Schedule: Show sequence and interdependence of all activities required for complete performance of all Work, beginning with date of Notice to Proceed and concluding with date of final completion of Contract.
   2. Schedule of Values: As specified in Section 01_29_73 - Schedule of Values.

C. Acceptance of the Baseline Schedule and Baseline Schedule of Values by the Owner is a condition precedent to making payments as specified in Section 01_29_77 - Applications for Payment after the first 90 calendar days after Notice to Proceed.

1.16 SUMMARY SCHEDULE

A. Due date: At weekly progress meetings and after each Schedule Update or Schedule Revision.

B. Format:
   1. Consolidate groups of activities associated with Major Items of Work shown on Baseline Schedule.
   2. intended to give an overall indication of the project schedule without a large amount of detail.

1.17 COST FLOW SUMMARY

A. Due date: After Baseline Schedule has been submitted and accepted by the Owner, submit on a monthly basis as specified in Section 01_29_77 - Applications for Payment.

B. Format:
   1. Tabular and graphic report showing anticipated earnings each month of the Contract period.
   2. Base tabulation on the summation of the cost-loaded activities each month.
   3. Show planned amounts.
   4. Show actual earned amounts and anticipated remaining earnings.
   5. Spreadsheet format of all schedule activities showing cost and percentage completion during the current month for which payment is sought.

1.18 PROGRESS SCHEDULE AND UPDATED SCHEDULE OF VALUES

A. Due date: Submit on a monthly basis as specified in Section 01_29_77 - Applications for Payment.

B. Format: Schedule of Values: As specified in Section 01_29_73 - Schedule of Values.

1.19 SCHEDULE UPDATES

A. Due date: At every progress meeting and with each pay application.

B. Format:
   1. Contractor and Engineer must agree on the format.
   2. 6-Week Schedule showing the activities completed during the previous week and the Contractor's schedule of activities for following 5 weeks.
   3. Use the logic and conform to the status of the current progress schedule when producing a Weekly Schedule in CPM schedule or a bar chart format.
      a. In the event that the Weekly Schedule no longer conforms to the current schedule, Contractor may be required to revise the schedule as specified in this Section.
   4. The activity designations used in the Weekly Schedule must be consistent with those used in the Baseline Schedule and the monthly Schedule Updates.

1.20 MANPOWER SCHEDULE

A. Due date: With progress payments after Baseline Schedule has been submitted and accepted by Owner.

B. Format:
   1. Schedule histogram depicting total craft manpower and craft manpower for Contractor's own labor forces and those of each subcontractor.
   2. Submit electronically in Excel format, with 1 paper copy.

C. Progress payments after the first 90 calendar days after Notice to Proceed will not be made until manpower schedule is provided.

1.21 FINAL SCHEDULE

A. The final Schedule Update becomes the As-Built Schedule.
   1. The As-Built Schedule reflects the exact manner in which the project was constructed by reflecting actual start and completion dates for all activities accomplished on the project.
   2. Contractor's Project Manager and scheduler sign and certify the As-Built Schedule as being an accurate record of the way the project was actually constructed.

B. Retainage will not be released until final Schedule Update is provided.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01_33_00

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

A. Section includes: Requirements and procedures for submittals to confirm compliance with Contract Documents.

1.02 GENERAL INSTRUCTIONS

A. Contractor is responsible to determine and verify field measurements, field construction criteria, materials, dimensions, catalog numbers and similar data, and check and coordinate each item with other applicable approved shop drawings and Contract Document requirements.

B. Provide submittals:
   1. That are specified or reasonably required for construction, operation, and maintenance of the Work.
   2. That demonstrate compliance with the Contract Documents.

C. Where multiple submittals are required, provide a separate submittal for each specification section.
   1. In order to expedite construction, the Contractor may make more than 1 submittal per specification section, but a single submittal may not cover more than 1 specification section:
      a. The only exception to this requirement is when 1 specification section covers the requirements for a component of equipment specified in another section.
      b. For example, circuit breakers are a component of switchgear. The switchgear submittal must also contain data for the associated circuit breakers, even though they are covered in a different specification section.

D. Prepare submittals in the English language. Do not include information in other languages.

E. Present measurements in customary American units (feet, inches, pounds, etc.).

F. Must be clear and legible, and of sufficient size for presentation of information.

G. Page size other than drawings:
   1. Minimum page size will be 8 1/2 inches by 11 inches.
   2. Maximum page size will be 11 inches by 17 inches.

H. Drawing sheet size:
    1. Maximum sheets size: 22-inch by 34-inch.
        a. Minimum plan scale: 1/8-inch equals 1 foot-0 inches.
        b. Minimum font size: 1/8 inch minimum.
    2. 11-inch by 17-inch sheet:
        a. Minimum plan scale: 1/8-inch equals 1 foot-0 inches.
        b. Minimum font size: 1/8 inch minimum.

I. Show dimensions, construction details, wiring diagrams, controls, manufacturers, catalog numbers, and all other pertinent details.

J. Provide submittal information from only 1 manufacturer for a specified product. Submittals with multiple manufacturers for 1 product will be rejected without review.

1.03 SUBMITTAL ORGANIZATION

A. Organize submittals in exactly the same order as the items are referenced, listed, and/or organized in the specification section.

B. For submittals that cover multiple devices used in different areas under the same specification section, the submittal for the individual devices must list the area where the device is used.

C. Bookmarks:
    1. Bookmarks shall match the table of contents.
    2. Bookmark each section (tab) and heading.
    3. Drawings: Bookmark at a minimum, each discipline, area designation, or appropriate division.
    4. At file opening, display all levels of bookmarks as expanded.

D. Where applicable (i.e., except for drawings, figures, etc.) submittal content shall be electronically searchable utilizing the PDF file as submitted.

E. Thumbnails optimized for fast web viewing.

F. Sequentially number pages within the tabbed sections:
    1. Submittals that are not fully indexed and tabbed with sequentially numbered pages, or are otherwise unacceptable, will be returned without review.

G. Attachments:
    1. Specification section: Include with each submittal a copy of the relevant specification section.
        a. Indicate in the left margin, next to each pertinent paragraph, either compliance with a check (√) or deviation with a consecutive number (1, 2, 3).
        b. Provide a list of all numbered deviations with a clear explanation and reason for the deviation.
    2. Drawings: Include with each submittal a copy of the relevant Drawing, including relevant addendum updates.
        a. Indicate either compliance with a check (√) or deviation with a consecutive number (1, 2, 3).

b. Provide a list of all numbered deviations with a clear explanation and reason for the deviation.
c. Provide field dimensions and relationship to adjacent or critical features of the Work or materials.

H. Contractor: Prepare submittal information in sufficient detail to show compliance with specified requirements.
1. Determine and verify quantities, field dimensions, product dimensions, specified design and performance criteria, materials, catalog numbers, and similar data.
2. Coordinate submittal with other submittals and with the requirements of the Contract Documents.
3. Check, verify, and revise submittals as necessary to bring them into conformance with Contract Documents and actual field conditions.

I. Contractor: Prepare "Or Equal" submittal information.
1. Provide standard submittal requirements.
a. In addition, provide in sufficient detail to show reason for variance from specified product and impacts.
2. Provide reason the specified product is not being provided.
3. Explain the benefits to the Owner for accepting the "Or Equal".
4. Itemized comparison of the proposed "Or Equal" with product specified including a list of significant variations:
a. Design features.
b. Design dimensions.
c. Installation requirements.
d. Operations and maintenance requirements.
e. Availability of maintenance services and sources of replacement materials.
5. Reference projects where the product has been successfully used:
a. Name and address of project.
b. Year of installation.
c. Year placed in operation.
d. Name of product installed.
e. Point of contact: Name and phone number.
6. Define impacts:
a. Impacts to other contracts.
b. Impacts to other work or products.
7. Contractor represents the following:
a. Contractor bears the burden of proof of the equivalency of the proposed "Or Equal".
b. Proposed "Or Equal" is equal or superior to the specified product.
c. Contractor will provide the warranties or bonds that would be provided on the specified product on the proposed "Or Equal", unless Owner requires a Special Warranty.
d. Contractor will coordinate installation of accepted "Or Equal" into the Work and will be responsible for the costs to make changes as required to the Work.
e. Contractor waives rights to claim additional costs caused by proposed "Or Equal" which may subsequently become apparent.

J. Contractor: Prepare substitution submittal information.
    1. Provide standard submittal requirements.
        a. In addition, provide in sufficient detail to show reason for variance from specified product and impacts.
    2. Provide reason the specified product is not being provided.
    3. Explain the benefits to the Owner for accepting the substitution.
    4. Itemized comparison of the proposed substitution with product specified including a list of significant variations:
        a. Design features.
        b. Design dimensions.
        c. Installation requirements.
        d. Operations and maintenance requirements.
        e. Availability of maintenance services and sources of replacement materials.
    5. Reference projects where the product has been successfully used:
        a. Name and address of project.
        b. Year of installation.
        c. Year placed in operation.
        d. Name of product installed.
        e. Point of contact: Name and phone number.
    6. Define impacts:
        a. Impacts to Contract Price.
            1) Required license fees or royalties.
            2) Do not include costs under separate contracts.
            3) Do not include Engineer’s costs for redesign or revision of Contract Documents.
        b. Impacts to Contract Time.
        c. Impacts to Contract Scope.
        d. Impacts to other contracts.
        e. Impacts to other work or products.
    7. Contractor represents the following:
        a. Contractor shall pay associated costs for Engineer to evaluate the substitution.
        b. Contractor bears the burden of proof of the equivalency of the proposed substitution.
        c. Proposed substitution does not change the design intent and will have equal performance to the specified product.
        d. Proposed substitution is equal or superior to the specified product.
        e. Contractor will provide the warranties or bonds that would be provided on the specified product on the proposed substitution, unless Owner requires a Special Warranty.
        f. Contractor will coordinate installation of accepted substitution into the Work and will be responsible for the costs to make changes as required to the Work.
        g. Contractor waives rights to claim additional costs caused by proposed substitution which may subsequently become apparent.

1.04 SUBMITTAL IDENTIFICATION NUMBERING

A. Number each submittal using the format defined below:

1.05 SUBMITTALS IN ELECTRONIC MEDIA FORMAT

A. General: Provide all information in PC-compatible format using Windows® operating system as utilized by the Owner and Engineer.

B. Text: Provide text documents and manufacturer's literature in Portable Document Format (PDF).

C. Graphics: Provide graphic submittals (drawings, diagrams, figures, etc.) utilizing Portable Document Format (PDF).

1.06 SUBMITTAL PROCEDURE

A. Engineer: Review submittal and provide response:
   1. Review description:
      a. Engineer will be entitled to rely upon the accuracy or completeness of designs, calculations, or certifications made by licensed professionals accompanying a particular submittal whether or not a stamp or seal is required by Contract Documents or Laws and Regulations.
      b. Engineer's review of submittals shall not release Contractor from Contractor's responsibility for performance of requirements of Contract Documents. Neither shall Engineer's review release Contractor from fulfilling purpose of installation nor from Contractor's liability to replace defective work.
      c. Engineer's review of shop drawings, samples, or test procedures will be only for conformance with design concepts and for compliance with information given in Contract Documents.
      d. Engineer's review does not extend to:
         1) Accuracy of dimensions, quantities, or performance of equipment and systems designed by Contractor.
         2) Contractor's means, methods, techniques, sequences, or procedures except when specified, indicated on the Drawings, or required by Contract Documents.
         3) Safety precautions or programs related to safety which shall remain the sole responsibility of the Contractor.
      e. Engineer can Approve or Not Approve any exception at their sole discretion.
   2. Review timeframe:
      a. Except as may be provided in technical specifications, a submittal will be returned within 10 days.
      b. When a submittal cannot be returned within the specified period, Engineer will, within a reasonable time after receipt of the submittal, give notice of the date by which that submittal will be returned.
      c. Engineer's acceptance of progress schedule containing submittal review times less than those specified or agreed to in writing by Engineer will not constitute Engineer's acceptance of review times.
      d. Critical submittals:

1) Contractor will notify Engineer in writing that timely review of a submittal is critical to the progress of Work.

3. Schedule delays:
   a. No adjustment of Contract Times or Contract Price will be allowed due to Engineer's review of submittals, unless all of the following criteria are met:
      1) Engineer has failed to review and return first submission within the agreed upon time frame.
      2) Contractor demonstrates that delay in progress of Work is directly attributable to Engineer's failure to return submittal within time indicated and accepted by Engineer.
4. Review response will be returned to Contractor with one of the following dispositions:
   a. Approved:
      1) No Exceptions:
         a) There are no notations or comments on the submittal and the Contractor may release the equipment for production.
      2) Make Corrections Noted - See Comments:
         a) The Contractor may proceed with the Work, however, all notations and comments must be incorporated into the final product.
         b) Resubmittal not required.
      3) Make Corrections Noted - Confirm:
         a) The Contractor may proceed with the Work, however, all notations and comments must be incorporated into the final product.
         b) Submit confirmation specifically addressing each notation or comment to the Engineer within 15 calendar days of the date of the Engineer's transmittal requiring the confirmation.
   b. Not approved:
      1) Correct and resubmit:
         a) Contractor may not proceed with the Work described in the submittal.
         b) Contractor assumes responsibility for proceeding without approval.
         c) Resubmittal of complete submittal package is required within 30 calendar days of the date of the Engineer's submittal review response.
      2) Rejected - See Remarks:
         a) Contractor may not proceed with the Work described in the submittal.
         b) The submittal does not meet the intent of the Contract Documents. Resubmittal of complete submittal package is required with materials, equipment, methods, etc. that meet the requirements of the Contract Documents.
   c. Receipt acknowledged - Filed for record:
      1) This is used in acknowledging receipt of informational submittals that address means and methods of construction such as schedules and work plans, conformance test reports, health and safety plans, etc.

d. Receipt acknowledged with comments - Resubmit:
    1) This is used in acknowledging receipt of informational submittals that address means and methods of construction such as schedules and work plans, conformance test reports, health and safety plans, etc. Feedback regarding missing information, conflicting information, or other information that makes it incomplete can be made with comments.

B. Contractor: Prepare resubmittal, if applicable:
    1. Clearly identify each correction or change made.
    2. Include a response in writing to each of the Engineer's comments or questions for submittal packages that are resubmitted in the order that the comments or questions were presented from the 1st and subsequent submittals and numbered consistent with the Engineer's numbering.
        a. Acceptable responses to Engineer's comments are listed below:
            1) "Incorporated" Engineer's comment or change is accepted and appropriate changes are made.
            2) "Response" Engineer's comment not incorporated. Explain why comment is not accepted or requested change is not made. Explain how requirement will be satisfied in lieu of comment or change requested by Engineer.
        b. Reviews and resubmittals:
            1) Contractor shall provide resubmittals which include responses to all submittal review comments separately and at a level of detail commensurate with each comment.
            2) Contractor responses shall indicate how the Contractor resolved the issue pertaining to each review comment:
                a) Responses such as "acknowledged" or "noted" are not acceptable.
            3) Resubmittals which do not comply with this requirement may be rejected and returned without review.
            4) Contractor shall be allowed no extensions of any kind to any part of their contract due to the rejection of non-compliant submittals.
            5) Submittal review comments not addressed by the Contractor in resubmittals shall continue to apply whether restated or not in subsequent reviews until adequately addressed by the Contractor to the satisfaction of the reviewing and approving authority.
        c. Any resubmittal that does not contain responses to the Engineer's previous comments shall be returned for Revision and Resubmittal. No further review by the Engineer will be performed until a response for previous comments has been received.
    3. Resubmittal timeframe:
        a. Contractor shall provide resubmittal within 15 days.
        b. When a resubmittal cannot be returned within the specified period, Contractor shall notify Engineer in writing.
    4. Review costs:
        a. Costs incurred by Owner as a result of additional reviews of a particular submittal after the second time it has been reviewed shall be borne by Contractor.
        b. Reimbursement to Owner will be made by deducting such costs from Contractor's subsequent progress payments.

1.07 PRODUCT DATA

A. Edit submittals so that the submittal specifically applies to only the product furnished.

B. Neatly cross out all extraneous text, options, models, etc. that do not apply to the product being furnished, so that the information remaining is only applicable to the product being furnished.

1.08 SHOP DRAWINGS

A. Contractor to field verify elevation, coordinates, and pipe material for pipe tie-in to pipeline or structure prior to the preparation of shop drawings.

B. Indicate project designated equipment tag numbers for submittal of devices, equipment, and assemblies.

1.09 SAMPLES

A. Details:
   1. Submit labeled samples.
   2. Samples will not be returned.
   3. Provide number of sample submittals as below:
      a. Total: 3 minimum.
         1) Owner: 1.
         2) Engineer: 2.
         3) Contractor: None.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

ATTACHMENT A - CONTRACTOR SUBMITTAL TRANSMITTAL FORM

CONTRACTOR SUBMITTAL TRANSMITTAL FORM

Owner:	Click here to enter text.	**Date:**	MM/DD/YYYY
Contractor:	Click here to enter text.	**Project No.:**	XXXXX.XX
Project Name:	Click here to enter text.	**Submittal Number:**	000
Submittal Title:	Click here to enter text.		
To:	Click here to enter text.		
From:	Click here to enter text.	Click here to enter text.	
	Click here to enter text.	Click here to enter text.	

Specification No. and Subject of Submittal / Equipment Supplier			
Spec ##:	Spec ##.	**Subject:**	Click here to enter text.
Authored By:	Click here to enter text.	**Date Submitted:**	XX/XX/XXXX

Submittal Certification	
Check Either (A) or (B):	
☐ (A)	We have verified that the equipment or material contained in this submittal meets all the requirements specified in the project manual or shown on the contract drawings with no exceptions.
☐ (B)	We have verified that the equipment or material contained in this submittal meets all the requirements specified in the project manual or shown on the contract drawings except for the deviations listed.
Certification Statement: By this submittal, I hereby represent that I have determined and verified all field measurements, field construction criteria, materials, dimensions, catalog numbers and similar data, and I have checked and coordinated each item with other applicable approved shop drawings and all Contract requirements.	
General Contractor's Reviewer's Signature:	
Printed Name:	
In the event, Contractor believes the Submittal response does or will cause a change to the requirements of the Contract, Contractor shall immediately give written notice stating that Contractor considers the response to be a Change Order.	
Firm: Click here to enter text.	**Signature:** **Date Returned:** XX/XX/XXXX

PM/CM Office Use	
Date Received GC to PM/CM:	
Date Received PM/CM to Reviewer:	
Date Received Reviewer to PM/CM:	
Date Sent PM/CM to GC:	

SECTION 01_35_21

SELECTIVE ALTERATIONS AND DEMOLITION

PART 1 GENERAL

1.01 SUMMARY

A. Section includes:
   1. Cutting or modifying of existing and new work.
   2. Partial demolition of structures.
   3. In-place abandonment of pipe.

1.02 REFERENCES

A. American National Standards Institute (ANSI):
   1. A10.6 - Safety and Health Program Requirements for Demolition Operations.

B. International Concrete Repair Institute (ICRI):
   1. Guideline No. 310.2R - Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair.
   2. Guideline No. 310.3R - Guide for the Preparation of Concrete Surfaces for Repair Using Hydrodemolition Methods.

1.03 DEFINITIONS

A. Chipping hammer: A hand-operated electrical or pneumatic demolition device for removal of hardened concrete or masonry materials having a weight of less than 15 pounds and an impact frequency of greater than 2,000 blows/minute.

B. Concrete breaker: A hand-operated electrical or pneumatic demolition device for removal of hardened concrete or masonry materials having a weight greater or impact frequency less than the limits defined for a chipping hammer.

C. Coring equipment: Non-impact rotary drill with diamond cutting edges.

D. Heavy abrasive blast: Cleaning procedure by which various abrasives materials, or steel shot, are forcibly propelled by high pressure against a surface to remove loose material and produce a concrete surface roughened to ICRI Surface Profile CSP-7, or higher, as specified in ICRI 301.3R.

E. Salvage material: Materials removed from existing facilities and stored for Owner's future reuse.

1.04 DESCRIPTION OF WORK

A. The work includes partial demolition, cutting, and modification of existing facilities, utilities, and/or structures.

B. These facilities may be occupied and/or operational. Satisfactory completion of the work will require that the Contractor plan activities carefully to work around unavoidable obstacles and to maintain overall stability of structures and structural elements. It will further require restoration of existing facilities, utilities, and structures that are to remain in place and that are damaged by demolition or removal operations.

1.05 SUBMITTALS

A. General:
   1. Submit specified in Section 01_33_00 - Submittal Procedures.

B. Submittals for information only:
   1. Permits and notices authorizing demolition.
   2. Certificates of severance of utility services.
   3. Permit for transport and disposal of debris.
   4. Selective Demolition Plan.
   5. Pipe Abandonment Plan.

C. Quality assurance submittals:
   1. Qualifications of non-destructive testing agency/agencies.

D. Project record documents.

E. Drawings and/or other media documenting locations of service lines and capped utilities.

1.06 QUALITY ASSURANCE

A. Qualifications:
   1. Assign relocation, removal, cutting, coring and patching to trades and workers qualified to perform the Work in manner that causes the least damage and that provides means of returning surfaces to an appearance at least equal to that of the surrounding areas unaffected by the Work.
   2. Non-destructive testing agencies: Minimum of 5 years' experience performing non-destructive testing for location of steel reinforcement in existing concrete under conditions similar to that required for this Work.

1.07 SEQUENCING

A. Perform Work in sequences and within times specified in Section 01_14_00 - Work Restrictions.

B. If the facility or utility to be modified cannot be removed from service, perform the Work while the facility is in operation using procedures and equipment that do not jeopardize operation or materially reduce the efficiency of that facility.

C. Coordinate the Work with operation of the facility:
   1. Do not begin alterations of designated portions of the Work until specific permission for activities in each area has been granted by Owner in writing.
   2. Engineer will coordinate the planned procedure with facility manager.
   3. Complete Work as quickly and with as little delay as possible.

D. Operational functions of the facility that are required to be performed to facilitate the Work will be performed by facility personnel only.

E. Owner will cooperate to assist in expediting the Work.

F. When necessary for the proper operation or maintenance of portions of the facility, reschedule operations so the Work will not conflict with required operations or maintenance.

1.08 REGULATORY REQUIREMENTS

A. Dispose of debris in accordance with governing regulatory agencies.

B. Comply with applicable air pollution control regulations.

C. Obtain permits for building demolition, transportation of debris to disposal site and dust control.

1.09 PROJECT CONDITIONS

A. Do not interfere with use of adjacent structures and elements of the facility not subject to the Work described in this Section. Maintain free and safe passage to and from such facilities.

B. Provide, erect, and maintain barricades, lighting, guardrails, and protective devices as required to protect building occupants, general public, workers, and adjoining property:
   1. Do not close or obstruct roadways without permits.
   2. Conduct operations with minimum interference to public or private roadways.

C. Prevent movement, settlement, or collapse of structures, adjacent services, sidewalks, driveways and trees:
   1. Provide and place bracing or shoring.
   2. Cease operations and notify Engineer immediately when safety of structures appears to be endangered. Take precautions to properly support structure. Do not resume operations until safety is restored.
   3. Assume liability for movement, settlement, or collapse. Promptly repair damage.

D. Arrange and pay for capping and plugging utility services. Disconnect and stub off.
   1. Notify affected utility company in advance and obtain approval before starting demolition.
   2. Place markers to indicate location of disconnected services.

E. Unknown conditions:
   1. The drawings may not represent all conditions at the site and adjoining areas. Compare actual conditions with drawings before commencement of Work.
   2. Existing utilities and drainage systems below grade are located from existing documents and from surface facilities such as manholes, valve boxes, area drains, and other surface fixtures.
   3. If existing active services encountered are not indicated or otherwise made known to the Contractor and interfere with the permanent facilities under construction, notify the Engineer in writing, requesting instructions on their disposition. Take immediate steps to ensure that the service provided is not interrupted, and do not proceed with the Work until written instructions are received from the Engineer.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 EXAMINATION

A. Prior to beginning selective demolition operations, perform a thorough inspection of the facility and site.
   1. Report to the Engineer defects, structural damage, and deterioration of existing construction to remain in place.

B. Examine areas affected by the Work and verify the following conditions prior to commencing demolition:
   1. Disconnection of utilities as required.
   2. Verify that utilities serving occupied or active portions of surrounding facilities will not be disturbed, except as otherwise indicated.

C. If unsatisfactory conditions exist, notify the Engineer, and do not begin demolition operations until such conditions have been corrected.

3.02 PREPARATION

A. Plan and organize Work to minimize inconvenience to adjacent buildings and to plant operations.

B. Selective Demolition Plan:
   1. Prepare and submit a comprehensive selective demolition plan for the Work including the following elements, at a minimum:
      a. Proposed sequence, methods, temporary support, and equipment for demolition, removal, and disposal of portions of structure(s).
      b. Provisions and procedures for salvage and delivery to Owner of salvaged items, if required.
      c. Detailed drawings showing proposed weatherproof closures and dustproof partitions.
   2. Submit plan a minimum 4 weeks before demolition is scheduled to begin.

C. Pipe Abandonment Plan:
    1. Prepare and submit a comprehensive Pipe Abandonment Plan for the Work.
        a. Include provisions to demonstrate and verify with camera inspection that all solids have been removed and that pipe is free of residuals.
    2. At a minimum, define the following elements:
        a. Proposed sequence, methods, cleaning procedures, or demolition, removal, and disposal of contents of the piping.
        b. Method of verification of final pipe condition.
        c. Detailed drawings showing treatment of pipe ends.
    3. Submit plan a minimum 4 weeks before abandonment is scheduled to begin.

D. Layout:
    1. The limits of selective demolition are indicated on the Drawings. Confine demolition operations within the limits indicated on the Drawings.
    2. Lay out demolition and removal work at the site and coordinate with related Work for which demolition and removal is required.
    3. Clearly mark the extent of structural elements to be removed on the actual surfaces that will be removed.
    4. Arrange for Engineer's inspection of the layout extents.
    5. Do not begin demolition/removal operations until the layout markings have been reviewed by the Engineer.

3.03 DEMOLITION

A. General:
    1. Perform demolition work in accordance with ANSI A10.6.
    2. Demolish designated portions of structures and appurtenances in orderly and careful manner in accordance with the Selective Demolition Plan.
    3. Conduct demolition and removal work in a manner that will minimize dust and flying particles.
        a. Use water or dust palliative when necessary to prevent airborne dust.
        b. Provide and maintain hoses and connections to water main or hydrant.
    4. Remove materials carefully, to the extent indicated and as required.
        a. Provide neat and orderly junctions between existing and new materials.
        b. Use methods that terminate surfaces in straight lines at natural points of division.
    5. Do not remove anything beyond the limits of Work indicated without prior written authorization from the Engineer.
        a. If in doubt about whether to remove an item, obtain written authorization from the Engineer prior to proceeding.
    6. Perform work so as to provide the least interference and most protection to existing facilities to remain.
    7. Demolished materials:
        a. Assume possession of materials unless otherwise indicated on the Drawings or specified.
        b. Remove demolished materials from site at least weekly and dispose of them in accordance with Laws and Regulations.
        c. Do not burn or bury materials on site.

B. Demolition of concrete and masonry:
   1. Demolish concrete and masonry in small sections.
      a. Perform demolition with small tools as much as possible.
      b. Blasting with explosive charges is not permitted.
   2. Sawcut concrete to establish the edges of demolition, wherever possible.
      a. Do not use a concrete breaker within 6 inches of reinforcing or structural metals that are designated to remain in place.
      b. At edges that are not sawcut, remove the final 6 inches of material with a chipping hammer as defined herein. At surfaces where material is removed with a chipping hammer, follow with a heavy abrasive blast to remove all loose material and microcracking.
      c. Alternate techniques to remove concrete may be used if acceptable to the Engineer; however, techniques other than those deemed by ICRI Guideline No. 310.2R to provide a low risk of introducing microcracking will require a subsequent procedure to remove loose material and microcracked.
      d. Provide final surface preparation for repairs as specified in Sections 03_30_00 - Cast-in-Place Concrete and 32_01_15 - Pavement Restoration and Rehabilitation.
      e.

C. Sizing of openings in existing concrete or masonry:
   1. Make openings large enough to permit final alignment of pipe and fittings without deflections, but without oversizing.
   2. Allow adequate space for packing around pipes and conduit to ensure watertightness.
   3. If the Engineer deems the opening to be insufficient in size to accomplish these criteria, remove additional material using the procedures outlined in this Section.

D. Cutting openings in existing concrete or masonry:
   1. Do not allow saw cuts to extend beyond limits of openings.
   2. Create openings by the following method or other means acceptable to the Engineer that prevents over-cutting of member at corners:
      a. Core-drill through slab or wall at corners, being careful not to damage materials beyond the area to be removed.
      b. Saw cut completely through the member, between the core holes at the corners.
      c. As an alternate to sawcutting through the member, score the edges of the opening with a saw to a 1-inch depth.
         1) Provide score on both surfaces (when accessible).
         2) Remove concrete or masonry to within 6 inches of material to remain with a concrete breaker.
         3) Remove the remaining material with a chipping hammer.
      d. Remove the remaining material at the corners left by the core-drilling with a chipping hammer.
   2. Prevent debris from falling into adjacent tanks or channels in service or from damaging existing equipment and other facilities.

E. In-place Abandonment of Pipe:
    1. Abandoned pipe in-place as indicated on the Drawings.
    2. Provide closure of abandoned pipe cut ends as indicated on the Drawings using one of the following methods:
        a. Leave one end open.
        b. Install cap.
        c. Install plug.
        d. Install drain valves, pressure relief valves, vents, etc.

F. Buried structures:
        a. Pump out buried tanks.
        b. Demolish tanks as indicated on the Drawings. Refer to specifications and Drawings for the material to fill the backwash return basin.

G. Immediately upon discovery, remove and dispose of contaminated, vermin-infested, or dangerous materials using safe means that will not endanger health of workers and public.

H. Remove trees and shrubs within marked areas, and clear undergrowth and dead plant material as specified in Section 31_00_00 - Earthwork.

I. Backfill open pits and holes caused by demolition as specified in Section 31_00_00 - Earthwork.

J. Rough grade areas affected by demolition. For vegetated areas, restore with weed barrier and Bahia sod.

K. Remove demolished materials, tools, and equipment upon completion of demolition.

3.04 RESTORATION

A. General:
    1. Repair damage caused by demolition to conditions equal to those that existed prior to beginning of demolition.
        a. Patch and replace portions of existing finished surfaces that are damaged, lifted, and discolored. Refinish patched portion surfaces in a manner which produces uniform color and texture to entire surface, and that matches color and texture of adjacent surfaces.
        b. When existing finish cannot be matched, refinish entire surface to nearest change of plane where angle of change exceeds 45 degrees.
    2. The cost of repairs shall be at the Contractor’s expense at no increase in the Contract Price.
    3. When new construction abuts or finishes flush with existing construction, make smooth transitions. Match finish of existing construction.
    4. Where partitions are removed, patch floors, walls, and ceilings with finish materials that match existing materials.

5. Where removal of partitions results in adjacent spaces becoming one, rework floors, walls, and ceilings to provide smooth planes without breaks, steps, or bulkheads.
    a. Where change of plane between adjacent surfaces exceeds 2 inches, request and obtain instructions for making transition from Engineer.
        1) Refinish door surfaces and edges as necessary.
6. Trim existing doors as necessary to clear new floors.
7. Match patched construction with adjacent construction in texture and appearance so that patch or transition is invisible at 5-foot distance.
8. When finished surfaces are cut so that smooth transition is impossible, terminate existing surface in neat manner along straight line at natural line of division and provide appropriate trim.

B. Restore areas affected by removal of existing equipment, equipment pads and bases, piping, supports, electrical panels, electric devices, conduits, and fasteners so little or no evidence of the previous installation remains:
1. After removal of piping, conduit, fasteners, and other construction, fill areas in existing concrete and masonry floors, walls, and ceilings with non-shrink grout and finish smooth.
2. Remove concrete bases for equipment and supports by:
    a. Saw cutting clean, straight lines with a depth equal to the concrete cover over reinforcement minus 1/2 inch below finished surface.
        1) Do not cut existing reinforcement in slab.
    b. Chip concrete within scored lines.
    c. Cut exposed reinforcing steel and anchor bolts that will project above the repaired surface.
    d. Patch with non-shrink grout to match adjacent grade and finish.
3. Terminate abandoned piping and conduits with blind flanges, caps, or plugs.
4. Where existing fasteners are not to be retained, cut off as follows:
    a. Where new concrete joins existing concrete at the removal line, cut fasteners flush with concrete surface at the removal line.
    b. Where concrete surface at the removal line will become the finished surface, cut fasteners 1 inch below the surface, paint ends with epoxy, and patch holes with epoxy grout.

3.05 FIELD QUALITY CONTROL

A. Do not proceed with demolition without Engineer's inspection of lay out.

B. Do not deviate from the submitted demolition plan without notifying the Engineer prior to Work.

END OF SECTION

SECTION 01_35_44

HAZARDOUS MATERIAL PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

A. Section includes: Procedures required when encountering hazardous materials at the Work site.

1.02 REFERENCES

A. Occupational Safety and Health Administration (OSHA).

B. United States Code of Federal Regulation (CFR):
   1. Title 29 - Labor:
      a. 1926.62 - Lead.
   2. Title 40 - Protection of Environment:
      a. 261 - Identification and Listing of Hazardous Waste.

1.03 SUBMITTALS

A. Submit laboratory reports, hazardous material removal plans, and certifications.

B. If Asbestos Cement Pipe is encountered during demolition activities, submit the following work plan:
   1. Removal and Legal Disposal of Asbestos Cement Pipe Plan.
      a. Work plan shall include, but not be limited, to the following:
         1) Schedule of work.
         2) Security measures for work and disposal area.
         3) Staff training: Contractor shall provide at least one competent person who is capable of identifying asbestos hazards at the job site for the entire duration of the AC pipe removal and disposal operation.
         4) Trenching and removal of pipe procedure.

1.04 DEFINITIONS

A. Adequately Wet: Penetration of the pipe wall with liquid to prevent release of particulates.

B. Asbestos Cement Pipe: Also commonly referred to as AC Transite Pipe, AC pipe or ACP. Pipe that is generally composed of cement and asbestos fibers.

C. Competent Person: A trained worker who is capable of identifying existing and predictable asbestos hazards, perform exposure assessment and monitoring, is qualified to train other workers, and has the authority to take immediate corrective action to eliminate a hazardous exposure.

D. Non-friable Asbestos - Containing Material (NACM): Material containing more than 1 percent asbestos, that when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

E. Regulated Asbestos - Containing Material (RACM): Category II non-friable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder in the course of work.

1.05 HAZARDOUS MATERIALS PROCEDURES

A. Hazardous materials are those defined by 40 CFR and State specific codes.

B. When hazardous materials have been found:
   1. Prepare and initiate implementation of plan of action.
   2. Notify such agencies as are required to be notified by laws and regulations within the times stipulated by such laws and regulations.
   3. Designate a Certified Industrial Hygienist to issue pertinent instructions and recommendations for protection of workers and other affected persons' health and safety.
   4. Identify and contact subcontractors and licensed personnel qualified to undertake storage, removal, transportation, disposal, and other remedial work required by, and in accordance with, laws and regulations.

C. Forward to Engineer, copies of reports, permits, receipts, and other documentation related to remedial work.

D. Assume responsibility for worker health and safety, including health and safety of subcontractors and their workers.
   1. Instruct workers on recognition and reporting of materials that may be hazardous.

E. File requests for adjustments to Contract Times and Contract Price due to the finding of hazardous materials in the work site in accordance with Contract Documents.
   1. Minimize delays by continuing performance of the Work in areas not affected by hazardous materials operations.

F. When hazardous materials have been found:
   1. Prepare and initiate implementation of plan of action.
   2. Notify immediately Owner, Engineer, and other affected persons.
   3. Notify such agencies as are required to be notified by laws and regulations with the times stipulated by such laws and regulations.
   4. Designate a Certified Industrial Hygienist to issue pertinent instructions and recommendations for protection of workers and other affected persons' health and safety.
   5. Identify and contact subcontractors and licensed personnel qualified to undertake storage, removal, transportation, disposal, and other remedial work required by, and in accordance with, laws and regulations.

1.06 LEAD PAINT REMOVAL AND DISPOSAL

A. Refer to Section 02_83_19 - Lead-Based Paint Remediation.

1.07 ASBESTOS MATERIALS

A. It is the specific intent of these Contract Documents to exclude from the Work any and all products or materials containing asbestos. No products containing asbestos shall be incorporated in the Work.

B. Refer to Appendix B to the Specifications containing the report identifying locations which have been tested for asbestos containing materials (ACM). The report also designates the condition of the ACM in each location as either friable or non-friable.

C. Removal of existing ACM shall be performed by a firm that is registered by OSHA and certified by the State Contractors Licensing Board and shall be a Licensed Abatement Contractor in the state where the project is located.

D. Submit 5 copies of plan for the removal, containment, and disposal of ACM, if found.

E. Submit 6 copies of abatement license of ACM removal contractor, if ACM removal is necessary.

PART 2 PRODUCTS

2.01 ASBESTOS CEMENT PIPE (ACP)

A. If ACP is found:
   1. The manufacturer and exact composition of the pipe to be removed is unknown.
   2. ACP is generally manufactured using portland cement or pozzolan cement and asbestos fiber.
   3. Common pipe lengths: 3 feet 3 inches, 6 feet 6 inches, 9 feet 9 inches, and 13 feet 0 inches.

B. Pipe fittings. Separate from pipe brass, galvanized pipe, copper, cast iron, galvanized pipe or steel fittings and dispose of separately.

PART 3 EXECUTION

3.01 ASBESTOS MATERIALS

A. Notifications:
   1. Notify 24 hours prior to performing asbestos material removal operations.
   2. Contractor shall notify Owner 3 working days in advance of commencing asbestos material removal operations.

B. Work area:
   1. Establish a regulated work area, using at a minimum, construction warning tape to establish limits of work area for the asbestos material removal.
   2. On site stockpiling or storage of asbestos material designated for disposal shall not be allowed.

C. Safety:
   1. Conduct an Initial Exposure Assessment (IEA).
   2. Provide a hand/face wash station.

D. Worker qualifications:
   1. Asbestos removal shall be performed by employees trained in wet methods, vacuum cleaners with HEPA filters to collect debris and prompt cleanup.

E. Legal disposal:
   1. Legal disposal of asbestos material is the Owner's responsibility.
   2. Contractor shall transport the asbestos material to the location designated by the Owner and place into the location designated for this project.

3.02 EXCAVATION OF AC PIPE

A. Machine excavates to expose asbestos cement pipe.

B. Hand excavates areas under pipe where breaks are planned.

C. Pipe shall be pre-wetted prior to any breaks being made.

D. Pipe shall be snapped using mechanical snapping methods.

3.03 AC PIPE REMOVAL

A. All required pipe breaking operations shall require adequate pre-wetting with potable water.

B. The Contractor shall make every effort to minimize the number of pipe breaks. Wherever possible, the pipe should be removed by pulling the pipe out of the pipe joint collars.

C. Remove sections of AC pipe intact at joint collars by mechanical snapping methods between collars.

D. Wet and containerize waste materials as removed from the trench. Use lifting straps and methods that do not further damage the pipe.

E. Sections of AC pipe that become cut, have broken edges or have any friable surface shall be wet at exposed fractures and immediately wrapped.
   1. The pipe ends shall be sealed completely using a minimum 6-mil poly film wrap, which is securely fastened, taped to completely enclose the pipe and ACP appurtenances and shall have conspicuous, legible labeling that has the following or equivalent labeling: CAUTION: CONTAINS ASBESTOS FIBERS. BREATHING ASBESTOS DUST MAY CAUSE SERIOUS BODILY HARM.

F. AC Pipe sections shall not be left exposed in public view, either in trench or in disposal area.

G. All connecting parts of pipe, rubber gaskets, and pipe couplings shall be discarded with pipe.

H. AC pipe from this project only, shall be placed in the bin designated.

END OF SECTION

SECTION 01_41_00

REGULATORY REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

A. Section includes: Regulatory authorities and codes.

1.02 AUTHORITIES HAVING JURISDICTION (AHJ)

A. Also referred to as the permitting agency.

B. National Fire Protection Association (NFPA), with local amendments:
   1. NFPA 70: National Electrical Code, current edition.
   2. 7th Edition Florida Fire Prevention Code (NFPA 1-Uniform Fire Code - 2018 edition, NFPA 101-Life Safety Code-2018 edition).

C. Florida Building Commission (FBC), with local amendments:
   1. Florida Building Code: Building - 2020.
   2. Florida Building Code: Energy - 2020.
   3. Florida Building Code: Existing Building - 2020.
   4. Florida Building Code: Fuel Gas - 2020.
   5. Florida Building Code: Mechanical - 2020.
   6. Florida Building Code: Plumbing - 2020.

D. Florida Building Code: Test Protocols for High Velocity Hurricane Zone - 2020.

1.03 APPLICABLE CODES

A. Florida Building Commission (FBC):
   1. Building code:
      a. Florida Building Code, 7th Edition, 2020: Building.
      b. Florida Building Code, 7th Edition, 2020: Existing Building.
      c. Florida Building Code, 7th Edition, 2020: Test Protocols for High-Velocity Hurricane Zones.
   2. Energy code:
      a. Florida Building Code, 7th Edition, 2020: Energy Conservation.
   3. Fire code:
      a. Florida Fire Prevention Code, 6th Edition, 2017.
   4. Fuel gas code:
      a. Florida Building Code, 7th Edition, 2020: Fuel Gas.
   5. Mechanical code:
      a. Florida Building Code, 7th Edition, 2020: Mechanical.
   6. Plumbing code:
      a. Florida Building Code, 7th Edition, 2020.

B. Local Requirements:
   1. Contractor shall be responsible for complying with the Collier County Water-Sewer District Utilities Standards Manual (CCWSDUS) applicable specifications, details, and guidelines. In case of discrepancy among the Contract Documents and the CCWSDUS documents, the most restrictive requirements shall govern. In the event that any conflicts cannot be resolved by reference to this provision, then Owner shall resolve the conflict in any manner which is acceptable to Owner, and which comports with the overall intent of the Contract Documents

C. Florida Department of Environmental Protection Drinking Water:
   1. Section 62-550 of the Florida Administrative Code.
   2. Section 62-555 of the Florida Administrative Code.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01_45_00

QUALITY CONTROL

PART 1 GENERAL

1.01 SUMMARY

A. Section includes:
   1. Quality control and control of installation.
   2. Tolerances.
   3. References.
   4. Mock-up requirements.
   5. Authority and duties of Owner's representative or inspector.
   6. Sampling and testing.
   7. Testing and inspection services.
   8. Contractor's responsibilities.

1.02 QUALITY CONTROL AND CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.

B. Comply with manufacturers' instructions, including each step in sequence.

C. When manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.

D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Perform Work by persons qualified to produce required and specified quality.

F. Verify field measurements are as indicated on Shop Drawings or as instructed by manufacturer.

G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

H. When specified, products will be tested and inspected either at point of origin or at Work site:
   1. Notify Engineer in writing well in advance of when products will be ready for testing and inspection at point of origin.
   2. Do not construe that satisfactory tests and inspections at point of origin is final acceptance of products. Satisfactory tests or inspections at point of origin do not preclude retesting or re-inspection at Work site.

I. Do not ship products which require testing and inspection at point of origin prior to testing and inspection.

1.03 TOLERANCES

A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with manufacturers' tolerances. When Manufacturers' tolerances conflict with Contract Documents, request clarification from Engineer before proceeding.

C. Adjust products to appropriate dimensions; position before securing products in place.

1.04 REFERENCES

A. ASTM International (ASTM):
   1. E329 - Standard for Agencies Engaged in Construction Inspection, Testing or Special Inspection.

B. National Institute of Standards and Technology (NIST).

1.05 PRODUCT REQUIREMENTS

A. For products or workmanship specified by association, trade, or other consensus standards, comply with requirements of standard, except when more rigid requirements are specified or are required by applicable codes.

B. Conform to reference standard by date of issue current on date of Contract Documents, except where specific date is established by code.

C. Obtain copies of standards where required by product specification sections.

D. When specified reference standards conflict with Contract Documents, request clarification from Engineer before proceeding.

1.06 MOCK-UP REQUIREMENTS

A. Tests will be performed under provisions identified in this Section and identified in respective product specification sections.

B. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes.

C. Accepted mock-ups shall be comparison standard for remaining Work.

D. Where mock-up has been accepted by Engineer and is specified in product specification sections to be removed; remove mock-up and clear area when directed to do so by Engineer.

1.07 AUTHORITY AND DUTIES OF OWNER'S REPRESENTATIVE OR INSPECTOR

A. Owner’s Project Representative employed or retained by Owner is authorized to inspect the Work.

B. Inspections may extend to entire or part of the Work and to preparation, fabrication, and manufacture of products for the Work.

C. Deficiencies or defects in the Work which have been observed will be called to Contractor’s attention.

D. Inspector will not:
   1. Alter or waive provisions of Contract Documents.
   2. Inspect Contractor’s means, methods, techniques, sequences, or procedures for construction.
   3. Accept portions of the Work, issue instructions contrary to intent of Contract Documents, or act as foreman for Contractor. Supervise, control, or direct Contractor’s safety precautions or programs; or inspect for safety conditions on Work site, or of persons thereon, whether Contractor’s employees or others.

E. Inspector will:
   1. Conduct on-site observations of the Work in progress to assist Engineer in determining when the Work is, in general, proceeding in accordance with Contract Documents.
   2. Report to Engineer whenever Inspector believes that Work is faulty, defective, does not conform to Contract Documents, or has been damaged; or whenever there is defective material or equipment; or whenever Inspector believes the Work should be uncovered for observation or requires special procedures.

1.08 SAMPLING AND TESTING

A. General:
   1. Prior to delivery and incorporation in the Work, submit listing of sources of materials, when specified in sections where materials are specified.
   2. When specified in sections where products are specified:
      a. Submit sufficient quantities of representative samples of character and quality required of materials to be used in the Work for testing or examination.
      b. Test materials in accordance with standards of national technical organizations.

B. Sampling:
   1. Furnish specimens of materials when requested.
   2. Do not use materials which are required to be tested until testing indicates satisfactory compliance with specified requirements.
   3. Specimens of materials will be taken for testing whenever necessary to determine quality of material.
   4. Assist Engineer in preparation of test specimens at site of work, such as soil samples and concrete test cylinders.

1.09 TESTING AND INSPECTION SERVICES

A. Contractor will employ and pay for specified services of an independent firm to perform Contractor quality control testing as required in the technical specifications for various work and materials.

B. Owner may employ and pay for specified services of an “Owner’s independent testing firm” certified to perform testing and inspection as required in the technical specifications for various work and materials or stipulated in Section 01_45_24 - Regulatory Quality Assurance to confirm Contractor’s compliance with Contract Documents.

C. The Owner’s independent testing firm may perform tests, inspections and other services specified in individual specification sections and as required by Owner and requested by the Engineer.

D. The qualifications of laboratory that will perform the testing, contracted by the Owner or by the Contractor, shall be as follows:
   1. Has authorization to operate in the state where the project is located.
   2. Meets “Recommended Requirements for Independent Laboratory Qualification,” published by American Council of Independent Laboratories.
   3. Meets requirements of ASTM E329.
   4. Laboratory Staff: Maintain full time specialist on staff to review services.
   5. Testing Equipment: Calibrated at reasonable intervals with devices of accuracy traceable to NIST or accepted values of natural physical constants.
   6. Will submit copy of report of inspection of facilities made by Materials Reference Laboratory of NIST during most recent tour of inspection, with memorandum of remedies of deficiencies reported by inspection.

E. Testing, inspections, and source quality control may occur on or off project site. Perform off-site testing inspections and source quality control as required by Engineer or Owner.

F. Contractor shall cooperate with Owner’s independent testing firm, furnish samples of materials, design mix, equipment, tools, storage, safe access, and assistance by incidental labor as requested.
   1. Notify Engineer and Owner’s independent testing firm 48 hours prior to expected time for operations requiring testing.
   2. Make arrangements with Owner’s independent testing firm and pay for additional samples and tests required for Contractor’s use.

G. Limitations of authority of testing Laboratory: Owner’s independent testing firm or Laboratory is not authorized to:
   1. Agency or laboratory may not release, revoke, alter, or enlarge on requirements of Contract Documents.
   2. Agency or laboratory may not approve or accept any portion of the Work.
   3. Agency or laboratory may not assume duties of Contractor.
   4. Agency or laboratory has no authority to stop the Work.

H. Testing and employment of an Owner's independent testing firm or laboratory shall not relieve Contractor of obligation to perform Work in accordance with requirements of Contract Documents.

I. Re-testing or re-inspection required because of non-conformance to specified requirements shall be performed by same Owner's independent testing firm on instructions by Engineer. Payment for re-testing or re-inspection will be charged to Contractor by deducting testing charges from Contract Sum/Price.

J. The Owner's independent testing firm responsibilities will include:
   1. Test samples of mixes submitted by Contractor.
   2. Provide qualified personnel at site. Cooperate with Engineer and Contractor in performance of services.
   3. Perform specified sampling and testing of products in accordance with specified standards.
   4. Ascertain compliance of materials and mixes with requirements of Contract Documents.
   5. Promptly notify Engineer and Contractor of observed irregularities or non-conformance of Work or products.
   6. Perform additional tests required by Engineer.
   7. Attend preconstruction meetings and progress meetings when requested.

K. Owner's independent testing firm individual test reports:
   1. After each test, Owner's independent testing firm will promptly submit electronically report to Engineer and to Contractor.
   2. Test reports shall include at least the following information:
      a. Date issued.
      b. Project title and number.
      c. Name of inspector.
      d. Date and time of sampling or inspection.
      e. Identification of product and specifications section.
      f. Location in Project.
      g. Type of inspection or test.
      h. Date of test.
      i. Certified test results stamped and signed by a registered Engineer in the state where the project is located.
      j. Summary of conformance with Contract Documents.
      k. When requested by Engineer, the Owner's independent testing firm will provide interpretation of test results.

1.10 CONTRACTOR'S RESPONSIBILITIES

A. Cooperate with Owner's independent testing firm or laboratory personnel and provide access to construction and manufacturing operations.

B. Secure and deliver to Owner's independent testing firm or laboratory adequate quantities of representative samples of materials proposed to be used and which require testing.

C. Provide to Owner's independent testing firm or laboratory and Engineer preliminary mix design proposed to be used for concrete, and other materials mixes which require control by testing laboratory.

D. Submit product test reports electronically.

E. Furnish incidental labor and facilities:
   1. To provide access to construction to be tested.
   2. To obtain and handle samples at Work site or at source of product to be tested.
   3. To facilitate inspections and tests.
   4. For storage and curing of test samples.

F. Notify Owner's independent testing firm or laboratory 48 hours in advance of when observations, inspections and testing is needed for laboratory to schedule and perform in accordance with their notice of response time.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01_45_17

CONTRACTOR QUALITY CONTROL PLAN

PART 1 GENERAL

1.01 SUMMARY

A. Section includes:
   1. Contractor Quality Control Plan.

1.02 SUBMITTALS

A. Qualifications of the Contractor's Quality Control (CQC) Plan Manager.

B. Contractor's Daily Quality Control Report:
   1. Submit to Engineer within 1 day of completion of each inspection using the approved form.

C. Daily Inspection Report:
   1. Submit to Engineer at the end of each working day or no later than prior to the beginning of the next working day using the approved form.

1.03 CONTRACTOR'S INSPECTION OF THE WORK

A. Work performed by Contractor shall be inspected by the Contractor's CQC Plan Manager. Non-conforming Work and any safety hazards in the Work area shall be noted and promptly corrected.

B. No materials or equipment shall be used in Work without inspection and acceptance by Contractor's CQC Plan Manager.

1.04 QUALIFICATIONS

A. Contractor's CQC Plan Manager: Demonstrate having performed similar CQC functions on similar type projects. Submit records of personnel experience, training, and qualifying registrations.

B. Minimum qualifications: Candidate must have a minimum of 10 years of experience on projects of similar type and size. It is assumed that Contractor's Superintendent will serve in this position provided the necessary qualifications are met.

1.05 COVERING WORK

A. Whenever Contractor intends to backfill, bury, cast in concrete, or otherwise cover any Work, notify Engineer not less than 24 hours in advance to request inspection before beginning any such Work of covering.

1.06 CONTRACTOR'S QUALITY CONTROL PROGRAM

A. General: Establish and execute a Quality Control (CQC) Plan for Work. The plan shall establish adequate measures for verification and conformance to defined requirements by Contractor personnel and lower-tier Subcontractors (including Fabricators, Suppliers, and Subcontractors). This program shall be described in a Plan responsive to this Section.

B. Daily Inspection Report: Include, at weekly at a minimum:
   1. Inspection of specific work.
   2. Quality characteristics in compliance.
   3. Quality characteristics not in compliance.
   4. Corrective/remedial actions taken.
   5. Statement of certification.
   6. CQC Manager's signature, electronic signature is acceptable.
   7. Information provided on the daily report shall not constitute notice of delay or any other notice required by the Contract Documents.

C. Documented control/quality records:
   1. Establish methods for control of Contract Documents that describe how Drawings and Specifications are received and distributed to ensure the correct issue of the document being used. Describe how record document/drawing data are documented and furnished to Engineer.
   2. Maintain evidence of activities affecting quality. Including operating logs, records of inspection, audit reports, personnel qualification and certification records, procedures, and document review records.
   3. Maintain quality records in a manner that provides for timely retrieval and traceability. Protect quality records from deterioration, damage and destruction.
   4. Develop a list of specific records as required by the Contract Documents that will be furnished to Engineer at the completion of activities.

D. Acceptance of CQC Plan: Engineer's acceptance of the CQC Plan shall not relieve Contractor from any of its obligations for performance of Work. Contractor's CQC staffing is subject to Engineer's review and continued acceptance. Owner, at its sole discretion, and without cause, may direct Contractor to remove and replace the CQC Plan Manager.
   1. Acceptance of the CQC Plan by the Engineer is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during the construction.
   2. After acceptance of the CQC Plan, notify the Engineer in writing of any proposed change. Proposed changes are subject to acceptance by the Engineer.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01_50_00

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SUMMARY

A. Section includes:
   1. Furnishing, maintaining, and removing construction facilities and temporary controls, including temporary utilities, construction aids, barriers and enclosures, security, access roads, temporary controls, project sign, field offices and sheds, and removal after construction.

1.02 REFERENCE

A. American National Standards Institute (ANSI).

B. Occupational Safety and Health Administration (OSHA).

1.03 SUBMITTALS

A. Submit as specified in Section 01_33_00 - Submittal Procedures.

1.04 TEMPORARY UTILITIES

A. Temporary electrical power:
   1. Arrange with local utility to provide adequate temporary electrical service.
   2. Provide and maintain adequate jobsite power distribution facilities conforming to applicable Laws and Regulations.
   3. Provide, maintain, and pay for electric power for performance of the Work.

B. Temporary electrical lighting:
   1. In work areas, provide temporary lighting sufficient to maintain lighting levels during working hours not less than lighting levels required by OSHA and state agency which administers OSHA regulations where Project is located.
   2. When available, permanent lighting facilities may be used in lieu of temporary facilities:
      a. Prior to Substantial Completion of the Work, replace bulbs, lamps, or tubes used by Contractor for lighting.

C. Temporary heating, cooling, and ventilating:
   1. Heat and ventilate work areas to protect the Work from damage by freezing, high temperatures, weather, and to provide safe environment for workers.
   2. Permanent heating system may be utilized when sufficiently completed to allow safe operation.

D. Temporary water:
   1. Pay for and construct facilities necessary to furnish potable water for human consumption and non-potable water for use during construction.
   2. Remove temporary piping and connections and restore affected portions of the facility to original condition before final acceptance.
   3. Pay for water used for construction prior to Substantial Completion.

E. Temporary sanitary facilities:
   1. Provide suitable and adequate sanitary facilities that are in compliance with applicable Laws and Regulations.
   2. Existing facility use is not allowed.
   3. At completion of the Work, remove sanitary facilities and leave site in neat and sanitary condition.

F. Temporary fire protection:
   1. Provide fire protection required to protect the Work and ancillary facilities.

G. First aid: Post first aid facilities and information posters conforming to requirements of OSHA and other applicable Laws and Regulations in readily accessible locations.

H. Utilities in existing facilities: As specified in Section 01_14_00 - Work Restrictions.

1.05 CONSTRUCTION AIDS

A. Provide railings, kick plates, enclosures, safety devices, and controls required by Laws and Regulations and as required for adequate protection of life and property.

B. Use construction hoists, elevators, scaffolds, stages, shoring, and similar temporary facilities of ample size and capacity to adequately support and move loads.

C. Design temporary supports with adequate safety factor to ensure adequate load bearing capability:
   1. When requested, submit design calculations by professional registered engineer prior to application of loads.
   2. Submitted design calculations are for information and record purposes only.

D. Accident prevention:
   1. Exercise precautions throughout construction for protection of persons and property.
   2. Observe safety provisions of applicable Laws and Regulations.
   3. Guard machinery and equipment and eliminate other hazards.
   4. Make reports required by authorities having jurisdiction, and permit safety inspections of the Work.
   5. Before commencing construction work, take necessary action to comply with provisions for safety and accident prevention.

E. Barricades:
   1. Place barriers at ends of excavations and along excavations to warn pedestrian and vehicular traffic of excavations.
   2. Provide barriers with flashing lights after dark.
   3. Keep barriers in place until excavations are entirely backfilled and compacted.
   4. Barricade excavations to prevent persons from entering excavated areas in streets, roadways, parking lots, treatment plants, or other public or private areas.

F. Warning devices and barricades: Adequately identify and guard hazardous areas and conditions by visual warning devices and, where necessary, physical barriers:
   1. Provide devices in accordance with minimum requirements of OSHA and State agency which administers OSHA regulations where Project is located.

G. Hazards in public right-of-way:
   1. Comply with local jurisdiction standards and requirements for right-of-way barricades and other safety devices.
   2. Mark at reasonable intervals, trenches, and other continuous excavations in public right-of-way, running parallel to general flow of traffic, with traffic cones, barricades, or other suitable visual markers during daylight hours:
      a. During hours of darkness, provide markers with torches, flashers, or other adequate lights.
   3. At intersections or for pits and similar excavations, where traffic may reasonably be expected to approach head on, protect excavations by continuous barricades:
      a. During hours of darkness, provide warning lights at close intervals.

H. Hazards in protected areas: Mark or guard excavations in areas from which public is excluded, in manner appropriate for hazard.

I. Above grade protection: On multi-level structures, provide safety protection that meets requirements of OSHA and State agency which administers OSHA regulations where Project is located.

J. Protect existing structures, trees, shrubs, and other items to be preserved on Project site from injury, damage, or destruction by vehicles, equipment, worker or other agents with substantial barricades or other devices commensurate with hazards.

K. Fences:
   1. When entire or part of site is to be permanently fenced, permanent fence may be built to serve for both permanent and temporary protection of the work site, provided that damaged or defaced fencing is replaced prior to final completion.
   2. Protect temporary and permanent openings and close openings in existing fences to prevent intrusion by unauthorized persons.
      a. Bear responsibility for protection of plant and material on site of the Work when openings in existing fences are not closed.
   3. During night hours, weekends, holidays, and other times when no work is performed at site, provide temporary closures or enlist services of security guards to protect temporary openings.
   4. Fence temporary openings when openings are no longer necessary.

1.06 SECURITY

A. Make adequate provision for protection of the work area against fire, theft, and vandalism, and for protection of public against exposure to injury.

1.07 ACCESS ROADS

A. On-site access roads:
   1. Maintain access roads to storage areas and other areas to which frequent access is required.
   2. Maintain on-site access roads free of mud.
   3. Provide controls to prevent vehicles leaving the site from tracking mud off the site onto the public right-of-way.

1.08 TEMPORARY CONTROLS

A. Dust control:
   1. Prevent dust nuisance caused by operations, unpaved roads, excavation, backfilling, demolition, or other activities.
   2. Control dust by sprinkling with water, use of dust palliatives, modification of operations, or other means acceptable to agencies having jurisdiction.

B. Noise control:
   1. Comply with noise and work hours regulations by local jurisdiction.
   2. In or near inhabited areas, particularly residential, perform operations in manner to minimize noise.
   3. In residential areas, take special measures to suppress noise during night hours.

C. Mud control:
   1. Prevent mud nuisance caused by construction operations, unpaved roads, excavation, backfilling, demolition, or other activities.

1.09 CONTRACTOR FIELD OFFICES AND SHEDS

A. Maintain on Project Site weather tight space in which to keep copies of Contract Documents, progress schedule, shop drawings, and other relevant documents.

1.10 REMOVAL

A. Remove temporary facilities and controls before inspection for Substantial Completion or when directed.

B. Clean and repair damage caused by installation or use of temporary facilities.

C. Remove underground installations to minimum depth of 24 inches and grade to match surrounding conditions.

D. Restore existing facilities used during construction to specified or original condition.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01_77_00

CLOSEOUT PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

A. Section includes: Contract closeout requirements.

1.02 REFERENCES

A. American Water Works Association (AWWA).

1.03 FINAL CLEANING

A. Perform final cleaning prior to inspections for Substantial Completion.

B. Employ skilled workers who are experienced in cleaning operations.

C. Use cleaning materials which are recommended by manufacturers of surfaces to be cleaned.

D. Prevent scratching, discoloring, and otherwise damaging surfaces being cleaned.

E. Clean roofs, gutters, downspouts, and drainage systems.

F. Broom clean exterior paved surfaces and rake clean other surfaces of site work:
   1. Police yards and grounds to keep clean.

G. Remove dust, cobwebs, and traces of insects and dirt.

H. Clean grease, mastic, adhesives, dust, dirt, stains, fingerprints, paint, blemishes, sealants, plaster, concrete, and other foreign materials from sight-exposed surfaces, and fixtures and equipment.

I. Remove non-permanent protection and labels.

J. Clean permanent filters and replace disposable filters when heating, ventilation, and air conditioning units were operated during construction.

K. Clean ducts, blowers, and coils when units were operated without filters during construction.

L. Clean light fixtures and replace burned-out or dim lamps.

1.04 WASTE DISPOSAL

A. Arrange for and dispose of surplus materials, waste products, and debris off-site:
   1. Prior to making disposal on private property, obtain written permission from Owner of such property.

B. Do not create unsightly or unsanitary nuisances during disposal operations.

C. Maintain disposal site in safe condition and good appearance.

D. Complete leveling and cleanup prior to Final Completion of the Work.

1.05 TOUCH-UP AND REPAIR

A. Touch-up or repair finished surfaces on structures, equipment, fixtures, and installations that have been damaged prior to inspection for Substantial Completion.

B. Refinish or replace entire surfaces which cannot be touched-up or repaired satisfactorily.

1.06 CLOSEOUT DOCUMENTS

A. Submit the following Closeout Submittals before Substantial Completion:
   1. Punch list of items to be completed or corrected with the request for issuance of Substantial Completion.
   2. Evidence of Compliance with Requirements of Governing Authorities.
   3. Project Record Documents.
   4. Approved Warranties and Bonds.
   5. Keys and Keying Schedule.
   6. Completed contract requirements for commissioning and process start-up.

B. Submit the following Closeout Submittals before final completion of the Work and at least 7 days prior to submitting Application for Final Payment:
   1. Punch list of items have been completed and Engineer and Owner are satisfied that all deficiencies are corrected.
   2. Evidence of Payment and Release of Liens or Stop Payment Notices as outlined in Conditions of the Contract.
   3. Release of claims as outlined in Conditions of the Contract.
   4. Submit certification of insurance for products and completed operations, as specified in the General Conditions.
   5. Final statement of accounting.
   6. Submit Final (As-Built) Schedule as specified in Section 01_32_21 - Schedules and Reports.

1.07 EVIDENCE OF COMPLIANCE WITH REQUIREMENTS OF GOVERNING AUTHORITIES

A. Submit the following:
   1. Certificate of Occupancy.
   2. Certificates of Inspection for all AHJ disciplines.

1.08 PROJECT RECORD DOCUMENTS

A. Maintain at Project site, available to Owner and Engineer, 1 copy of the Contract Documents, shop drawings, and other submittals in good order:
   1. Mark and record field changes and detailed information contained in submittals and change orders.
   2. Record actual depths, horizontal and vertical location of underground pipes, duct banks, and other buried utilities. Reference dimensions to permanent surface features.
   3. Identify specific details of pipe connections, location of existing buried features located during excavation, and the final locations of piping, equipment, electrical conduits, manholes, and pull boxes.
   4. Identify location of spare conduits including beginning, ending, and routing through pull boxes and manholes. Record spare conductors, including number and size, within spare conduits and filled conduits.
   5. Provide schedules, lists, layout drawings, and wiring diagrams.
   6. Make annotations in hard copy format with erasable colored pencil conforming to the following color code:

Additions:	Red
Deletions:	Green
Comments	Blue
Dimensions:	Graphite

B. Maintain documents separate from those used for construction:
   1. Label documents "RECORD DOCUMENTS."

C. Keep documents current:
   1. Record required information at the time the material and equipment is installed and before permanently concealing.
   2. Engineer will review Record Documents weekly to ascertain that changes have been recorded.

D. Affix civil engineer's or professional land surveyor's signature and registration number to Record Drawings to certify accuracy of information shown.

E. Deliver Record Documents with transmittal letter containing date, Project title, Contractor's name and address, list of documents, and signature of Contractor.

F. Record Documents will be reviewed monthly to determine the percent complete for the monthly pay application.

G. Updated Record Documents are a condition for Engineer’s recommendation for progress payment.

H. Final Schedule Submittal as specified in Section 01_32_21 - Schedules and Reports.

1.09 MAINTENANCE SERVICE

A. Maintenance service as specified in technical specifications.

1.10 SUBSTANTIAL COMPLETION

A. Obtain Certificate of Substantial Completion.

1.11 FINAL COMPLETION

A. When Contractor considers the Work is complete, submit written certification that:
   1. Work has been completed in accordance with the Contract Documents.
   2. Punch list items have been completed or corrected.
   3. Work is ready for final inspection.

B. Engineer will make an inspection to verify the status of completion with reasonable promptness.

C. Should the Engineer consider that the Work is incomplete or defective:
   1. Engineer will promptly notify the Contractor in writing, listing the incomplete or defective work.
   2. Contractor shall take immediate steps to remedy the stated deficiencies and send a second written certification to the Engineer that the Work is complete.
   3. Engineer shall re-inspect the Work.

1.12 FINAL ADJUSTMENT OF ACCOUNTS

A. Submit a final statement of accounting to the Engineer at least 7 days prior to final Application for Payment.

B. Statement shall reflect all adjustments to the Contract amount.
   1. The original Contract amount.
   2. Additions and deductions resulting from:
      a. Change Orders.
      b. Units installed and unit prices.
      c. Set-offs for uncorrected or incomplete Work.
      d. Set-offs for liquidated damages.
      e. Set-offs for reinspection payments.
      f. Extended engineering and/or inspection services and inspection overtime.
      g. Excessive shop drawings review cost by the Engineer.
      h. Other adjustments.
   3. Total Contract amount, as adjusted.
   4. Previous payments.
   5. Remaining payment due.

1.13 FINAL APPLICATION FOR PAYMENT

A. Contractor shall submit the final Application for Payment reflecting the agreed upon information provided in the final statement of accounting.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 02_83_19

LEAD-BASED PAINT REMEDIATION

PART 1 GENERAL

1.01 SUMMARY

A. Section includes: Abatement of lead paint from surfaces.

1.02 REFERENCES

A. ASTM International (ASTM):
   1. D3335 - Standard Test Method for Low Concentrations for Lead, Cadmium, and Cobalt in Paint by Atomic Absorption Spectroscopy.

B. Occupational Safety and Health Administration (OSHA).

C. Society for Protective Coatings (SSPC):
   1. SP10 - Near-White Blast Cleaning.
   2. Guide 6 - Guide for Containing Debris Generated During Paint Removal Operations.

D. United States Code of Federal Regulations (CFR):
   1. 29 - Labor:
      a. 1926 - Safety and Health Regulations for Construction.
   2. 40 - Protection of Environment:
      a. 50 - National Primary and Secondary Ambient Air Quality Standards.
      b. 60 - Standards of Performance for New Stationary Sources; - Appendix A, Test Methods.
      c. 261 - Identification and Listing of Hazardous Waste.
      d. 262 - Standards Applicable to Generators of Hazardous Waste.
      e. 263 - Standards Applicable to Transporters of Hazardous Waste.
      f. 264 - Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities.
      g. 265 - Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities.
      h. 268 - Land Disposal Restrictions.
      i. 300 - National Oil and Hazardous Substances Pollution Contingency Plan.
      j. 302 - Designation, Reportable Quantities, and Notification.

E. United States Environmental Protection Agency (EPA):
   1. Method 3050B - Acid Digestion of Sediments, Sludges, and Soils.

1.03 DEFINITIONS

A. Conditionally Exempt Small Quantity Generator: Generates less than 220 pounds (100 kilograms) of hazardous waste per month and accumulates no more than 1,000 kilograms (2,200 pounds) of hazardous waste at any time.

B. Containment and Ventilation Systems: Includes the containment structure (i.e., containment walls, floor, supporting structure, entryways); ventilation system (i.e., air input and exhaust); and dust collection.

C. Generator: Facility owner or operator or person who first creates or produces the hazardous waste.

D. Hazardous Waste: Lead paint debris is classified as hazardous due to the characteristic of toxicity, if after testing by Toxicity Characteristic Leaching Procedures (TCLP), the leachate contains any of the elements in the concentrations listed below or greater:
   1. Barium: 100 parts per million.
   2. Cadmium: 1 parts per million.
   3. Chromium: 5 parts per million.
   4. Lead: 5 parts per million.

E. Large Quantity Generator: Generates over 2,200 pounds (1,000 kilograms) of hazardous waste per month or stores more than 13,200 (6,000 kilograms) pounds of waste at the site at any one time.

F. Lead-Containing Paint: Paint containing 600 parts per million lead or greater. This can be determined from prior knowledge of the coating or through laboratory testing in accordance with ASTM D3335.

G. Mercury: 0.2 parts per million.

H. Small Quantity Generator: Generates more than 220 pounds (100 kilograms), but less than 2,200 pounds (1,000 kilograms) of hazardous waste per month and accumulates less than 13,200 pounds (6,000 kilograms) at any one time.

1.04 SUBMITTALS

A. Work plans. Provide written work plans for the methods to be employed for surface preparation, containment and ventilation, and collection of debris. When designing the system, recognize the load bearing capacity and integrity of the structure to be demolished. Submit testing and evaluation programs that will be used to confirm that the work does not violate federal, state, and local regulations. Submit the following work plans:
   1. Submit a written plan for the observations that will be made to verify that the visible emissions criteria of this specification is not exceeded.
   2. The Contractor shall submit a program for the analysis of airborne lead emissions in accordance with 40 CFR 50.
      a. Include the type and number of samplers to be used, their proposed locations, provisions for background monitoring, and duration of testing.
   3. Provide a written plan for the sampling and analysis of pre-job and post-job soil samples for total lead content.
      a. Include the number of tests proposed, test locations, sampling procedure, and methods to ensure that pre-job and post-job samples are removed from identical locations.
      b. The analysis for lead shall be conducted in accordance with Method 3050B or approved equal.

4. Provide a worker protection plan in accordance with the requirements of 29 CFR 1926 and OSHA including pre- and post-project blood lead level tests and a respiratory protection program.
5. Address the handling and site storage of lead-containing debris in accordance with 40 CFR 262 and 40 CFR 265. Confirm that an EPA identification number will be obtained, that proper manifesting of the waste will be addressed, and that site storage limitations, including the time of storage, container requirements, contingency plan, and personnel training, will be observed.
    a. Submit written procedures that will be followed for the sampling and testing of debris to determine if it is a hazardous waste in accordance with Appendix II of 40 CFR 261; and name of the testing laboratory to be used.
    b. Submit written confirmation that proper transportation of debris will be accomplished in accordance with 40 CFR 263 and the name of the transporter.
    c. Submit written confirmation that debris will be treated and disposed of in accordance with 40 CFR 264 and 40 CFR 268.
        1) Provide assurance that debris is handled properly from cradle to grave.
        2) Include necessary notifications and certifications on shipments, the name of disposal facility, and schedule for submittal of completed manifests to the Owner.

1.05 QUALITY ASSURANCE

A. Contractor qualifications:
    1. The Contractor performing the lead paint removal work shall have performed a minimum of three previous lead paint removal projects similar in scope of this project.
    2. The Contractor performing the lead paint removal work in this Section shall be familiar with the regulatory requirements associated with the work and shall have corporate lead worker protection, confined space, and respirator programs.

1.06 PROJECT AND SITE CONDITIONS

A. Existing conditions: Based on X-Ray Fluorescence (XRF) results, lead was detected on site surfaces above the regulatory limit of 1.0 mg/cm^2 (5,000 ppm or 0.50 percent by weight.
    1. Locations are noted on drawings.
    2. A copy of the XRF Report is included in the appendices for reference.

1.07 SEQUENCING

A. Complete removal of lead paint before demolition of surrounding equipment and structure.

B. Notify the Engineer at least seven days in advance of schedule changes as work progresses in writing.
   1. Provide written notice at least 14 days before beginning lead paint removal.
      a. This time is required to allow Owner's personnel adequate time to isolate the tank(s) involved and to adjust system operation to allow for tank to be out of service.
   2. Authorized Owner's personnel shall be present at the site when Contractor first enters site.
   3. Any operational or control functions at the site shall be done by authorized Owner personnel only.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 PROTECTION

A. Design a containment system for the work area that is a SSPC Coatings Class 4 or better.
   1. The containment shall control environmental emissions according to the criteria listed in part and control the working environment within containment according to the criteria listed in part.
   2. In the event of a conflict between the SSPC containment classification above and the requirements of this specification, the requirements of this specification shall prevail.

B. Provide control on visible and lead emissions from the area in accordance with the following criteria:
   1. Visible emissions shall not exceed 20 percent opacity for any three-minute period in 60 minutes.
      a. Visible emissions shall be determined in accordance with 40 CFR 60, Appendix A, Method 22.
   2. Lead emissions shall not exceed 40 □g/m^3 over an eight-hour period.

C. Do not contaminate the soil with lead.
   1. Remove and test samples of the soil on site for total lead content prior to job start-up and upon completion.
   2. Conduct laboratory analysis in accordance with EPA Method 3050B, or approved equivalent.
   3. Remove contaminated soil when analysis upon project completion shows an increase in soil lead levels of 1,000 parts per million or greater.

D. Conform to OSHA requirements for work protection in accordance with 29 CFR 1926 as outlined in OSHA.

E. Test by TCLP to determine if the debris from demolition is hazardous in accordance with Appendix II of 40 CFR 261. When tests of debris show waste to be hazardous, the following requirements shall apply:
   1. Pay strict attention to the requirements of 40 CFR 262 and 40 CFR 265 for the on-site handling of debris, with special attention given to the time of storage, amount of material stored at any one time, use of proper containers, and personnel training.
      a. Do not paint debris on unprotected ground.
      b. Shield adequately to prevent dispersion of the debris by wind or rainwater.
      c. Any evidence of improper storage shall be cause for immediate shutdown of the project until corrective action is taken.
   2. Arrange to have debris transported from the site in accordance with 40 CFR 263, and disposed of properly in accordance with 40 CFR 264 and 40 CFR 268.
      a. Signed manifests shall be returned to the Owner to verify that all steps of the handling and disposal process have been completed properly.
   3. Report discharge of one or more pounds of lead (4 mils or less in diameter) into the atmosphere, water, or soil within a 24-hour period in accordance with 40 CFR 300 and 40 CFR 302.

END OF SECTION

SECTION 03_60_00

GROUTING

PART 1 GENERAL

1.01 SUMMARY

A. Section includes:
   1. Cement grout.
   2. Cement mortar.
   3. Dry-pack mortar.
   4. Epoxy grout.
   5. Grout.
   6. Non-shrink epoxy grout.
   7. Non-shrink grout.

1.02 REFERENCES

A. ASTM International (ASTM):
   1. C109 - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (using 2-inch cube specimens).
   2. C230 - Standard Specification for Flow Table for Use in Tests of Hydraulic Cement.
   3. C531 - Standard Test Method for Liner Shrinkage and Coefficient of Thermal Expansion of Chemical-Resistant Mortars, Grouts, Monolithic Surfacings, and Polymer Concretes.
   4. C579 - Standard Test Method for Compressive Strength of Chemical-Resistant Mortars, Grouts, and Monolithic Surfacings and Polymer Concretes.
   5. C939 - Standard Test Method for Flow of Grout for Preplaced-Aggregate Concrete (Flow Cone Method).
   6. C942 - Standard Test Method for Compressive Strength of Grouts for Preplaced-Aggregate Concrete in the Laboratory.
   7. C1107 - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Non-shrink).
   8. C1181 - Standard Test Methods for Compressive Creep of Chemical-Resistant Polymer Machinery Grouts.

B. International Concrete Repair Institute (ICRI):
   1. 310.2R - Selecting and specifying Concrete Surface Preparations for Sealers, Coatings, Polymer Overlays, and Concrete Repair.

1.03 SUBMITTALS

A. Cement grout:
   1. Mix design.
   2. Material submittals.

B. Cement mortar:
   1. Mix design.
   2. Material submittals.

C. Non-shrink epoxy grout:
   1. Manufacturer's literature.

D. Non-shrink grout:
   1. Manufacturer's literature.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to jobsite in their original, unopened packages or containers, clearly labeled with manufacturer's product identification and printed instructions.

B. Store materials in cool dry place and in accordance with manufacturer's recommendations.

C. Handle materials in accordance with the manufacturer's instructions.

PART 2 PRODUCTS

2.01 MANUFACTURED UNITS

A. Non-shrink epoxy grout:
   1. Manufacturers: One of the following or equal:
      a. Five Star Products, Inc., Five Star DP Epoxy Grout.
      b. Master Builder Solutions, MasterFlow 648.
      c. L&M Construction Chemicals, Inc., EPOGROUT.
   2. Non-shrink epoxy grout shall be 100 percent solid, premeasured, prepackaged system containing 2-component thermosetting epoxy resin and inert aggregate.
   3. Maintain flowable consistency for at least 45 minutes at 70 degrees Fahrenheit.
   4. Shrinkage or expansion: Less than 0.0006 inches per inch when tested in accordance with ASTM C531.
   5. Minimum compressive strength: 10,000 pounds per square inch at 24 hours and 14,000 pounds per square inch at 7 days when tested in accordance with ASTM C579, Method B.
   6. Compressive creep: Not exceed 0.0037 inches/per inch when tested under 400 pounds per square inch constant load at 140 degrees Fahrenheit in accordance with ASTM C1181.
   7. Coefficient of thermal expansion: Not exceed 0.000018 inches per inch per degree Fahrenheit when tested in accordance with ASTM C531, Method B.

B. Non-shrink grout:
   1. Manufacturers: One of the following or equal:
      a. Five Star Products, Inc., Five Star Grout.
      b. Master Builder Solutions, MasterFlow 928.
      c. L&M Construction Chemicals, Inc., CRYSTEX.

2. In accordance with ASTM C1107.
3. Preportioned and prepackaged cement-based mixture.
4. Contain no metallic particles such as aluminum powder and no metallic aggregate such as iron filings.
5. Require only addition of potable water.
6. Water for pre-soaking, mixing, and curing: Potable water.
7. Free from emergence of mixing water from within or presence of water on its surface.
8. Remain at minimum flowable consistency for at least 45 minutes after mixing at 45 degrees Fahrenheit to 90 degrees Fahrenheit when tested in accordance with ASTM C230.
    a. If at fluid consistency, verify consistency in accordance with ASTM C939.
9. Dimensional stability (height change):
    a. In accordance with ASTM C1107, volume-adjusting Grade B or C at 45 degrees Fahrenheit to 90 degrees Fahrenheit.
    b. Have 90 percent or greater bearing area under bases.
10. Have minimum compressive strengths at 45 degrees Fahrenheit to 90 degrees Fahrenheit in accordance with ASTM C1107 for various periods from time of placement, including 5,000 pounds per square inch at 28 days when tested in accordance with ASTM C109 as modified by ASTM C1107.

2.02 MIXES

A. Cement grout:
    1. Use same sand-to-cementitious materials ratio for cement grout mix that is used for concrete mix.
    2. Use same materials for cement grout that are used for concrete.
    3. Use water-to-cementitious materials ratio that is no more than that specified for concrete.
    4. For spreading over surfaces of construction or cold joints.

B. Cement mortar:
    1. Use same sand-to-cementitious materials ratio for cement mortar mix that is used for concrete mix.
    2. Use same materials for cement mortar that are used for concrete.
    3. Use water-to-cementitious materials ratio that is no more than that specified for concrete being repaired.
    4. At exposed concrete surfaces not to be painted or submerged in water: Use sufficient white cement to make color of finished patch match that of surrounding concrete.

C. Dry-pack mortar:
    1. Proportions by weight: 1 part portland cement to 2 parts concrete sand.
        a. Portland cement: As specified in Section 03_30_00 - Cast-in-Place Concrete.
        b. Concrete sand: As specified in Section 03_30_00 - Cast-in-Place Concrete.

D. Epoxy grout:
   1. Consist of mixture of epoxy or epoxy gel and sand.
      a. Epoxy: As specified in Section 03_63_01 - Epoxies.
      b. Epoxy gel: As specified in Section 03_63_01 - Epoxies.
      c. Sand: Clean, bagged, graded, and kiln-dried silica sand.
   2. Proportioning:
      a. For horizontal work: Consist of mixture of 1 part epoxy with not more than 2 parts sand.
      b. For vertical or overhead work: Consist of 1 part epoxy gel with not more than 2 parts sand.

E. Grout:
   1. Mix in proportions by weight: 1 part portland cement to 4 parts concrete sand.
      a. Portland cement: As specified in Section 03_30_00 - Cast-in-Place Concrete.
      b. Concrete sand: As specified in Section 03_30_00 - Cast-in-Place Concrete.

F. Non-shrink epoxy grout:
   1. Mix in accordance with manufacturer's installation instructions.

G. Non-shrink grout:
   1. Mix in accordance with manufacturer's installation instructions such that resulting mix has flowable consistency and is suitable for placing by pouring.

PART 3 EXECUTION

3.01 EXAMINATION

A. Inspect concrete surfaces to receive grout or mortar and verify that they are free of ice, frost, dirt, grease, oil, curing compounds, paints, impregnations, and loose material or foreign matter likely to reduce bond or performance of grout or mortar.

3.02 PREPARATION

A. Surface preparation for grouting other baseplates:
   1. Remove grease, oil, dirt, dust, curing compounds, laitance, and other deleterious materials that may affect bond to concrete and bottoms of baseplates.
   2. Roughen concrete surfaces in contact with grout to ICRI CSP-6 surface profile or rougher.
      a. Remove loose or broken concrete.
   3. Metal surfaces in contact with grout: Grit blast to white metal surface.

3.03 INSTALLATION

A. Mixing:
   1. Cement grout:
      a. Use mortar mixer with moving paddles.
      b. Pre-wet mixer and empty out excess water before beginning mixing.

2. Cement mortar:
    a. Use mortar mixer with moving paddles.
    b. Pre-wet mixer and empty out excess water before beginning mixing.
3. Dry-patch mortar:
    a. Use only enough water so that resulting mortar will crumble to touch after being formed into ball by hand.
4. Non-shrink epoxy grout:
    a. Keep temperature of non-shrink epoxy grout from exceeding manufacturer's recommendations.
5. Non-shrink grout:
    a. May be drypacked, flowed, or pumped into place. Do not overwork grout.
    b. Do not retemper by adding more water after grout stiffens.

B. Placement:
1. Cement grout:
    a. Exercise care in placing cement grout because it is required to furnish structural strength, impermeable water seal, or both.
    b. Do not use cement grout that has not been placed within 30 minutes after mixing.
2. Cement mortar:
    a. Use mortar mixer with moving paddles.
    b. Pre-wet mixer and empty out excess water before beginning mixing.
3. Epoxy grouts:
    a. Wet surfaces with epoxy for horizontal work or epoxy gel for vertical or overhead work prior to placing epoxy grout.
4. Non-shrink epoxy grout:
    a. Mix in complete units. Do not vary ratio of components or add solvent to change consistency of mix.
    b. Pour hardener into resin and mix for at least 1 minute and until mixture is uniform in color. Pour epoxy into mortar mixer wheelbarrow and add aggregate. Mix until aggregate is uniformly wetted. Over mixing will cause air entrapment in mix.
5. Non-shrink grout:
    a. Add non-shrink cement grout to premeasured amount of water that does not exceed the manufacturer's maximum recommended water content.
    b. Mix in accordance with manufacturer's instructions to uniform consistency.

C. Curing:
1. Cement based grouts and mortars:
    a. Keep continuously wet for minimum of 7 days. Use wet burlap, soaker hose, sun shading, ponding, and in extreme conditions, combination of methods.
    b. Maintain above 40 degrees Fahrenheit until it has attained compressive strength of 3,000 pounds per square inch, or above 70 degrees Fahrenheit for minimum of 24 hours to avoid damage from subsequent freezing.
2. Epoxy based grouts:
    a. Cure grouts in accordance with manufacturers' recommendations.
        1) Do not water cure epoxy grouts.
    b. Do not allow any surface in contact with epoxy grout to fall below 50 degrees Fahrenheit for minimum of 48 hours after placement.

D. Grouting equipment bases, baseplates, soleplates, and skids: As specified in Section 46_05_10 - Common Work Results for Mechanical Equipment.

E. Grouting other baseplates:
   1. General:
      a. Use non-shrink grout as specified in this Section.
      b. Baseplate grouting shall take place from one side of baseplate to other in continuous flow of grout to avoid trapping air in grout.
      c. Maintain hydrostatic head pressure by keeping level of grout in headbox above bottom of baseplate. Fill headbox to maximum level and work grout down.
      d. Vibrate, rod, or chain non-shrink grout to facilitate grout flow, consolidate grout, and remove trapped air.
   2. Forms and headboxes:
      a. Build forms using material with adequate strength to withstand placement of grouts.
      b. Use forms that are rigid and liquidtight. Caulk cracks and joints with elastomeric sealant.
      c. Line forms with polyethylene for easy grout release. Coating forms with 2 coats of heavy-duty paste wax is also acceptable.
      d. Headbox shall be 4 to 6 inches higher than baseplate and shall be located on one side of baseplate.
      e. After grout sets, remove forms and trim back grout at 45 degree angle from bottom edges of baseplate.

3.04 FIELD QUALITY CONTROL

A. Non-shrink epoxy grout:
   1. Test for 24-hour compressive strength in accordance with ASTM C579, Method B.

B. Non-shrink grout:
   1. Test for 24-hour compressive strength in accordance with ASTM C942.

END OF SECTION

SECTION 31_00_00

EARTHWORK

PART 1 GENERAL

1.01 SUMMARY

A. Section includes:
   1. Loosening, excavating, filling, grading, borrow, hauling, preparing subgrade, compacting in final location, wetting and drying, and operations pertaining to site grading for buildings, basins, reservoirs, boxes, roads, and other facilities.
   2. Backfilling and compacting under and around structures.

1.02 REFERENCES

A. American Association of State Highway and Transportation Officials (AASHTO):
   1. Standard Specifications for Highway Bridges.

B. ASTM International (ASTM):
   1. D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand Cone Method.
   2. D1557 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3).
   3. D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

C. Florida Department of Transportation (FDOT):
   1. Standard Specifications for Road and Bridge Construction, Latest Edition.

1.03 DEFINITIONS

A. Backfill Adjacent to Structure: Backfill within volume bounded by the exterior surfaces of structure, the surface of undisturbed soil in the excavation around structure, and finish grade around structure.

B. Embankments: Dikes, levees, berms, and similar facilities.

C. Excavation: Consists of loosening, removing, loading, transporting, depositing, and compacting in final location, wet and dry materials, necessary to be removed for purposes of construction of structures, ditches, grading, roads, and such other purposes as are indicated on the Drawings.

1.04 SUBMITTALS

A. Earthwork materials used for backfill and restoration.

B. Excavation Plan.

1.05 QUALITY ASSURANCE

A. Initial compaction demonstration:
   1. Adequacy of compaction equipment and procedures: Demonstrate adequacy of compaction equipment and procedures before exceeding any of following amounts of earthwork quantities:
      a. 50 cubic yards of backfill adjacent to structures.
      b. 100 cubic yards of embankment work.
      c. 100 cubic yards of fill.
      d. 50 cubic yards of roadway base material.
      e. 100 cubic yards of road fill.
   2. Compaction sequence requirements: Until specified degree of compaction on previously specified amounts of earthwork is achieved, do not perform additional earthwork of the same kind.
   3. After satisfactory conclusion of initial compaction demonstration and at any time during construction, provide confirmation tests as specified under "FIELD QUALITY CONTROL."

B. Contractor shall perform work related to this Section in accordance with the approved Stormwater Pollution Prevention Plan (SWPPP).

1.06 SEQUENCING AND SCHEDULING

A. Schedule earthwork operations to meet requirements specified in this Section for excavation and uses of excavated material.

B. If necessary, stockpile excavated material in order to use it at specified locations.

C. Excavation, backfilling, and filling: Perform excavation, backfilling, and filling during construction in manner and sequence that provides drainage at all times.

PART 2 PRODUCTS

2.01 DESIGN AND PERFORMANCE CRITERIA

A. Performance requirements:
   1. Where mud or other soft or unstable material is encountered, remove such material and refill space with stabilization material. Wrap stabilization material with stabilization fabric.
   2. Obtain acceptable import material from other sources if surplus obtained within Project site does not conform to specified requirements or are not sufficient in quantity.
   3. No extra compensation will be made for hauling of fill materials nor for water required for compaction.

2.02 MATERIALS

A. Water for compacting: Use water from source acceptable to Engineer.

B. Soil and rock materials:
   1. General:
      a. Provide aggregate base course, Class 2 permeable, controlled low-strength material, drain rock, gravel, native material, sand, select material, and stabilization material where specified or indicated on the Drawings.
      b. If suitable surplus materials are available, obtain native material and select material from cut sections or excavations.
   2. Aggregate base course materials: As specified in Section 31_05_15 - Soils and Aggregates for Earthwork.
   3. Class 2 permeable: As specified in Section 31_05_15 - Soils and Aggregates for Earthwork.
   4. Drain rock: As specified in Section 31_05_15 - Soils and Aggregates for Earthwork.
   5. Gravel: As specified in Section 31_05_15 - Soils and Aggregates for Earthwork.
   6. Native material: As specified in Section 31_05_15 - Soils and Aggregates for Earthwork.
   7. Sand: As specified in Section 31_05_15 - Soils and Aggregates for Earthwork.
   8. Select material: As specified in Section 31_05_15 - Soils and Aggregates for Earthwork.
   9. Stabilization material: As specified in Section 31_05_15 - Soils and Aggregates for Earthwork.

C. Controlled low-strength material: As specified in Section 121 Flowable Fill of FDOT Standard Specifications for Road and Bridge Construction, Latest Edition.

D. Geotextile fabrics:
   1. Filter fabric: As specified in Section 514 of FDOT Standard Specifications for Road and Bridge Construction, Latest Edition.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verification of conditions:
   1. Character and quantity of material:
      a. Verify character and quantity of rock, gravel, sand, silt, water, and other inorganic or organic materials to be encountered in work to be performed.
      b. Determine gradation, shrinkage, and swelling of soil, and suitability of material for use intended in work to be performed.
      c. Determine quantity of material, and cost thereof, required for construction of backfills, cuts, embankments, excavations, fills, and roadway fills, whether from onsite excavations. Include in cost of work to be performed.
      d. Include wasting of excess material, if required, in cost of work to be performed.

3.02 PREPARATION

A. Backfills:
   1. After clearing and excavation are completed, scarify entire areas that underlie backfills or structures to a depth of 6 inches and until surface is free of ruts, hummocks, and other features that would prevent uniform compaction by equipment to be used.
   2. Recompact scarified areas to density specified before placing backfill material or concrete.
   3. Do not place backfill against walls until:
      a. Walls have been cast full height of structure and concrete has reached the specified strength.
      b. Connecting slabs and beams have been cast, and concrete has reached the specified strength.
   4. Prior to backfilling:
      a. Remove forms.
      b. Clean trash and debris from the excavation site.
   5. After inspection of foundation, walls, and pipes, place backfill symmetrically around structures to prevent eccentric loading of structures.

B. Embankments:
   1. After clearing is completed, scarify entire areas that underlie embankments to a depth of 6 inches and until surface is free of ruts, hummocks, and other features that would prevent uniform compaction by equipment to be used.
   2. Recompact scarified areas to density specified for embankments before placing of embankment material.

C. Fills:
   1. After clearing is completed, scarify entire areas that underlie fill sections or structures to a depth of 6 inches and until surface is free of ruts, hummocks, and other features that would prevent uniform compaction by equipment to be used.
   2. Recompact scarified areas to density specified for compacted fills before placing of fill material or concrete.

D. Roadway fills:
   1. After clearing is completed, scarify entire areas that underlie roadway fills to a depth of 6 inches and until surface is free of ruts, hummocks, and other features that would prevent uniform compaction by equipment to be used.
   2. Recompact scarified areas to density specified for roadway fills before placing of roadway fill material.

E. Sloped surfaces for fill or foundations:
   1. Foundations for fill having slopes in excess of 1 vertical to 4 horizontal:
      a. Bench or terrace to adequately key existing ground and fill built thereon.
   2. Slopes of original hillsides and old fills: Bench minimum of 10 feet horizontally as fill is placed.

3. Provision of new benches:
    a. Start new bench wherever vertical cut of next lower bench intersects existing grade.
    b. Recompact material thus cut out along with new embankment material at no additional cost to the Owner.

3.03 INSTALLATION

A. General:
1. Dispose of excavated materials that are not required or are unsuitable for fill and backfill in lawful manner.
2. Dispose of surplus material on private property only when written permission agreement is furnished by owner of property. Submit copies of such agreements.
3. Rocks, broken concrete, or other solid materials larger than 4 inches in greatest dimension: Remove from project site at no additional cost to the Owner.
4. Stabilization of subgrade: Provide materials used, or perform work required, to stabilize subgrade so it can withstand loads that may be placed upon it by Contractor's equipment.

B. Compaction:
1. Provide specified compaction for backfills, cuts, embankments, fills, roadway fills, and other earthwork.
2. Perform confirmation tests to verify and confirm that work has complied, and is complying at all times, with compaction requirements specified in this Section for initial compaction demonstration and field quality control testing.
3. In-place density of compacted backfills, cuts, embankments, fills, and roadway fills determined in accordance with ASTM D1556, or with ASTM D6938.
4. Maximum density, laboratory compaction: Soil maximum density and optimum water content when tested in accordance with ASTM D698.
5. To prevent damage to structures due to backfilling operations, place backfill with equipment that does not exceed AASHTO Standard Specifications for Highway Bridges, H-20 vehicle loading, within a distance from the face of the structure of not less than 1/2 the depth of backfill. The depth of backfill is the distance between the level being compacted and the bottom of the excavation. Outside this distance, heavier compaction equipment may be used.
6. Compact to percentage of maximum density as follows:
    a. Backfill adjacent to structures: 95 percent.
    b. Backfilling voids: 95 percent.
    c. Bottom of sludge beds: 90 percent.
    d. Embankments: LBR-40.
    e. Demolition areas: As indicated on the Drawings.
    f. Loose fill:
        1) No compaction other than by hauling vehicles will be required.
        2) Uniformly distribute travel of vehicles over fill area as required to provide uniformly compacted surface.
    g. Other areas: 85 percent.
    h. Under present and future structures: LBR-100.
    i. Under roadways, parking and storage areas, curbs, and sidewalks: 98 percent maximum dry density per AASHTO T-180.

j. Upper 6 inches of cuts: 95 percent.
k. Fills: 95 percent.

C. Dewatering: As specified in Section 31_23_19 - Dewatering.

D. Excavation:
1. Blasting: Not permitted.
2. Excavations for structures:
a. Provide excavations conforming to dimensions and elevations indicated on the Drawings for each structure.
b. After clearing is complete, excavate for the structure, down to the elevation indicated on the Drawings. Unless directed by Engineer, do not carry excavations below elevation indicated on the Drawings.
c. Where soil is encountered having unsuitable bearing value, Engineer may direct in writing that excavation be carried to elevations below those indicated on the Drawings.
d. Where excavations are made below elevations indicated on the Drawings, adjust elevations of excavations in accordance with the following requirements:
1) Under slabs: Restore to proper elevation in accordance with procedure specified for backfill in this Section.
2) Under footings: Restore to the proper elevation using one of the following:
a) Aggregate base course.
b) Controlled low-strength material.
e. Excavation width:
1) Extend excavations at least 2 feet clear from walls and foundations of structures to allow for placing and removal of forms, installation of services, and inspection.
2) Do not undercut slopes.
f. Difficulty of excavation: No extra compensation will be made for removal of rock or any other material due to difficulty of excavation.
3. Excavation of lined channels:
a. Excavations in open cut for lined channels may be made so as to place concrete directly against excavated surfaces providing faces of excavations are:
1) Firm and unyielding.
2) Will stand or can be made to stand without sloughing.
b. Excavations to provide subgrade for lined channel or subdrainage material: Excavate to lines and grades indicated on the Drawings.
4. Excavation of unlined channels and basins:
a. Excavate to lines and grades indicated on the Drawings.
b. Perform excavation and grading so that finish surfaces are in uniform planes with no abrupt breaks in surface.
5. Excavation of ditches and gutters:
a. Cut ditches and gutters accurately to cross sections and grades indicated on the Drawings.
b. Take care not to excavate ditches and gutters below grades indicated on the Drawings.
c. Backfill excessive ditch and gutter excavations to grade with suitable material acceptable to the Engineer.

d. Do not deposit any material within 3 feet of edge of ditch unless otherwise indicated on the Drawings.

6. Necessary over excavation:
   a. Where it becomes necessary to excavate beyond normal lines of excavation in order to remove boulders or other interfering objects, backfill voids remaining after removal as specified in backfilling of voids below, or as acceptable to the Engineer.
   b. Backfill voids with material acceptable to the Engineer:
      1) With acceptance of the Engineer, backfill with one of the following:
         a) Aggregate base course.
         b) Controlled low-strength material.

E. Materials for backfills, embankments, fills, and roadway fills:
   1. General:
      a. Obtain import material from other sources if surplus materials from cuts and excavations obtained from within Project site do not conform to specified requirements or are not sufficient in quantity for construction of Project.
   2. Backfills:
      a. Backfill adjacent to structures, slabs, or walls: Select material or imported material meeting the requirements of select material, unless otherwise specified or indicated on the Drawings.
      b. Backfill material under concrete structures: Aggregate base course material, except in areas where controlled low-strength material or concrete encasement are indicated on the Drawings.
      c. Extend backfill in any area under concrete structures from undisturbed soil or rock to the bottom aggregate base course material layer.
   3. Embankments:
      a. Native material or imported material meeting the requirements of native material unless otherwise specified or indicated on the Drawings.
   4. Fills:
      a. Native material or imported material meeting the requirements of native material unless otherwise specified or indicated on the Drawings.
      b. Extend fill in any area under concrete structures from undisturbed soil or rock to the bottom aggregate base course material layer.
   5. Roadway fills: One of the following, unless otherwise specified or indicated on the Drawings:
      a. Aggregate base course material.
      b. Select material or imported material meeting the requirements of select material.

F. Placement:
   1. General:
      a. Lines and grades:
         1) Construct backfills, embankments, fills, and road fills, at locations and to lines and grades indicated on the Drawings.
         2) Overbuild permanent fill slopes by at least 1 foot and then cut to final grade to provide adequate compaction of the remaining fill.
   2. Backfills:
      a. Place loose material in successive layers that do not exceed 8 inches in depth after compaction.

b. Bring each layer to a moisture content between optimum moisture content and 3 percent above optimum moisture content before compacting.
c. Defective compacted backfills: Remove and recompact.

3. Fills:
   a. Place loose material in successive layers that do not exceed 8 inches in depth after compaction.
   b. Bring each layer to a moisture content between optimum moisture content and 3 percent above optimum moisture content before compacting.
   c. Defective compacted fills: Remove and recompact.
4. Coarse fill:
   a. When materials are coarsely graded so that performance of field density tests are impossible:
      1) Placement and compaction: Place material in lifts so as to obtain compacted thickness of 6 inches and roll with pneumatic roller or power roller.
      2) Moisture content: Provide moisture content of fraction of material passing 3/4-inch sieve within plus or minus 2.0 percent of optimum moisture as determined in accordance with ASTM D1557, Method C.
5. Embankments:
   a. Place loose material in successive layers that do not exceed 8 inches in depth after compaction.
   b. Bring each layer to a moisture content between optimum moisture content and 3 percent above optimum moisture content before compacting.
   c. Defective compacted embankments: Remove and recompact.
6. Roadway fills:
   a. Place loose material in successive layers that do not exceed 8 inches in depth after compaction.
   b. Bring each layer to a moisture content between optimum moisture content and 3 percent above optimum moisture content before compacting.
   c. Defective compacted roadway fills: Remove and recompact.
7. Loose fill:
   a. In disposal areas: In disposal areas as indicated on the Drawings, bring fill up in an essentially level layer over entire spoil area indicated:
      1) Continue filling spoil area until disposal of surplus excavated material is completed.
      2) Slope edges of fill area at between 1 and 2 horizontal to 1 vertical to the intersection with existing grade.
      3) Provide slopes that are smooth and uniform.
      4) Level finished surface of disposal area to within 4 inches of elevation indicated on the Drawings.

3.04 FIELD QUALITY CONTROL

A. Confirmation tests:
   1. Contractor's responsibilities:
      a. Adequacy of compaction equipment and procedures:
         1) Demonstrate adequacy of compaction equipment and procedures.
         2) At each test location include tests for each type or class of backfill from bedding to finish grade.

b. Compaction sequence requirements:
    1) Do not perform additional earthwork of the same kind until specified degree of compaction has been demonstrated.
c. Cost of confirmation tests: Paid for by the Contractor.
d. Qualifications of Contractor's testing laboratory: Acceptable to Engineer.
e. Copies of confirmation test reports: Submit promptly to the Engineer.

B. Tolerances:
1. Finish grading of backfills, cuts, embankments, fills, and roadway fills:
    a. Perform fine grading under concrete structures such that finish surfaces are never above the grade or cross section indicated on the Drawings and are never more than 0.10 feet below.
    b. Provide finish surface for areas outside of structures that are within 0.10 feet of grade or cross section indicated on the Drawings.
2. Unlined channels and basins:
    a. In both cut and fill, and levee and access roadside slopes in cut: Vertical tolerance of none above and 3 inches below grade indicated on the Drawings on bottom and side slopes.
    b. On top surface of levee and access road in both cut and fill, and levee and access roadside slopes in fill: Vertical tolerance of none below and 3 inches above grade indicated on the Drawings.
3. Areas which are not under structures, concrete, asphalt, roads, pavements, sidewalks, dikes, and similar facilities:
    a. Provide finish graded surfaces of either undisturbed soil, or cohesive material not less than 6 inches deep.
    b. Intent of proceeding is to avoid sandy or gravelly areas.
4. Finish grading of surfaces:
    a. Reasonably smooth, compacted, and free from irregular surface changes.
    b. Provide degree of finish that is ordinarily obtainable from blade grader operations, except as otherwise specified.
    c. Uniformly grade areas that are not under concrete.
    d. Finish ditches and gutters so that they drain readily.

C. Compliance tests:
1. Frequency of testing: Periodic compliance tests will be made by the Engineer to verify that compaction is meeting requirements previously specified.

3.05 ADJUSTING

A. Finish grades of excavations, backfills, and fills:
1. Repair and reestablish grades to required elevations and slopes due to any settlement or erosion that may occur from action of the elements or any other cause prior to final acceptance.

3.06 PROTECTION

A. Finish grades of backfills, cuts, excavations, and fills:
   1. Protect newly graded areas from erosion and deterioration by action of the elements.

B. Ditches and gutters:
   1. Maintain ditches and gutters free from detrimental quantities of debris that might inhibit drainage until final acceptance.

END OF SECTION

SECTION 31_05_15

SOILS AND AGGREGATES FOR EARTHWORK

PART 1 GENERAL

1.01 SUMMARY

A. Section includes: Material requirements for soils and aggregates.

1.02 REFERENCES

A. ASTM International (ASTM):
   1. C117 - Standard Test Method for Materials Finer than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing.
   2. C131 - Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
   3. C136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
   4. D2419 - Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate.
   5. D4318 - Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
   6. D4829 - Standard Test Method for Expansion Index of Soils.

B. Florida Department of Transportation (FDOT):
   1. Standard Specifications for Road and Bridge Construction (Standard Specifications).

1.03 SUBMITTALS

A. Product data:
   1. Material source.
   2. Gradation.
   3. Testing data.

B. Quality control for aggregate base course:
   1. Test reports: Reports for tests required by Sections of Standard Specifications for Road and Bridge Construction (Standard Specifications).
   2. Certificates of Compliance: Certificates as required by Sections of Standard Specifications for Road and Bridge Construction (Standard Specifications).

1.04 DELIVERY, STORAGE, AND HANDLING

A. Storage and protection: Protect from segregation and excessive moisture during delivery, storage, and handling.

B. Comply with Sections 100-175 of Standard Specifications for Road and Bridge Construction (Standard Specifications) storage requirements, if applicable.

PART 2 PRODUCTS

2.01 MATERIALS - GENERAL

A. Provide material having maximum particle size not exceeding 4 inches and that is free of trash, lumber, debris, leaves, grass, roots, stumps, and other organic matter.

B. Materials derived from processing demolished or removed asphalt concrete are not acceptable.

C. Comply with soil and aggregate material requirements in the Standard Specifications for Road and Bridge Construction (Standard Specifications), unless specified otherwise.

2.02 NATIVE MATERIAL

A. Native Material:
   1. Sound, earthen material passing 1-inch sieve.
   2. Expansion index less than 35 when tested in accordance with ASTM D4829.
   3. Conforms to size and grade within the following limits when tested in accordance with ASTM D422:

Sieve Sizes (Square Openings)	Percent by Weight Passing Sieve
1-inch	100
Number 200	30 maximum

2.03 AGGREGATE BASE COURSE

A. Material requirements:
   1. Consists of hard, durable particles or fragments of stone or gravel; crushed to required size and grading; and free from vegetable matter, lumps or balls of clay, alkali, adobe, or other deleterious matter.
   2. When sampled and tested in accordance with specified test methods, material shall comply with following requirements:
      a. Durability: Percentage of wear not greater than 40 percent when tested in accordance with ASTM C131.
      b. Plasticity index: Shall not be more than 5 when tested in accordance with ASTM D4318.
      c. Liquid limit: Shall not be more than 25 percent when tested in accordance with ASTM D4318.
   3. Aggregate base course for structures:
      a. Consists of crushed or fragmented particles.

b. Conforms to size and grade within the following limits when tested in accordance with ASTM C117 and ASTM C136:

Sieve Sizes (Square Openings)	Percent by Weight Passing Sieve
1-1/8 inch	100
Number 4	38 - 65
Number 8	25 - 60
Number 30	10 - 40
Number 200	3 - 12

B. Material requirements:
   1. Class 2, 3/4-inch maximum aggregate size, free from organic matter and other deleterious substances, and of such nature that aggregate can be compacted readily under watering and rolling to form a firm, stable base.
   1. Aggregate base course for structures:
      a. Consist of crushed or fragmented particles.
      b. Coarse aggregate material retained in Number 4 sieve shall consist of material of which at least 25 percent by weight shall be crushed particles when tested in accordance with California Test 205.
   2. Aggregate shall not be treated with lime, cement, or other chemical material.
   3. Durability index: Not less than 35 when tested in accordance with California Test 229.
   4. Aggregate grading and sand equivalent tests shall be performed to represent not more than 500 cubic yards or 1 day's production of material, whichever is smaller.
   5. Sand equivalent: Not less than 25 when tested in accordance with California Test 217.
   6. Resistance (R-value): Not less than 78 when tested in accordance with California Test 301.
   7. Conforms to size and grade within the following limits when tested in accordance with ASTM C117 and ASTM C136:

Sieve Sizes (Square Openings)	Percent by Weight Passing Sieve
1 inch	100
3/4 inch	90 - 100
Number 4	35 - 60
Number 30	10 - 30
Number 200	2 - 9

C. Material requirements:
   1. Type 2, Class B as specified in the Standard Specifications.
   2. Consists of hard, durable particles or fragments of stone or gravel; crushed to required size and grading; and free from vegetable matter, lumps or balls of clay, alkali, adobe, or other deleterious matter.

3. Materials derived from processing demolished or removed asphalt concrete are not acceptable.
4. When sampled and tested in accordance with specified test methods, material shall comply with the following requirements:
    a. Durability: Percentage of wear not greater than 45 percent when tested in accordance with ASTM C131.
    b. Plasticity index: As specified in Standard Specifications.
    c. Liquid limit: Not be more than 35 when tested in accordance with ASTM D4318.
    d. Resistance (R-value): Not less than 78 when tested in accordance with ASTM D2844.
5. Aggregate base course for structures:
    a. Consists of crushed or fragmented particles with a minimum of 35 percent fractured surfaces when tested in accordance with ASTM D5821.
6. Conforms to size and grade within the following limits when tested in accordance with ASTM C117 and ASTM C136:

Sieve Sizes (Square Openings)	**Percent by Weight Passing Sieve**
1 inch	100
3/4 inch	90 - 100
Number 4	35 - 65
Number 10	25 - 35
Number 16	15 - 40
Number 40	12 - 28
Number 200	2 - 10

D. Material requirements:
1. Crushed gravel.
1. Untreated base course.
2. Consists of hard durable particles of fragments of stone or gravel; screened or crushed to required size and grading; and free from organic matter, contamination from chemical or petroleum products, or other deleterious matter.
3. Materials derived from processing demolished or removed asphalt concrete are not acceptable.
4. Aggregate base course for structures:
    a. Consists of crushed or fragmented particles.
5. When sampled and tested in accordance with specified test methods, material shall comply with following requirements:
    a. Percentage of wear: Not to exceed 40 percent after 500 revolutions when tested in accordance with ASTM C 131.
    b. Plasticity index: Not be more than 5 when tested in accordance with ASTM C 131.

c. Conforms to size and grade within the following limits when tested in accordance with ASTM C 117 and ASTM C 136:

Sieve Sizes (Square Openings)	Percent by Weight Passing Sieve
1 inch	100
3/4 inch	90 - 100
Number 4	35 - 65
Number 10	25 - 35
Number 16	15 - 40
Number 40	12 - 28
Number 200	2 - 10

2.04 DRAIN ROCK

A. Material requirements:
   1. Durability: Percentage of wear not greater than 40 percent when tested in accordance with ASTM C131.
   2. Consists of hard, durable particles of stone or gravel; screened or crushed to specified size and gradation; and free from organic matter, lumps or balls of clay, or other deleterious matter.
   3. Crush or waste coarse material and waste fine material as required to meet gradation requirements.
   4. Conforms to size and grade within the following limits when tested in accordance with ASTM C117 and C136:

Sieve Size (Square Openings)	Percent By Weight Passing Sieve
2 inch	100
1-1/2 inch	95 - 100
3/4 inch	50 - 100
3/8 inch	15 - 55
Number 200	0 - 2

2.05 CLASS 2 PERMEABLE FILL

A. Material requirements:
   1. Durability: Percentage of wear not greater than 37 percent when tested in accordance with ASTM C131.
   2. Consists of hard, durable particles or fragments of stone or gravel; crushed to required size and grading; and free from organic matter, lumps or balls of clay, alkali, adobe, or other deleterious matter.

3. Materials derived from processing demolished or removed asphalt concrete are not acceptable.
   a. Aggregate base course for structures:
4. Consist of crushed or fragmented particles.
5. When sampled and tested in accordance with specified test methods, material shall comply with following requirements: Sand equivalent: Not less than 75 when tested in accordance with ASTM D2419.
6. Conforms to size and grade within the following limits when tested in accordance with ASTM C117 and C136:

Sieve Size (Square Openings)	Percent by Weight Passing Sieve
1 inch	100
3/4 inch	90 - 100
3/8 inch	40 - 100
Number 4	25 - 40
Number 8	18 - 33
Number 30	5 - 15
Number 50	0 - 7
Number 200	0 - 3

2.06 SAND

A. Clean, coarse, natural sand.

B. Non-plastic when tested in accordance with ASTM D4318.

C. Conforms to size and grade within the following limits when tested in accordance with ASTM C117 and C136:

Sieve Size (Square Openings)	Percent by Weight Passing Sieve
1/2 inch	100
Number 200	0 - 20

2.07 STABILIZATION MATERIAL

A. Durability: Percentage of wear not greater than 40 percent when tested in accordance with ASTM C131.

B. Consists of clean, hard, durable particles of crushed rock or gravel; screened or crushed to the specified sizes and gradations; and free of any detrimental quantity of soft, friable, thin, elongated, or laminated pieces, disintegrated material, organic matter, oil, alkali, or other deleterious substance.

C. Shall be free of slaking or decomposition under the action of alternate wetting and drying.

D. The portion of material retained on the 3/8-inch sieve shall contain at least 50 percent of particles having 3 or more fractured faces. Not over 5 percent shall be pieces that show no such faces resulting from crushing. Of that portion which passes the 3/8-inch sieve but is retained on the Number 4 sieve, not more than 10 percent shall be pieces that show no faces resulting from crushing.

E. Conforms to size and grade when tested in accordance with ASTM C117 and ASTM C136.

Sieve Size (Square Openings)	**Percent by Weight Passing Sieve**
1 inch	100
3/4 inch	90 - 100
Number 4	0 - 10
Number 200	0 - 2

2.08 SOURCE QUALITY CONTROL

A. See Applicable Sections of Florida Department of Transportation Sections of Standard Specifications for Road and Bridge Construction (Standard Specifications).

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 31_10_00

SITE CLEARING

PART 1 GENERAL

1.01 SUMMARY

A. Section includes: Clearing, grubbing, and stripping project site.

1.02 REFERENCES

A. United States Code of Federal Regulations (CFR):
   1. 40 - Protection of Environment.
      a. 503 - Standards for the Use or Disposal of Sewage Sludge.

1.03 DEFINITIONS

A. Clearing: Consists of removal of natural obstructions and existing foundations, buildings, fences, lumber, walls, stumps, brush, weeds, rubbish, trees, boulders, utility lines, and any other items which interferes with construction operations or are designated for removal.

B. Grubbing: Consists of the removal and disposal of wood or root matter below the ground surface remaining after clearing and includes stumps, trunks, roots, or root systems greater than 1 inch in diameter or thickness to a depth of 6 inches below the ground surface.

C. Stripping: Includes the removal and disposal of all organic sod, topsoil, grass and grass roots, and other objectionable material remaining after clearing and grubbing from the areas designated to be stripped. The depth of stripping is estimated to be 6 inches, but the required depth of stripping will be determined by the Engineer.

1.04 QUALITY ASSURANCE

A. Regulatory requirements: Verify and comply with applicable regulations regarding those governing noise, dust, nuisance, drainage and runoff, fire protection, and disposal.

B. Pre-construction conference: Meet with Engineer to discuss order and method of work.

1.05 PROJECT CONDITIONS

A. Environmental requirements:
   1. For suspected hazardous materials found: As specified in Section 01_35_44 - Hazardous Material Procedures.

1.06 SEQUENCING AND SCHEDULING

A. Clearing and grubbing: Perform clearing and grubbing in advance of grading operations.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 EXAMINATION

A. Verification of conditions: Examine site and verify existing conditions for beginning work.

3.02 PREPARATION

A. Protect existing improvements from damage by site preparation work.

3.03 INSTALLATION

A. Clearing:
   1. Clear areas where construction is to be performed and other areas as indicated on the Drawings, or specified in this Section, of fences, lumber, walls, stumps, brush, roots, weeds, trees, shrubs, rubbish, and other objectionable material of any kind which, if left in place, would interfere with proper performance or completion of the work, would impair its subsequent use, or form obstructions.
   2. Do not incorporate organic material from clearing and grubbing operations in fills and backfills.
   3. Contractor's temporary construction facilities: Fill or remove pits, fill, and other earthwork required for erection of facilities, upon completion of the work, and level to meet existing contours of adjacent ground.

B. Grubbing:
   1. From excavated areas: Grub stumps, roots, and other obstructions 3 inches or over in diameter to depth of not less than 18 inches below finish grade.
   2. In embankment areas or other areas to be cleared outside construction area: Do not leave stumps, roots, and other obstructions higher than the following requirements:

Height of Embankment over Stump	Depth of Clearing and Grubbing
0 feet to 2 feet	Grub stumps or roots 3 inches or over in diameter to 18 inches below original grade. Cut others flush with ground.
2 feet to 3 feet	Grub stumps 1 foot and over in diameter to 18 inches below original grade. Cut others flush with ground.
Over 3 feet	Leave no stumps higher than stump top diameter, and in no case more than 18 inches.

3. Backfill and compact cavities left below subgrade elevation by removal of stumps or roots to density of adjacent undisturbed soil.

C. Stripping:
   1. Remove soil material containing sod, grass, or other vegetation to depth of 6 inches from areas to receive fill or pavement and from area within 5 feet outside foundation walls.
   2. Deposit stripped material in accordance with following requirements:
      a. At locations acceptable to Engineer.
      b. Use accepted material in top 6 inches of areas to be used for future planting.
   3. Replace topsoil where indicated on the Drawings.

END OF SECTION

SECTION 31_23_19

DEWATERING

PART 1 GENERAL

1.01 SUMMARY

A. Section includes:
   1. Installation and maintenance of dewatering systems.
   2. Disposal of water entering excavation or other parts of the work.

1.02 SUBMITTALS

A. Dewatering plan:
   1. Dewatering design analysis.
   2. Required permits.
   3. Arrangement, location, and depths of dewatering system components.
   4. Type and sizes of filters.
   5. Identify proposed alignment, support, and protection for discharge pipe. Identify location of discharge and provide details for that location.

B. Qualifications:
   1. Dewatering contractor.
   2. Dewatering design engineer.
   3. Testing laboratory.

1.03 QUALITY ASSURANCE

A. Dewatering Contractor shall have at least 2 years of experience in installing similar systems.

B. Testing laboratory shall meet discharge permit testing laboratory qualifications.

PART 2 PRODUCTS

2.01 DESIGN AND PERFORMANCE CRITERIA

A. Design requirements:
   1. Keep excavations reasonably free from water. Draw down static groundwater level to minimum of 3 feet below anticipated bottom of excavations before the excavation reaches bottom elevation.
   2. Dewatering design analysis. Include the following:
      a. Evaluation of anticipated subsurface conditions.
      b. Required well spacing.
      c. Diameter of wells.
      d. Depth to screen, screen height, and mesh size.
      e. Backfill and filter pack.
      f. Pump size.

g. Drawdown duration.
h. Drawdown and steady state flow rates.
i. Anticipated area influenced by dewatering system and potential impacts to adjacent structures, existing and proposed. Mitigation measures needed to prevent any expected settlements. Contingency plan for restoring nearby structures if settlement is observed as result of dewatering operations.
j. Expected settlements.

3. Include water drawdown curves in dewatering calculations.
4. Coordinate dewatering design with excavation and shoring design. Excavation and shoring design shall consider changes in groundwater conditions and associated earth pressures.
5. Do not place concrete or masonry foundations or concrete slabs in water. Do not allow water to rise over these elements until concrete or mortar has set for at least 24 hours.
6. Maintain operation of dewatering system until complete structure -- including walls, slabs, beams, struts, and other structural elements -- has been constructed; concrete has attained its specified compressive strength; and backfill has been completed to finished grade.
7. Provide standby power to ensure continuous dewatering in case of power failure.

B. Dewatering shored excavations:
1. Dewater from within shoring.
2. Use impermeable shoring system to minimize lowering of groundwater outside shoring.
3. Extend impermeable shoring below bottom of excavation sufficient amount to:
a. Minimize lowering of groundwater outside shoring.
b. Prevent unstable excavation due to piping and heave.
4. To minimize settlement outside shoring due to dewatering, do not lower groundwater outside shoring more than 1 foot. Provide groundwater recharge if required to maintain this groundwater elevation outside of shoring.
5. Provide monitoring wells located outside shoring for monitoring groundwater elevation.

C. Obtain written permission from Engineer before locating wells, well points, or drain lines for dewatering within the limits of a structure’s foundation.

D. Locate dewatering facilities where they will not interfere with utilities and construction work to be performed by others.

E. Discharge:
1. Discharge water to as indicated on the Drawings**.**

PART 3 EXECUTION

3.01 INSTALLATION

A. The responsibility for conducting the dewatering operation in a manner which will protect adjacent structures and facilities rests solely with Contractor.

B. During construction, provide and maintain ample means and devices to promptly remove and properly dispose of water entering excavation or other parts of the work, whether water is surface water or underground water.

C. Keep excavations reasonably free of water.

D. Make provisions to maintain continuous dewatering:
   1. Provide standby power to maintain dewatering during power outages and interruptions.
   2. Provide 24-hour monitoring by personnel skilled in operation and maintenance of the system, and capable of providing or obtaining work required to maintain system operation.

E. Intercept and divert precipitation and surface water away from excavations. Use dikes, curb walls, ditches, pipes, sumps, or other means acceptable to Engineer.

F. Disposal of water:
   1. Dispose of water from the work in suitable manner without damage to adjacent property.
   2. Do not drain water into work built or under construction.
   3. Properly dispose of discharge water in accordance with Federal, State, and local requirements and permits and in such manner that it will not be a menace to public health or safety.
   4. For discharge of water into holding tanks or infiltration ponds, include a means of overflow protection that is acceptable to Engineer.

G. Wells, well points, and drain lines for dewatering:
   1. Provide after receiving Engineer's written acceptance.
   2. Fill dewatering wells, pipes, and French drains to be left in place within structure foundation limits with Class “C” concrete as specified in Section 03_30_00 - Cast-in-Place Concrete or grout as specified in Section 03_60_00 - Grouting.

3.02 CONSTRUCTION

A. Prior to release of groundwater to its static level: Confirm that:
   1. All groundwater pressure relief devices for structure are fully operational.
   2. Construction of structure is complete and concrete has reached its specified compressive strength.
   3. Backfill of structure is complete.

B. Control release of groundwater to its static level to prevent disturbance of natural foundation soils or compacted backfills and fills and to prevent flotation or movement of structures, pipelines, or other facilities.

END OF SECTION

APPENDIX A

ARF ENVIRONMENTAL, INC., LEAD XRF REPORT, PROJECT 2021-2115, JANUARY 2023

Prepared For:
Chris T. Reinbold, PE
Carollo
2056 Vista Parkway
Suite 400
West Palm Beach, Florida 33411

Job Site:
FGUA Golden Gate City
Water Treatment Plant
4300 Golden Gate Pkwy.
Naples, FL

Project Number: 2021-2115
Table of Contents - Lead XRF Report

Section **Page**

Project Summary 1
Company EPA Certificate 2
Technician's EPA Risk Assessor Certificate 3
Supervisor's EPA Certificate 4
XRF Sample Analysis 5
Painted Surfaces Testing Positive for Lead 53

Report Printed: 1/27/2023 Project: 20212115

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Pursuant to your request, ARS Environmental, Inc. has performed a Lead Risk Assessment utilizing X-ray fluorescence (XRF) testing on and limited to the above referenced location.

The purpose of our inspection was to determine the presence and location of lead based paint on painted surfaces throughout the building.

Inspection procedures and sample collections were conducted in accordance with the US Environmental Protection Agency (EPA) guidelines and in accordance with Chapter 7 of the Housing and Urban Development (HUD) Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, 1997 Revision.

The results, findings, conclusions, and recommendations expressed in this report are based only on conditions which were observed during inspections. ARS Environmental, Inc. makes no representation or assumptions as to past or future conditions. It is not within the scope of this survey to remove surface materials to investigate portions of the structure or materials which lay beneath the surface. Our selection of sample locations and frequency is based upon our observations and the assumption that like materials in the same area are homogeneous.

When implementing the response actions, parties responsible for final selection should remember that actions shall be sufficient to protect human health and the environment, but may also be the least burdensome method. Nothing in these recommendations should be construed as prohibiting or discouraging removal.

This is structure is not HUD regulated.

Based on X-ray fluorescence (XRF) results, lead was detected in the areas sampled. The amount detected was above the regulatory limit of 1.0 mg/cm2 (5,000 ppm or 0.50% by weight).

It has been a pleasure working with you.
Please call on us again.

Alex Front, BS
ARS Environmental, Inc.

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United States Environmental Protection Agency

This is to certify that

ARS Environmental, Inc.

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226

In the Jurisdiction of:

All EPA Administered Lead-based Paint Activities Program States, Tribes and Territories

This certification is valid from the date of issuance and expires June 06, 2025

LBP-1578-5
Certification #

May 23, 2022
Issued On

Michelle Price, Chief
Lead, Heavy Metals, and Inorganics Branch

ARS Environmental
EPA Lead Based Paint Activities

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United States Environmental Protection Agency

This is to certify that

Jeffrey D Montalvan

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226 as:

Risk Assessor

In the Jurisdiction of:

All EPA Administered Lead-based Paint Activities Program States, Tribes and Territories

This certification is valid from the date of issuance and expires November 13, 2024

LBP-R-115781-2
Certification #

August 31, 2021
Issued On

Adrienne Priselac, Manager, Toxics Office
Land Division

Jeff Montalvan
EPA Lead Risk Assessor

Report Printed: 1/27/2023 Project: 20212115

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United States Environmental Protection Agency

This is to certify that

Alex Front

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226 as:

Supervisor

In the Jurisdiction of:

All EPA Administered Lead-based Paint Activities Program States, Tribes and Territories

This certification is valid from the date of issuance and expires June 27, 2025

LBP-S-3783-2
Certification #

January 19, 2022
Issued On

Adrienne Priselac, Manager, Toxics Office
Land Division

Alex Front
EPA Lead Supervisor

Report Printed: 1/27/2023 Project: 20212115

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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
1	Calibration	Negative		+/- 0	
2	CALIBRATE side; , floor; FIRST OUTSIDE 4244 GOLDEN GATE PKWY	Negative	1.0	+/- 1.1	Plastic Intact
3	CALIBRATE side; , floor; FIRST OUTSIDE 4244 GOLDEN GATE PKWY	Negative	1.0	+/- .3	Plastic Intact
4	CALIBRATE side; , floor; FIRST OUTSIDE 4244 GOLDEN GATE PKWY	Negative	1.0	+/- .5	Plastic Intact
5	WALL side; A, floor; FIRST OUTSIDE CHLORINE BLDG-13 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Intact
6	WALL side; B, floor; FIRST OUTSIDE CHLORINE BLDG-13 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Intact
7	PIPE side; B, floor; FIRST OUTSIDE CHLORINE BLDG-13 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Pvc Intact

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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
8	PIPE side; B, floor; FIRST OUTSIDE _____ CHLORINE BLDG-13 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Pvc Intact
9	WALL side; C, floor; FIRST OUTSIDE _____ CHLORINE BLDG-13 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Intact
10	WALL side; D, floor; FIRST OUTSIDE _____ CHLORINE BLDG-13 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Intact
11	PIPE side; D, floor; FIRST OUTSIDE(EYEWASH) _____ CHLORINE BLDG-13 4244 GOLDEN GATE PKWY	Positive	1.0	2.80 +/- 1.7	Metal Intact
12	PIPE side; D, floor; FIRST OUTSIDE(EYEWASH) _____ CHLORINE BLDG-13 4244 GOLDEN GATE PKWY	Positive	1.0	4.00 +/- 3	Metal Peeling
13	PIPE side; D, floor; FIRST OUTSIDE(EYEWASH) _____ CHLORINE BLDG-13 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Pvc Intact

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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
14	PIPE side; D, floor; FIRST OUTSIDE _____ CHLORINE BLDG-13 4244 GOLDEN GATE PKWY	Positive	1.0	8.30 +/- 7	Pvc Peeling
15	PIPE side; D, floor; FIRST OUTSIDE _____ CHLORINE BLDG-13 4244 GOLDEN GATE PKWY	Positive	1.0	3.90 +/- 2.8	Pvc Peeling
16	DOOR side; B, floor; FIRST INSIDE _____ CHLORINE BLDG-13 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
17	DOOR FRAME side; B, floor; FIRST INSIDE _____ CHLORINE BLDG-13 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
18	PIPE(ELECTRICAL) side; A, floor; FIRST INSIDE _____ CHLORINE BLDG-13 4244 GOLDEN GATE PKWY	Positive	1.0	1.90 +/- .9	Metal Intact
19	PIPE(ELECTRICAL) side; C, floor; FIRST INSIDE _____ CHLORINE BLDG-13 4244 GOLDEN GATE PKWY	Positive	1.0	2.90 +/- 1.8	Metal Intact

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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
20	PIPE(ELECTRICAL) side; B, floor; FIRST INSIDE _____ CHLORINE BLDG-13 4244 GOLDEN GATE PKWY	Positive	1.0	1.10 +/- .1	Metal Intact
21	FLOOR BASE side; A, floor; FIRST INSIDE _____ CHLORINE BLDG-13 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Peeling
22	FLOOR side; A, floor; FIRST INSIDE _____ CHLORINE BLDG-13 4244 GOLDEN GATE PKWY	Negative	1.0	0.02 +/- .05	Concrete Peeling
23	FLOOR side; A, floor; FIRST INSIDE _____ CHLORINE BLDG-13 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Peeling
24	WALL side; A, floor; FIRST INSIDE _____ CHLORINE BLDG-13 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Intact
25	WALL side; B, floor; FIRST INSIDE _____ CHLORINE BLDG-13 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Intact

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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
26	WALL side; C, floor; FIRST INSIDE CHLORINE BLDG-13 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Intact
27	WALL side; D, floor; FIRST INSIDE CHLORINE BLDG-13 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Intact
28	BEAM side; A, floor; FIRST OUTSIDE CHLORINE BLDG-13 4244 GOLDEN GATE PKWY	Negative	1.0	0.16 +/- .36	Metal Intact
29	BEAM side; A, floor; FIRST OUTSIDE CHLORINE BLDG-13 4244 GOLDEN GATE PKWY	Positive	1.0	3.50 +/- 2.4	Metal Intact
30	OVERHANG side; A, floor; FIRST OUTSIDE CHLORINE BLDG-13 4244 GOLDEN GATE PKWY	Negative	1.0	0.14 +/- .2	Wood Intact
31	FASCIABOARD side; A, floor; FIRST OUTSIDE CHLORINE BLDG-13 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Wood Intact

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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
32	TANK side; A, floor; FIRST OUTSIDE _____ DIESEL STORAGE TANK-14 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
33	TANK side; B, floor; FIRST OUTSIDE _____ DIESEL STORAGE TANK-14 4244 GOLDEN GATE PKWY	Negative	1.0	-0.32 +/- 1.31	Metal Intact
34	TANK side; C, floor; FIRST OUTSIDE _____ DIESEL STORAGE TANK-14 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
35	TANK side; D, floor; FIRST OUTSIDE _____ DIESEL STORAGE TANK-14 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
36	PIPE side; , floor; FIRST OUTSIDE _____ DIESEL STORAGE TANK-14 4244 GOLDEN GATE PKWY	Negative	1.0	0.06 +/- .15	Metal Intact
37	PIPE side; , floor; FIRST OUTSIDE _____ DIESEL STORAGE TANK-14 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact

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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
38	PIPE side; , floor; FIRST OUTSIDE _____ DIESEL STORAGE TANK-14 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
39	FLOOR side; , floor; FIRST OUTSIDE _____ DIESEL STORAGE TANK-14 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Intact
40	WALL side; A, floor; FIRST OUTSIDE _____ DIESEL STORAGE TANK-14 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Intact
41	WALL side; B, floor; FIRST OUTSIDE _____ DIESEL STORAGE TANK-14 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Intact
42	WALL side; C, floor; FIRST OUTSIDE _____ DIESEL STORAGE TANK-14 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Intact
43	WALL side; D, floor; FIRST OUTSIDE _____ DIESEL STORAGE TANK-14 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Intact

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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
44	VALVE side; C, floor; FIRST OUTSIDE DIESEL STORAGE TANK-14 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
45	VALVE side; C, floor; FIRST OUTSIDE DIESEL STORAGE TANK-14 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
46	STEP side; B, floor; FIRST STAIR DIESEL STORAGE TANK-14 4244 GOLDEN GATE PKWY	Positive	1.0	2.10 +/- 1.1	Metal Intact
47	SLAB side; B, floor; FIRST STAIR DIESEL STORAGE TANK-14 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Intact
48	SLAB side; B, floor; FIRST STAIR DIESEL STORAGE TANK-14 4244 GOLDEN GATE PKWY	Negative	1.0	0.05 +/- .15	Concrete Intact
49	SLAB BASE side; B, floor; FIRST OUTSIDE DIESEL STORAGE TANK-14 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Intact

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50	SLAB BASE side; B, floor; FIRST OUTSIDE _____ DIESEL STORAGE TANK-14 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
51	BRACKET side; B, floor; FIRST OUTSIDE _____ DIESEL STORAGE TANK-14 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
52	DOOR side; B, floor; FIRST OUTSIDE _____ DIESEL STORAGE TANK-14 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
53	SLAB side; B, floor; FIRST OUTSIDE _____ DIESEL STORAGE TANK-14 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Intact
54	WALL side; A, floor; FIRST OUTSIDE _____ LIME SILO BLDG-10 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Intact
55	PIPE side; A, floor; FIRST OUTSIDE _____ LIME SILO BLDG-10 4244 GOLDEN GATE PKWY	Positive	1.0	2.20 +/- 1.1	Metal Intact

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56	PIPE BRACKET side; A, floor; FIRST OUTSIDE _____ LIME SILO BLDG-10 4244 GOLDEN GATE PKWY	Positive	1.0	2.40 +/- 1.3	Metal Intact
57	ELECTRIC BOX side; A, floor; FIRST OUTSIDE _____ LIME SILO BLDG-10 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
58	PIPE side; A, floor; FIRST OUTSIDE _____ LIME SILO BLDG-10 4244 GOLDEN GATE PKWY	Positive	1.0	3.00 +/- 1.9	Pvc Peeling
59	PIPE side; A, floor; FIRST OUTSIDE _____ LIME SILO BLDG-10 4244 GOLDEN GATE PKWY	Positive	1.0	3.00 +/- 2	Pvc Peeling
60	WALL side; B, floor; FIRST OUTSIDE _____ LIME SILO BLDG-10 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Intact
61	WALL side; C, floor; FIRST OUTSIDE _____ LIME SILO BLDG-10 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Intact

Report Printed: 1/27/2023 Project: 20212115 Page 15 of 58

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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
62	WALL side; D, floor; FIRST OUTSIDE _____ LIME SILO BLDG-10 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Intact
63	ROUND SLAB side; C, floor; FIRST OUTSIDE _____ LIME SILO BLDG-10 4244 GOLDEN GATE PKWY	Negative	1.0	0.01 +/- .03	Concrete Peeling
64	ROUND SLAB side; C, floor; FIRST OUTSIDE _____ LIME SILO BLDG-10 4244 GOLDEN GATE PKWY	Negative	1.0	0.02 +/- .04	Concrete Peeling
65	RING side; C, floor; FIRST OUTSIDE _____ LIME SILO BLDG-10 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Peeling
66	SLAB side; B, floor; FIRST OUTSIDE _____ LIME SILO BLDG-10 4244 GOLDEN GATE PKWY	Negative	1.0	0.02 +/- .03	Concrete Peeling
67	DOOR side; B, floor; FIRST OUTSIDE _____ LIME SILO BLDG-10 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact

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68	DOOR FRAME side; B, floor; FIRST OUTSIDE _____ LIME SILO BLDG-10 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
69	WALL side; A, floor; FIRST INSIDE _____ LIME SILO BLDG-10 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Intact
70	WALL side; B, floor; FIRST INSIDE _____ LIME SILO BLDG-10 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Intact
71	PIPE side; B, floor; FIRST INSIDE _____ LIME SILO BLDG-10 4244 GOLDEN GATE PKWY	Positive	1.0	1.20 +/- .1	Pvc Intact
72	PIPE side; B, floor; FIRST INSIDE _____ LIME SILO BLDG-10 4244 GOLDEN GATE PKWY	Positive	1.0	1.40 +/- .3	Pvc Intact
73	WALL side; C, floor; FIRST INSIDE _____ LIME SILO BLDG-10 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Intact

Report Printed: 1/27/2023 Project: 20212115 Page 17 of 58

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74	WALL side; D, floor; FIRST INSIDE _____ LIME SILO BLDG-10 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Intact
75	FLOOR side; , floor; FIRST INSIDE _____ LIME SILO BLDG-10 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Peeling
76	FOOTING side; A, floor; FIRST INSIDE _____ LIME SILO BLDG-10 4244 GOLDEN GATE PKWY	Negative	1.0	0.13 +/- .22	Metal Intact
77	FOOTING side; B, floor; FIRST INSIDE _____ LIME SILO BLDG-10 4244 GOLDEN GATE PKWY	Negative	1.0	0.30 +/- .46	Metal Intact
78	FOOTING side; C, floor; FIRST INSIDE _____ LIME SILO BLDG-10 4244 GOLDEN GATE PKWY	Negative	1.0	0.18 +/- .24	Metal Intact
79	FOOTING side; D, floor; FIRST INSIDE _____ LIME SILO BLDG-10 4244 GOLDEN GATE PKWY	Negative	1.0	0.20 +/- .23	Metal Intact

Report Printed: 1/27/2023 Project: 20212115 Page 18 of 58

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FGUA Golden Gate City
Water Treatment Plant
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Naples, FL

Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
80	SMALL TANK side; D, floor; FIRST INSIDE _____ LIME SILO BLDG-10 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
81	PIPE side; D, floor; FIRST INSIDE _____ LIME SILO BLDG-10 4244 GOLDEN GATE PKWY	Negative	1.0	0.40 +/- .5	Metal Intact
82	SILO TANK side; , floor; FIRST INSIDE _____ LIME SILO BLDG-10 4244 GOLDEN GATE PKWY	Negative	1.0	0.20 +/- .17	Metal Peeling
83	SILO TANK side; , floor; FIRST INSIDE _____ LIME SILO BLDG-10 4244 GOLDEN GATE PKWY	Negative	1.0	0.22 +/- .19	Metal Peeling
84	SILO TANK side; , floor; FIRST INSIDE _____ LIME SILO BLDG-10 4244 GOLDEN GATE PKWY	Negative	1.0	0.21 +/- .16	Metal Peeling
85	TANK side; A, floor; FIRST OUTSIDE _____ SULFURICACIDSTORAGE-24 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Fair

Report Printed: 1/27/2023 Project: 20212115

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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
86	TANK side; B, floor; FIRST OUTSIDE SULFURICACIDSTORAGE-24 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Fair
87	TANK side; C, floor; FIRST OUTSIDE SULFURICACIDSTORAGE-24 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Fair
88	TANK side; D, floor; FIRST OUTSIDE SULFURICACIDSTORAGE-24 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Fair
89	WALL side; A, floor; FIRST OUTSIDE SULFURICACIDSTORAGE-24 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Peeling
90	WALL side; B, floor; FIRST OUTSIDE SULFURICACIDSTORAGE-24 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Peeling
91	WALL side; C, floor; FIRST OUTSIDE SULFURICACIDSTORAGE-24 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Peeling

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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
92	WALL side; D, floor; FIRST OUTSIDE _____ SULFURICACIDSTORAGE-24 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Peeling
93	VENT DRIER side; C, floor; FIRST OUTSIDE _____ SULFURICACIDSTORAGE-24 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Peeling
94	WALL side; A, floor; FIRST OUTSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Plaster Peeling
95	PIPE side; A, floor; FIRST OUTSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Negative	1.0	0.02 +/- .08	Metal Peeling
96	PIPE side; A, floor; FIRST OUTSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Peeling
97	PIPE side; A, floor; FIRST OUTSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Peeling

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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
98	PIPE side; A, floor; FIRST OUTSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Peeling
99	PIPE side; A, floor; FIRST OUTSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Peeling
100	PIPE side; A, floor; FIRST OUTSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Null	1.0	1.00 +/- .1	Pvc Intact
101	PIPE side; A, floor; FIRST OUTSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Positive	1.0	1.20 +/- .2	Pvc Intact
102	PIPE side; A, floor; FIRST OUTSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .03	Pvc Intact
103	PIPE side; A, floor; FIRST OUTSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Negative	1.0	0.01 +/- .03	Metal Peeling

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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
104	WALL side; B, floor; FIRST OUTSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Plaster Cracked
105	PIPE side; B, floor; FIRST OUTSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Negative	1.0	0.01 +/- .03	Plaster Peeling
106	PIPE side; B, floor; FIRST OUTSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Positive	1.0	1.90 +/- .6	Pvc Intact
107	WALL side; D, floor; FIRST OUTSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Plaster Peeling
108	PIPE side; D, floor; FIRST OUTSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Negative	1.0	0.50 +/- .5	Metal Peeling
109	PIPE side; D, floor; FIRST OUTSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Peeling

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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
110	PIPE side; D, floor; FIRST OUTSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Positive	1.0	9.00 +/- 7.4	Metal Peeling
111	PIPE-VALVE side; D, floor; FIRST OUTSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Positive	1.0	3.10 +/- 2	Metal Peeling
112	PIPE-VALVE side; D, floor; FIRST OUTSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Peeling
113	PIPE-VALVE side; D, floor; FIRST OUTSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Negative	1.0	0.01 +/- .05	Metal Peeling
114	WALL side; A, floor; FIRST INSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Intact
115	WALL side; A, floor; FIRST INSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Intact

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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
116	PIPE side; A, floor; FIRST INSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Positive	1.0	1.30 +/- .3	Pvc Intact
117	PIPE side; A, floor; FIRST INSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Positive	1.0	1.70 +/- .6	Pvc Intact
118	COVER side; C, floor; FIRST INSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Negative	1.0	0.70 +/- .3	Metal Peeling
119	COVER side; C, floor; FIRST INSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Positive	1.0	2.40 +/- 1.4	Metal Peeling
120	COVER side; C, floor; FIRST INSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Negative	1.0	0.90 +/- .1	Metal Peeling
121	PIPE side; C, floor; FIRST INSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Positive	1.0	1.70 +/- .6	Metal Peeling

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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
122	PIPE side; , floor; FIRST INSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Peeling
123	PIPE side; , floor; FIRST INSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Negative	1.0	0.15 +/- .36	Metal Peeling
124	PIPE side; , floor; FIRST INSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Peeling
125	PIPE side; , floor; FIRST INSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Peeling
126	PIPE side; , floor; FIRST INSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .03	Metal Peeling
127	PIPE side; , floor; FIRST INSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Peeling

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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
128	PIPE side; , floor; FIRST INSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Peeling
129	PIPE side; , floor; FIRST INSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Peeling
130	PIPE side; , floor; FIRST INSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Peeling
131	PIPE side; , floor; FIRST INSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Peeling
132	PIPE side; , floor; FIRST INSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Peeling
133	PIPE side; , floor; FIRST INSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .09	Metal Peeling

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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
134	PIPE side; , floor; FIRST INSIDE LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Peeling
135	PIPE side; , floor; FIRST INSIDE LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Peeling
136	PIPE VALVE side; , floor; FIRST INSIDE LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Negative	1.0	0.01 +/- .04	Metal Fair
137	PIPE VALVE side; , floor; FIRST INSIDE LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Fair
138	BASE SLAB side; , floor; FIRST INSIDE LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Negative	1.0	0.15 +/- .09	Concrete Intact
139	BASE SLAB side; , floor; FIRST INSIDE LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Negative	1.0	0.02 +/- .03	Concrete Intact

Report Printed: 1/27/2023 Project: 20212115 Page 28 of 58

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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
140	TANK side; , floor; FIRST INSIDE _____ SLUDGE -9 4244 GOLDEN GATE PKWY	Negative	1.0	0.02 +/- .05	Metal Intact
141	TANK side; , floor; FIRST INSIDE _____ SLUDGE -9 4244 GOLDEN GATE PKWY	Negative	1.0	0.08 +/- .22	Metal Intact
142	TANK side; , floor; FIRST INSIDE _____ SLUDGE -9 4244 GOLDEN GATE PKWY	Negative	1.0	0.01 +/- .04	Metal Intact
143	TANK side; , floor; FIRST INSIDE _____ SLUDGE -9 4244 GOLDEN GATE PKWY	Negative	1.0	0.04 +/- .09	Metal Intact
144	TANK side; , floor; FIRST INSIDE _____ SLUDGE -9 4244 GOLDEN GATE PKWY	Negative	1.0	0.03 +/- .07	Metal Intact
145	TANK side; , floor; FIRST INSIDE _____ SLUDGE -9 4244 GOLDEN GATE PKWY	Negative	1.0	0.08 +/- .21	Metal Intact

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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
146	PIPE side; , floor; FIRST INSIDE _____ SLUDGE -9 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
147	PIPE side; , floor; FIRST INSIDE _____ SLUDGE -9 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
148	PIPE side; , floor; FIRST INSIDE _____ SLUDGE -9 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Peeling
149	PIPE side; , floor; FIRST INSIDE _____ SLUDGE -9 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Peeling
150	PIPE side; , floor; FIRST INSIDE _____ SLUDGE -9 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Peeling
151	PIPE side; , floor; FIRST INSIDE _____ SLUDGE -9 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Peeling

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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
152	WALL side; A, floor; FIRST OUTSIDE _____ FLUORIDE BLDG-11 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .03	Metal Peeling
153	WALL side; B, floor; FIRST OUTSIDE _____ FLUORIDE BLDG-11 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .03	Metal Peeling
154	WALL side; C, floor; FIRST OUTSIDE _____ FLUORIDE BLDG-11 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .04	Metal Peeling
155	WALL side; D, floor; FIRST OUTSIDE _____ FLUORIDE BLDG-11 4244 GOLDEN GATE PKWY	Negative	1.0	-1.06 +/- 1.66	Metal Peeling
156	FLOOR side; , floor; FIRST OUTSIDE _____ FLUORIDE BLDG-11 4244 GOLDEN GATE PKWY	Negative	1.0	0.07 +/- .13	Concrete Fair
157	PIPE(EYEWASH) side; , floor; FIRST OUTSIDE _____ FLUORIDE BLDG-11 4244 GOLDEN GATE PKWY	Negative	1.0	0.05 +/- .11	Metal Peeling

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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
158	PIPE(EYEWASH) side; , floor; FIRST OUTSIDE FLUORIDE BLDG-11 4244 GOLDEN GATE PKWY	Positive	1.0	4.40 +/- 3.3	Metal Peeling
159	PIPE(EYEWASH) side; , floor; FIRST OUTSIDE FLUORIDE BLDG-11 4244 GOLDEN GATE PKWY	Negative	1.0	0.01 +/- .02	Metal Peeling
160	TANK side; A, floor; FIRST OUTSIDE LIME SOFTENING CLARIFIER-2 4244 GOLDEN GATE PKWY	Negative	1.0	-0.37 +/- 1.37	Metal Intact
161	TANK side; B, floor; FIRST OUTSIDE LIME SOFTENING CLARIFIER-2 4244 GOLDEN GATE PKWY	Negative	1.0	0.07 +/- .24	Metal Intact
162	TANK side; C, floor; FIRST OUTSIDE LIME SOFTENING CLARIFIER-2 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
163	TANK side; D, floor; FIRST OUTSIDE LIME SOFTENING CLARIFIER-2 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact

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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
164	BASE side; D, floor; FIRST OUTSIDE LIME SOFTENING CLARIFIER-2 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Intact
165	SLAB side; D, floor; FIRST OUTSIDE LIME SOFTENING CLARIFIER-2 4244 GOLDEN GATE PKWY	Negative	1.0	0.01 +/- .06	Concrete Intact
166	SMALL TANK side; B, floor; FIRST OUTSIDE LIME SOFTENING CLARIFIER-2 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
167	SMALL TANK side; B, floor; FIRST OUTSIDE LIME SOFTENING CLARIFIER-2 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
168	SMALL TANK side; B, floor; FIRST OUTSIDE LIME SOFTENING CLARIFIER-2 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
169	PIPE side; B, floor; FIRST OUTSIDE LIME SOFTENING CLARIFIER-2 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact

Report Printed: 1/27/2023 Project: 20212115 Page 33 of 58

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FGUA Golden Gate City
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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
170	PIPE side; B, floor; FIRST OUTSIDE LIME SOFTENING CLARIFIER-2 4244 GOLDEN GATE PKWY	Negative	1.0	0.02 +/- .09	Metal Intact
171	PIPE side; A, floor; FIRST OUTSIDE LIME SOFTENING CLARIFIER-2 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
172	PIPE side; A, floor; FIRST OUTSIDE LIME SOFTENING CLARIFIER-2 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Pvc Intact
173	PIPE side; A, floor; FIRST OUTSIDE LIME SOFTENING CLARIFIER-2 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Pvc Intact
174	PIPE side; A, floor; FIRST OUTSIDE LIME SOFTENING CLARIFIER-2 4244 GOLDEN GATE PKWY	Negative	1.0	0.40 +/- .6	Metal Intact
175	SLAB(WELL) side; A, floor; FIRST OUTSIDE LIME SOFTENING CLARIFIER-2 4244 GOLDEN GATE PKWY	Negative	1.0	0.01 +/- .02	Concrete Intact

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176	SLAB(WELL) side; A, floor; FIRST OUTSIDE LIME SOFTENING CLARIFIER-2 4244 GOLDEN GATE PKWY	Negative	1.0	0.01 +/- .04	Concrete Peeling
177	SLAB(WELL) side; A, floor; FIRST OUTSIDE LIME SOFTENING CLARIFIER-2 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Peeling
178	PIPE(ELECTRIC) side; A, floor; FIRST OUTSIDE LIME SOFTENING CLARIFIER-2 4244 GOLDEN GATE PKWY	Positive	1.0	1.70 +/- .6	Pvc Peeling
179	PIPE(ELECTRIC) side; A, floor; FIRST OUTSIDE LIME SOFTENING CLARIFIER-2 4244 GOLDEN GATE PKWY	Positive	1.0	3.00 +/- 2	Pvc Peeling
180	PIPE side; C, floor; FIRST OUTSIDE LIME SOFTENING CLARIFIER-2 4244 GOLDEN GATE PKWY	Negative	1.0	0.22 +/- .23	Metal Peeling
181	PIPE side; C, floor; FIRST OUTSIDE LIME SOFTENING CLARIFIER-2 4244 GOLDEN GATE PKWY	Negative	1.0	0.01 +/- .03	Metal Peeling

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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
182	PIPE side; C, floor; FIRST OUTSIDE _____ LIME SOFTENING CLARIFIER-2 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Peeling
183	PIPE side; C, floor; FIRST OUTSIDE _____ LIME SOFTENING CLARIFIER-2 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Peeling
184	TANK side; , floor; FIRST OUTSIDE _____ WEST FILTERS-3 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
185	TANK side; , floor; FIRST OUTSIDE _____ WEST FILTERS-3 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
186	TANK side; , floor; FIRST OUTSIDE _____ WEST FILTERS-3 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
187	TANK side; , floor; FIRST OUTSIDE _____ WEST FILTERS-3 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact

Report Printed: 1/27/2023 Project: 20212115 Page 36 of 58

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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
188	TANK side; , floor; FIRST OUTSIDE WEST FILTERS-3 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
189	TANK side; , floor; FIRST OUTSIDE WEST FILTERS-3 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
190	TANK side; , floor; FIRST OUTSIDE WEST FILTERS-3 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
191	TANK side; , floor; FIRST OUTSIDE WEST FILTERS-3 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
192	TANK side; , floor; FIRST OUTSIDE WEST FILTERS-3 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
193	PIPE side; , floor; FIRST OUTSIDE WEST FILTERS-3 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact

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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
194	PIPE side; , floor; FIRST OUTSIDE _____ WEST FILTERS-3 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
195	PIPE side; , floor; FIRST OUTSIDE _____ WEST FILTERS-3 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
196	PIPE side; , floor; FIRST OUTSIDE _____ WEST FILTERS-3 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
197	PIPE side; , floor; FIRST OUTSIDE _____ WEST FILTERS-3 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
198	PIPE side; , floor; FIRST OUTSIDE _____ WEST FILTERS-3 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
199	PIPE side; , floor; FIRST OUTSIDE _____ WEST FILTERS-3 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact

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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
200	PIPE side; , floor; FIRST OUTSIDE _____ WEST FILTERS-3 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
201	PIPE side; , floor; FIRST OUTSIDE _____ WEST FILTERS-3 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
202	WALL side; A, floor; FIRST PUMP AREA _____ WEST FILTERS-3 4244 GOLDEN GATE PKWY	Negative	1.0	0.03 +/- .04	Concrete Peeling
203	WALL side; B, floor; FIRST PUMP AREA _____ WEST FILTERS-3 4244 GOLDEN GATE PKWY	Negative	1.0	0.01 +/- .02	Concrete Peeling
204	WALL side; C, floor; FIRST PUMP AREA _____ WEST FILTERS-3 4244 GOLDEN GATE PKWY	Negative	1.0	0.01 +/- .02	Concrete Peeling
205	WALL side; D, floor; FIRST PUMP AREA _____ WEST FILTERS-3 4244 GOLDEN GATE PKWY	Negative	1.0	0.01 +/- .02	Concrete Peeling

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206	PIPE side; D, floor; FIRST PUMP AREA _____ WEST FILTERS-3 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Pvc Peeling
207	PIPE side; , floor; FIRST OUTSIDE _____ INJECTION -4 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .03	Metal Intact
208	PIPE side; , floor; FIRST OUTSIDE _____ INJECTION -4 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
209	PIPE side; , floor; FIRST OUTSIDE _____ INJECTION -4 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
210	TANK side; A, floor; FIRST OUTSIDE _____ FILTER BACKWASH-7 4244 GOLDEN GATE PKWY	Negative	1.0	0.15 +/- .28	Metal Intact
211	TANK side; B, floor; FIRST OUTSIDE _____ FILTER BACKWASH-7 4244 GOLDEN GATE PKWY	Negative	1.0	0.30 +/- .33	Metal Intact

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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
212	TANK side; C, floor; FIRST OUTSIDE FILTER BACKWASH-7 4244 GOLDEN GATE PKWY	Negative	1.0	0.16 +/- .22	Metal Intact
213	TANK side; D, floor; FIRST OUTSIDE FILTER BACKWASH-7 4244 GOLDEN GATE PKWY	Negative	1.0	0.40 +/- .5	Metal Intact
214	PIPE side; A, floor; FIRST OUTSIDE FILTER BACKWASH-7 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
215	PIPE side; A, floor; FIRST OUTSIDE FILTER BACKWASH-7 4244 GOLDEN GATE PKWY	Negative	1.0	0.29 +/- .25	Metal Intact
216	PIPE side; A, floor; FIRST OUTSIDE FILTER BACKWASH-7 4244 GOLDEN GATE PKWY	Negative	1.0	0.60 +/- .4	Metal Intact
217	SLAB side; A, floor; FIRST OUTSIDE FILTER BACKWASH-7 4244 GOLDEN GATE PKWY	Negative	1.0	0.04 +/- .05	Concrete Peeling

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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
218	SLAB side; A, floor; FIRST OUTSIDE _____ FILTER BACKWASH-7 4244 GOLDEN GATE PKWY	Negative	1.0	0.07 +/- .04	Concrete Peeling
219	SLAB side; , floor; FIRST OUTSIDE _____ BACKWASH BASIN-6 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Peeling
220	WALL side; , floor; FIRST OUTSIDE _____ BACKWASH BASIN-6 4244 GOLDEN GATE PKWY	Negative	1.0	0.05 +/- .05	Concrete Peeling
221	WALL side; , floor; FIRST OUTSIDE _____ BACKWASH BASIN-6 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Peeling
222	WALL side; , floor; FIRST OUTSIDE _____ BACKWASH BASIN-6 4244 GOLDEN GATE PKWY	Negative	1.0	0.01 +/- .02	Concrete Peeling
223	PUMP side; , floor; FIRST OUTSIDE _____ BACKWASH BASIN-6 4244 GOLDEN GATE PKWY	Negative	1.0	0.01 +/- .05	Metal Peeling

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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
224	PUMP side; , floor; FIRST OUTSIDE BACKWASH BASIN-6 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .03	Metal Peeling
225	COVER side; , floor; FIRST OUTSIDE BACKWASH BASIN-6 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Peeling
226	BASE side; , floor; FIRST OUTSIDE BACKWASH BASIN-6 4244 GOLDEN GATE PKWY	Negative	1.0	0.04 +/- .05	Concrete Peeling
227	PIPE(ELECTRIC) side; , floor; FIRST OUTSIDE BACKWASH BASIN-6 4244 GOLDEN GATE PKWY	Positive	1.0	2.50 +/- 1.4	Pvc Peeling
228	PIPE side; , floor; FIRST OUTSIDE INJECTION-5 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
229	PIPE side; , floor; FIRST OUTSIDE INJECTION-5 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact

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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
230	PIPE side; , floor; FIRST OUTSIDE _____ INJECTION-5 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
231	PIPE side; , floor; FIRST OUTSIDE _____ INJECTION-5 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
232	PIPE side; , floor; FIRST OUTSIDE _____ INJECTION-5 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
233	PIPE-3 side; , floor; FIRST OUTSIDE _____ HIGH SERVICE PUMP-15 4244 GOLDEN GATE PKWY	Negative	1.0	0.01 +/- .03	Metal Intact
234	PIPE-3 side; , floor; FIRST OUTSIDE _____ HIGH SERVICE PUMP-15 4244 GOLDEN GATE PKWY	Negative	1.0	0.01 +/- .04	Metal Intact
235	PIPE-3 side; , floor; FIRST OUTSIDE _____ HIGH SERVICE PUMP-15 4244 GOLDEN GATE PKWY	Negative	1.0	0.04 +/- .16	Metal Intact

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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
236	PIPE-3 side; , floor; FIRST OUTSIDE _____ HIGH SERVICE PUMP-15 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
237	PIPE-3 side; , floor; FIRST OUTSIDE _____ HIGH SERVICE PUMP-15 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
238	PIPE-3 side; , floor; FIRST OUTSIDE _____ HIGH SERVICE PUMP-15 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
239	PIPE-3 side; , floor; FIRST OUTSIDE _____ HIGH SERVICE PUMP-15 4244 GOLDEN GATE PKWY	Negative	1.0	0.28 +/- .54	Metal Intact
240	SLAB side; , floor; FIRST OUTSIDE _____ HIGH SERVICE PUMP-15 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Intact
241	SLAB side; , floor; FIRST OUTSIDE _____ HIGH SERVICE PUMP-15 4244 GOLDEN GATE PKWY	Negative	1.0	0.14 +/- .08	Concrete Intact

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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
242	PIPE side; , floor; FIRST OUTSIDE _____ HIGH SERVICE PUMP-15 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
243	PIPE side; , floor; FIRST OUTSIDE _____ HIGH SERVICE PUMP-15 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
244	PIPE-4 side; , floor; FIRST OUTSIDE _____ HIGH SERVICE PUMP-15 4244 GOLDEN GATE PKWY	Negative	1.0	0.10 +/- .21	Metal Intact
245	PIPE-4 side; , floor; FIRST OUTSIDE _____ HIGH SERVICE PUMP-15 4244 GOLDEN GATE PKWY	Negative	1.0	0.03 +/- .12	Metal Intact
246	PIPE-4 side; , floor; FIRST OUTSIDE _____ HIGH SERVICE PUMP-15 4244 GOLDEN GATE PKWY	Positive	1.0	4.30 +/- 2.3	Metal Intact
247	PIPE-4 side; , floor; FIRST OUTSIDE _____ HIGH SERVICE PUMP-15 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact

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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
248	PLATE side; , floor; FIRST OUTSIDE _____ HIGH SERVICE PUMP-15 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Peeling
249	VALVE side; , floor; FIRST OUTSIDE _____ HIGH SERVICE PUMP-15 4244 GOLDEN GATE PKWY	Negative	1.0	0.01 +/- .03	Metal Peeling
250	VALVE side; , floor; FIRST OUTSIDE _____ HIGH SERVICE PUMP-15 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
251	COVER side; , floor; FIRST OUTSIDE _____ HIGH SERVICE PUMP-15 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Intact
252	SLAB side; , floor; FIRST OUTSIDE _____ HIGH SERVICE PUMP-15 4244 GOLDEN GATE PKWY	Negative	1.0	0.26 +/- .13	Concrete Peeling
253	PIPE-1 side; , floor; FIRST OUTSIDE _____ HIGH SERVICE PUMP-15 4244 GOLDEN GATE PKWY	Negative	1.0	0.01 +/- .07	Metal Peeling

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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
254	PIPE-1 side; , floor; FIRST OUTSIDE _____ HIGH SERVICE PUMP-15 4244 GOLDEN GATE PKWY	Negative	1.0	0.01 +/- .02	Metal Peeling
255	PIPE-1 side; , floor; FIRST OUTSIDE _____ HIGH SERVICE PUMP-15 4244 GOLDEN GATE PKWY	Negative	1.0	0.01 +/- .05	Metal Peeling
256	PIPE-1 side; , floor; FIRST OUTSIDE _____ HIGH SERVICE PUMP-15 4244 GOLDEN GATE PKWY	Negative	1.0	-0.19 +/- 1.15	Metal Peeling
257	MOTOR side; , floor; FIRST OUTSIDE _____ HIGH SERVICE PUMP-15 4244 GOLDEN GATE PKWY	Negative	1.0	0.70 +/- .1	Metal Peeling
258	COVER side; , floor; FIRST OUTSIDE _____ HIGH SERVICE PUMP-15 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Peeling
259	SLAB side; , floor; FIRST OUTSIDE _____ HIGH SERVICE PUMP-15 4244 GOLDEN GATE PKWY	Negative	1.0	0.01 +/- .02	Concrete Peeling

Report Printed: 1/27/2023 Project: 20212115 Page 48 of 58

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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
260	PIPE-2 side; , floor; FIRST OUTSIDE _____ HIGH SERVICE PUMP-15 4244 GOLDEN GATE PKWY	Negative	1.0	0.01 +/- .03	Metal Peeling
261	PIPE-2 side; , floor; FIRST OUTSIDE _____ HIGH SERVICE PUMP-15 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Peeling
262	PIPE-2 side; , floor; FIRST OUTSIDE _____ HIGH SERVICE PUMP-15 4244 GOLDEN GATE PKWY	Negative	1.0	0.01 +/- .04	Metal Peeling
263	PIPE-2 side; , floor; FIRST OUTSIDE _____ HIGH SERVICE PUMP-15 4244 GOLDEN GATE PKWY	Negative	1.0	0.01 +/- .04	Metal Peeling
264	PLATE side; , floor; FIRST OUTSIDE _____ HIGH SERVICE PUMP-15 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Peeling
265	COVER side; , floor; FIRST OUTSIDE _____ HIGH SERVICE PUMP-15 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Peeling

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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
266	SLAB side; , floor; FIRST OUTSIDE _____ HIGH SERVICE PUMP-15 4244 GOLDEN GATE PKWY	Negative	1.0	0.04 +/- .05	Concrete Peeling
267	POST side; , floor; FIRST OUTSIDE _____ HIGH SERVICE PUMP-15 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Peeling
268	COVER side; , floor; FIRST OUTSIDE _____ HIGH SERVICE PUMP-15 4244 GOLDEN GATE PKWY	Negative	1.0	-0.18 +/- 1.17	Metal Peeling
269	SLAB side; , floor; FIRST OUTSIDE _____ HIGH SERVICE PUMP-15 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Peeling
270	WALL side; A, floor; FIRST OUTSIDE _____ SULFURIC BASIN-26 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Fair
271	WALL side; B, floor; FIRST OUTSIDE _____ SULFURIC BASIN-26 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Intact

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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
272	WALL side; C, floor; FIRST OUTSIDE _____ SULFURIC BASIN-26 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Intact
273	WALL side; D, floor; FIRST OUTSIDE _____ SULFURIC BASIN-26 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Intact
274	WALL side; A, floor; FIRST INSIDE _____ SULFURIC BASIN-26 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Intact
275	WALL side; B, floor; FIRST INSIDE _____ SULFURIC BASIN-26 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Intact
276	WALL side; C, floor; FIRST INSIDE _____ SULFURIC BASIN-26 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Intact
277	WALL side; D, floor; FIRST INSIDE _____ SULFURIC BASIN-26 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Concrete Intact

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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
278	POST side; C, floor; FIRST OUTSIDE _____ SULFURIC BASIN-26 4244 GOLDEN GATE PKWY	Negative	1.0	0.30 +/- .23	Metal Peeling
279	POST side; C, floor; FIRST OUTSIDE _____ SULFURIC BASIN-26 4244 GOLDEN GATE PKWY	Negative	1.0	0.40 +/- .3	Metal Peeling
280	POST side; C, floor; FIRST OUTSIDE _____ SULFURIC BASIN-26 4244 GOLDEN GATE PKWY	Negative	1.0	0.40 +/- .3	Metal Peeling
281	PIPE side; C, floor; FIRST OUTSIDE _____ SULFURIC BASIN-26 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Pvc Peeling
282	PIPE side; B, floor; FIRST OUTSIDE _____ SULFURIC BASIN-26 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Peeling
283	PIPE side; B, floor; FIRST OUTSIDE _____ SULFURIC BASIN-26 4244 GOLDEN GATE PKWY	Negative	1.0	0.00 +/- .02	Metal Peeling

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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
284	CALIBRATE side; , floor; FIRST OUTSIDE _____ 4244 GOLDEN GATE PKWY	Negative	1.0	+/- .6	Plastic Intact
285	CALIBRATE side; , floor; FIRST OUTSIDE _____ 4244 GOLDEN GATE PKWY	Negative	1.0	+/- .6	Plastic Intact
286	CALIBRATE side; , floor; FIRST OUTSIDE _____ 4244 GOLDEN GATE PKWY	Negative	1.0	+/- .5	Plastic Intact

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Recommendations Painted Surfaces

The INTACT materials in which lead was detected pose no health hazard unless disturbed during remodeling or demolition.

The following samples are positive for lead above the regulatory limits. Current Federal regulatory standards only apply to properties regulated by the the Department of Housing and Urban Development (HUD). This is not a HUD regulated structure.

While there are no Federal Regulatory Standards, the OSHA Lead in Construction Standard (29 CFR 1926.62) shall apply to any construction work including renovation and demolition that may disturb the above referenced surfaces.

In addition to the above considerations, the presence of lead in demolition debris has the potential to impose limitations on where and how the debris may be disposed. The Resource Conservation and Recovery Act (RCRA), Subtitles C and D, require that the waste be analyzed to determine the amount of leachable lead present. The type of test to be performed on the waste is the Toxicity Characteristic Leaching Procedure (TCLP) for lead. The results of this test will determine whether the material must be handled and disposed of as hazardous waste. For structures containing large amounts of lead-containing paint, a significant potential for failing the TCLP exists.

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Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
11	PIPE side; D, floor; FIRST OUTSIDE(EYEWASH) _____ CHLORINE BLDG-13 4244 GOLDEN GATE PKWY	Positive	1.0	2.80 +/- 1.7	Metal Intact
12	PIPE side; D, floor; FIRST OUTSIDE(EYEWASH) _____ CHLORINE BLDG-13 4244 GOLDEN GATE PKWY	Positive	1.0	4.00 +/- 3	Metal Peeling
14	PIPE side; D, floor; FIRST OUTSIDE _____ CHLORINE BLDG-13 4244 GOLDEN GATE PKWY	Positive	1.0	8.30 +/- 7	Pvc Peeling
15	PIPE side; D, floor; FIRST OUTSIDE _____ CHLORINE BLDG-13 4244 GOLDEN GATE PKWY	Positive	1.0	3.90 +/- 2.8	Pvc Peeling
18	PIPE(ELECTRICAL) side; A, floor; FIRST INSIDE _____ CHLORINE BLDG-13 4244 GOLDEN GATE PKWY	Positive	1.0	1.90 +/- .9	Metal Intact
19	PIPE(ELECTRICAL) side; C, floor; FIRST INSIDE _____ CHLORINE BLDG-13 4244 GOLDEN GATE PKWY	Positive	1.0	2.90 +/- 1.8	Metal Intact

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Naples, FL

Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
20	PIPE(ELECTRICAL) side; B, floor; FIRST INSIDE _____ CHLORINE BLDG-13 4244 GOLDEN GATE PKWY	Positive	1.0	1.10 +/- .1	Metal Intact
29	BEAM side; A, floor; FIRST OUTSIDE _____ CHLORINE BLDG-13 4244 GOLDEN GATE PKWY	Positive	1.0	3.50 +/- 2.4	Metal Intact
46	STEP side; B, floor; FIRST STAIR _____ DIESEL STORAGE TANK-14 4244 GOLDEN GATE PKWY	Positive	1.0	2.10 +/- 1.1	Metal Intact
55	PIPE side; A, floor; FIRST OUTSIDE _____ LIME SILO BLDG-10 4244 GOLDEN GATE PKWY	Positive	1.0	2.20 +/- 1.1	Metal Intact
56	PIPE BRACKET side; A, floor; FIRST OUTSIDE _____ LIME SILO BLDG-10 4244 GOLDEN GATE PKWY	Positive	1.0	2.40 +/- 1.3	Metal Intact
58	PIPE side; A, floor; FIRST OUTSIDE _____ LIME SILO BLDG-10 4244 GOLDEN GATE PKWY	Positive	1.0	3.00 +/- 1.9	Pvc Peeling

Report Printed: 1/27/2023 Project: 20212115

Prepared For:
Chris T. Reinbold, PE
Carollo
2056 Vista Parkway
Suite 400
West Palm Beach, Florida 33411

FGUA Golden Gate City
Water Treatment Plant
4300 Golden Gate Pkwy.
Naples, FL

Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
59	PIPE side; A, floor; FIRST OUTSIDE _____ LIME SILO BLDG-10 4244 GOLDEN GATE PKWY	Positive	1.0	3.00 +/- 2	Pvc Peeling
71	PIPE side; B, floor; FIRST INSIDE _____ LIME SILO BLDG-10 4244 GOLDEN GATE PKWY	Positive	1.0	1.20 +/- .1	Pvc Intact
72	PIPE side; B, floor; FIRST INSIDE _____ LIME SILO BLDG-10 4244 GOLDEN GATE PKWY	Positive	1.0	1.40 +/- .3	Pvc Intact
101	PIPE side; A, floor; FIRST OUTSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Positive	1.0	1.20 +/- .2	Pvc Intact
106	PIPE side; B, floor; FIRST OUTSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Positive	1.0	1.90 +/- .6	Pvc Intact
110	PIPE side; D, floor; FIRST OUTSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Positive	1.0	9.00 +/- 7.4	Metal Peeling

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Water Treatment Plant
4300 Golden Gate Pkwy.
Naples, FL

Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
111	PIPE-VALVE side; D, floor; FIRST OUTSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Positive	1.0	3.10 +/- 2	Metal Peeling
116	PIPE side; A, floor; FIRST INSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Positive	1.0	1.30 +/- .3	Pvc Intact
117	PIPE side; A, floor; FIRST INSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Positive	1.0	1.70 +/- .6	Pvc Intact
119	COVER side; C, floor; FIRST INSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Positive	1.0	2.40 +/- 1.4	Metal Peeling
121	PIPE side; C, floor; FIRST INSIDE _____ LIMESOFTENING BLDG-8 4244 GOLDEN GATE PKWY	Positive	1.0	1.70 +/- .6	Metal Peeling
158	PIPE(EYEWASH) side; , floor; FIRST OUTSIDE _____ FLUORIDE BLDG-11 4244 GOLDEN GATE PKWY	Positive	1.0	4.40 +/- 3.3	Metal Peeling

Report Printed: 1/27/2023 Project: 20212115

Prepared For:
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FGUA Golden Gate City
Water Treatment Plant
4300 Golden Gate Pkwy.
Naples, FL

Sample	Description and Location	Result	Regulatory Limit	Sampled Area Pb (Lead Content) per sq. cm.	Substrate Condition
178	PIPE(ELECTRIC) side; A, floor; FIRST OUTSIDE _____ LIME SOFTENING CLARIFIER-2 4244 GOLDEN GATE PKWY	Positive	1.0	1.70 +/- .6	Pvc Peeling
179	PIPE(ELECTRIC) side; A, floor; FIRST OUTSIDE _____ LIME SOFTENING CLARIFIER-2 4244 GOLDEN GATE PKWY	Positive	1.0	3.00 +/- 2	Pvc Peeling
227	PIPE(ELECTRIC) side; , floor; FIRST OUTSIDE _____ BACKWASH BASIN-6 4244 GOLDEN GATE PKWY	Positive	1.0	2.50 +/- 1.4	Pvc Peeling
246	PIPE-4 side; , floor; FIRST OUTSIDE _____ HIGH SERVICE PUMP-15 4244 GOLDEN GATE PKWY	Positive	1.0	4.30 +/- 2.3	Metal Intact

APPENDIX B

ARF ENVIRONMENTAL, INC., ASBESTOS REPORT, PROJECT 2021-2115, JANUARY 2023

Prepared For:
Chris T. Reinbold, PE
Carollo
2056 Vista Parkway
Suite 400
West Palm Beach, Florida 33411

Job Site:
FGUA Golden Gate City
Water Treatment Plant
4300 Golden Gate Pkwy.
Naples, FL

Project Number: 2021-2115
Table of Contents - Asbestos Report

Section **Page**

Project Summary **1**
Qualifier for this Survey **2**
Technician Who Conducted this Survey **3**
Bulk Sample Itemization **4**
Lab Results **8**
Technician Chain of Custody Forms **11**
Terms and Conditions **14**

Report Printed: 1/27/2023 Project: 20212115

Prepared For:
Chris T. Reinbold, PE
Carollo
2056 Vista Parkway
Suite 400
West Palm Beach, Florida 33411

On 1/17/2023, ARS Environmental, Inc. conducted an asbestos survey at the following address:

FGUA Golden Gate City
Water Treatment Plant
4300 Golden Gate Pkwy.
Naples, FL

The **Interior, Exterior, and Roof** of the above mentioned job site address was visually inspected in order to identify any building materials that may contain asbestos. The samples collected where sent to a laboratory for analysis.

The following nonsuspect materials were observed during this survey. No samples were taken: metal. A/C duct fiberglass was not observed. No fiberglass insulation observed behind walls.

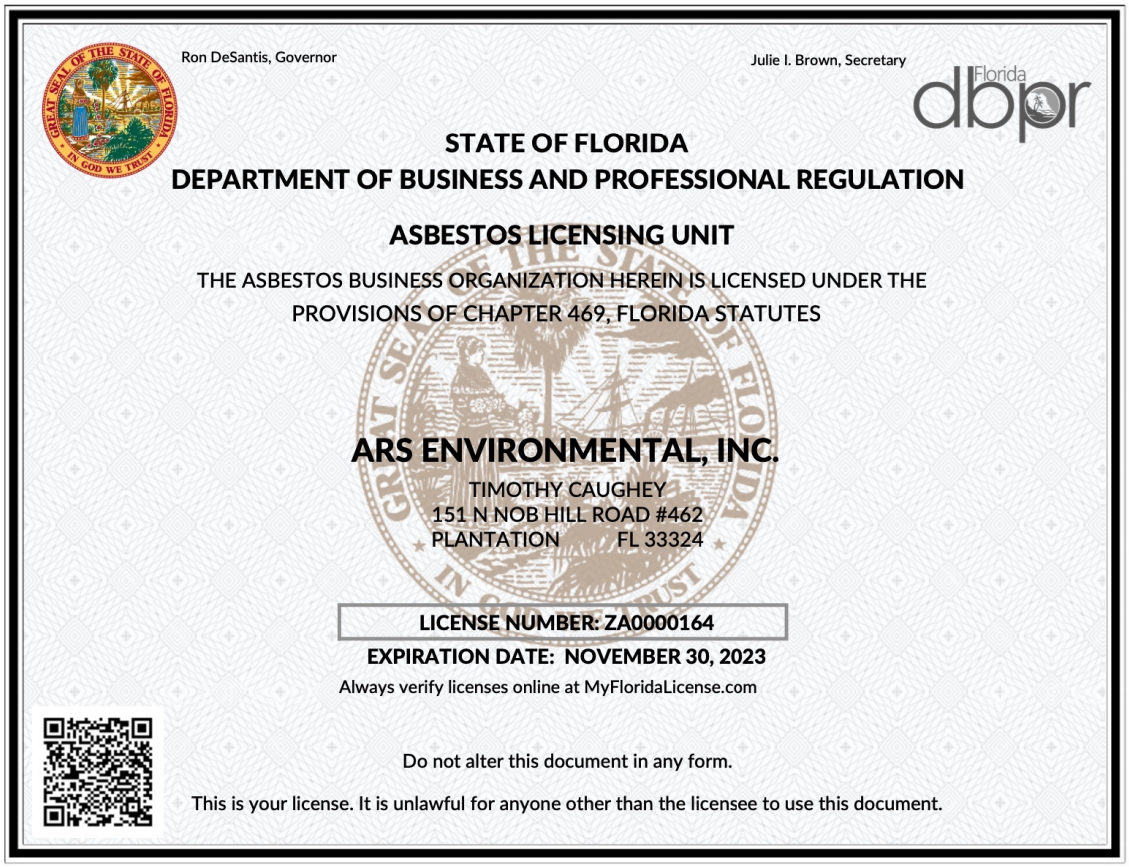
Based on the results of the bulk samples sent in for laboratory analysis, no asbestos was detected in amounts greater than 1%.

It has been a pleasure working with you.
Please call on us again.

Alex Front, BS
ARS Environmental, Inc.

Prepared For:
Chris T. Reinbold, PE
Carollo
2056 Vista Parkway
Suite 400
West Palm Beach, Florida 33411

Job Site:
FGUA Golden Gate City
Water Treatment Plant
4300 Golden Gate Pkwy.
Naples, FL



Ron DeSantis, Governor

Julie I. Brown, Secretary

Florida dbpr

STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION

ASBESTOS LICENSING UNIT

THE ASBESTOS BUSINESS ORGANIZATION HEREIN IS LICENSED UNDER THE PROVISIONS OF CHAPTER 469, FLORIDA STATUTES

ARS ENVIRONMENTAL, INC.
TIMOTHY CAUGHEY
151 N NOB HILL ROAD #462
PLANTATION FL 33324

LICENSE NUMBER: ZA0000164
EXPIRATION DATE: NOVEMBER 30, 2023
Always verify licenses online at MyFloridaLicense.com

Do not alter this document in any form.

This is your license. It is unlawful for anyone other than the licensee to use this document.

I hereby certify that this asbestos survey was conducted at the above referenced Job Site on 1/17/2023, and performed by Jeffrey Montalvan, accredited by the EPA as AHERA Inspector(s), utilizing the code of the Federal Regulation Standards, 40 CFR, Part 763, Subpart E, Section 763.80-763.99 and the State Asbestos Regulations, Florida Statutes 469.003.

Tim Caughey, M.P.H. (IA0000016)
Florida Licensed Consultant
Asbestos Business Organization

Report Printed: 1/27/2023 Project: 20212115

Prepared For:
Chris T. Reinbold, PE
Carollo
2056 Vista Parkway
Suite 400
West Palm Beach, Florida 33411

Job Site:
FGUA Golden Gate City
Water Treatment Plant
4300 Golden Gate Pkwy.
Naples, FL

Asbestos Consulting & Training Systems
2835 N.W. 12TH Avenue, Fort Lauderdale, Florida 333
This is to Certify that
Jeffrey Montalvan
XXX-XX-7325
269 ne 166 street, North Miami, fl 33162
has successfully completed an English
Asbestos Building Inspection Refresher
28-Jan-22 TO 28-Jan-22
and has completed the requisite training for TSCA
Meets state requirements of FL49-0001020/CN-0006273 and UT (6.0 core).
NDAAC Provider #451 Trainer(s): James F. Stump
Training Address: 900 NW 5th Ave, Fort Lauderdale, FL 33311
Successful course completion based on exam score on: 28-Jan-22
This Certificate Expires:
28-Jan-23 01/28/23
Processed By:
Seagull
To Authenticate Certificate:
www.seagulltraining.com
1-800-966-9933
James F. Stump, Course Sponsor
Certificate Number: 188220
Course Number: SE2205

Jeffrey Montalvan

Certified Asbestos Surveyor
ARS Environmental, Inc.

Report Printed: 1/27/2023 Project: 20212115

Prepared For:
Chris T. Reinbold, PE
Carollo
2056 Vista Parkway
Suite 400
West Palm Beach, Florida 33411

Job Site:
FGUA Golden Gate City
Water Treatment Plant
4300 Golden Gate Pkwy.
Naples, FL

	Description and Location	Approximate Size	Material Class	Condition	Physical Damage	Water Damage	Material Contact	Material Friability	Cat
Sample 1	Concrete Structure Floor slab under pump station, tanks, basins, and building walls	16,840 sq. ft.	Miscellaneous	Good	None	None	High	Non-friable	Asbestos Not Detected
Sample 2	Concrete Structure Floor slab under pump station, tanks, basins, and building walls	Included Above	Miscellaneous	Good	None	None	High	Non-friable	Asbestos Not Detected
Sample 3	Concrete Structure Floor slab under pump station, tanks, basins, and building walls	Included Above	Miscellaneous	Good	None	None	High	Non-friable	Asbestos Not Detected
Sample 4	Concrete Structure Floor slab under pump station, tanks, basins, and building walls	Included Above	Miscellaneous	Good	None	None	High	Non-friable	Asbestos Not Detected
Sample 5	Concrete Structure Floor slab under pump station, tanks, basins, and building walls	Included Above	Miscellaneous	Good	None	None	High	Non-friable	Asbestos Not Detected
Sample 6	Concrete Structure Floor slab under pump station, tanks, basins, and building walls	Included Above	Miscellaneous	Good	None	None	High	Non-friable	Asbestos Not Detected
Sample 7	Concrete Structure Floor slab under pump station, tanks, basins, and building walls	Included Above	Miscellaneous	Good	None	None	High	Non-friable	Asbestos Not Detected

Report Printed: 1/27/2023 Project: 20212115

Prepared For:
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Carollo
2056 Vista Parkway
Suite 400
West Palm Beach, Florida 33411

Job Site:
FGUA Golden Gate City
Water Treatment Plant
4300 Golden Gate Pkwy.
Naples, FL

	Description and Location	Approximate Size	Material Class	Condition	Physical Damage	Water Damage	Material Contact	Material Friability	Cat
Sample 8	Concrete Structure Floor slab under pump station, tanks, basins, and building walls	Included Above	Miscellaneous	Good	None	None	High	Non-friable	Asbestos Not Detected
Sample 9	Concrete Structure Floor slab under pump station, tanks, basins, and building walls	Included Above	Miscellaneous	Good	None	None	High	Non-friable	Asbestos Not Detected
Sample 10	Concrete Structure Floor slab under pump station, tanks, basins, and building walls	Included Above	Miscellaneous	Good	None	None	High	Non-friable	Asbestos Not Detected
Sample 11	Concrete Structure Floor slab under pump station, tanks, basins, and building walls	Included Above	Miscellaneous	Good	None	None	High	Non-friable	Asbestos Not Detected
Sample 12	Concrete Structure Floor slab under pump station, tanks, basins, and building walls	Included Above	Miscellaneous	Good	None	None	High	Non-friable	Asbestos Not Detected
Sample 13	Concrete Structure Floor slab under pump station, tanks, basins, and building walls	Included Above	Miscellaneous	Good	None	None	High	Non-friable	Asbestos Not Detected
Sample 14	Concrete Structure Floor slab under pump station, tanks, basins, and building walls	Included Above	Miscellaneous	Good	None	None	High	Non-friable	Asbestos Not Detected

Report Printed: 1/27/2023 Project: 20212115

Prepared For:
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Carollo
2056 Vista Parkway
Suite 400
West Palm Beach, Florida 33411

Job Site:
FGUA Golden Gate City
Water Treatment Plant
4300 Golden Gate Pkwy.
Naples, FL

	Description and Location	Approximate Size	Material Class	Condition	Physical Damage	Water Damage	Material Contact	Material Friability	Cat
Sample 15	Concrete Structure Floor slab under pump station, tanks, basins, and building walls	Included Above	Miscellaneous	Good	None	None	High	Non-friable	Asbestos Not Detected
Sample 16	Concrete Structure Floor slab under pump station, tanks, basins, and building walls	Included Above	Miscellaneous	Good	None	None	High	Non-friable	Asbestos Not Detected
Sample 17	Concrete Structure Floor slab under pump station, tanks, basins, and building walls	Included Above	Miscellaneous	Good	None	None	High	Non-friable	Asbestos Not Detected
Sample 18	Concrete Structure Floor slab under pump station, tanks, basins, and building walls	Included Above	Miscellaneous	Good	None	None	High	Non-friable	Asbestos Not Detected
Sample 19	Concrete Structure Floor slab under pump station, tanks, basins, and building walls	Included Above	Miscellaneous	Good	None	None	High	Non-friable	Asbestos Not Detected
Sample 20	Concrete Structure Floor slab under pump station, tanks, basins, and building walls	Included Above	Miscellaneous	Good	None	None	High	Non-friable	Asbestos Not Detected
Sample 21	Concrete Structure Floor slab under pump station, tanks, basins, and building walls	Included Above	Miscellaneous	Good	None	None	High	Non-friable	Asbestos Not Detected

Report Printed: 1/27/2023 Project: 20212115

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Carollo
2056 Vista Parkway
Suite 400
West Palm Beach, Florida 33411

Job Site:
FGUA Golden Gate City
Water Treatment Plant
4300 Golden Gate Pkwy.
Naples, FL

	Description and Location	Approximate Size	Material Class	Condition	Physical Damage	Water Damage	Material Contact	Material Friability	Cat
Sample 22	Concrete Structure Floor slab under pump station, tanks, basins, and building walls	Included Above	Miscellaneous	Good	None	None	High	Non-friable	Asbestos Not Detected
Sample 23	Concrete Structure Floor slab under pump station, tanks, basins, and building walls	Included Above	Miscellaneous	Good	None	None	High	Non-friable	Asbestos Not Detected
Sample 24	Concrete Structure Floor slab under pump station, tanks, basins, and building walls	Included Above	Miscellaneous	Good	None	None	High	Non-friable	Asbestos Not Detected
Sample 25	Concrete Structure Floor slab under pump station, tanks, basins, and building walls	Included Above	Miscellaneous	Good	None	None	High	Non-friable	Asbestos Not Detected
Sample 26	Roof Material; membrane Over chlorine building	528 sq. ft.	Miscellaneous	Good	None	None	Low	Non-friable	Asbestos Not Detected
Sample 27	Roof Material; membrane Over chlorine building	Included Above	Miscellaneous	Good	None	None	Low	Non-friable	Asbestos Not Detected
Sample 28	Roof Material; membrane Over chlorine building	Included Above	Miscellaneous	Good	None	None	Low	Non-friable	Asbestos Not Detected

The following nonsuspect materials were observed during this survey. No samples were taken: metal. A/C duct fiberglass was not observed. No fiberglass insulation observed behind walls.

Lab Results

ARS Environmental

• Environmental Testing Services • Asbestos Surveys • Hazardous Building Material Surveys • Mold Assesments • Lead Inspections
• Site Investigations/Assesments • Indoor Air Quality Testing • Monitoring • Radon Gas Measurements • Chemical Exposure Monitoring

Report Printed: 1/27/2023 Project: 20212115 Page 1 of 3

Prepared For:
Chris T. Reinbold, PE
Carollo
2056 Vista Parkway
Suite 400
West Palm Beach, Florida 33411

Job Site:
FGUA Golden Gate City
Water Treatment Plant
4300 Golden Gate Pkwy.
Naples, FL

Sample/Layer	Description and Location	Estimated Asbestos Percentage	Percentage of Nonasbestos Fibers	Percentage of Nonfibrous Materials
1	Concrete			100%
2	Concrete			100%
3	Concrete			100%
4	Concrete			100%
5	Concrete			100%
6	Concrete			100%
7	Concrete			100%
8	Concrete			100%
9	Concrete			100%
10	Concrete			100%

EPA 600/R-93 116 Method for the Determination of Asbestos in Bulk Building Materials
APPLICABILITY: this method is useful for the qualitative identification of asbestos and the semi-quantitative determination of asbestos content of bulk samples. The method measures percent asbestos as perceived by the analyst.

Alex Front, Analyst

Lab Results

ARS Environmental

• Environmental Testing Services • Asbestos Surveys • Hazardous Building Material Surveys • Mold Assesments • Lead Inspections
• Site Investigations/Assesments • Indoor Air Quality Testing • Monitoring • Radon Gas Measurements • Chemical Exposure Monitoring

Prepared For:
Chris T. Reinbold, PE
Carollo
2056 Vista Parkway
Suite 400
West Palm Beach, Florida 33411

Job Site:
FGUA Golden Gate City
Water Treatment Plant
4300 Golden Gate Pkwy.
Naples, FL

Sample/Layer	Description and Location	Estimated Asbestos Percentage	Percentage of Nonasbestos Fibers	Percentage of Nonfibrous Materials
11	Concrete			100%
12	Concrete			100%
13	Concrete			100%
14	Concrete			100%
15	Concrete			100%
16	Concrete			100%
17	Concrete			100%
18	Concrete			100%
19	Concrete			100%
20	Concrete			100%

EPA 600/R-93 116 Method for the Determination of Asbestos in Bulk Building Materials
APPLICABILITY: this method is useful for the qualitative identification of asbestos and the semi-quantitative determination of asbestos content of bulk samples. The method measures percent asbestos as perceived by the analyst.

Alex Front, Analyst

Lab Results

ARS Environmental

• Environmental Testing Services • Asbestos Surveys • Hazardous Building Material Surveys • Mold Assesments • Lead Inspections
• Site Investigations/Assesments • Indoor Air Quality Testing • Monitoring • Radon Gas Measurements • Chemical Exposure Monitoring

Prepared For:
Chris T. Reinbold, PE
Carollo
2056 Vista Parkway
Suite 400
West Palm Beach, Florida 33411

Job Site:
FGUA Golden Gate City
Water Treatment Plant
4300 Golden Gate Pkwy.
Naples, FL

Sample/Layer	Description and Location	Estimated Asbestos Percentage	Percentage of Nonasbestos Fibers	Percentage of Nonfibrous Materials
21	Concrete			100%
22	Concrete			100%
23	Concrete			100%
24	Concrete			100%
25	Concrete			100%
26	Membrane		35% cellulose 20% glass 5% synthetic	40%
27	Membrane		35% cellulose 20% glass 5% synthetic	40%
28	Membrane		35% cellulose 20% glass 5% synthetic	40%

EPA 600/R-93 116 Method for the Determination of Asbestos in Bulk Building Materials
APPLICABILITY: this method is useful for the qualitative identification of asbestos and the semi-quantitative determination of asbestos content of bulk samples. The method measures percent asbestos as perceived by the analyst.

Alex Front, Analyst

Report Printed: 1/27/2023 Project: 20212115

Prepared For:
Chris T. Reinbold, PE
Carollo
2056 Vista Parkway
Suite 400
West Palm Beach, Florida 33411

Job Site:
FGUA Golden Gate City
Water Treatment Plant
4300 Golden Gate Pkwy.
Naples, FL

Chain of Custody Forms

ASBESTOS WORKSHEET (CHAIN OF CUSTODY) Page 1 Of 3

Sampling Date: 1/17/23
Samples Taken By: Jeff Montalvan
Project Number: 2021-2115

Non Suspect Materials Observed
☐ Carpet ☐ Terrazzo
☐ A/C Duct ☐ Wood
☐ Fiberglass ☐ Window Mounted A/C
☐ Glass ☐ Rubberized Roofing
☒ Metal ☐ Wood Flooring
☐ Rubber ☐ Marble Flooring
☐ Rubberized Caulking Around Windows

Job Site: WATER TREATMENT PLANT
4300 GOLDEN GATE PKWY
NAPLES, FL

Turnaround
☐ Same Day
☐ 24 Hour
☐ 48 Hour
☒ 72 Hour

PLM Analysis: Asbestos Bulk Samples
☐ Positive stop
☐ Point count on friable materials that report less than 1%

ARS Environmental, Inc.
151 North Nob Hill Road, #462
Plantation, FL 33324
Phone 954-227-2402

Areas Surveyed
☒ Interior
☒ Exterior
☒ Roof

YES NO
☐ ☒ AC duct fiberglass insulation observed
☐ ☒ Insulation observed behind walls

Sample No	Layer	Material Class (Miscellaneous - M, Surfacing Material - S, Thermal System Insulation - T)	Sample Description	Bldg/Floor/Unit	Location	Approx Size	Cond (Good-G, Fair-F, Poor-P)	Phys Dmg (Yes-Y, None-N)	Water Dmg (Yes-Y, None-N)	Material Contact (None-N, Low-L, Med-M, High-H)	Friable or Nonfriable (F or NF)
1		M	CONCRETE STRUCTURE		FLOOR SLAB UNDER PUMP STATION TANKS, BASINS AND BLDG WALLS	I 16,840'	G	N	N	H	NF
2		M	〃 〃		〃 〃	IA					
3		M	〃 〃		〃 〃	IA					
4		M	〃 〃		〃 〃	IA					
5		M	〃 〃		〃 〃	IA					
6		M	〃 〃		〃 〃	IA					
7		M	〃 〃		〃 〃	IA					
8		M	〃 〃		〃 〃	IA					
9		M	〃 〃		〃 〃	IA					
10		M	〃 〃		〃 〃	IA					

Transferred By: Date: 1/17/23 Received By: Alex Front Date: 1/20/23

Prepared For:
Chris T. Reinbold, PE
Carollo
2056 Vista Parkway
Suite 400
West Palm Beach, Florida 33411

Job Site:
FGUA Golden Gate City
Water Treatment Plant
4300 Golden Gate Pkwy.
Naples, FL

Chain of Custody Forms

ASBESTOS WORKSHEET (CHAIN OF CUSTODY) Page 2 Of 3

Sampling Date: 1/17/23
Samples Taken By: Jeff Montalvan
Project Number: 2021-2115
Job Site: WATER TREATMENT PLANT 4300 GOLDEN GATE PKWY NAPLES FL

Non Suspect Materials Observed
☐ Carpet ☐ Terrazzo
☐ A/C Duct ☐ Wood
☐ Fiberglass ☐ Window Mounted A/C
☐ Glass ☐ Rubberized Roofing
☒ Metal ☐ Wood Flooring
☐ Rubber ☐ Marble Flooring
☐ Rubberized Caulking Around Windows

Turnaround: ☐ Same Day ☐ 24 Hour ☐ 48 Hour ☒ 72 Hour
PLM Analysis: Asbestos Bulk Samples ☐ Positive stop ☐ Point count on friable materials that report less than 1%
ARS Environmental, Inc. 151 North Nob Hill Road, #462 Plantation, FL 33324 Phone 954-227-2402
Areas Surveyed: ☒ Interior ☒ Exterior ☒ Roof
YES NO ☐ ☒ AC duct fiberglass insulation observed ☐ ☒ Insulation observed behind walls

Sample No.	Layer	Material Class (Miscellaneous - M, Surfacing Material - S, Thermal System Insulation - T)	Sample Description	Bldg/Floor/ Unit	Location	Approx Size	Cond (Good-G, Fair-F, Poor-P)	Phys Dmg (Yes-Y, None-N)	Water Dmg (Yes-Y, None-N)	Material Contact (None-N, Low-L, Med-M, High-H)	F or NF
11		M	CONCRETE STRUCTURE		FLOOR SLAB UNDER PUMP STATION TANKS, BASINS AND BLDG WALLS	10	G	N	N	H	NF
12		M	〃 〃		〃 〃	10	〃	〃	〃	〃	〃
13		M	〃 〃		〃 〃	10	〃	〃	〃	〃	〃
14		M	〃 〃		〃 〃	10	〃	〃	〃	〃	〃
15		M	〃 〃		〃 〃	10	〃	〃	〃	〃	〃
16		M	〃 〃		〃 〃	10	〃	〃	〃	〃	〃
17		M	〃 〃		〃 〃	10	〃	〃	〃	〃	〃
18		M	〃 〃		〃 〃	10	〃	〃	〃	〃	〃
19		M	〃 〃		〃 〃	10	〃	〃	〃	〃	〃
20		M	〃 〃		〃 〃	10	〃	〃	〃	〃	〃

Transferred By: Date: 1/17/23 Received By: Alex Front Date: 1/20/23

Prepared For:
Chris T. Reinbold, PE
Carollo
2056 Vista Parkway
Suite 400
West Palm Beach, Florida 33411

Job Site:
FGUA Golden Gate City
Water Treatment Plant
4300 Golden Gate Pkwy.
Naples, FL

Chain of Custody Forms

ASBESTOS WORKSHEET (CHAIN OF CUSTODY) Page 3 Of 3

Sampling Date: 1/17/23
Samples Taken By: Jeff Montalvan
Project Number: 2021-2115
Job Site: WATER TREATMENT PLANT 4300 GOLDEN GATE PKWY NAPLES, FL

Turnaround: ☐ Same Day ☐ 24 Hour ☐ 48 Hour ☒ 72 Hour

PLM Analysis: Asbestos Bulk Samples ☐ Positive stop ☐ Point count on friable materials that report less than 1%

ARS Environmental, Inc. 151 North Nob Hill Road, #462 Plantation, FL 33324 Phone 954-227-2402

Non Suspect Materials Observed: ☐ Carpet ☐ A/C Duct ☐ Fiberglass ☐ Glass ☒ Metal ☐ Rubber ☐ Rubberized Caulking Around Windows ☐ Terrazzo ☐ Wood ☐ Window Mounted A/C ☐ Rubberized Roofing ☐ Wood Flooring ☐ Marble Flooring

Areas Surveyed: ☐ Interior ☐ Exterior ☐ Roof

YES NO
☐ ☒ AC duct fiberglass insulation observed
☐ ☒ Insulation observed behind walls

Sample No	Layer	Material Class (Miscellaneous - M, Surfacing Material - S, Thermal System Insulation - T)	Sample Description	Bldg/Floor/Unit	Location	Approx Size	Cond (Good-G Fair-F Poor-P)	Phys Dmg (Yes-Y None-N)	Water Dmg (Yes-Y None-N)	Material Contact (None-N Low-L Med-M High-H)	Friable or Non-friable (F or NF)
21		M	CONCRETE STRUCTURE		FLOOR SLAB UNDER PUMP STATION TANKS, BASINS AND BLDG WALLS.	DA	G	N	N	H	NF
22		M	〃		〃	DA					
23		M	〃		〃	DA					
24		M	〃		〃	DA					
25		M	〃		〃	IA					
26		M	ROOF MEMBRANE		OVER TITE CHLORINE BLDG	I 529				L	
27		M	〃		〃	DA					
28		M	〃		〃	DA					

Transferred By: Date: 1/17/23 Received By: Alex Front Date: 1/20/23

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West Palm Beach, Florida 33411

Job Site:
FGUA Golden Gate City
Water Treatment Plant
4300 Golden Gate Pkwy.
Naples, FL

TERMS AND CONDITIONS

Scope of Work
ARS Environmental, Inc. inspections are limited and non-destructive in nature. Any conditions or materials which were not able to be visually observed on the surface, or in easily accessible areas, were not inspected and may differ from those observed. It was not within the scope of this investigation to remove surface materials to investigate portions of the structure or materials which lay beneath the surface. Our selection of sample locations and frequency is based upon our observations and the assumption that like materials in the same area are homogeneous. This inspection report is the result of a diligent search of the facility for Asbestos Containing Building Materials (ACBM). The purpose of this inspection was to identify those materials which may pose a health hazard to occupants of a building and impart future liability to the owners and insurers of the property. However, we do not claim to have identified all of the asbestos containing building materials present in the facility. Materials such as underground pipes, any material inside walls, ceilings, floors, or other enclosed and inaccessible areas were not sampled and are not covered in this report. This report is designed to aid the building owner, architect, construction manager, general contractor, and potential asbestos abatement contractor in locating asbestos containing building materials. Under no circumstances is this report to be utilized as a proposal or a project specification document. This report is based upon conditions and practices observed at the property and information made available to the surveyor. This report does not intend to identify all hazards or unsafe practices, nor to indicate that other hazards or unsafe practices do not exist at the premises. In the event that demolition or renovation is deemed necessary, parties shall comply with all applicable laws, ordinances, rules, and regulations of federal, state, and local governmental agencies, including any National Emissions Standard Hazardous Air Pollutants (NESHAP) notification requirements.

Right of Entry
The client will provide for right of entry to ARS Environmental, Inc. personnel in order to complete the above referenced work.

Invoices
ARS Environmental, Inc. will submit invoices to client upon completion of services.

Ownership of Documents
All reports, field data, field notes, laboratory tests data, calculations, estimates, and any other

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documents prepared by ARS Environmental, Inc. as instruments of service shall remain the property of ARS Environmental, Inc..

Assumptions and Limitations
The results, findings, conclusions, and recommendations expressed in this report are based only on conditions which were observed during inspections by this report. ARS Environmental, Inc. makes no representation or assumptions as to past conditions or future occurrences.

Assigns
Neither the client nor ARS Environmental, Inc. may delegate, assign, sublet or transfer his duties or interest in this agreement without the written consent of the other party.

Roof Cuts
To obtain accurate information in a roof investigation, roof cuts approximately four inch (4'') squares, may be deemed necessary. It is the responsibility of our client to make appropriate repairs to these roof cuts, using materials consistent with the roofing system and in accordance with any existing material manufacturer's warranties. A roofing contractor or maintenance personnel selected by our client should be on the roof to make any necessary repairs at the time the samples are being obtained. Although, every attempt will be made to make these repaired areas water tight, ARS Environmental, Inc.l will in no way be responsible for any water damage to the roofing system, building, or it's contents resulting from ARS Environmental, Inc. temporary repairs.

Disclaimer
If in the course of a renovation or demolition activity, suspect materials become exposed, All further activity should immediately cease and the status of the material should be determined before proceeding.