CORRESPONDENCE COVER SHEET
WASTE PERMITS DIVISION
TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Date: 16 May 2024
Facility Name: Calaveras Plant Site
Permit or Registration No.: CCR102

Nature of Correspondence:
☐ Initial/New
☒ Response/Revision*

*If Response/Revision, please provide previous TCEQ Tracking No.: 27214483
(Previous TCEQ Tracking No. can be found in the Subject line of the TCEQ's response letter to your original submittal.)

This cover sheet should accompany all correspondences submitted to the Waste Permits Division and should be affixed to the front of your submittal as a cover page. Please check the appropriate box for the type of correspondence being submitted. For questions regarding this form, please contact the Waste Permits Division at (512) 239-2335.

Table 1 - Municipal Solid Waste

APPLICATIONS	REPORTS and RESPONSES
☐ New Notification	☐ Closure Report
☐ New Permit (including Subchapter T)	☐ Groundwater Alternate SRC Demonstration
☐ New Registration (including Subchapter T)	☐ Groundwater Corrective Action
☐ Major Amendment	☐ Groundwater Monitoring Report
☐ Minor Amendment	☐ Groundwater Statistical Evaluation
☐ Limited Scope Major Amendment	☐ Landfill Gas Corrective Action
☐ Notice Modification	☐ Landfill Gas Monitoring
☐ Non-Notice Modification	☐ Liner Evaluation Report
☐ Transfer/Name Change Modification	☐ Soil Boring Plan
☐ Temporary Authorization	☐ Special Waste Request
☐ Voluntary Revocation	☐ Other:
☐ Subchapter T Workplan	
☐ Other:	

Table 2 - Industrial & Hazardous Waste

APPLICATIONS	REPORTS and RESPONSES
☐ New	☐ Annual/Biennial Site Activity Report
☐ Renewal	☐ CfPT Plan/Result
☐ Post-Closure Order	☐ Closure Certification/Report
☐ Major Amendment	☐ Construction Certification/Report
☐ Minor Amendment	☐ CPT Plan/Result
☐ Class 3 Modification	☐ Extension Request
☐ Class 2 Modification	☐ Groundwater Monitoring Report
☐ Class 1 ED Modification	☐ Interim Status Change
☐ Class 1 Modification	☐ Interim Status Closure Plan
☐ Endorsement	☐ Soil Core Monitoring Report
☐ Temporary Authorization	☐ Treatability Study
☐ Voluntary Revocation	☐ Trial Burn Plan/Result
☐ 335.6 Notification	☐ Unsaturated Zone Monitoring Report
☒ Other: **Updated Specifications and Drawings for Closure of North and South Bottom Ash Ponds**	☐ Waste Minimization Report
	☐ Other:

Specifications For North and South Bottom Ash Pond Closure Project

J.T. Deely Power Plant
Bexar County, Texas

Rev 0

Project No. 116817

April 19, 2024

BURNS McDONNELL

CPS Energy
J.T. Deely Power Plant
Project 116817
North and South Bottom Ash Pond Closure Project

INDEX AND CERTIFICATION PAGE

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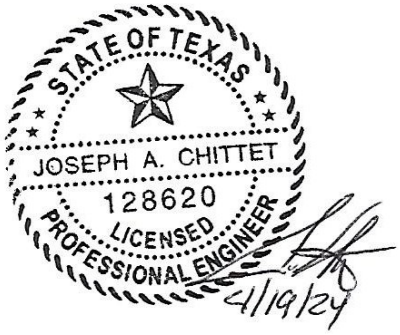
CERTIFICATION

THIS DOCUMENT IS RELEASED FOR BID, UNDER THE AUTHORITY OF RANDELL LEE SEDLACEK, P.E. 99056 ON 04/19/2024 . IT IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.



CPS Energy
J.T. Deely Power Plant
Project 116817
Bottom Ash Pond Closure

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DIVISION 1 - GENERAL REQUIREMENTS

SECTION 011100 - SUMMARY OF WORK

PART 1 - GENERAL

1.01 SUMMARY:

A. This Section summarizes the Work covered in detail in the complete Contract Documents.

B. Owner: CPS Energy. J.T. Deely Power Plant.

1. Project Identification: Project 116817 – North and South Bottom Ash Pond Closure Project.
2. Work Site Location: J.T. Deely Power Plant, 12940 US-18, San Antonio TX 78223.

C. Engineer: The Contract Documents were prepared by Burns & McDonnell Engineering Company, Inc., 9400 Ward Parkway, Kansas City, Missouri 64114.

1.02 PROJECT DESCRIPTION:

The Company's Scope of Work (SOW) is to provide all specified labor, equipment, and materials in order to perform the following activities: demolition of piping, pipe supports and foundations associated with the North and South Bottom Ash Ponds (BAPs), removal all Coal Combustion Residual (CCR) and CCR-impacted soil using conventional excavation methods; and restoration of site to specified conditions. The site work is anticipated to be conducted in Level D PPE, which includes: appropriate work clothes, steel toed boots, safety glasses, hard hat, reflective vests, and hearing protection per CPS Energy requirements. The major tasks anticipated at the site under the Company's responsibility include:

- Maintain operational condition of the Work Site;
- Locate and protect utilities;
- Remove piping, pipe supports and foundation supports associated with the BAPs;
  - Remove all piping associated with the BAPs as indicated. Any piping that is located below ground and cannot be removed shall be abandoned in place with ends grouted as indicated.
- Decommission Bag House Unit sump pump and associated piping;
  - Includes demolition of valves, fittings, pumps, motors, level sensors, cable, conduit, and local control panels.
- Fill concrete sump pit of Bag House Unit and removal of a portion of the existing curbing to allow precipitation to drain into existing stormwater inlets to the east;
- Installation and maintenance of silt fence around excavation areas for erosion control purposes;
- Installation and maintenance of silt traps on storm water inlets according to the Storm Water Pollution Prevention Plan (SWPPP);
- Excavate approximately 65,100 cubic yards of CCR and CCR-impacted material and dispose in the onsite landfill;
- Load excavated materials into trucks or from temporary stockpiles;
- Clean trucks, equipment, plant roadways as necessary;
- Haul 53,100 cubic yards of borrow material onsite;
- Backfill excavated areas and return to grade, as specified;

Prior to intrusive activities, Company shall perform preliminary duties including location and protection of utilities, installing silt fence and silt traps.

Company shall remove all CCR and CCR-impacted soil from the North and South Bottom Ash Ponds. The proposed excavation plan is also provided in North and South Pond drawing set. The material removed from the bottom ash ponds will be hauled to the onsite landfill.

After the CCR and CCR-impacted subgrade material is removed, the excavated surface will be graded to prevent ponding. The proposed grading plan is also provided in North and South Pond drawing set. The grading plan was designed with a 1.0% slope across the pond bottom and will drain to the northeast corner of the North BAP and southeast corner of the South BAP. Soil from the existing interior berm can be re-used as fill material, an additional 53,100 cubic yards of borrow material will be needed to meet the design grades. After grading is complete, the area will be topsoiled and vegetated to minimize erosion.

1.03 WORK BY OTHERS:

A. Overall Project planning includes several primary work areas that are outside the scope of this Contract but that require coordination between the Company and others.
B. Work Under Other Contracts: None
C. Work by CPS Energy:
   1. CPS Energy will provide Facility operations and maintenance personnel to operate the Facility.
   2. CPS Energy will provide utilities as specified in SECTION 015100 – Temporary Utilities and Facilities.

1.04 COMPANY'S USE OF PREMISES:

A. Limited Use:
   1. Before conducting any field work, Company must obtain CPS Energy approval to start construction.
   2. Coordinate with CPS Energy to avoid interference with existing plant, switchyard, landfill operations or facility operations.
   3. Conduct operations so as to ensure the least inconvenience to CPS Energy and the general public.
   4. Comply with security requirements and policies of plant.
   5. Vehicle access to the Site is through main entrance. This entrance will be shared with the CPS Energy and other site contractors, and it will be controlled by the CPS Energy's Site security force.
B. Temporary Erosion and Settlement Controls: Furnish, install, construct, and maintain temporary measures to control erosion and minimize the siltation of intermittent streams and the pollution of private properties. Temporary erosion and sediment control measures shall be constructed in substantial compliance with local, state, federal, and jurisdictional agency's regulations and the Project Storm Water Pollution Prevention Plan (SWPPP). CPS Energy shall inspect controls as required by the SWPPP. Temporary erosion and sediment control measures shall be maintained until completion of the Work. Temporary measures shall be removed at the end of construction as indicated in SECTION 312000.

1.05 CPS ENERGY'S USE OF PREMISES:

A. Partial Occupancy: The CPS Energy reserves the right to occupy and to place and install equipment in completed areas of the Plant and Facilities, prior to Substantial Completion

provided that such occupancy does not interfere with completion of the Work. Such placing of equipment and partial occupancy shall not constitute acceptance of the total Work.

1.06 WORK SEQUENCE:

A. General: Construction sequence shall be determined by Company subject to CPS Energy's need for continuous operation of existing facilities.

B. Continuous Service of Existing Facilities: Exercise caution and schedule operations to ensure that functioning of present facilities will not be disrupted. Shutdown of CPS Energy's operating facilities to perform the Work shall be held to a minimum length of time and shall be coordinated with CPS Energy who shall have control over the timing and schedules of such shutdowns.

C. Project Milestone Schedule dates are as follows:

1. Company to provide milestone schedule that meets the end date identified in the RFP Documents.

1.07 MEASUREMENT AND PAYMENT:

A. See RFP Documents.

1.08 COPIES OF DOCUMENTS:

A. Furnished Copies: After execution of Agreement, Company will be furnished at no cost, one bound executed paper copy and one electronic *.pdf file of the Contract Documents.

1.09 LIST OF DRAWINGS:

A. Contract Drawings:

1. Individual sheet numbers and titles are as stated on Index Sheet under "Contract Drawings".

B. Reference Drawings:

1. Individual sheet numbers and titles are as stated on Index Sheet under "Reference Drawings".

PART 2 - PRODUCTS - Not Applicable.

PART 3 - EXECUTION – Not Applicable.

END OF SECTION 011100

SECTION 013100 - PROJECT COORDINATION AND MEETINGS

PART 1 - GENERAL

1.01 SUMMARY:

A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
   1. Preconstruction Conference.
   2. Coordination drawings.
   3. Project meetings.
   4. Requests for information (RFIs).
B. Each Company shall participate in coordination requirements. Certain areas of responsibility will be assigned to a specific Company.
C. Related Work Specified Elsewhere:
   1. SECTION 013200 – Construction Project Schedules and Reports.
   2. SECTION 013300 – Submittals.
   3. SECTION 017800 – Contract Closeout.

1.02 DEFINITIONS:

A. RFI: Request for information prepared by Company and submitted to Engineer seeking interpretation or clarification of the Contract Documents.

1.03 COORDINATION:

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, which depend on each other for proper installation, connection, and operation.
B. Coordination: Each Company shall coordinate its construction operations with those of other Companies, CPS Energy, and other entities to ensure efficient and orderly installation of each part of the Work. Each Company shall coordinate its operations with operations, included in different Sections, which depend on each other for proper installation, connection, and operation.
   1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
   2. Coordinate installation of different components with other Companies to allow optimum accessibility for required maintenance, service, and repair.
   3. Make adequate provisions to accommodate items scheduled for later installation.
   4. Where availability of space is limited, coordinate installation of different components to allow optimum performance and accessibility for required maintenance, service, and repair of all components, including mechanical and electrical.
C. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
   1. Prepare similar memoranda for CPS Energy and separate Companies if coordination of their Work is required.
D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of others to avoid conflicts and to

ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of construction progress schedule.
2. Preparation of the schedule of values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of Submittals.
5. Progress meetings.
6. Preinstallation conferences.
7. Startup and adjustment of systems.
8. Project closeout activities.

1.04 SUBMITTALS:

A. Coordination Drawings: Prepare Coordination Drawings if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.

1. Content: Project-specific information, drawn accurately to scale. Do not base Coordination Drawings on reproductions of the Contract Documents or standard printed data. Include the following information, as applicable:
   a. Indicate functional and spatial relationships of components of structural, civil, mechanical, and electrical systems.
   b. Indicate required installation sequences.
   c. Indicate dimensions shown on the Contract Drawings and make specific note of dimensions that appear to be in conflict with submitted Equipment and minimum clearance requirements. Provide alternate sketches to Engineer for resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.
   d. Crane or other construction equipment placement and motion space required.
2. Sheet Size: At least 8-1/2 by 11 inches but no larger than 30 by 42 inches.
3. Number of Copies: Submit one electronic copy of each Submittal to Engineer. Engineer will return comments electronically
4. Refer to individual Sections for coordination drawing requirements for Work in those Sections.

1.05 PROJECT MEETINGS:

A. Preconstruction Conference:

1. CPS Energy-will conduct a meeting within 10 days prior to Company starting work at the Site to review items stated in the following agenda and to establish a working understanding between the parties as to their relationships during performance of the Work.
2. Preconstruction conference shall be attended by:
   a. Representative(s) of Company including Company’s superintendent.
   b. Engineer.
   c. Representative(s) of CPS Energy.
   d. At CPS Energy's option, representatives of principal Subcontractors and Suppliers.
   e. CPS Energy’s third-party CQA personnel.
3. Meeting Agenda:
   a. Construction schedules.
   b. Phasing.

c. Critical Work sequencing and long-lead items.
d. Designation of key personnel and their duties; lines of communication.
e. Project coordination.
f. Procedures and Processing of:
(1) RFIs.
(2) Field decisions.
(3) Substitutions.
(4) Submittals.
(5) Change Orders.
(6) Applications for Payment.
g. Procedures for testing.
h. Procedures for preparing and maintaining record documents.
i. Use of Premises:
(1) Office, work, storage, laydown, and parking areas.
(2) CPS Energy's requirements.
(3) Work restrictions and hours.
j. Construction facilities, controls, and construction aids.
k. Temporary utilities.
l. Safety and first-aid.
m. Security.
n. Deliveries of Equipment and Materials.

4. Location of Meeting: J.T. Deely Power Plant.
5. Reporting:
a. Within 10 working days after the meeting, Company will prepare and distribute minutes of the meeting to all parties.
b. Company shall provide copies to Subcontractors and major Suppliers.

B. Coordination Schedules:
1. Company will conduct a meeting at least ten days before submission of the first Application for Payment to finalize the initial coordination schedules requested under SECTION 013200 - CONSTRUCTION PROGRESS SCHEDULES AND REPORTS.
2. The meeting shall be attended by:
a. Representative(s) of Company including Company’s superintendent (and scheduler).
b. At CPS Energy's option, representatives of principal Subcontractors and Suppliers.
c. Engineer.
d. Representative(s) of CPS Energy.

C. Construction Progress Meetings:
1. CPS Energy will schedule and conduct a meeting at least monthly and at other times as necessary. Representatives of the CPS Energy, CPS Energy’s third-party CQA personnel, and Company shall be present at each meeting. With CPS Energy's concurrence, Company may request attendance by representatives of Subcontractors, Suppliers, or other entities concerned with current program or involved with planning, coordination, or performance of future activities. All participants in the meeting shall be familiar with the Project and authorized to conclude matters relating to the Work.
2. Company and each Subcontractor represented shall be prepared to discuss the current construction progress report and any anticipated future changes to the schedule. Each Subcontractor shall comment on the schedules of Company and other Subcontractors and advise if their current progress or anticipated activities are compatible with that Subcontractor's Work.

3. If one Subcontractor is delaying another, Company shall issue such directions as are necessary to resolve the situation and promote construction progress.
4. Meeting Agenda:
    a. Safety Issues and Topics
    b. Review of construction progress since previous meeting.
    c. Review of Planned, Earned, and Spent Earned Value Analysis.
    d. Review of construction progress since previous meeting.
    e. Field observations, interface requirements, conflicts.
    f. Issues which may impede construction schedule.
    g. Off-Site fabrication.
    h. Delivery schedules.
    i. Submittal schedules and status.
    j. Site use; coordination with other contractors.
    k. Temporary facilities, controls, and services.
    l. Hours of Work.
    m. Hazards and risks.
    n. Housekeeping.
    o. Quality and Work standards.
    p. RFIs.
    q. Status of Change Orders.
    r. Documentation of information for payment requests.
    s. Corrective measures and procedures to regain construction schedule if necessary.
    t. Revisions to construction schedule.
    u. Review of proposed activities for succeeding Work period.
    v. Review proposed Contract modifications for:
        (1) Effect on construction schedule and on completion date.
        (2) Effect on other contracts of the Project.
    w. Other business.
5. Location of Meetings: J.T. Deely Power Plant.
6. Reporting:
    a. Within 5 (five) working days after each meeting, Company will prepare and distribute minutes of the meeting to CPS Energy with action items listed for each party.
    b. Company shall distribute copies to principal Subcontractors and Suppliers.

D. Weekly Construction Progress Meetings:
1. Company will schedule and conduct a meeting at least once each week after mobilization by Company to the site. CPS Energy, CPS Energy's third-party CQA personnel, and Company shall be present at each meeting. All participants in the meeting shall be familiar with the Project and authorized to conclude matters relating to the Work.
2. Company and each Subcontractor represented shall be prepared to discuss the current construction progress in detail and the earned value analysis for the previous week.
3. Meeting Agenda:
    a. Safety Issues and Topics.
    b. Review of Planned, Earned, and Spent Earned Value Analysis.
    c. Field observations, interface requirements, conflicts.
    d. Problems impeding construction schedule (if any).
    e. Off-site fabrication.
    f. Delivery schedules.
    g. Submittal schedules and status.
    h. Site utilization.

i. Temporary facilities and services.
j. Hours of Work.
k. Hazards and risks.
l. Housekeeping.
m. Quality and Work standards.
n. Corrective measures and procedures to regain construction schedule if necessary.
o. Review of proposed activities for succeeding Work period.
p. Other business.

4. Location of Meetings: J.T. Deely Power Plant.

E. Pre-installation Conferences:

1. Company shall conduct a preinstallation conference at the Project Site before each construction activity that requires coordination with other construction and where required in DIVISIONS 2 through 48.
2. Installer and representatives of manufacturers and fabricators, of products furnished by this Contract or by others, involved in or affected by the installation Work and its coordination or integration with other materials and installations, shall attend the meeting. Advise CPS Energy of scheduled meeting dates.
3. Review the progress of other construction activities and preparations for the particular activity under consideration at each pre-installation conference, including installation procedures and requirements for the following:
   a. Contract Documents.
   b. Options.
   c. Related Change Orders.
   d. Purchases.
   e. Deliveries.
   f. Shop Drawings, product data, and quality control Samples.
   g. Review of mockups.
   h. Possible conflicts.
   i. Compatibility problems.
   j. Time schedules.
   k. Weather limitations.
   l. Manufacturer's recommendations.
   m. Warranty requirements.
   n. Acceptability of substrates.
   o. Temporary facilities and controls.
   p. Space and access limitations.
   q. Governing regulations.
   r. Safety.
   s. Inspecting and testing requirements.
   t. Required performance results.
   u. Recording requirements.
   v. Protection of construction, personnel, and adjacent work.
4. Record significant discussions and agreements and disagreements of each conference. Distribute the minutes of the meeting within 3 working days after the meeting to everyone concerned, including CPS Energy and CPS Energy’s third-party CQA personnel.
5. Do not proceed with the installation if disagreements arise during the conference which cannot be successfully resolved at the time. Company shall take actions necessary to resolve impediments to performance of Work and reconvene the conference at the earliest feasible date.

1.06 REQUESTS FOR INFORMATION (RFIs):

A. Procedure: Promptly on discovery of the need for interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, prepare and submit an RFI with the content specified.
   1. RFIs shall originate with Company. RFIs submitted by entities other than Company will be returned with no response.
   2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Company's Work or work of Subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing interpretation and the following:
   1. Project name.
   2. Date.
   3. Name of Company.
   4. Contract number and title.
   5. Name of Engineer.
   6. RFI number, numbered sequentially.
   7. Specification Section number and title and related paragraphs, as appropriate.
   8. Drawing number and detail references, as appropriate.
   9. Field dimensions and conditions, as appropriate.
   10. Company's suggested solution(s). If Company's solution(s) impact the Contract Times or the Contract Price, Company shall state impact in the RFI.
   11. Company's signature.
   12. Attachments: Include drawings, descriptions, measurements, photos, product data, Shop Drawings, and other information necessary to fully describe items needing interpretation.

C. Hard-Copy RFIs:
   1. Identify each page of attachments with the RFI number and sequential page number.

D. Software-Generated RFIs: Software-generated form with substantially the same content as indicated above.
   1. Attachments shall be electronic files in Adobe Acrobat PDF format.

E. Engineer's Action: Engineer will review each RFI, determine action required, and return it. Allow three working days for Engineer's response for each RFI. RFIs received after 1:00 p.m. local time will be considered as received the following working day.
   1. The following RFIs will be returned without action:
      a. Requests for approval of Submittals.
      b. Requests for approval of substitutions.
      c. Requests for coordination information already indicated in the Contract Documents.
      d. Requests for adjustments in the Contract Times or the Contract Price.
      e. Requests for interpretation of Engineer's actions on Submittals.
      f. Incomplete RFIs or RFIs with numerous errors.
   2. Multiple RFIs addressing similar or identical issues may be addressed by Engineer with a single broad response.
   3. Engineer's action may include a request for additional information, in which case Engineer's time for response will start again upon Company's response and resubmittal.
   4. If Company believes the RFI response warrants change in the Contract Times or the Contract Price, notify Engineer in writing within five days of receipt of the RFI response.

F. On receipt of Engineer's action, update the RFI log and promptly distribute the RFI response to affected parties. Review response and notify Engineer within three days if Company disagrees with response.

G. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Electronic log with not less than the following:
   1. Project name.
   2. Name and address of Company.
   3. Company representative name and telephone number.
   4. Name and address of Engineer.
   5. RFI number including RFIs that were dropped and not submitted.
   6. RFI description.
   7. Date the RFI was submitted.
   8. Date Engineer's response was received.
   9. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

PART 2 - PRODUCTS - Not Applicable.

PART 3 - EXECUTION - Not Applicable.

END OF SECTION 013100

SECTION 013200 - CONSTRUCTION PROGRESS SCHEDULES AND REPORTS

PART 1 - GENERAL

1.01 SUMMARY:

A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
   1. Preliminary construction progress schedule.
   2. Construction progress schedule.
   3. Schedule of Submittals.
   4. Schedule of values.
   5. Construction progress reports.
   6. Daily construction reports.
   7. Equipment and Material location reports.
   8. Field condition reports.
   9. Special reports.

B. Related Work Specified Elsewhere:
   1. SECTION 013100 - Project Coordination and Meetings.
   2. SECTION 013300 - Submittals.

1.02 REFERENCES:

A. Associated General Contractors of America (AGC):
   1. Construction Planning and Scheduling.

1.03 DEFINITIONS:

A. Activity: A discrete part of a contract that can be identified for planning, scheduling, monitoring, and controlling the construction Work. Activities included in a construction schedule consume time and resources, but shall not include planned work stoppages. Activities shall not normally reflect the Work of more than one trade.
   1. Critical activities are activities on the critical path and have zero or negative float. Critical activities must start and finish on the planned early start and finish times.
   2. Predecessor Activity: An activity that precedes another activity in the network.
   3. Successor Activity: An activity that follows another activity in the network.

B. "Baseline" Schedule: The schedule submitted and accepted by the CPS Energy for the Work.

C. Cost Loading: The allocation of the schedule of values for the completion of an activity as scheduled. The sum of costs for all activities must equal the total Contract Price, unless otherwise approved by the CPS Energy.

D. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Contract duration and contains no float.

E. Event: The starting or ending point of an activity. An event has no duration.

F. Float: The measure of leeway in starting and completing an activity.
   1. Float time is not for the exclusive use or benefit of either CPS Energy or Company, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
   2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
   3. Total float is the measure of leeway in starting or completing an activity without adversely affecting an intermediate deadline or the planned Contract completion date.

G. Fragnet: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.

H. Milestone: A key or critical point in time for reference or measurement. A milestone has no duration.
I. Network Diagram: A graphic diagram of a network schedule, showing activities and activity relationships.
J. Resource Loading: The allocation of manpower and equipment necessary for the completion of an activity as scheduled.

1.04 SUBMITTALS:

A. Qualification Data: For scheduling consultant.
B. Schedule of Submittals: Submit in specified electronic format. Arrange the following information in a tabular format:
   1. Scheduled date for first submittal.
   2. Specification Section number and title.
   3. Submittal category (technical or informational).
   4. Name of Subcontractor or Supplier.
   5. Description of the Work covered.
   6. Scheduled date for CPS Energy's final release or approval.
C. Preliminary Construction Progress Schedule: Submit in specified electronic format.
   1. Acceptance of cost-loaded preliminary construction schedule will not constitute acceptance of schedule of values for cost-loaded activities.
D. Construction Progress Schedule: Submit initial schedule, large enough to show entire schedule for entire construction period to CPS Energy for review and acceptance.
   1. Submit electronically, using software indicated, labeled to comply with requirements for Submittals. Include type of schedule (Initial or Updated) and date.
E. Schedule of Values: Submit with initial construction progress schedule to CPS Energy for review and approval in specified electronic format.
F. Construction Progress Reports: Submit in specified electronic format at monthly intervals.
G. Daily Construction Reports: Submit electronic copies at weekly intervals.
H. Special Reports: Submit electronically at time of unusual event.

1.05 QUALITY ASSURANCE:

A. Prescheduling Conference: Conduct conference at Project Site to comply with requirements in SECTION 013100 - PROJECT COORDINATION AND MEETINGS. Review methods and procedures related to the preliminary construction schedule and "baseline" construction progress schedule, including, but not limited to, the following:
   1. Review software limitations and content and format for reports.
   2. Verify availability of qualified personnel needed to develop and update schedule.
   3. Discuss constraints, including phasing, work stages, and milestones.
   4. Review delivery dates for CPS Energy-furnished products.
   5. Review schedule for work of CPS Energy's separate contracts.
   6. Review time required for review of Submittals and resubmittals.
   7. Review requirements for tests and inspections by independent testing and inspecting agencies.
   8. Review time required for completion and startup procedures.
   9. Review and finalize list of construction activities to be included in schedule.
   10. Review Submittal requirements and procedures.
   11. Review procedures for updating schedule.

1.06 COORDINATION:

A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.

B. Coordinate construction progress schedule with the schedule of values, list of subcontracts, schedule of Submittals, Material and Equipment procurement, progress reports, payment requests, and other required schedules and reports.
   1. Secure time commitments for performing critical elements of the Work from parties involved.
   2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.01 SCHEDULE OF SUBMITTALS:

A. Preparation: Submit a schedule of Submittals, arranged in chronological order by dates required by construction progress schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates as required in SECTION 013300 - SUBMITTALS.
   1. Coordinate Submittals schedule with list of subcontracts, the schedule of values, and "Baseline" construction progress schedule.
   2. Initial Submittal: Submit concurrently with preliminary schedule. Include Submittals required during the first (60) sixty days of construction. List those required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
   3. Final Submittal: Submit concurrently with the first complete submittal of construction progress schedule.

2.02 COMPANY'S CONSTRUCTION PROGRESS SCHEDULE, GENERAL:

A. Procedures: Comply with procedures contained in AGC's "Construction Planning & Scheduling."

B. Time Frame: Extend schedule from date established in the Notice of Award-to date of Final Completion.
   1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

C. Activities: Treat each building floor or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:
   1. Activity Duration: Define activities so no activity is longer than (30) thirty calendar days, unless specifically allowed by CPS Energy.
   2. Procurement Activities: Include procurement process activities for long lead items and major items, as separate activities in schedule. Procurement cycle activities include, but are not limited to, Submittals, approvals, purchasing, fabrication, and delivery.
   3. Submittal Review Time: Include review and resubmittal times indicated in SECTION 013300 - SUBMITTALS in schedule. Coordinate Submittal review times in Company's construction progress schedule with schedule of Submittals.
   4. Substantial Completion: Indicate completion in advance of date established for Substantial Completion and allow time for CPS Energy's administrative procedures necessary for certification of Substantial Completion.

D. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
   1. Phasing: Arrange list of activities on schedule by phase.
   2. Work under More Than One Contract: Include a separate activity for each contract.
   3. Work by CPS Energy: Include a separate activity for each portion of the Work performed by CPS Energy.

4. Products Ordered in Advance: Include a separate activity for each product. Delivery dates indicated stipulate the earliest possible delivery date.
5. Work Restrictions: Show the effect of the following items on the schedule:
   a. Coordination with existing construction.
   b. Limitations of continued occupancies.
   c. Uninterruptible services.
   d. Partial occupancy before Substantial Completion.
   e. Use of premises restrictions.
   f. Provisions for future construction.
   g. Seasonal variations.
   h. Environmental control.
6. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
   a. Subcontract awards.
   b. Submittals.
   c. Purchases.
   d. Mockups.
   e. Fabrication.
   f. Sample testing.
   g. Deliveries.
   h. Installation, tests, and inspections.
   i. Curing.
   j. Startup and initial operation.
   k. Performance, guarantee, and acceptance testing.
   l. Placement into final use and operation.

E. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion of Fly Ash Landfill Area 2, Phase 1.

F. Contract Modifications: For each proposed Contract modification and concurrent with its submission, prepare a time-impact analysis using fragnets to demonstrate the effect of the proposed change on the overall schedule.

G. Computer Software: Prepare schedules using a program that has been developed specifically to manage construction schedules and is acceptable to CPS Energy:
   1. Primavera Project Planner (P3).
   2. Primavera 3e.
   3. Primavera 5.0.
   4. SureTrak.
   5. CPS Energy-approved equal.

2.03 PRELIMINARY CONSTRUCTION PROGRESS SCHEDULE:

A. Bar-Chart Schedule: Submit preliminary horizontal bar-chart-type construction schedule with Bid and again within seven (7) calendar days of date in the Notice to Proceed.
   1. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities throughout construction.

B. Preliminary Schedule of Values:
   1. Initiate a preliminary value assigned to each significant construction activity.
   2. Values shall give an indication of cash requirement prediction, with total equal to Contract Price.
   3. Submit within ten days of Effective Date of Contract to CPS Energy for review.

2.04 CONSTRUCTION PROGRESS SCHEDULE (GANTT CHART):

A. Gantt-Chart Schedule: After submittal of preliminary construction progress schedule as stated above, submit a detailed construction progress schedule within (20) twenty days after the Notice of Award. Base the schedule on the preliminary construction progress schedule and incorporate review comments and other feedback.

B. The schedule shall show the Work in a horizontal bar chart or other graphic format suitable for displaying scheduled and actual progress.
   1. The schedule shall indicate phases of the Work, starting date, interim milestones, and dates of Substantial Completion and Final Completion.
   2. Breakdown Work phases into separate time bar for each significant construction activity entry, with dates Work is expected to begin and be completed. Within each time bar, indicate estimated completion percentage in 5% increments.
   3. Scale and spacing shall allow room for notation and revisions.
   4. Sheet Size: Minimum 11 x 17 inches.

C. Provide sub-schedules to define in more detail critical portions of schedules, including inspections and tests.

D. Coordinate construction progress schedule with schedule of values, schedule of Submittals schedule, procurement schedule, progress reports, and payment requests.

E. CPS Energy will review and comment on construction progress schedule and, upon agreement between CPS Energy and Company on necessary changes:
   1. Company shall distribute copies as specified of the accepted "baseline" schedule to CPS Energy. Company shall provide additional copies to Subcontractors and other parties required to comply with scheduled dates, one copy to each party.

F. Revise the construction progress schedule after each meeting, event, or activity where revisions have been recognized and accepted to reflect impacts of new developments on the schedule.

G. Update and submit electronically to CPS Energy the revised schedule at least once each month to show actual progress compared to the originally accepted "baseline" schedule and any proposed changes in the schedule of remaining Work. Include with construction progress report.

2.05 SCHEDULE OF VALUES:

A. Based on the preliminary draft schedule of values, reviewed by CPS Energy, submit finalized schedule of values acceptable to CPS Energy as to form and basic details. Submit final within (30) thirty days after Notice to Proceed.

B. Coordinate preparation of schedule of values with preparation and content of construction progress schedule.

C. Content:
   1. Schedule shall list the installed value of the component parts of the Work in sufficient detail to serve as a basis for computing values for progress payments during construction.
   2. Follow the construction progress schedule breakdown of Work activities as format for listing component items and assigning values.
   3. Follow the table of contents of this Project Manual as the format for listing component items.
      a. Identify each line item, with the number and title of the respective major Division or Section of the Specifications.
   4. For each major line item, list subvalues of major products or operations under the item.
      a. Each item shall include a directly proportional amount of the Company's overhead and profit.
      b. For items on which progress payments will be requested for stored materials received, but not installed, break down the value into:

(1) The cost of the materials, delivered and unloaded, including taxes paid unless taxes are exempted.
(2) The total installed value.

c. The sum of all values listed in the schedule shall equal the total Contract Price.

2.06 REPORTS:

A. Construction Progress Reports:

1. Submit a report on actual construction progress on a monthly basis. More frequent reports may be required should the Work fall behind the accepted schedule.
   a. Submit a weekly report and three-week look-ahead schedule to coordinate with and supplement the monthly construction progress report and which details Work scheduled for the following one-week interval, including:
      (1) Work activities which will occur.
      (2) Number and size of crews.
      (3) Construction equipment on Site.
      (4) Major items of Equipment and Material to be installed.
   b. Format shall be on 8-1/2 x 11-inch paper, submitted to CPS Energy electronically.
2. Construction progress reports shall consist of the revised construction progress schedule and a narrative report which shall include but not be limited to the following:
   a. Comparison of actual progress to planned progress shown on originally accepted schedule.
   b. Summary of activities completed since the previous construction progress report.
   c. Summary of activities planned for next reporting period.
   d. Planned, earned, and spent earned value analysis for the month.
   e. Identification of problem areas.
   f. A description of current and anticipated delaying factors, if any.
   g. Impact of possible delaying factors.
   h. Proposed corrective actions.
3. Submit a construction progress report to CPS Energy with each application for partial payment. Work reported complete but not readily apparent to CPS Energy must be substantiated with supporting data when requested by CPS Energy.
4. If a schedule update reveals that, through no fault of CPS Energy, the Work is likely to be completed later than the Contract completion date, Company shall:
   a. Establish a plan for making up lost time, to include, but not limited to:
      (1) Increase number of workers, or
      (2) Increase amount or kinds of tools, or
      (3) Work overtime or additional shifts, or
      (4) A combination of 2 or more of the above 3 actions.
   b. Submit plan to CPS Energy before implementing the plan.
   c. Take actions as necessary to get the Work back on schedule at no additional cost to CPS Energy.

B. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project Site:

1. List of Subcontractors at Project Site.
2. Approximate count of personnel at Project Site, and breakdown by craft.
3. Equipment at Project Site.
4. Material deliveries.
5. High and low temperatures and general weather conditions.
6. Accidents.
7. Meetings and significant decisions.
8. Unusual events (refer to special reports).

9. Stoppages, delays, shortages, and losses.
10. Meter readings and similar recordings.
11. Emergency procedures.

C. Special Reports:
1. General: Submit special reports directly to CPS Energy within one day of an occurrence. Distribute copies of report to parties affected by the occurrence.
2. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project Site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Company's personnel, evaluation of results or effects, and similar pertinent information. Advise CPS Energy in advance when these events are known or predictable.

PART 3 - EXECUTION

3.01 CONSTRUCTION PROGRESS SCHEDULE:

A. Construction Progress Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled construction progress meeting.
1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
3. As the Work progresses, indicate actual completion percentage for each activity.

B. Distribution: Distribute copies of accepted schedule to CPS Energy, CPS Energy’s third-party CQA personnel, separate contractors, testing and inspecting agencies, and other parties identified by Company with a need-to-know schedule responsibility.
1. Post copies in Project meeting rooms and temporary field offices.
2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 013200

SECTION 013300 - SUBMITTALS

PART 1 - GENERAL

1.01 SUMMARY:

A. This Section includes definitions, descriptions, transmittal, and review of Submittals.

B. Related Work Specified Elsewhere:

1. SECTION 013100 - Construction Progress Schedules and Reports.
2. SECTION 017800 - Contract Closeout.

1.02 GENERAL INFORMATION:

A. Definitions:

1. Shop Drawings, product data, and Samples are technical Submittals prepared by Company, Subcontractor, manufacturer, or Supplier and submitted by Company to Engineer as a basis for approval of the use of Equipment and Materials proposed for incorporation in the Work or needed to describe installation, operation, maintenance, or technical properties, as specified in each Division of the Specifications.
   a. Shop Drawings include custom-prepared data of all types including drawings, diagrams, performance curves, material schedules, templates, instructions, and similar information not in standard printed form applicable to other projects.
   b. Product data includes standard printed information on materials, products, and systems; not custom-prepared for this Project, other than the designation of selections from available choices.
   c. Samples include both fabricated and unfabricated physical examples of materials, products, and Work; both as complete units and as smaller portions of units of Work; either for limited visual inspection or (where indicated) for more detailed testing and analysis. Mock-ups are a special form of Samples which are too large to be handled in the specified manner for transmittal of Sample Submittals.
2. Informational Submittals are those technical reports, administrative Submittals, certificates, and guarantees not defined as Shop Drawings, product data, or Samples.
   a. Technical reports include laboratory reports, tests, technical procedures, technical records, and Company's design analysis.
   b. Administrative Submittals are those nontechnical Submittals required by the Contract Documents or deemed necessary for administrative records. These Submittals include maintenance agreements, Bonds, Project photographs, physical work records, statements of applicability, copies of industry standards, Project record data, schedules, security/protection/safety data, and similar type Submittals.
   c. Certificates and guarantees are those Submittals on Equipment and Materials where a written certificate or guarantee from the manufacturer or Supplier is called for in the Specifications.
3. Refer to ARTICLES 1.03 and 1.04 of this Part for detailed lists of Submittals and specific requirements.

B. Quality Requirements:

1. Submittals such as Shop Drawings and product data shall be of suitable quality for legibility and reproduction purposes. Every line, character, and letter shall be clearly legible. Drawings such as reproducibles shall be useable for further reproduction to yield legible hard copy.
2. Documents submitted to Engineer that do not conform to specified requirements shall be subject to rejection by Engineer, and upon request by Engineer, Company shall resubmit conforming documents. If conforming Submittals cannot be obtained, such documents

shall be retraced, redrawn, or photographically restored as may be necessary to meet such requirements. Company's or its Subcontractor's failure to initially satisfy the legibility quality requirements will not relieve Company or its Subcontractors from meeting the required schedule for Submittals.

C. Language and Dimensions:
   1. All words and dimensional units shall be in the English language.
   2. Metric dimensional unit equivalents may be stated in addition to the English units. However, English units of measurement shall prevail.

D. Submittal Completeness:
   1. Submittals shall be complete with respect to dimensions, design criteria, materials of construction, and other information specified to enable Engineer to review the information effectively.
   2. Where standard drawings are furnished which cover a number of variations of the general class of Equipment, each drawing shall be annotated to indicate exactly which parts of the drawing apply to the Equipment being furnished. Use hatch marks or X-outs to indicate variations that do not apply to the Submittal. The use of "highlighting markers" will not be an acceptable means of annotating Submittals. Such annotation shall also include proper identification of the Submittal permanently attached to the drawing.
   3. Reproductions or copies of Contract Drawings or portions thereof will not be accepted as complete fabrication or erection drawings, but will be acceptable when used by Company as a drawing upon which to indicate information on erection or to identify detail drawing references. Whenever the Drawings are revised to show this additional Company information, Engineer's title block shall be replaced with Company's title block, and Engineer's professional seal shall be removed from the drawing. Company shall revise these erection drawings for subsequent Engineer revisions to the Contract Drawings.

E. Form of Submittals:
   1. Submittals and other Project documents shall be transmitted in electronic format as specified.
      a. Selected Submittals may be provided in paper ("hardcopy") copies with advance approval of Engineer, and using procedures specified herein.
   2. Electronic Format:
      a. Scanned Submittals and documents are not acceptable. Transmit Submittal and Project documents in:
         (1) Adobe *PDF files created directly from native electronic format, or
         (2) Engineer-approved equal.
         (3) Electronic Submittals in .tif format are permitted only with specific Engineer approval.
      b. Each drawing shall be submitted with an electronic filename that is equivalent to the drawing number, and any resubmitted drawing shall use the same filename as the original file name each time.
      c. Company Submittals shall be accompanied with a completed transmittal letter. Submittals that are not accompanied with an approved transmittal letter will not be accepted and will be returned to Company.
      d. All Company transmittal letters submitted to Engineer shall be in the form supplied and shall contain as a minimum the following information:
         (1) Company's Name.
         (2) Engineer's Project number.
         (3) Engineer's Contract number.
         (4) Filename.

(5) Description of the information contained in the specific Submittal.
(6) Revision number.
(7) Submittal type (IFR, IFC, IFI, CCR).
(8) Date of Submittal.

e. Nonconforming Submittals are subject to rejection by Engineer.
f. Provide “as-constructed” Submittals, record documents, and other documents electronically in Adobe *PDF format except as follows:
(1) All Equipment General Arrangement drawings, Piping and Instrumentation Diagrams, and One-line Diagrams shall be submitted electronically in AutoCAD format.
g. All Submittals transmitted electronically shall include an electronic transmittal letter meeting the Engineer’s requirements.

3. Engineer's review comments will be provided electronically in Adobe *PDF format.

1.03 TECHNICAL SUBMITTALS:

A. Items shall include, but not be limited to, the following:
1. Manufacturer's specifications.
2. Catalogs, or parts thereof, of manufactured Equipment.
3. Shop fabrication and erection drawings.
4. General outline drawings of Equipment showing overall dimensions, location of major components, weights, and location of required building openings and floor plates.
5. Detailed Equipment installation drawings, showing foundation details, anchor bolt sizes and locations, baseplate sizes, location of CPS Energy's connections; and all clearances required for erection, operation, and disassembly for maintenance.
6. Bills of materials.
7. Material lists or schedules.
8. Performance tests on Equipment by manufacturers.
9. Concrete mix design information.
10. Samples and color charts.
11. All drawings, catalogs or parts thereof, manufacturer's specifications and data, Samples, instructions, and other information specified or necessary:
a. For Engineer to determine that Equipment and Materials conform to the design concept and comply with intent of the Contract Documents.
b. For proper erection, installation, operation, and maintenance of Equipment and Materials which Engineer will review for general content but not for basic details.
c. For Engineer to determine what supports, anchorages, structural details, connections, and services are required for Equipment and Materials, and effects on contiguous or related structures and Equipment and Materials.

1.04 INFORMATIONAL SUBMITTALS:

A. Informational Submittals are comprised of technical reports, administrative Submittals, and guarantees which relate to the Work, but do not require Engineer approval prior to proceeding with the Work. Informational Submittals include:
1. Welder qualification tests.
2. Welding procedure qualification tests.
3. X-ray and radiographic reports.
4. Hydrostatic testing of pipes.
5. Field test reports.
6. Certification of Materials: Concrete tests.

7. Soil test reports.
8. Piping stress analysis.
9. Shipping or packing lists.
10. Job progress schedules.
11. Equipment and Material delivery schedules.
12. Progress photographs.
13. Warranties and guarantees.

B. Test Reports:
1. Responsibilities of Company, CPS Energy, and Engineer regarding tests and inspections of Equipment and Materials and completed Work are set forth elsewhere in these Contract Documents.
2. The party specified responsible for testing or inspection shall in each case, unless otherwise specified, arrange for the testing laboratory or reporting agency to distribute one electronic copy of the test reports to CPS Energy, Engineer, Company, and Manufacturer or Supplier.

1.05 LISTS:

A. Lists shall be in Microsoft Excel ® format and Supplier shall not modify the format or sequence without Engineer approval. Lists shall be submitted for initial review and resubmitted as a final list. The electronic template files to be used will be provided by Engineer to the Supplier after Contract Award. Prepare and submit the following lists for review:
1. Equipment List
2. Manual Valve List
3. Actuated / Control Valve List
4. Line List
5. Electric Motor List
6. Instrument List
7. Terminal Point/Connection List

1.06 SCHEDULE OF SUBMITTALS:

A. Prepare for Engineer's concurrence, a schedule for submission of all Submittals specified or necessary for Engineer's approval of the use of Equipment and Materials proposed for incorporation in the Work or needed for proper installation, operation, or maintenance. Submit the schedule with the procurement schedule and construction progress schedule. Schedule submission of all Submittals to permit review, fabrication, and delivery in time so as to not cause a delay in the Work of Company or his Subcontractors or any other contractors as described in the Contract Documents.

B. In establishing schedule for Submittals, allow 20 calendar days in Engineer's office for reviewing original Submittals and 15 calendar days in Engineer's office for reviewing resubmittals.

C. Submittals requiring revision shall be resubmitted within 5 days after receipt of Engineer's review notations.

D. The schedule shall indicate the anticipated dates of original submission for each item and Engineer's approval thereof, and shall be based upon at least one resubmission of each item.

E. Schedule all Submittals (Shop Drawings, product data, and Samples) required prior to fabrication or manufacture for submission within 30 calendar days of the Notice to Proceed. Schedule Submittals pertaining to storage, installation, and operation at the Site for Engineer's approval prior to delivery of the Equipment and Materials.

F. Resubmit Submittals the number of times required for Engineer's "Submittal Approved." However, any need for resubmittals in excess of the number set forth in the accepted schedule, or any other delay in obtaining approval of Submittals, will not be grounds for extension of the Contract Times, provided Engineer completes his reviews within the times specified.

G. Where a Submittal is required by the Contract Documents or the accepted schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertaining Submittal will be at the sole expense and responsibility of Company.

1.07 TRANSMITTAL OF SUBMITTALS:

A. All Submittals (Shop Drawings, product data, and Samples) for Equipment and Materials furnished by Company, Subcontractors, manufacturers, and Suppliers shall be submitted to Engineer by Company.

B. Transmit all Submittals to Engineer for approval as follows:

1. Mark each Submittal by Project name and number, Contract title and number, and applicable Specification Section and Article number. Include in the letter of transmittal the Drawing number and title, sheet number (if applicable), revision number, and electronic filename (if applicable). Unidentifiable Submittals will be returned for proper identification.
2. Check and approve Submittals of Subcontractors, Suppliers, and manufacturers prior to transmitting them to Engineer. Company's submission shall constitute a representation to CPS Energy and Engineer that Company approves Submittals and has determined and verified all information and that it is in compliance with Laws and Regulations, and Company assumes full responsibility for doing so.
3. At the time of each submission, call to the attention of Engineer in the letter of transmittal any deviations from requirements of the Contract Documents.
4. Make all modifications noted or indicated by Engineer and return the required number of revised Submittals until approved. Direct specific attention in writing, or on revised Submittals, to changes other than the modifications called for by Engineer on previous Submittals. Previously approved Submittals transmitted for final distribution will not be further reviewed and are not to be revised. If errors are discovered during manufacture or fabrication, correct the Submittal and resubmit for review.
5. Following completion of the Work and prior to final payment, furnish record documents and approved Samples and Shop Drawings necessary to indicate "as constructed" conditions, including field modifications, in the number of copies specified. All such copies shall be clearly marked "PROJECT RECORD."
    a. Submit a final record copy of the Master Field Drawing list which shall indicate the final revision status of each drawing on the list.
6. Keep a copy or sample of each Submittal in good order at the Site.

C. Quantity Requirements:

1. Except as otherwise specified, transmit all Shop Drawings in the following quantities:
    a. Initial Submittal: Per Appendix A, this SECTION.
    b. Resubmittals: Per Appendix A, this SECTION.
    c. Submittal for final distribution: Electronic - One copy to CPS Energy and Engineer.
    d. As-constructed documents: Electronic - One copy to Engineer.
2. Transmit Submittals of Material Samples, color charts, and similar items as follows:
    a. Initial Submittal – One copy to Engineer. One copy to CPS Energy.
    b. Resubmittal – One copy to Engineer. One copy to CPS Energy.
    c. Upon approval, no Sample(s) will be returned to Company.

3. When all Submittals have been updated to "as-constructed" conditions, transmit to Engineer and to CPS Energy in electronic format.
4. CPS Energy may copy and use for internal operations and staff training purposes any and all document Submittals required by this Contract and approved for final distribution, whether or not such documents are copyrighted, at no additional cost to CPS Energy. If permission to copy any such Submittal for the purposes stated is unreasonably withheld from CPS Energy by Company or any Subcontractor, manufacturer, or Supplier, Company shall provide to Engineer 50 copies plus the number of copies required by Company at each final distribution issue.
5. Equipment erection drawings and other Submittals required for installation of Equipment furnished by others under separate contract for installation under this Contract will be transmitted to Company by Engineer in the final distribution of such Submittals.
6. Information to Manufacturer's District Office: Company shall arrange for manufacturers and Suppliers of Equipment and Materials to furnish copies of all agreements, drawings, specifications, operating instructions, correspondence, and other matters associated with this Contract to the manufacturer's district office servicing CPS Energy. Insofar as practicable, all business matters relative to Equipment and Materials included in this Contract shall be conducted through such local district offices.

1.08 ENGINEER'S REVIEW:

A. Engineer will review and take appropriate action on Submittals in accordance with the accepted schedule of Submittals. Engineer's review and approval will be only to determine if the items of Equipment and Materials covered by the Submittals will, after installation or incorporation in the Work, conform to information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

B. Engineer's review and approval will not extend to design data reflected in Submittals which is peculiarly within the special expertise of Company or Company's Subcontractors or Suppliers. Review and approval of a component item as such will not indicate approval of the assembly in which the item functions.

C. Engineer's review and approval of Shop Drawings, product data, or Samples will not relieve Company of responsibility for any deviation from requirements of the Contract Documents unless Company has in writing called Engineer's attention to such deviation at the time of submission, and Engineer has given written concurrence in and approval of the specific deviation. Approval by Engineer shall not relieve Company from responsibility for errors or omissions in Submittals.

D. Submittal Action Stamp:

1. Engineer's review action stamp, appropriately completed, will appear on all Submittals of Company when returned by Engineer. Review status designations listed on Engineer's action stamp are defined as follows:

A - SUBMITTAL APPROVED: Signifies Equipment or Material represented by the Submittal conforms with the design concept and complies with the intent of the Contract Documents and is approved for incorporation in the Work. Company is to proceed with fabrication or procurement of the items and with related Work. Copies of the Submittal are to be transmitted to Engineer for final distribution.

B - SUBMITTAL APPROVED AS NOTED (RESUBMIT): Signifies Equipment and Material represented by the Submittal conforms with the design concept and complies with the intent of the Contract Documents and is approved for incorporation in the Work in accordance with Engineer's notations. Company is to proceed with fabrication or procurement of the items and with related Work in accordance with Engineer's notations and is to submit a revised Submittal responsive to notations marked on the returned Submittal or written in the letter of transmittal.

C - SUBMITTAL RETURNED FOR REVISION (RESUBMIT): Signifies Equipment and Material represented by the Submittal appears to conform with the design concept and comply with the intent of the Contract Documents but information is either insufficient in detail or contains discrepancies which prevent Engineer from completing his review. Company is to resubmit revised information responsive to Engineer's annotations on the returned Submittal or written in the letter of transmittal. Fabrication or procurement of items represented by the Submittal and related Work is not to proceed until the Submittal is approved.

D - SUBMITTAL NOT APPROVED (SUBMIT ANEW): Signifies Equipment and Material represented by the Submittal does not conform with the design concept or comply with the intent of the Contract Documents and is disapproved for use in the Work. Company is to provide Submittals responsive to the Contract Documents.

E - PRELIMINARY SUBMITTAL: Signifies Submittals of such preliminary nature that a determination of conformance with the design concept or compliance with the intent of the Contract Documents must be deferred until additional information is furnished. Company is to submit such additional information to permit layout and related activities to proceed.

F - FOR REFERENCE, NO APPROVAL REQUIRED: Signifies Submittals which are for supplementary information only; pamphlets, general information sheets, catalog cuts, standard sheets, bulletins and similar data, all of which are useful to Engineer or CPS Energy in design, operation, or maintenance, but which by their nature do not constitute a basis for determining that items represented thereby conform with the design concept or comply with the intent of the Contract Documents. Engineer reviews such Submittals for general content but not for basic details.

G - DISTRIBUTION COPY (PREVIOUSLY APPROVED): Signifies Submittals which have been previously approved and are being distributed to Company, CPS Energy, Resident Project Representative, and others for coordination and construction purposes.

1.09 SAMPLES:

A. Office Samples shall be of sufficient size and quantity to clearly illustrate the following:
   1. Functional characteristics of the product, with integrally related parts and attachment devices.
   2. Full range of color, texture, and pattern.
   3. Material, manufacturer, pertinent catalog number, and intended use.

1.10 INFORMATIONAL SUBMITTALS:

A. Informational Submittals are comprised of technical reports, administrative Submittals, and guarantees which relate to the Work, but do not require Engineer approval prior to proceeding with the Work. Informational Submittals include:
   1. Hydrostatic testing of pipes.
   2. Field test reports.
   3. Concrete cylinder test reports.
   4. Certification on Materials:
   5. Soil test reports.
   6. Temperature records.
   7. Shipping or packing lists.
   8. Job progress schedules.
   9. Equipment and Material delivery schedules.
   10. Progress photographs.
   11. Warranties and guarantees.

B. Transmittal of Informational Submittals:
   1. All informational Submittals furnished by Subcontractors, manufacturers, and Suppliers shall be submitted to Engineer by Company unless otherwise specified.
      a. Identify each informational Submittal by Project name and number, Contract title and number, and Specification Section and Article number marked thereon or in letter of transmittal. Unidentifiable Submittals will be returned for proper identification.
      b. At the time of each submission, call to the attention of Engineer in the letter of transmittal any deviations from requirements of the Contract Documents.
   2. Quantity Requirements:
      a. Technical reports and administrative Submittals except as otherwise specified:
         (1) Paper: One copy to Engineer. One copy to CPS Energy. Only Engineer's comments will be returned to Company.
         (2) Electronic: One copy to Engineer. One copy to CPS Energy.
      b. Written Certificates and Guarantees:
         (1) Paper: One copy to Engineer. One copy to CPS Energy. Only Engineer's comments will be returned to Company.
   3. Test Reports:
      a. Responsibilities of Company, CPS Energy, and Engineer regarding tests and inspections of Equipment and Materials and completed Work are set forth elsewhere in these Contract Documents.
      b. The party specified responsible for testing or inspection shall in each case, unless otherwise specified, arrange for the testing laboratory or reporting agency to distribute one electronic copy of the test reports to CPS Energy, Engineer, Company, and Manufacturer or Supplier.

C. Engineer's Review:

1. Engineer will review informational Submittals for indications of Work or Material deficiencies.
2. Engineer will respond to Company on those informational Submittals which indicate Work or Material deficiency.

PART 2 - PRODUCTS - Not Applicable.

PART 3 - EXECUTION – Not Applicable.

END OF SECTION 013300

APPENDIX A

SUBMITTAL MATRIX

LEGEND: E = Electronic, P(x) = Paper Copy (no. of copies)

Pkg ID	Package Description	Subj. To LDs *	With Proposal	For Approval (required prior to fabrication)	For Information/ Certification/Construction
1	Certificate of Insurance	No			P (1) - 14 days after NTP
2	Notice of Shipment	No			E - two weeks prior to shipment
3	Partial Lien Waiver	No			With Invoice
4	Final Lien Waiver	No			With Final Invoice
5	Recommended Installation & Commissioning Spare Parts List	No		E - 60 days after NTP	
6	Recommended Two-Year Operational Spare Parts List	No			E - 120 days after NTP, updated through project duration
7	Preliminary Work Progress Schedule	No	E		E - 10 business days after NTP
8	Preliminary Schedule of Submittals				E - 30 days after NTP
9	Detailed Work Progress Schedule	No		E - 30 days after NTP, monthly thereafter	
10	Work Progress Reports	No			E –30 days after NTP, monthly through engineering and fabrication, and with each invoice for partial payment.
11	Packing Lists	No			P (1), E – Prior to Shipment P (1), E – With each shipment
12	Shipment Bills of Materials	No			P (1), E - With Notice of Shipment and with each shipment
13	Unloading, Handling, and Lifting Requirements and Procedures	No			P (1), E - 60 days prior to Shipment and with each Shipment
14	Material Safety Data Sheets (if applicable)	No			P (5), E - With Notice of Shipment and with each Shipment
15	Test Reports				E - 10 days after each test
16	Catalog Data Sheets with Dimensions	No			P (1) With Invoice
17	Pre-Shipment Inspection Certificate				P(1) Prior to Delivery P(1) with Shipment
18	Geotextile product and conformance test data				E - 30 days prior to Shipment
19	HDPE pipe product data				E - 30 days prior to Shipment
20	Granular material test data and gradation				E - 30 days prior to Shipment
21	Crushed rock surface course gradation and conformance test data				E - 10 days prior to Shipment
22	Seed mixture and fertilizer data				E - 10 days prior to Shipment
23	International Transportation Insurance Certificate, if applicable	No			P (1) - With Shipping Documents and forwarded to Purchaser at least six weeks prior to shipment
24	Acknowledge Acceptance and Return of Contract.	No			P (3),E - 7 days after Receipt of Contract
25	Letter of Credit or Performance Bond if required	No			P (1), E - 10 business days after NTP
26	Notice of any Cancellation, Termination, or Material Changes of Insurance Policies	No			P(1), E - 30 days before cancellation or change
27	Project Organizational Chart, including key personnel resumes.	No	E		

SECTION 014000 – COMPANY QA/QC

PART 1 - GENERAL

1.01 SUMMARY:

A. This Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Company of responsibility for compliance with the Contract Document requirements.

1. Specific quality assurance and quality control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
2. Specified tests, inspections, and related actions do not limit Company's other quality assurance and quality control procedures that facilitate compliance with the Contract Document requirements.
3. Requirements for Company to provide quality assurance and quality control services required by Engineer, CPS Energy, or authorities having jurisdiction are not limited by provisions of this Section.

C. Related Work Specified Elsewhere:

1. SECTION 013200 - Construction Progress Schedules and Reports.
2. DIVISIONS 2 through 33 for specific test and inspection requirements.

1.02 REFERENCES:

A. ASTM International (ASTM):

1. E548 - Guide for General Criteria Used for Evaluating Laboratory Competence.

B. Code of Federal Regulations (CFR):

1. 29 CFR 1910, Subpart A, Section 1910.7 - Definition and Requirements for a Nationally Recognized Testing Laboratory (NRTL).

1.03 DEFINITIONS:

A. Quality Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

B. Quality Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual Equipment and Materials incorporated into the Work and completed construction comply with requirements. Services do not include Contract enforcement activities performed by Others.

C. Preconstruction Testing: Tests and inspections that are performed specifically for the Project before Equipment and Materials are incorporated into the Work to verify performance or compliance with specified criteria.

D. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with industry standards.

E. Source Quality Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory, or shop.

F. Field Quality Control Testing: Tests and inspections that are performed on Site for installation of the Work and for completed Work, i.e., soil compaction, concrete strength, and weld radiographs.

G. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

H. Installer/Applicator/Erector: Company or another entity engaged by Company as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.

I. Experienced: When used with an entity, "experienced" means having successfully completed specified number of previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.04 SUBMITTALS:

A. Qualification Data: For testing agencies to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

B. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
   1. Specification Section number and title.
   2. Description of test and inspection.
   3. Identification of applicable standards.
   4. Identification of test and inspection methods.
   5. Number of tests and inspections required.
   6. Time schedule or time span for tests and inspections.
   7. Entity responsible for performing tests and inspections.
   8. Requirements for obtaining samples.
   9. Unique characteristics of each quality control service.

C. Reports: Arrange for testing agency/laboratory to prepare and submit certified written reports that include the following:
   1. Date of issue.
   2. Project title and number.
   3. Name, address, and telephone number of testing agency.
   4. Dates and locations of samples and tests or inspections.
   5. Names of individuals making tests and inspections.
   6. Description of the Work and test and inspection method.
   7. Identification of product and Specification Section.
   8. Complete test or inspection data.
   9. Test and inspection results and an interpretation of test results.
   10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
   11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
   12. Name and signature of laboratory inspector.
   13. Recommendations on retesting and reinspecting.

D. Permits, Licenses, and Certificates: For CPS Energy's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.05 QUALITY ASSURANCE:

A. General: Qualifications paragraphs in this Section establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
C. Manufacturer Qualifications: A firm experienced in manufacturing Equipment or systems or Material similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
D. Fabricator Qualifications: A firm experienced in producing Equipment and Material similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, Equipment, or Material that are similar to those indicated for this Project in material, design, and extent.
F. Specialists: Certain sections of the Specifications require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
    1. Requirement for specialists shall not supersede building codes and regulations governing the Work.
G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E548; and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.
    1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
    2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program (NVLAP).
H. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's Equipment, Material, or systems that are similar in material, design, and extent to those indicated for this Project.
I. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:
    1. Company responsibilities include the following:
        a. Provide test specimens representative of proposed products and construction.
        b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
        c. Provide sizes and configurations of test assemblies to adequately demonstrate capability of products to comply with performance requirements.
        d. Build Site-assembled test assemblies using installers who will perform same tasks for Project.
        e. When testing is complete, remove test specimens and assemblies; do not reuse products on Project.
    2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to CPS Energy. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

1.06 QUALITY CONTROL:

A. CPS Energy Responsibilities: Where quality control services are indicated as CPS Energy's responsibility, CPS Energy will engage a qualified testing agency to perform these services.
   1. CPS Energy will furnish Company with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
   2. Payment for these services will be made directly by CPS Energy.
   3. Costs for retesting and reinspecting construction that replaces or is necessitated by Work that failed to comply with the Contract Documents will be charged to Company, and the Contract Price will be adjusted by Change Order.

B. Tests and inspections not explicitly assigned to CPS Energy are Company's responsibility. Unless otherwise indicated, provide quality control services specified and those required by authorities having jurisdiction. Perform quality control services required of Company by authorities having jurisdiction, whether specified or not.
   1. Where services are indicated as Company's responsibility, engage a qualified testing agency to perform these quality control services. Testing agency shall be acceptable to CPS Energy.
      a. Company shall not employ same entity engaged by CPS Energy, unless agreed to in writing by CPS Energy.
   2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
   3. Where quality control services are indicated as Company's responsibility, submit a certified written report, electronically, of each quality control service.
   4. Testing and inspecting requested by Company and not required by the Contract Documents are Company's responsibility.
   5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Manufacturer's Field Services:
   1. Where indicated or specified in respective Equipment specifications, provide services of an experienced, competent, factory-authorized representative of the manufacturer of each item of Equipment.
   2. Arrange for Field Services representative to visit the Site of the Work and inspect, check, adjust as necessary, and approve the Equipment installation, including service connections. Field Services representative shall be present when Equipment is started up and placed into operation and shall revisit the Site as often as necessary until problems are corrected, and Equipment installation and operation are acceptable to CPS Energy.
   3. Submit to CPS Energy the Field Services representative's completed record forms as required and written report certifying that the Equipment has been properly installed and lubricated; is in accurate alignment; is free from undue stress imposed by connecting piping or anchor bolts; and has been successfully operated under expected full load conditions.

D. Retesting/Reinspecting: Regardless of whether original tests or inspections were Company's responsibility, provide quality control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.

E. Testing Agency Responsibilities: Cooperate with CPS Energy and Company in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify CPS Energy and Company promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Company.
5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
6. Do not perform any duties of Company.

F. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Delivery of samples to testing agencies.
6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
7. Security and protection for samples and for testing and inspecting equipment at Project Site.

G. Coordination: Coordinate sequence of activities to accommodate required quality assurance and quality control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.

PART 2 - PRODUCTS - Not Applicable.

PART 3 - EXECUTION

3.01 ACCEPTABLE TESTING AGENCIES:

A. Company to submit with Bid their proposed testing agency for Company required testing.

3.02 TEST AND INSPECTION LOG:

A. Prepare a record of tests and inspections. Include the following:
1. Date test or inspection was conducted.
2. Description of the Work tested or inspected.
3. Date test or inspection results were transmitted to CPS Energy.
4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project Site. Post changes and modifications as they occur. Provide access to test and inspection log for CPS Energy's reference during normal working hours.

3.03 REPAIR AND PROTECTION:

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Company's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

SECTION 014200 - DEFINITIONS AND STANDARDS

PART 1 - GENERAL

1.01 SUMMARY:

A. Definitions:

1. Basic contract definitions used in the Contract Documents are defined in the CPS ENERGY TERMS AND CONDITIONS. Definitions and explanations are not necessarily either complete or exclusive, but are general for the Work.
2. General Requirements are the provisions or requirements of DIVISION 1 Sections and which apply to the entire Work of the Contract.

B. Related Information Specified Elsewhere: Specification standards and associations applicable to the Work are specified in each Section.

1.02 SPECIFICATION FORMAT AND CONTENT EXPLANATIONS:

A. Specification Format: The Specifications are organized into Divisions and Sections based on the Construction Specifications Institute's (CSI) Section Format and MasterFormat numbering system. Some portions may not fully comply and no particular significance will be attached to such compliance or noncompliance.

1. Divisions and Sections: For convenience, a basic unit of Specification text is a "Section," each unit of which is numbered and named. These are organized with related Sections, into "Divisions," which are recognized as the present industry consensus on uniform organization and sequencing of Specifications. The Section title is not intended to limit meaning or content of Section, nor is it to be fully descriptive of requirements specified therein, nor to be an integral part of text.
2. Section Numbering: Used for identification and to facilitate cross-references in Contract Documents. Sections are placed in numeric sequence; however, numbering sequence is not complete, and listing of Sections in Table of Contents at beginning of the Project Manual must be consulted to determine numbers and names of Specification Sections in these Contract Documents.
3. Page Numbering: Numbered independently for each Section. Section number is shown with page number at bottom of each page, to facilitate location of text.
4. Parts: Each Section of Specifications generally has been subdivided into three basic "parts" for uniformity and convenience (PART 1 - GENERAL, PART 2 - PRODUCTS, and PART 3 - EXECUTION). These "Parts" do not limit the meaning of text within. Some Sections may not contain all three "Parts" when some are not applicable, or may contain more than three "Parts" to add clarity to organization of Section.
5. Underscoring of Titles: Used strictly to assist reader of Specification in scanning text for key words in content. No emphasis on or relative importance is intended except where underscoring may be used in body of text to emphasize a duty, critical requirement, or similar situation.
6. Project Identification: Project file number and identification are recorded at the bottom of each page of Specifications to minimize possible misuse of Specifications, or confusion with other Project Specifications.

B. Specification Content:

1. These Specifications apply certain conventions in the use of language and the intended meaning of certain terms, words, and phrases when used in particular situations or circumstances. These conventions are explained as follows:
    a. Imperative and Streamlined Language: These Specifications are written in imperative and abbreviated form. This imperative language of the technical

Sections is directed at the Company, unless specifically noted otherwise. Incomplete sentences shall be completed by inserting "shall," "the Company shall," and "shall be," and similar mandatory phrases by inference in the same manner as they are applied to notes on the Drawings. The words "shall be" shall be supplied by inference where a colon (:) is used within sentences or phrases. Except as worded to the contrary, fulfill (perform) all indicated requirements whether stated imperatively or otherwise.

b. Specifying Methods: The techniques or methods of specifying requirements varies throughout text, and may include "prescriptive," "compliance with standards," "performance," "proprietary," or a combination of these. The method used for specifying one unit of Work has no bearing on requirements for another unit of Work.

c. Overlapping and Conflicting Requirements:
   1) Refer to the CPS ENERGY TERMS AND CONDITIONS for the order of interpretation regarding conflicting provisions in the Contract.
   2) Where compliance with two or more industry standards or sets of requirements is specified and overlapping of those different standards or requirements establishes different or conflicting minimums or levels of quality, notify the CPS Energy in writing for a decision, which CPS Energy will render in writing within a reasonable time.

d. Abbreviations: Throughout the Contract Documents are abbreviations implying words and meanings which shall be appropriately interpreted. Specific abbreviations have been established, principally for lengthy technical terminology and in conjunction with coordination of Specification requirements with notations on Drawings and in schedules. These are normally defined at first instance of use. Organizational and association names and titles of general standards are also abbreviated.

C. Assignment of Specialists: In certain instances, Specification text requires that specific Work be assigned to specialists in the operations to be performed. These specialists shall be engaged for performance of those units of Work, and assignments are requirements over which Company has no choice or option. These assignments shall not be confused with, and are not intended to interfere with, enforcement of building codes and similar regulations governing the Work, local trade and union jurisdictions, and similar conventions. Nevertheless, final responsibility for fulfillment of Contract requirements remains with Company.

D. Trades: Except as otherwise specified or indicated, the use of titles such as "carpentry" in Specification text, implies neither that the Work must be performed by an accredited or unionized tradesperson of corresponding generic name (such as "carpenter"), nor that specified requirements apply exclusively to work by tradespersons of that corresponding generic name.

1.03 DRAWING SYMBOLS:

A. Except as otherwise indicated, graphic symbols used on Drawings are those symbols recognized in the construction industry for purposes indicated. Refer instances of uncertainty to CPS Energy for clarification.

1.04 INDUSTRY STANDARDS:

A. Applicability of Standards: Except where the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents. Such standards are made a part of the Contract Documents by reference and are stated in each Section.

1. Referenced standards, referenced directly in Contract Documents or by governing regulations, have precedence over nonreferenced standards which are recognized in industry for applicability to the Work.
2. Where compliance with an industry standard is required, the latest standard in effect at the time of Contract Award unless specifically defined otherwise in the Contract Documents.
3. Where an applicable code or standard has been revised and reissued after the effective date of the Contract and before performance of Work affected by the revision, CPS Energy will decide whether to issue a Change Order to proceed with the revised standard.
4. In every instance the quantity or quality level shown or specified shall be the minimum to be provided or performed. The actual installation may comply exactly, within specified tolerances, with the minimum quantity or quality specified, or it may exceed that minimum within reasonable limits. In complying with these requirements, indicated numeric values are minimum or maximum values, as noted, or appropriate for the context of the requirements. Refer instances of uncertainty to the CPS Energy for a decision before proceeding.
5. Each entity engaged in construction on the Project is required to be familiar with industry standards applicable to that entity's construction activity. Copies of applicable standards are not bound with the Contract Documents.
    a. Where copies of standards are needed for performance of a required construction activity, Company shall obtain copies directly from the publication source.

B. Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. Where such acronyms or abbreviations are used in the Specifications or other Contract Documents, they mean the recognized name of the trade association, standards generating organization, authority having jurisdiction, or other entity applicable to the context of the text provision.

PART 2 - PRODUCTS - Not Applicable.

PART 3 - EXECUTION - Not Applicable

END OF SECTION 014200

SECTION 015100 - TEMPORARY UTILITIES AND FACILITIES

PART 1 - GENERAL

1.01 SUMMARY:

A. This Section includes requirements of a temporary nature not normally incorporated into final Work. It includes the following:
   1. Utility services.
   2. Construction and support facilities.
   3. Construction aids.
   4. Safety and health.
   5. Fire protection.

B. Related Work Specified Elsewhere:
   1. SECTION 015200 - Field Offices and Sheds.
   2. SECTION 015700 - Temporary Barriers and Controls.

1.02 REFERENCES:

A. American National Standards Association (ANSI):
   1. A10 Series - Safety Requirements for Construction and Demolition.

B. National Electrical Contractors Association (NECA):
   1. Electrical Design Library - Temporary Electrical Facilities.

C. National Fire Protection Association (NFPA):
   1. 10 - Portable Fire Extinguishers.
   2. 70 - National Electrical Code.
   3. 241 - Safeguarding Construction, Alterations, and Demolition Operations.

D. National Electrical Manufacturers Association (NEMA).

E. Underwriters Laboratories (UL).

1.03 QUALITY ASSURANCE:

A. Regulations: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction, including but not limited to:
   1. Building Code requirements.
   2. Health and safety regulations.
   3. Utility company regulations.
   4. Police, Fire Department, and rescue squad rules.
   5. Environmental protection regulations.
   6. Project permit requirements

B. Standards:
   1. Comply with NFPA 10 and 241, and ANSI A10 Series standards "Temporary Electrical Facilities."
   2. Comply with NEMA, NECA, and UL standards and regulations for temporary electric service. Install service in compliance with NFPA 70.

C. Inspections: Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.

1.04 FURNISHED BY COMPANY:

A. Except as expressly set forth in Article 1.05, Company shall supply, install, properly maintain, and remove all temporary facilities and utilities necessary for performance of the Work, including but not limited to:
   1. All temporary buildings. Refer to SECTION 015200.
   2. Fuels and lubricants.

3. Transportation facilities on and off Site.
4. Communication facilities.
5. Compressed gases.
6. Maintenance cleanliness of Company's work areas.
7. Rigging, scaffolding, and all equipment required for erection.
8. Electric panel and distribution wiring. Connection to and disconnection from the CPS Energy's power source shall be by CPS Energy after 24-hour notice. All electrical conductors from the load centers to the Company's equipment shall be provided by the Company.
9. All cranes and other necessary equipment for lifting and moving equipment.
10. All small tools.
11. Temporary lighting.
12. Temporary heat.
13. All standard expendable or consumable construction items and supplies.
14. Containers, ice, and drinking cups for potable water.
15. Cost of unloading, loading, and storing all Materials, Equipment, and supplies.
16. Dumpsters and waste disposal related to the Work.
17. All sanitary facilities at grade, including janitorial services.

1.05 FURNISHED BY CPS ENERGY:

A. CPS Energy shall supply to the Company the following:
1. First-aid facilities.
2. Storage space adjacent to the construction Site for performance of Work. However, the Company shall be responsible for security of materials stored in these areas. The location of all storage areas must be approved by CPS Energy in advance.
3. Electrical power at construction power load centers. Connection to CPS Energy's load centers shall be performed by CPS Energy after reasonable notice by the Company. All electrical conductors from the load centers to the Company's equipment shall be provided by the Company.
4. Space for the location of office trailer(s), change trailer(s), material trailer(s), and tool trailer(s), will be in the area designated by CPS Energy.
5. Parking for Company Employees. All Company's employees shall park in the designated parking lot. Company will be allowed to bring onto the job Site only vehicles marked with the Company's name on the outside of the vehicle.
6. Maintenance of the Site roads.
   a. Company is responsible for maintenance and repair of roads impacted by construction activities.

1.06 PROJECT CONDITIONS:

A. Temporary Utilities: Prepare a schedule indicating dates for implementation and termination of each temporary utility.
B. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Take necessary fire prevention measures. Do not overload facilities or permit them to interfere with progress. Do not allow hazardous, dangerous, unsanitary conditions, or public nuisances to develop or persist on the Site.

PART 2 - PRODUCTS

2.01 MATERIALS AND EQUIPMENT:

A. Provide new materials and equipment. If acceptable to CPS Energy, undamaged previously used materials and equipment in serviceable condition may be used. Provide materials and equipment suitable for the use intended, of capacity for required usage, and meeting applicable codes and standards. Comply with requirements of DIVISIONS 2 through 48.
B. Water: Provide potable water approved by local health authorities.
C. Water Hoses: Provide 3/4-inch, heavy-duty, abrasion-resistant, flexible rubber hoses 100 feet long, with pressure rating greater than the maximum pressure of the water distribution system. Provide adjustable shutoff nozzles at hose discharge.
D. Electrical Outlets: Provide properly configured, NEMA-polarized outlets to prevent insertion of 110- to 120V plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button, and pilot light for connection of power tools and equipment.
E. Electrical Power Cords: Provide grounded extension cords. Use hard-service cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio. If compliance with 2.01.D is not possible, provide GFCI protection with each extension cord.
F. Lamps and Light Fixtures: Provide general service incandescent lamps of wattage required for adequate illumination. Provide guard cages or tempered-glass enclosures where exposed to breakage. Provide exterior fixtures where exposed to moisture.
G. Heating Units: Provide temporary heating units that have been tested and labeled by UL, FM, or another recognized trade association related to the type of fuel being consumed.
H. Fire Extinguishers: Provide hand-carried, portable, UL-rated, Class A fire extinguishers for temporary offices and similar spaces. In other locations, provide hand-carried, portable, UL-rated, Class ABC, dry-chemical extinguishers or a combination of extinguishers of NFPA-recommended classes for the exposures. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

PART 3 - EXECUTION

3.01 TEMPORARY UTILITIES:

A. General:
1. Engage the appropriate local utility company to install temporary service or connect to existing service. Where utility company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with utility company recommendations.
2. Provide adequate utility capacity at each stage of construction. Prior to availability of temporary utilities at the Site, provide trucked-in services as required for start-up of construction operations.
3. Obtain and pay for temporary easements required to bring temporary utilities to the Project Site, where CPS Energy's permanent easement cannot be used for that purpose.
4. Furnish, install, and maintain temporary utilities required for adequate construction, safety, and security. Modify, relocate, and extend systems as Work progresses. Repair damage caused by installation or use of temporary facilities. Grade the areas of Site affected by temporary installations to required elevations and grades and clean the area. Remove on completion of Work or until service or facilities are no longer needed or are replaced by authorized use of completed permanent facilities.
5. The types of temporary construction utilities and facilities required include, but not by way of limitation, water distribution, drainage, dewatering equipment, enclosure of

Work, heat, ventilation, electrical power distribution, lighting, hoisting facilities, stairs, ladders, and roads.

6. Inspect and test each service before placing temporary utilities in use. Arrange for required inspections and tests by governing authorities, and obtain required certifications and permits for use.
7. Materials used for temporary service shall not be used in the permanent system unless so specified or acceptable to CPS Energy.

B. Because of operational requirements, CPS Energy may restrict or curtail Company's use of electric power and water. If these utilities are critical to Company's operations and completion of the Contract on the agreed schedule, Company shall consider furnishing alternate sources for its own use. Restriction or curtailment of these utilities shall not be a basis for a claim against CPS Energy or an extension of the agreed schedule.

3.02 TEMPORARY ELECTRICITY AND LIGHTING:

A. Use of Existing System:
1. CPS Energy's existing system shall not be used for temporary electricity except as specified for office facilities.

B. Construction Power Locations: As designated by CPS Energy.

C. Costs of Installation and Operation:
1. Pay fees and charges for permits, applications, and inspections.
2. Pay costs of installation, operation, maintenance, removal of temporary services, and restoration of any permanent facilities used.
3. Company shall pay cost of power.

3.03 TEMPORARY WATER:

A. Company shall provide approved containers for distributing potable water and provide personnel to fill and distribute water to areas needed.

B. Construction water will be available for Company’s use from CPS Energy-approved location. Company to provide necessary personnel, equipment, and materials.

3.04 TEMPORARY TELEPHONE SERVICE:

A. General:
1. Company shall arrange for cellular/mobile telephone service company for use by Company as required.

3.05 TEMPORARY SANITARY FACILITIES:

A. Company-Furnished Facilities:
1. Company shall furnish, install, and maintain temporary sanitary facilities for use through construction period. Remove on completion of Work.
2. Provide for all construction workers under this Contract and representatives at the Site.
3. Toilet facilities shall be of the chemical, aerated recirculation, or combustion type, properly vented, and fully enclosed with a glass- fiber-reinforced polyester shell or similar nonabsorbent material.
4. Wash Facilities: Company shall provide potable water-supplied wash facilities at locations convenient to construction personnel involved in the handling of compounds and materials where wash-up is necessary to maintain a safe, healthy and sanitary condition. Where recommended or required by governing authorities and regulations or recognized standards provide emergency safety showers, emergency eye-wash fountains,

showers, and similar facilities. Dispose of drainage properly. Supply soap and other cleaning compounds appropriate for each condition.

5. Drinking Water Fixtures: Provide containerized tap-dispenser type drinking water units.
6. Supply and maintain toilet tissue, paper towels, paper cups and similar disposable materials as appropriate for each facility. Provide appropriate covered waste containers for used material.

B. Use of Existing Facilities:
   1. Existing restrooms facilities shall not be used.

3.06 SEWERS AND DRAINAGE:

A. General: Existing sewers or drainage facilities are not available for discharge of effluent. Provide containers to remove and dispose of effluent off the Site in a lawful manner.

3.07 TEMPORARY CONSTRUCTION AIDS:

A. General:
   1. Provide construction aids and equipment required by personnel and to facilitate the execution of the Work; scaffolds, staging, ladders, stairs, ramps, runways, platforms, railings, hoists, cranes, chutes, and other such facilities and equipment.
   2. CPS Energy will not furnish or loan any equipment or tools to the Company.
   3. Materials may be new or used, must be suitable for the intended purpose, and meet the requirements of applicable codes, regulations, and standards.
   4. All equipment shall be located to maintain utility CPS Energy required clearances from overhead power lines at all times.

3.08 TEMPORARY ENCLOSURES:

A. New Construction:
   1. Provide temporary enclosure as Work progresses, if necessary, to provide acceptable working conditions, weather protection for materials, allow for effective temporary heating, and to prevent entry of unauthorized persons.

3.09 TEMPORARY SAFETY AND HEALTH:

A. General: Company shall be solely responsible for initiating, maintaining, and supervising all safety and health precautions and programs in connection with the Work. Company shall take all necessary precautions for the safety of, and shall provide necessary protections to prevent injury or loss to, all employees on the Work and other persons and organizations who may be affected thereby.

3.10 TEMPORARY FIRE PROTECTION:

A. General:
   1. Company shall be responsible for development of a fire prevention and protection program for all Work under this Contract.
   2. The program shall comply with the applicable provisions for safety and protection specified in the Contract Documents and with applicable parts of the NFPA 10 and 241.
   3. Locate fire extinguishers where convenient and effective for their intended purpose, but not less than one extinguisher on each floor at or near such usable stairwell.
   4. Store combustible materials in containers in fire-safe locations.
   5. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, stairways, and other access routes for fighting fires. Prohibit smoking in hazardous fire exposure areas.

6. Provide supervision of welding operations and similar sources of fire ignition.
7. Post warning and instructions at each extinguisher location, and instruct construction personnel on proper use of extinguishers and other available facilities at Project Site. Post local fire department telephone number on or near each telephone instrument at Project Site.

3.11 INSTALLATION AND REMOVAL:

A. Relocation: Relocate construction aids as required by progress of construction, storage limitations, or Work requirements and to accommodate requirements of CPS Energy and other contractors at the Site.
B. Removal: Remove temporary materials, equipment, and services when construction needs can be met and allowed by use of permanent construction, or at completion of the Project.
C. Repair: Clean and repair damage caused by installation or by use of temporary facilities.
   1. Remove foundations and underground installations for construction aids.
   2. Grade the areas of the Site affected by temporary installations to required elevations and clean the area.

END OF SECTION 015100

SECTION 015200 - FIELD OFFICES AND SHEDS

PART 1 - GENERAL

1.01 SUMMARY:

A. This Section includes requirements for temporary field offices and other structures required for office and storage space required by Company.

B. Related Work Specified Elsewhere:

1. SECTION 015100 - Temporary Utilities and Facilities.

C. Use of Existing Facilities:

a. Existing facilities at the Site, including offices, sanitary facilities, lunch/break rooms, permanent parking and areas so designated by the CPS Energy shall not be used by Company's personnel.

PART 2 - PRODUCTS

2.01 FIELD OFFICES:

A. General:

1. Provide trailers, mobile buildings, or buildings constructed with floors raised aboveground, with steps, landings, and railings at entrance doors.
2. Buildings shall be structurally sound, secure, and weathertight.
3. Provide appropriate type fire extinguishers at each office and storage area.
4. Maintain offices during progress of the Work.
5. Install office spaces ready for occupancy to support the start of construction.

B. Company's Office:

1. Provide a field office for Company's personnel on the Site and large enough to hold weekly construction meetings.
2. Company's office trailer shall be provided functionally complete of size required for general use, with lights, heat, furnishings, sewage holding tank, telephone service, and other necessary facilities and utilities required by Company's operations.
3. Company shall supply all necessary computers, copiers, fax machines, filing cabinets, and other office supplies necessary to support Company's Work.

2.02 STORAGE SHEDS AND TRAILERS:

A. On Site:

1. CPS Energy may provide warehouse space needed for storage of Equipment and Materials that require indoor storage installed under this Contract. Company shall indicate in its Proposal the amount of space and duration required.

B. Off Site:

1. Advise CPS Energy of any arrangements made for storage of Equipment and Materials in a place other than CPS Energy's Site. Furnish evidence of insurance coverage with Application for Payment

PART 3 - EXECUTION

3.01 LOCATION, INSTALLATION AND MAINTENANCE:

A. General:

1. Place temporary buildings, trailers, and stored materials in locations acceptable to CPS Energy.
2. Install field offices and sheds to resist winds and elements of the locality where installed.
3. Remove when no longer needed at the Site or when Work is completed.

4. Keep approach walks free of leaves, mud, water, ice, or snow.
5. At completion of Work, remove temporary buildings and trailers, foundations (if any), utility services, and debris.
6. Prepare ground or paved areas as specified in applicable Sections.

END OF SECTION 015200

SECTION 015700 - TEMPORARY BARRIERS AND CONTROLS

PART 1 - GENERAL

1.01 SUMMARY:

A. This Section includes General Requirements for:
   1. Safety and protection of Work.
   2. Safety and protection of existing property.
   3. Barriers.
   4. Security.
   5. Environmental controls.
   6. Access roads and parking areas.
   7. Traffic control and use of roadways.

B. Related Work Specified Elsewhere:
   1. SECTION 015100 - Temporary Utilities and Facilities.
   2. SECTION 017800 - Contract Closeout.

PART 2 - PRODUCTS – Not Applicable.

PART 3 - EXECUTION

3.01 SAFETY AND PROTECTION OF WORK AND PROPERTY:

A. General:
   1. Provide for the safety and protection of the Work and of Materials and Equipment to be incorporated therein, whether in storage on or off the Site. Provide protection at all times against rain, wind, storms, frost, freezing, condensation, or heat so as to maintain all Work and Equipment and Materials free from injury or damage. At the end of each day, all new Work likely to be damaged shall be appropriately protected.
   2. Notify CPS Energy immediately at any time operations are stopped due to conditions which make it impossible to continue operations safely or to obtain proper results.
   3. Construct and maintain all necessary temporary drainage and do all pumping necessary to keep excavations, floors, pits, trenches, manholes, and ducts free of water.

B. Property Other than CPS Energy's:
   1. Provide for the safety and protection of property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction. Report immediately to the owners thereof and promptly repair damage to existing facilities resulting from construction operations.
   2. Representatives of agencies and utilities having jurisdiction over streets and utilities in the Work area shall be contacted a minimum of 48 hours prior to performing Work, closing streets and other traffic areas, or excavating near underground utilities or pole lines.
   3. Operation of valves or other appurtenances on existing utilities, when required, shall be by or under the direct supervision of the owning utility.
   4. Where fences are to be breached on private property, the owners thereof shall be contacted and arrangements made to ensure proper protection of any livestock or other property thus exposed.
   5. The applicable requirements specified for protection of the Work shall also apply to the protection of existing property of others.

6. Before acceptance of the Work by CPS Energy, restore all property affected by Company's operations to the original or better condition.

3.02 BARRIERS:

A. General:
   1. Furnish, install, and maintain suitable barriers as required to prevent public entry, to protect the public, and to protect the Work, existing facilities, trees, and plants from construction operations. Remove when no longer needed or at completion of Work.
   2. Materials may be new or used, suitable for the intended purpose, but shall not violate requirements of applicable codes and standards or regulatory agencies.
   3. Barriers shall be of a neat and reasonable uniform appearance, structurally adequate for the required purposes.
   4. Maintain barriers in good repair and clean condition for adequate visibility. Relocate barriers as required by progress of Work.
   5. Repair damage caused by installation and restore area to original or better condition. Clean the area.

B. Tree and Plant Protection:
   1. Preserve and protect existing trees and plants at the Site which are designated to remain and those adjacent to the Site.
   2. Provide temporary barriers around each, or around each group of trees and plants. Construct to a height of six feet around trees, and to a diameter at the drip line or five feet from trunk, whichever is greater, to adequately protect plants.
   3. Consult with CPS Energy and remove agreed-on roots and branches which will interfere with construction. Employ qualified tree surgeon to remove and to treat cuts.
   4. Protect root zones of trees and plants as follows:
      a. Do not allow vehicular traffic or parking.
      b. Do not store materials or products.
      c. Prevent dumping of refuse or chemically injurious materials or liquids.
      d. Prevent puddling or continuous running water.
   5. Carefully supervise excavating, grading and filling, and subsequent construction operations to prevent damage.
   6. Remove and replace, or suitably repair, trees and plants which are damaged or destroyed due to construction operations, and which were designated to remain.

3.03 ENVIRONMENTAL CONTROLS:

A. Dust Control:
   1. Provide positive methods and apply dust control materials to minimize raising dust from construction operations; and to prevent airborne dust from dispersing into the atmosphere.

B. Water and Erosion Control:
   1. Provide methods to control surface water to prevent damage to the Project, the Site, or adjoining properties.
   2. Plan and execute construction and earthwork by methods to control surface drainage from cuts and fills, and from borrow and waste disposal areas, to prevent erosion and sedimentation.
      a. Hold the areas of bare soil exposed at one time to a minimum.
      b. Provide temporary control measures such as berms, dikes, and drains.
   3. Control fill, grading, and ditching to direct surface drainage away from excavations, pits, tunnels, and other construction areas; and to direct drainage to proper runoff.

4. Provide, operate, and maintain hydraulic equipment of adequate capacity to control surface and groundwater.
5. Treat and dispose of surface runoff water in a manner to prevent flooding, erosion, sedimentation, or other damage to any portion of the Site or to adjoining areas, and in a manner acceptable to authorities having jurisdiction.
6. Provide temporary drainage until completion of the permanent drainage piping system.

C. Rodent Control:
1. Provide rodent control as necessary to prevent infestation of construction or storage areas.
   a. Employ methods and use materials which will not adversely affect conditions at the Site or adjoining properties.
   b. Should the use of rodenticides be considered necessary, submit an informational copy of the proposed program to CPS Energy. Clearly indicate:
      (1) The area or areas to be treated.
      (2) The rodenticides to be used, with a copy of the manufacturer's printed instructions.
      (3) The pollution preventive measures to be employed.
2. The use of any rodenticide shall be in accordance with the manufacturer's printed instructions and regulatory agencies.

D. Debris Control and Clean-Up:
1. Keep the premises free at all times from accumulations of debris, waste materials, and rubbish caused by construction operations and employees. Responsibilities shall include:
   a. Adequate trash receptacles about the Site, emptied promptly when filled.
   b. Periodic cleanup to avoid hazards or interference with operations at the Site and to maintain the Site in a reasonably neat condition.
   c. The keeping of construction materials such as forms and scaffolding neatly stacked.
   d. Immediate cleanup to protect the Work by removing splattered concrete, asphalt, oil, paint, corrosive liquids, and cleaning solutions from walls, floors, and metal surfaces before surfaces are marred.
2. Prohibit overloading of trucks to prevent spillages on access and haul routes. Provide periodic inspection of traffic areas to enforce requirements.
3. Final cleanup is specified in SECTION 017800 - Contract Closeout.

E. Pollution Control:
1. Provide methods, means, and facilities required to prevent contamination of soil, water, or atmosphere by the discharge of hazardous or toxic substances from construction operations.
2. Provide equipment and personnel, perform emergency measures required to contain any spillages, and remove contaminated soils or liquids. Excavate and dispose of any contaminated earth off-Site in approved locations, and replace with suitable compacted fill and topsoil.
3. Take special measures to prevent harmful substances from entering public waters, sanitary, or storm sewers.

3.04 ACCESS ROADS AND PARKING AREAS:

A. New Temporary On-Site Roads and Parking Areas:
1. Locate roads, drives, walks, and parking facilities to provide access to construction offices, mobilization, Work, storage areas, and other areas required for execution of the Contract.

a. Consult with CPS Energy regarding any desired deviation therefrom.
b. Size of parking facilities shall be adequate to provide for needs of Company's personnel, CPS Energy's third-party CQA personnel, and visits to Site by CPS Energy and Engineer.

2. Provide access for emergency vehicles. Maintain driveways a minimum of 15 feet wide between and around combustible materials in storage and mobilization areas.
3. Maintain traffic areas free of excavated materials, construction equipment, snow, ice, and debris.
4. Construct temporary bridges and culverts to span low areas and allow unimpeded drainage.
5. Keep fire hydrants and water control valves free from obstruction and accessible for use.
6. Construction:
   a. Clear areas required.
   b. Fill, compact, and grade areas as necessary to provide suitable support for vehicular traffic under anticipated loadings. Materials and construction shall be as specified in DIVISIONS 31 and 32.
   c. Provide for surface drainage of facilities and surrounding areas.
   d. Maintain roads, walks, and parking areas in a sound, clean condition. Repair or replace portions damaged during progress of Work.
7. Removal:
   a. Completely remove temporary materials and construction when construction needs can be met by use of permanent installation, unless construction is to be integrated into permanent construction. Remove and dispose of compacted materials to depths required by various conditions to be met in completed Work.
   b. Restore areas to original, better, or specified condition at completion of Work.

B. Existing On-Site Roads and Parking Areas:
1. Designated existing on-Site streets and parking facilities may be used for construction traffic.
   a. Provide temporary additional roads as needed for required construction access.
   b. Maintain existing construction, and restore to original, better, or specified condition at completion of Work.
   c. Do not allow heavy vehicles or construction equipment in parking areas.

3.05 TRAFFIC CONTROL AND USE OF ROADWAYS:

A. Traffic Control:
1. Provide, operate, and maintain equipment, services, and personnel, with traffic control and protective devices, as required to expedite vehicular traffic flow on haul routes, at Site entrances, on-Site access roads, and parking areas. This includes traffic signals and signs, flagmen, flares, lights, barricades, and other devices or personnel as necessary to adequately protect the public.
2. Remove temporary equipment and facilities when no longer required. Restore grounds to original, better, or specified condition when no longer required.
3. Provide and maintain suitable detours or other temporary expedients if necessary.
4. Bridge over open trenches where necessary to maintain traffic.
5. Consult with governing authorities to establish public thoroughfares which will be used as haul routes and Site access. All operations shall meet the approval of owners or agencies having jurisdiction.

B. Maintenance of Roadways:
   1. Repair roads, walkways, and other traffic areas damaged by operations. Keep traffic areas as free as possible of excavated materials and maintain in a manner to eliminate dust, mud, and hazardous conditions.
   2. All operations and repairs shall meet the approval of owners or agencies having jurisdiction.

3.06 RAILROAD SERVICE:

A. Maintenance:
   1. Schedule operations and exercise care to avoid any interruption to continuous service over the railroads within or adjacent to the Work area.
   2. Before transporting Equipment and Materials across railroad tracks or performing Work within any railroad right-of-way, obtain permission or any necessary permits from the railroads.
   3. The Work shall be subject to all supervision, inspection, and other conditions required by the affected railroads.

END OF SECTION 015700

SECTION 017800 - CONTRACT CLOSEOUT

PART 1 - GENERAL

1.01 SUMMARY:

A. This Section includes administrative and procedural requirements for Contract closeout including, but not limited to, the following:
   1. Inspection procedures.
   2. Project record document submittal.
   3. Submittal of warranties.
   4. Final cleaning.

B. Closeout requirements for specific construction activities are included in the appropriate Sections of the Specifications.

C. Related Work Specified Elsewhere:
   1. SECTION 013300 - Submittals.

1.02 SUBSTANTIAL COMPLETION:

A. Preliminary Procedures: Before requesting inspection for certification of Substantial Completion, complete the following. List exceptions in the request.
   1. Satisfy all requirements for Substantial Completion.
   2. Advise CPS Energy of pending insurance changeover requirements. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
   3. Submit specific warranties, workmanship Bonds, maintenance agreements, final certifications, and similar documents.
   4. Obtain and submit releases enabling CPS Energy unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
   5. Submit record drawings, final project photographs, damage or settlement surveys, property surveys, and similar final record information.
   6. Make final changeover of permanent locks and transmit keys to CPS Energy. Advise CPS Energy's personnel of changeover in security provisions.
   7. Complete start-up testing of systems and instruction of CPS Energy's operation and maintenance personnel. Discontinue and remove temporary facilities from the Site, along with mockups, construction tools, and similar elements.
   8. Complete final cleanup requirements, including touchup painting.

B. Inspection Procedures: On receipt of a request for inspection, CPS Energy will either proceed with inspection or advise Company of unfilled requirements. CPS Energy will prepare the Certificate of Substantial Completion following inspection or advise Company of construction that must be completed or corrected before the certificate will be issued.
   1. CPS Energy will repeat inspection when requested and assured by Company that the Work is Substantially Complete.
   2. Results of the completed inspection will form the basis of requirements for final acceptance.

1.03 FINAL ACCEPTANCE:

A. Preliminary Procedures: Before requesting final inspection for certification of final acceptance and final payment, complete the following. List exceptions in the request.
   1. Satisfy all requirements for Final Completion.
   2. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include insurance certificates for products and completed operations where required.

3. Submit an updated final statement, accounting for final additional changes to the Contract Price.
4. Submit a certified copy of CPS Energy's final inspection list of items to be completed or corrected, endorsed and dated by CPS Energy. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance and shall be endorsed and dated by CPS Energy.
5. Submit final meter readings for utilities, a measured record of stored fuel, and similar data as of the Date of Substantial Completion or when CPS Energy took possession of and assumed responsibility for corresponding elements of the Work.
6. Submit consent of surety to final payment.
7. Submit evidence of final, continuing insurance coverage complying with insurance requirements.

B. Re-inspection Procedure: CPS Energy will re-inspect the Work upon receipt of notice that the Work, including inspection list items from earlier inspections, has been completed, except for items whose completion is delayed under circumstances acceptable to CPS Energy.
1. Submit a certified copy of CPS Energy's final inspection list of items to be completed or corrected, endorsed and dated by CPS Energy. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance and shall be endorsed and dated by CPS Energy.
2. Upon completion of re-inspection, CPS Energy will prepare a certificate of final acceptance. If the Work is incomplete, CPS Energy will advise Company of Work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.
3. If necessary, re-inspection will be repeated.

1.04 RECORD DOCUMENT SUBMITTALS:

A. General: Do not use record documents for construction purposes. Protect record documents from deterioration and loss in a secure, fire-resistant location. Provide access to record documents for CPS Energy and Engineer's reference during normal working hours.

B. Record Drawings: Maintain a clean, undamaged set of blue or black line white-prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark which drawing is most capable of showing conditions fully and accurately. Where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.
1. Record information concurrently with construction progress.
2. Mark record sets with red erasable pencil. Use other colors to distinguish between variations in separate categories of the Work. Mark each document "PROJECT RECORD" in neat, large, printed letters.
3. Mark new information that is important to CPS Energy but was not shown on Contract Drawings or Shop Drawings.
4. Note related Change Order numbers where applicable.
5. Organize record drawing sheets into manageable sets. Bind sets with durable-paper cover sheets; print suitable titles, dates, and other identification on the cover of each set.
6. Upon completion of the Work, submit record drawings to CPS Energy for their records.
7. Include the following:
    a. Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.

b. Location of internal utilities and appurtenances concealed in the construction, referenced to visible and accessible features of construction.
c. Where Submittals are used for mark-up, record a cross-reference at corresponding location on Drawings.
d. Field changes of dimension and detail.
e. Changes made by Change Order or other Modifications.
f. Details not on original Contract Drawings.

C. Record Specifications: Maintain one complete copy of the Project Manual including Addenda. Include with the Project Manual one copy of other written construction documents, such as Change Orders and Modifications issued in printed form during construction.
1. Mark these documents to show substantial variations in actual Work performed in comparison with the text of the Specifications and modifications.
2. Give particular attention to substitutions and selection of options and information on concealed construction that cannot otherwise be readily discerned later by direct observation.
3. Note related record drawing information and product data.
4. Upon completion of the Work, submit record Specifications to CPS Energy for CPS Energy's records.
5. Include the following:
a. Manufacturer, trade name, catalog number, and Supplier of each product and item of Equipment actually installed, particularly optional and substitute items.
b. Changes made by Addendum, Change Order, or other Modifications.
c. Related Submittals.

D. Record Product Data: Maintain one copy of each product data Submittal. Note related Change Orders and markup of record drawings and specifications.
1. Mark these documents to show significant variations in actual Work performed in comparison with information submitted. Include variations in products delivered to the Site and from the manufacturer's installation instructions and recommendations.
2. Give particular attention to concealed products and portions of the Work that cannot otherwise be readily discerned later by direct observation.
3. Upon completion of markup, submit complete set of record product data to CPS Energy for CPS Energy's records.

E. Miscellaneous Record Submittals: Refer to other Specification Sections for requirements of miscellaneous record keeping and Submittals in connection with actual performance of the Work. Immediately prior to the date or dates of Final Completion, complete miscellaneous records, and place in good order. Identify miscellaneous records properly and bind or file, ready for continued use and reference. Submit to CPS Energy for CPS Energy's records.

F. Electronic Documentation:
1. In addition to paper copies, provide electronic versions of record documents showing "as-constructed" conditions, "as-constructed" construction progress schedule, and master field drawing list showing final revisions in AutoCAD.

G. Warranties and Bonds: Specified in CPS ENERGY TERMS AND CONDITIONS and in DIVISIONS 2 through 48.

PART 2 - PRODUCTS – Not Applicable.

PART 3 - EXECUTION

3.01 FINAL CLEANING:

A. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Comply with manufacturer's instructions.
   1. Complete the following cleaning operations before requesting inspection for Final Completion.
      a. Remove labels that are not permanent labels.
      c. Clean exposed exterior hard-surfaced finishes to a dust-free condition, free of stains, films, and similar foreign substances. Restore reflective surfaces to their original condition. Clean concrete floors to a "broom clean" condition. Vacuum carpeted surfaces.
      d. Clean the Site, including landscape development areas, of rubbish, litter, and other foreign substances. Sweep paved areas broom clean; remove stains, spills, and other foreign deposits. Rake grounds that are neither paved nor planted to a smooth, even-textured surface.
   2. Remove temporary structures, tools, equipment, supplies, and surplus materials.
   3. Remove temporary protection devices and facilities which were installed to protect previously completed Work.
   4. Special Cleaning: Cleaning for specific units of Work is specified in applicable Sections of Specifications.

B. Removal of Protection: Remove temporary protection and facilities installed for protection of the Work during construction.

C. Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the CPS Energy's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from the Site and dispose of lawfully.
   1. Extra materials of value remaining after completion of associated Work become CPS Energy's property. Dispose of these materials as directed by CPS Energy.

D. Repairs:
   1. Repair damaged protective coated surfaces.
   2. Repair roads, walks, fences, and other items damaged or deteriorated because of construction operations.
   3. Restore all ground areas affected by construction operations.

END OF SECTION 017800

DIVISION 2 - EXISTING CONDITIONS

SECTION 024100 – DEMOLITION

PART 1 - GENERAL

1.01 SUMMARY:

A. This Section includes the removal of existing construction as indicated and specified herein and indicated on the Contract Documents. Demolition includes the complete or partial removal and disposal of the following:
   1. Existing metal pipe racks, concrete foundation and pipes.
   2. Electrical control equipment, cables and wires.
   3. Pumps and motors.
   4. Other items as indicated on drawing CD100-CD106.

B. Related Work Specified Elsewhere:
   1. SECTION 011100 – Summary of Work.
   2. SECTION 312050 – Site Preparation and Earthwork

1.02 SUBMITTALS:

A. Schedule of Demolition:
   1. Submit as specified in DIVISION 1.
   2. Submit proposed methods and operations of demolition for review prior to the start of Work. Include in the schedule the coordination for shutoff, capping, and continuation of utility services as required, together with details for dust, noise, and erosion control protection.
   3. Provide a detailed sequence of demolition, removal, and relocation Work to ensure the uninterrupted progress of CPS Energy's operations.

1.03 JOB CONDITIONS:

A. CPS Energy will continuously occupy areas of the site immediately adjacent to areas of demolition. Conduct demolition work in a manner that will minimize need for disruption of CPS Energy’s normal operation. Provide CPS Energy a minimum of 72 hours’ advance notice of demolition activities which will severely impact CPS Energys’ normal operations.

B. Condition of Structures to be Demolished:
   1. CPS Energy assumes no responsibility for actual condition of structures to be demolished.
   2. Conditions existing at time of inspection for bidding purposes will be maintained by CPS Energy insofar as practicable.

C. Protections:
   1. Ensure the safe passage of persons around the area of demolition or relocation. Conduct operations to prevent injury to adjacent buildings, structures, other facilities, and persons. Erect temporary covered passageways as required by authorities having jurisdiction.
   2. Provide shoring, bracing, or support to prevent movement, settlement, or collapse of structures to be demolished and adjacent facilities to remain.
   3. Protect from damage existing finished facilities that are to remain in place and become exposed during demolition or relocation operations.

4. Construct temporary, insulated, solid, dustproof partitions where required to separate areas where noisy or extensive dirt or dust operations are performed. Equip partitions with dustproof doors and security locks if required.
5. Provide temporary weather protection during interval between demolition and removal of existing construction on exterior surfaces, and installation of new construction to ensure that no water leakage or damage occurs to structure or interior areas of existing building.
6. Remove protections at completion of Work.

D. Explosives: The use of explosives will not be permitted.

E. Traffic:
1. Conduct demolition operations and the removal of debris to ensure minimum interference with roads and other adjacent occupied or used facilities.
2. Do not close, block, or otherwise obstruct roads, walks or adjacent facilities without permission from CPS Energy. Provide alternate routes around closed or obstructed traffic ways if required by CPS Energy.

F. Promptly repair damages caused to adjacent facilities or existing utilities (including electrical) by demolition operations at no cost to CPS Energy.

G. Existing Utilities:
1. Maintain existing utilities indicated to remain; keep in service and protect against damage during demolition operations.
2. Do not interrupt existing utilities serving occupied or used facilities, except when authorized in writing by CPS Energy. Provide temporary services during interruptions to existing utilities.
3. CPS Energy will shut off utilities serving each area. Disconnecting and sealing indicated utilities before starting demolition operations shall be done by Company.
4. Company to verify location and elevation of all existing utilites prior to underground installation where interference or conflict with other utlities or structures could affect alignment and elevation of pipe. Existing utility locations shown on the drawings are an estimate only and may not contain all utilities in place. Company shall locate underground utilities utilizing a method in accordance with specification Section 312050.

PART 2 - PRODUCTS – NOT APPLICABLE.

PART 3 - EXECUTION

3.01 INSPECTION:

A. Prior to commencement of demolition Work, inspect areas in which demolition will be performed. Photograph existing conditions of structures, surfaces, Equipment, or surrounding properties which could be misconstrued as damage resulting from demolition or relocation operations. File with CPS Energy prior to starting Work.

3.02 PREPARATION:

A. Locate all underground utilities to be demolished by use of a water or air jet/vacuum-extraction system and/or hand digging.

B. Provide interior and exterior shoring, bracing or support as necessary to prevent movement, settlement, or collapse of structures near demolition area:
1. Cease operations and notify CPS Energy and Engineer immediately if safety of nearby structure appears to be endangered. Take precautions to support structure until determination is made for continuing operations.

2. Erect and maintain dustproof partitions and closures as required to prevent spread of dust or fumes to occupied portions of building or Site.

C. Coordinate with CPS Energy about the lock out tag out procedure.
1. Locate, identify, stub off, and disconnect utility services that are indicated to be demolished, relocated, or are to remain.
2. Provide bypass connections as necessary to maintain continuity of service to occupied areas of building or Site. Provide minimum of 72 hours' advance notice to CPS Energy if shutdown of service is necessary during changeover.
3. Fire protection and detection devices shall not be modified until specifically approved by CPS Energy and associated remedies in place prior to the Work.

3.03 DEMOLITION:

A. Perform demolition in a systematic manner. Use such methods as required to complete demolition indicated on Drawings in accordance with demolition schedule and governing regulations:
1. Demolish concrete in small sections. Cut concrete at junctures with construction to remain using power-driven masonry saw, hand tools or power-driven impact tools. Use high pressure water blasting for demolition of existing concrete surfaces where indicated. Provide additional equipment and materials to contain the water and protect nearby equipment from damage.
2. Provide services for effective air and water pollution controls as required by local authorities having jurisdiction.
3. Completely fill below-grade areas and voids resulting from demolition. Provide fill consisting of granular material in areas to receive new pavement, and suitable materials in other areas, or as directed by Engineer (see SECTION 312050.)
4. Demolish concrete walls completely. Demolish and remove below-grade concrete, wood or metal construction.
5. Demolition of electrical components will need to be done according to the guidelines specified in the National Electrical Code.
    a. Cables either partially or completely routed in cable tray and slated for demolition shall be abandoned in place. Such cables shall be disconnected at both ends, pulled back to tray, and marked with green tape indicating cable is de-energized and abandoned in place. Exposed conductors shall be fully insulated with insulating tape.
    b. Cables routed entirely in conduit shall be demolished and disposed of in accordance with requirements of this section along with conduit, conduit supports, and fittings.
    c. Control panels and associated mounting hardware shall be demolished and disposed of in accordance with requirements of this section.
    d. Care shall be taken when removing motors and instrumentation from service so as to avoid damage to equipment. Motors and instruments shall be presented to Owner and may be claimed by Owner at Owner’s discression.
6. Fences: Remove fence construction including fabric, posts, other components, and any below-grade construction such as concrete.
    a. Company shall protect and restore as necessary existing fence grounding grid during demolition of existing fencing and installation of new fencing.

B. If unanticipated mechanical, electrical, or structural elements which conflict with intended function or design are encountered, investigate and measure both nature and extent of the conflict. Submit report to CPS Energy and Engineer in written, accurate detail. Pending

receipt of directive from CPS Energy, rearrange demolition schedule as necessary to continue overall job progress without delay.

C. Pollution Controls:
   1. Use water sprinkling, temporary enclosures, and other suitable methods to limit the amount of dust and dirt rising and scattering in the air to the lowest practical level. Comply with governing regulations pertaining to environmental protection.
   2. Do not use water when it may create hazardous or objectionable conditions such as ice, flooding, and pollution.
   3. Clean adjacent structures and area of dust, dirt, and debris caused by demolition operations.

3.04 SALVAGE MATERIALS:

A. Items to be removed may be claimed by the CPS Energy. These items shall be placed at CPS Energy approved location. All other materials removed shall become property of the Company. Items sent to landfill shall be placed at an CPS Energy approved landfill.

3.05 DISPOSAL OF DEMOLITION MATERIALS:

A. Remove debris, rubbish, and other materials resulting from demolition operations.
B. If hazardous materials are encountered during demolition operations, comply with applicable regulations, laws, and ordinances concerning removal, handling, and protection against exposure or environmental pollution.
C. Burning of removed materials from demolished structures will not be permitted on the Site.
D. Transport materials removed from demolished structures and dispose of off the Site at CPS Energy-approved landfills.

3.06 CONNECTIONS TO EXISTING CONSTRUCTION:

A. Cut and remove portions of existing construction as required to allow for proper installation of new construction.
B. Shore and brace existing structures until permanent supports are completed, and to maintain structures in a safe condition.
C. Repair all damage as a result of installation of shoring and bracing.
D. Seal the ends of all pipe and conduit remaining after demolition with a minimum of 12 inches of non-shrink grout.

3.07 CLEANUP AND REPAIR:

A. Upon completion of demolition Work, remove tools, equipment, and demolished materials from site.
B. Repair demolition performed in excess of that required. Repair adjacent construction or surfaces soiled or damaged by demolition Work.

END OF SECTION 02 41 00

SECTION 026613 - GEOTEXTILE

PART 1 - GENERAL

1.01 SUMMARY:

A. This Section includes geotextile to be used at the following locations:
   1. Bedding material for riprap.
   2. Silt fence.

B. Related Work Specified Elsewhere:
   1. Geomembrane Liner: SECTION 026617.
   2. Site Preparation and Earthwork: SECTION 312000.

1.02 REFERENCES:

A. Applicable Standards:
   1. American Society for Testing and Materials (ASTM):
      a. D3776 – Test Methods for Mass per Unit Area (Weight) of Woven Fabric.
      b. D4355 – Test Method for Deterioration of Geotextiles from Exposure to Ultraviolet Light and Water (Xenon-Are Type Apparatus).
      c. D4491 – Test Method for Water Permeability of Geotextiles by Permittivity.
      d. D4533 – Test Method for Trapezoid Tearing Strength of Geotextiles.
      e. D4632 – Test Method for Grab Breaking Load and Elongation of Geotextiles.
      f. D4751 - Test Method for Determining the Apparent Opening Size of a Geotextile.
      g. D4833 – Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products.
      h. D5261 – Test Method for Measuring Mass per Unit Area of Geotextiles.

1.03 SUBMITTALS:

A. Submit as specified in DIVISION 1.

B. Includes, but not limited to, the following:
   1. Product Data: Specifications, installation instructions, and general recommendations from materials manufacturer of geotextile filter fabric. Specification sheets shall give full details of minimum physical properties and test methods used.
   2. Three fabric samples (6-inch x 6-inch minimum size).
   3. List of three similar projects completed in which the manufactured material has been successfully used. Include name and phone number of owner associated with each project.
   4. Chemical resistance data.
   5. Verification that manufacturer's quality control includes inspection for broken needles where appropriate before material leaves manufacturer's plant.
   6. Geotextile manufacturer’s quality control certificates for each roll of geotextile delivered to the Project Site. The quality control certificates shall be submitted prior to installation and include material components listed in Article 2.01.D, this Section.
   7. The geotextile installer's Quality Control manual describing method of documenting placement, seaming, laps, and related items.

1.04 QUALITY ASSURANCE:

A. CPS Energy will engage and pay for the services of (1) CQA Monitor, and (2) CQA Laboratory for monitoring the quality and installation of the geotextile, unless otherwise specified.

1. CPS Energy shall not be charged any time or material expense by Company or manufacturer, related to plant visits during manufacturing by representatives of CPS Energy, Engineer, or CQA Monitor.
2. Company shall provide personnel and equipment necessary to move, cut, and protect geotextile rolls.

B. Quality assurance conformance testing of geotextile shall be performed by an independent laboratory and paid for by the Company. Conformance sampling shall be completed at a minimum frequency of one sample every 50,000 square feet of geotextile delivered.
1. Conformance testing of geotextile shall include those properties listed in Article 2.01.D, this Section.
2. Engineer may revise the test methods used for determination of conformance properties to allow for use of improved methods.

C. All geotextile conformance test data as well as geotextile manufacturer quality control testing shall meet or exceed requirements of Article 2.01.D of this Section. Any materials that do not conform to these requirements shall be retested or rejected at the direction of the CPS Energy.
1. Geotextile that is rejected shall be removed from the Project Site and replaced at Company's expense. Sampling and conformance testing of geotextile supplied as required for rejected material shall be performed by CPS Energy-approved independent laboratory at Company's expense.

1.05 OPERATING CONDITIONS:

A. The geotextile shall be manufactured for use under the following conditions:
1. Wind velocity of 0 to 70 miles per hour can occur.
2. Ambient air temperatures at Site location to range from –l0°F to 110°F.
3. Ice formation may occur.

1.06 DELIVERY, STORAGE, AND HANDLING:

A. Do not leave geotextile material exposed to direct sunlight and ultraviolet rays.
B. Receive, store, and handle geotextile materials as recommended by manufacturer. Completely cover all materials while being stored on-Site prior to use.
C. Damaged material on rolls shall be cut out and removed from the Site.

PART 2 - PRODUCTS

2.01 FABRIC:

A. Provide geotextile of generic type specified and tested to show compliance with specified performances. Mass per unit area (ASTM D5261) shall be:
1. 16 oz/sy material shall be used under riprap and for cushioning for the leachate pond inflow pipe.
2. Silt fence material shall be as indicated on Contract Drawings.

B. Geotextile shall be manufactured of new, first quality products designed and manufactured specifically for the purpose of filtering out soil fines while maintaining good drainage characteristics.

C. Geotextile shall be so produced as to be free of tears, punctures, or any sign of contamination by foreign matter. Any such defect shall be repaired in accordance with the manufacturer's recommendations. Geotextile must be uniform in thickness with a maximum 10% deviation from the nominal thickness. Edges shall be straight and free of nicks and cuts.

D. Geotextile Properties (minimum) - refer to Paragraph 2.01.A for specific uses of each material:

1. Nonwoven needle punched polypropylene or polyester fabric meeting the following specifications (minimum average roll values unless otherwise noted):
    a. Material: Nonwoven needle punched polypropylene or polyester.
    b. Mass/Unit Area: ASTM D3776, 14 oz/sy, 16 oz/sy.
    c. Grab Tensile Strength: ASTM D4632, min 330 pounds (14 oz/sy), min 390 lbs (16 oz/sy).
    d. Elongation at Failure: ASTM D4632, 50%.
    e. Coefficient of Permittivity-k: ASTM D4491 0.9 sec^{-1} (14 oz/sy), 0.60 sec^{-1} (16 oz/sy).
    f. Apparent Opening Size: ASTM D4751, less than or equal to No. 70 sieve.
    g. Puncture Strength: ASTM D4833, min 160 lbs (14 oz/sy), min 240 lbs (16 oz/sy).
    h. Trapezoid Tear Strength: ASTM D4533, min 125 lbs (8 oz/sy), min 125 lbs (16 oz/sy).
    i. Sewn Seam Strength: ASTM D4632, 140 pounds.
    j. Ultraviolet Light Resistance: ASTM D4355, 70%.

PART 3 - EXECUTION

3.01 EXAMINATION:

A. Verify that all surfaces to be lined are smooth, free of all foreign material, sharp objects, or debris of any kind.
B. Verify that all surfaces to be lined provide a firm foundation with no sharp changes or abrupt breaks in grade.
C. Verify that there is no standing water or excessive moisture on prepared subgrade.
D. Certify in writing that the surface on which the geotextile is to be installed is acceptable before commencing work.

3.02 PREPARATION:

A. Surfaces to be lined shall be smooth and free of all rocks, stones, sticks, roots, sharp objects, or debris of any kind.
B. The surface should provide a firm foundation for the geotextile with no sudden, sharp, or abrupt changes or breaks in grade.
C. Standing water or excessive moisture shall not be allowed.

3.03 INSTALLATION:

A. Install geotextile and all accessories in accordance with these Specifications and as indicated.
B. Install geotextile on prepared surface or within trench using careful procedures with minimum handling. Unroll panels as close to their final position as possible.
C. Seaming of Geotextile:
    1. Geotextile panels shall be overlapped a minimum of 12 inches.
    2. Geotextile may be heat seamed (with no open flame). Engineer approval required prior to use of heat seaming.
D. Adhere to the following stipulations while working on or near geotextile:
    1. No smoking shall be allowed.
    2. No glass or metal containers or other sharp objects shall be used.
    3. No construction installation equipment shall pass over any exposed fabric surface.
    4. Remove snow and water from the ground surface prior to fabric installation.
    5. Cover the geotextile within 20 days after placement.

6. Placement of the cover material over the geotextile shall be as indicated in SECTION 312000.

END OF SECTION 026613

DIVISION 31 - EARTHWORK

SECTION 312000 - SITE PREPARATION AND EARTHWORK

PART 1 - GENERAL

1.01 SUMMARY:

A. This Section includes Site preparation activities and certain items of earthwork common to other related work as necessary to complete the Work including all clearing and grubbing, stripping, subgrade preparation, excavating, trenching, borrowing, embankment construction, backfilling, compacting, grading, placing of protective cover material, riprapping, topsoiling, and all related items necessary to complete the Work indicated or specified.

B. Related Work Specified Elsewhere:
   1. SECTION 026613 - Geotextile.
   2. SECTION 321100 - Crushed Rock Surface Course.
   3. SECTION 329200 - Seeding.

1.02 REFERENCES:

A. Applicable Standards:
   1. American Society for Testing and Materials (ASTM) (Equivalent AASHTO standards may be substituted as approved):
      a. C88 - Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate.
      b. C131 – Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
      c. C136 – Test Method for Sieve Analysis of Fine and Coarse Aggregates.
      d. D698 - Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3).
      e. D1556 – Test Method for Density and Unit Weight of Soil In-place by the Sand Cone Method.
      f. D2167 - Test Method for Density and Unit Weight of Soil in-Place by the Rubber Balloon Method.
      g. D2216 – Test Methods for Laboratory Determination of Water (Moisture) Content for Soil and Rock by Mass.
      h. D2434 – Test Method for Permeability of Granular Soils (Constant Head).
      i. D2487 - Classification of Soils for Engineering Purposes (Unified Soil Classification System).
      j. D4253 - Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table.
      k. D4254 - Test Methods for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density.
      l. D4318 - Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
      m. D4546 - Test Methods for One-Dimensional Swell or Settlement Potential of Cohesive Soils.
      n. D5084 – Test Method for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter.
      o. D6938 - Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

2. Occupational Safety and Health Administration (OSHA):
   a. 29 CFR Part 1926 - Safety and Health Regulations for Construction.
3. Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges, State of Texas.

1.03 SUBMITTALS:

A. Submit as specified in DIVISION 1.
B. Includes, but not limited to, the following:
   1. Test results from laboratory testing of proposed borrow material (general fill and protective cover material) from on or off site.
   2. Test results from laboratory testing of granular material.
   3. Erosion control plan.
   4. Sheeting and Shoring Excavation Plan.
   5. Where selecting an option for excavation, trenching, and shoring in compliance with local, state, or federal safety regulations such as OSHA 29 CFR Part 1926 or successor regulations, which require design by a registered professional engineer, submit (for information only and not for CPS Energy approval) the following:
      a. Copies of design calculations and notes for sloping, benching, support systems, shield systems, and other protective systems prepared by or under the supervision of a professional engineer legally authorized to practice in the jurisdiction where the Project is located.
      b. Documents provided with evidence of registered professional engineer's seal, signature, and date in accordance with appropriate state licensing requirements.

1.04 QUALITY ASSURANCE:

A. Sampling and Testing:
   1. Tests to determine conformance with all requirements of this Specification for quality and properties of all Company-secured materials, including borrow materials (both on or off Site) proposed for use, shall be performed by an independent, commercial laboratory retained and compensated by Company, and approved by CPS Energy.
   2. When incorporating materials into the Work, quality control testing will be performed during construction by a testing laboratory retained and compensated by CPS Energy.

1.05 PROJECT CONDITIONS:

A. Lines and grades shall be as indicated.
B. CPS Energy will furnish benchmarks, base lines, and reference points as necessary to permit Company to lay out and construct the Work properly.
C. Carefully maintain all benchmarks, monuments, and other reference points and replace as directed by CPS Energy if disturbed or destroyed.
D. Temporary Erosion and Sediment Controls: Furnish, install, construct, and maintain temporary measures to control erosion and minimize the siltation of intermittent streams. Temporary erosion and sediment control measures shall be constructed in substantial compliance with local, state, federal, and jurisdictional agency’s regulations and the Stormwater Pollution Prevention Plan (SWPPP) and Contract Drawings. Temporary erosion and sediment control measures shall be maintained until completion of the Contract.
E. Disposition of Utilities: The project area does not contain any existing known utilities. However, if existing utilities are encountered, they shall be addressed in the following manner:
   1. Report active, inactive, and abandoned utilities encountered in excavating and grading operations. Remove, plug, or cap as directed by CPS Energy.

2. Provide as-constructed drawings of Underground Facilities found.

F. Survey work, to accurately determine locations, elevations, and quantities of Contract pay items, shall be performed during the course of construction by an independent Professional Land Surveyor registered in the state of Texas. Surveyor shall be retained and compensated by Company. Company shall notify CPS Energy prior to commencing survey work.

PART 2 - PRODUCTS

2.01 MATERIALS ENCOUNTERED:

A. Suitable Materials: Materials suitable for use in embankment and fill include material that is free of debris, roots, organic matter, frozen matter, and which is free of stone having any dimension greater than 2 inches in areas requiring a high degree of compaction, or 4 inches in other embankment and fill areas:
   1. Cohesionless materials include gravels, gravel-sand mixtures, sands, and gravelly sands generally exclusive of clayey and silty material with the following properties:
      a. Are free-draining.
      b. Impact compaction will not produce a well-defined moisture-density relationship curve.
      c. Maximum density by impact methods will generally be less than by vibratory methods.
      d. Generally less than 15% by dry weight of soil particles pass a No. 200 square-mesh sieve.
   2. Cohesive materials include materials made up predominately of silts and clays generally exclusive of sands and gravel with the following properties:
      a. Impact compaction will produce a well-defined, moisture-density relationship curve.
      b. Are not free draining.

B. Unsuitable Materials: Materials unsuitable for use in embankment and fill include all material that contains debris, roots, organic matter, frozen matter, shale particles, or material containing gravel or stone with any dimension greater than 2 inches in areas requiring a high degree of compaction or 4 inches in other embankment and fill areas, or other materials that are determined by CPS Energy as too wet or otherwise unsuitable for providing a stable subgrade or stable foundation for structures.

C. Material used for embankment or fill:
   1. For soils used in dikes or embankments or below structural elements, such as footings, slabs, pavements, and mats, that portion of material passing the No. 40 square-mesh sieve shall have a liquid limit not exceeding 40 and a plasticity index not exceeding 25 when tested in accordance with ASTM D4318.

D. All Materials encountered, regardless of type, character composition and condition thereof, shall be considered “unclassified” for the purpose of payment. Determine quantity of various materials to be excavated prior to submitting Bid. Rock encountered shall be handled at no extra cost to CPS Energy.

E. Waste Materials:
   1. Waste materials, as described for purposes of this Section, consist of unsuitable materials, excess suitable material, rock, demolition debris, and other materials considered unacceptable for use as fill, and which are not environmentally contaminated. Waste materials shall not include environmental pollutants, hazardous substances, contaminated

products, by-products, samples, or waste materials of any kind that are regulated under environmental laws.

2. Dispose of waste materials in accordance with Paragraph 3.02.E, this Section.

2.02 BORROW MATERIALS:

A. Suitable fill materials, granular materials, and topsoil obtained from locations arranged for by Company on or off the Site. Required to the extent sufficient suitable materials are not obtained from excavation and trenching.

B. Obtain, excavate, haul, handle, place, and compact borrow materials.

C. Borrow materials shall not exhibit characteristics of high shrink-swell potential as determined from Atterberg limit tests (ASTM D4318) and/or swell tests (ASTM D4546) unless otherwise specified herein.

D. All borrow materials shall be subject to the approval of CPS Energy.

2.03 GRANULAR MATERIAL:

A. Pipe bedding or granular drainage material for leachate collection pipes, and granular material for fill around the leachate pond riser discharge structure, shall be crushed limestone, dolomite, or crushed (natural) gravel, free from lumps or balls of clay, dirt, silt, vegetable matter, or other objectionable matter and reasonably free from thin and elongated pieces of aggregate. Aggregate shall be durable, sound, and reasonably uniform in density and quality.

1. Percentage of loss shall not exceed 45% when tested in accordance with ASTM C131. The magnesium sulfate soundness loss shall not exceed 18% after 5 cycles when tested in accordance with ASTM C88.

B. Gradation shall not vary from low limit on one sieve to high limit on adjacent sieve or vice versa. Test by ASTM C136, and conform to the following or Engineer-approved equal:

Standard Square Mesh Sieve U.S. Size or No.	Pipe Bedding/Granular Drainage Material ASTM C33 No. 6 Stone Percent Passing
3 inch	-
2-1/2 inch	-
2 inch	-
1-1/2 inch	-
1 inch	100
3/4 inch	90 to 100
1/2 inch	20 to 55
3/8 inch	0 to 15
No. 4	0 to 5

2.04 EMBANKMENT AND FILL MATERIAL:

A. Material shall be free of roots or other organic matter, refuse, ashes, cinders, frozen earth, or other unsuitable material.

B. Use suitable material sufficiently friable for embankment to provide a dense mass free of voids and capable of satisfactory compaction.

C. Do not use material containing gravel, stones, or shale particles greater in dimension than one-half the depth of the layer or lift to be compacted.

D. Moisture content shall be that required to obtain specified compaction of the soil or as indicated.
E. Perform moisture curing by wetting or drying of the material as required to attain required compaction criteria.

2.05 RIPRAP:

A. Riprap Material:
1. Quarry-run stone with stones weighing 80 to 150 pounds each. At least 90% shall weigh more than 80 pounds each.
2. Stones shall be durable, free from cracks, seams, and other defects which would tend to increase deterioration from natural causes.
3. Dirt, sand, or clay shall not exceed 5% by weight.
4. Quantity of rock with an elongation greater than 3:1 shall not exceed 20% of the mass. No stone shall have an elongation greater than 4:1.
5. Not more than 10% of the stone shall show splitting, crumbling, or spalling when subjected to 5 cycles of the sodium soundness test as required by ASTM C88.
6. In lieu of conforming to above specified test requirements, material with a proven history of satisfactory performance may be approved for use in the Work provided certification of this history is acceptable to Engineer.

B. Geotextile Fabric:
1. Geotextile Fabric shall be as specified in SECTION 026613.

2.06 GENERAL FILL:

A. General fill shall be soil material free of gravel or rock particles greater than one inch in size in any dimension, roots or other organic matter, ice, snow, frozen earth, or other unsuitable material; and a maximum 50% of the material shall pass the No. 200 sieve (ASTM D1140).

PART 3 - EXECUTION

3.01 SITE PREPARATION:

A. Erosion and sediment control measures shall be installed and maintained in accordance with the Stormwater Pollution Prevention Plan (SWPPP) and as indicated and specified.
B. Sediment (Silt) Fence:
1. Install silt fence as indicated and as follows:
a. On the downslope side(s) of all disturbed areas.
b. On the downslope side(s) of all stockpile areas.
2. Inspection:
a. Daily in areas of active construction or equipment operation.
b. Weekly in areas with no construction or equipment operation.
c. Within 24 hours of each 0.5-inch or greater rainfall event.
d. Complete inspection reports after each inspection and submit to CPS Energy within 2 working days.
3. Maintenance:
a. Remove sediment from behind silt fence when it reaches one-third the height of fence. Place removed sediment in topsoil stockpile areas.
b. Any silt fence damaged so it cannot perform its intended function shall be replaced as indicated or as directed by CPS Energy.
c. Remove silt fence after area has been surfaced or seeded and has been accepted by CPS Energy.

C. Construction Access:
   1. Immediately remove by shoveling and/or sweeping all sediment tracked from the construction area onto Site access roads. Place sediment in stockpile areas.

D. Clearing and Grubbing:
   1. Perform only in areas where earthwork or other construction operations are to be performed, including borrow areas.
   2. Protect tops, trunks, and roots of existing trees which are to remain on Site.
   3. Clear areas and dispose of other trees, brush, and vegetation before starting construction.
   4. Remove tree stumps and roots larger than 3 inches in diameter and backfill resulting excavations with compacted, suitable material.
   5. Dispose of debris from clearing and grubbing at a location off the Site, as arranged for by Company, at no additional cost to CPS Energy.
   6. Clearing:
      a. Clearing includes felling and disposal of trees, brush, and all other vegetation or combustible material found on or above the existing ground surface inside the work limits, including borrow areas.
      b. Conduct work in a manner to prevent damage to property and to provide for the safety of employees and others.
   7. Grubbing
      a. Grubbing includes the removal and disposal of all tree stumps and roots where fill is to be placed and when the excavated material is to be used as fill. Removal and disposal of tree stumps and roots larger than 3 inches in diameter will be required at all other locations.
      b. Remove to a depth of at least 18 inches below existing grade elevation at all water containment areas. Remove to a depth of at least 12 inches below existing grade elevation at all other locations.
      c. Backfill all excavated depressions with approved material and grade to drain.

E. Stripping:
   1. Remove topsoil from areas within limits of excavation, trenching and borrow, and areas designated to receive embankment and compacted fill as follows:
      a. Scrape areas clean of all brush, grass, weeds, roots, and other material.
      b. Strip to depth of approximately 6 inches or to a sufficient depth to remove excessive roots in heavy vegetation or brush areas and as required to segregate topsoil, or as directed by CPS Energy.
      c. Stockpile topsoil in areas where it will not interfere with construction operations or existing facilities. Stockpiled topsoil shall be reasonably free of subsoil, debris, and stones larger than 2 inches in diameter.
      d. Remove waste from the Site.

3.02 EXCAVATION AND TRENCHING:

A. Sheeting and Bracing:
   1. Design, furnish, place, maintain, and subsequently remove, to extent required, a system of temporary supports for cut and cover, open cut, or trench excavations, including bracing and associated items to support sides and ends of excavations where excavation slopes might endanger in-place or proposed improvements, extend beyond construction right-of-ways, or as otherwise specified or indicated.
   2. Provide all materials on Site prior to start of excavation in each section and make such adjustments as are required to meet unexpected conditions.

3. Space and arrange sheeting and bracing as required to exclude adjacent material and according to stability of excavation slopes.
4. Assess existing conditions including adjacent property and possible effects of proposed temporary works and construction methods; and select and design such support systems, methods, and details as will assure safety to the public, adjacent property, and the completed Work.
5. Perform sheeting, shoring, and bracing in accordance with safety and protection requirements of the Contract Documents.
6. Provide sheeting, shoring, and bracing for trench excavation in subgrade of excavation when required to prevent movement of the main excavation support system.
7. Provide shoring, sheeting, and bracing as indicated or as needed to meet the following requirements:
    a. Prevent undermining and damage to all structures, buildings, underground facilities, pavements, and slabs.
    b. Perform excavations with vertical banks where necessary for construction activities or as indicated, and also within all limits of excavation noted on Drawings.
    c. Design excavation support system and components to support lateral earth pressures, unrelieved hydrostatic pressures, utility loads, traffic and construction loads, and building and other surcharge loads to allow safe and expeditious construction of permanent structures without movement or settlement of the ground, and to prevent damage to or movement of adjacent buildings, structures, underground facilities, and other improvements. Design shall account for staged removal of bracing to suit the sequence of concrete placement for permanent structures and backfill.
    d. Except as otherwise specified herein, shoring and sheeting materials may be extracted and reused at Company's option; however, Company shall remove and replace any existing structure or underground facility damaged during shoring and sheeting. Remove sheeting and bracing as backfill progresses. Fill voids left after withdrawal with sand or other material approved by CPS Energy.
    e. Where shoring and sheeting materials must be left in-place in the completed Work to prevent settlements to or damage within adjacent structures or as directed by CPS Energy, backfill the excavation to 3 feet below finished grade and remove the remaining exposed portion of shoring before completing backfill. If soldier piles and wood lagging are used for shoring, remove wood lagging to within 3 feet of finished grade in incremental steps of approximately 6 inches as backfill is placed, or to Company's design if more stringent. Location of all shoring and sheeting left in-place shall be documented on Company-furnished construction record drawings and provided to Engineer and CPS Energy.
8. Company shall be solely responsible for proper design, installation, operation, maintenance, and any failure of any component of the system. Review by Engineer of drawings and data submitted by Company shall not in any way be considered to relieve Company from full responsibility for errors therein or from the entire responsibility for complete and adequate design and performance of the sheeting and shoring system.
9. Provision for Contingencies:
    a. Performance of components of the support system shall be monitored for both vertical and horizontal movement daily.
    b. Provide a contingency plan or alternative procedure for implementation, if system does not adequately perform.

c. Keep materials and equipment necessary to implement the contingency plan readily available.

B. Explosives: Blasting will not be permitted.

C. Excavation for Structures:
1. Excavate area adequate to permit efficient erection and removal of forms.
2. Trim to neat lines where details call for concrete to be deposited against earth.
3. Excavate by hand in areas where space and access will not permit use of machines.
4. Notify CPS Energy immediately when excavation has reached the depth indicated.
5. Over-excavate and replace any localized zones of excessively wet, unstable, organic, yielding, or low bearing capacity materials as directed by CPS Energy. Restore bottom of excavation to proper elevation with compacted fill in areas over-excavated. Correct at no additional cost to CPS Energy when over-excavated without authority or to stabilize bottom rendered unsuitable through negligence or improper dewatering or other operations.

D. Trenching for Underground Utilities:
1. Side Walls:
a. Make vertical or sloped within specified trench width limitations below a plane 12 inches above top of pipe.
b. Make vertical or sloped (stepped) as required for stability, above a plane 12 inches above top of pipe.
c. Excavate without undercutting sidewalls.
2. Trench Depth:
a. Excavate to depth sufficient to provide the minimum bedding requirements for the pipe being placed.
b. Do not exceed that indicated where conditions of bottom are satisfactory.
c. Increase depth as necessary to remove unsuitable supporting materials.
d. Maintain a minimum of 3 feet of soil cover above top of pipe.
3. Trench Bottom:
a. Protect and maintain when suitable natural materials are encountered.
b. Remove rock fragments and materials disturbed during excavation or raveled from trench walls.
c. Restore to proper subgrade with trench stabilization material. Correct at no additional cost to CPS Energy when trench is over-excavated without authority or to stabilize bottom rendered unsuitable through negligence or improper dewatering or other operations.
4. Trench Width:
a. Excavate trench to a width which will permit satisfactory jointing of pipe and thorough tamping of bedding and backfill.
b. Do not exceed following trench widths:
(1) For single pipe installation, maintain trench widths below a plane 12 inches above top of pipe as follows:

	Trench Width	
Nominal Pipe Size	Minimum	Maximum
Less than 24"	Pipe od + 1'	Pipe od + 2'
24” to 60”	Pipe od + 2’	Pipe od + 4’

(2) For multiple pipe installations maintain trench widths below a plane 12 inches above the top of the largest pipe as follows:

Nominal Pipe Size of Outside Pipe	Trench Clearances Minimum from Outside Pipe	Maximum from Outside Pipe
Less than 24"	6"	12" F
24" to 60"	12"	24"

(3) Above plane defined in (1) and (2), no maximum limit.
(4) Maximum trench width limitations shall apply in all areas more than 3 feet from manhole or structure walls.
(5) Maximum width shall be as near the minimum specified as can be controlled by construction equipment and methods used.

5. Fill and Embankment Areas: Perform trenching only after compacted fill or embankments have reached an elevation of not less than 1 foot above top of pipe.
6. Limit maximum length of open trench to 100 feet in advance and to 100 feet behind pipe installation.
7. Test Pits:
   a. Excavate test pits sufficiently in advance of trenching to enable adequate planning of construction procedure.
   b. Locate as follows:
      (1) When unstable material is suspected that may require special protective measures.
      (2) Where groundwater may require special handling methods.
      (3) Where indicated or otherwise approved.
      (4) Where interference or conflict with other utilities or structures could affect alignment of pipe.
   c. To depth required to obtain information desired.

E. Waste Materials:
1. Remove unsuitable materials from Work area as excavated.
2. Material shall become property of Company and shall be disposed of off Site at locations arranged for by Company unless onsite disposal is approved by CPS Energy.
3. Segregate excess suitable materials and topsoil from unsuitable materials for possible use by others. Place excavated rock in interior of waste area fills as approved by CPS Energy so it will not be exposed to view.
4. Grade waste areas and leave free-draining with an orderly, neat appearance. Side slopes shall not be steeper than 3 horizontal to 1 vertical. Topsoil, seed, and mulch waste areas.

3.03 EARTHWORK:

A. Subgrades:
1. General:
   a. Excavate or backfill as required to construct subgrades to elevations and grades indicated.
   b. Remove all unsuitable material and replace with acceptable fill material and perform all wetting, drying, shaping, and compacting required to prepare subgrade.
   c. Proofrolling: Exposed area to receive fill, backfill, or embankment shall be proofrolled to detect localized zones of excessively wet, unstable, organic, or low bearing capacity materials as follows:
      (1) Proofroll as a single-pass operation with conventional compaction equipment during subgrade preparation and prior to placement of fill, and as a spot

check process without the need for complete coverage per unit area of tire. Soft spots shall be over-excavated, backfilled, and compacted with suitable material.

(2) Proofroll within limits of proposed construction of footings, slabs, mats, or pavement and to extent of 10 feet beyond proposed exterior walls and stated limits, or as otherwise noted. Proofroll with loaded dump truck, loaded pan scrapper, 15-ton light class pneumatic tired roller compactor, or equivalent. Ground contact pressure of 80 psi and average speed of 5 miles per hour shall be maintained and continue until extent of soft spots is determined with not less than one pass per unit area of tire. Soft spots shall be over-excavated, backfilled, and compacted with suitable material.

2. Subgrade for Fills and Embankments: Roughen by discing or scarifying and wet or dry top 6 inches as required to bond with fill or embankment.
3. Subgrade for Roadways:
   a. Extend subgrade the full width of pavement or base course, plus 1 foot in each direction.
   b. Cohesive Soil Subgrades: Compact the top 6 inches to a minimum of 95% of maximum dry density within the moisture content range from 4% below optimum to 2% above optimum. Optimum moisture and maximum dry density shall be determined by ASTM D698.
   c. Cohesionless Soil Subgrades: Compact the top 6 inches to not less than 80% of relative dry density as determined by ASTM Methods D4253 and D4254.

B. Embankments and Fills:
1. Embankments and fills constructed as subgrade for the landfill, including but not limited to backfill of embankments and perimeter road berms, shall be constructed of suitable cohesive materials as indicated, as defined in Paragraph 2.01.A, this Section, and as approved by CPS Energy.
2. Construct embankments to contours and elevations indicated, using suitable approved material from excavations and borrow areas:
   a. Place fill material in maximum 8-inch loose lifts.
   b. Place embankment only on subgrades approved by CPS Energy.
   c. Do not place snow, ice, or frozen earth in fill; do not place fill on a frozen surface.
3. Obtain compaction by the controlled movement of compaction equipment approved by CPS Energy during placing and grading of layers and to minimum density specified for indicated locations.
4. Except as indicated or specified otherwise, compact cohesive soils to a minimum of 95% of maximum dry density within the moisture content range from 4% below optimum to 2% above optimum. Optimum moisture and maximum dry density shall be as determined by ASTM D698.
5. Except as indicated or specified otherwise, compact cohesionless soils to not less than 75% relative density as determined by ASTM Method D4253 and D4254.

C. Granular Material:
1. Place granular pipe bedding/ granular drainage material as follows:
   a. With level bottom layer at proper grade to receive and uniformly support pipe barrel throughout its length.
   b. Form shallow depression under each joint to facilitate jointing.
   c. Add second layer simultaneously to both sides of pipe with care to avoid displacement.
   d. Complete promptly after completion of jointing operations.

e. Substitute for any part of earth backfill to within 2 feet of final grade at Company's option.

2. Compact all granular material as follows:
   a. In loose lifts not exceeding 12 inches in depth.
   b. Rod, spade, or use pneumatic or vibratory equipment:
      (1) As required to obtain not less than 70% relative density as determined by ASTM Method D4253 and D4254.
      (2) Throughout depth of embedment.
      (3) For perforated leachate collection pipe within landfill cell, entire length of granular material shall be compacted within pipe trench.
   c. Compaction using flooding or water spraying techniques will not be allowed.

D. Backfilling:
1. Backfill for trenches shall be as specified in "Embankments and Fills," this Section, with the following additional provisions:
   a. Complete promptly upon completion of pipe embedment and approval to proceed.
   b. Use hand methods to a plane 12 inches above top of pipe.
   c. Mechanical methods shall be acceptable where hand backfill is not required.
   d. Backfill in lifts of thickness within compacting ability of equipment used, but not greater than 8 inches.
   e. Until compacted depth over conduit exceeds 3 feet, do not drop fill material over 5 feet. Distance may then be increased 2 feet for each additional foot of cover.

E. Site Grading:
1. Excavate, fill, compact fill, and rough grade to bring Project area to subgrades as follows:
   a. For surfaced areas, to underside of respective surfacing or base course.
   b. For areas to receive topsoil, to a minimum of 4 inches below finished grade.
2. Grading:
   a. Grade and compact all areas within Project area, including excavated and filled sections and adjacent transition areas, reasonably smooth, and free from irregular surface changes.
   b. Degree of finish for rough grading shall be that ordinarily obtained from blade grader or scraper operations except as otherwise specified with due allowance for topsoil.
   c. Finished grades shall generally be not more than 0.1 foot above or below those indicated.
   d. Finish all ditches and swales to drain readily.
   e. Provide roundings at top and bottom of banks and at other breaks in grade.

3.04 TOPSOILING:

A. Topsoil Materials:
1. Shall be material excavated from within the upper layer of on-Site excavations; and be obtained from Site areas having healthy plant growth prior to stripping.
2. Company may furnish topsoil from off-Site borrow areas at his option and without additional charge to CPS Energy provided these materials are:
   a. From that portion of the soil profile defined as the "A" horizon by the Soil Science Society of America.
   b. Fertile, friable, and loamy soil of uniform quality without admixture of subsoil materials, gravel, hardpan, debris, or other similar impurities.
   c. Demonstrate healthy plant growth prior to stripping.

d. From areas from which topsoil has not been previously removed by erosion or mechanical methods.

B. Place topsoil on all areas indicated and on stockpile areas and borrow areas.

C. Treatment of Subgrade Prior to Topsoil Placement:
1. Clear Site of vegetation heavy enough to interfere with proper grading and tillage operations.
2. Clear surfaces of all stones or other objects larger than 3 inches in thickness or diameter, all roots, brush, wire, grade stakes, or other objectionable material.
3. Loosen subgrade by discing or scarifying to a depth of 2 inches wherever compacted by traffic or other causes to permit bonding of the topsoil to the subgrade.

D. Placement:
1. Distribute over required areas without compaction other than that obtained with spreading equipment.
2. Place to extent material is available within following limits:
a. Not less than 4 inches in depth.
b. Do not exceed 6 inches in depth.
3. Shape cuts and fills to drain as indicated.
4. Grade to match contours of adjacent areas and permit good natural drainage.
5. Provide gentle mound over trenches.

E. After topsoil has been spread, clear surface of stones or other objects larger than 2 inches in thickness or diameter and all other objects that might interfere with planting and maintenance operations.

F. Protect topsoiled areas from the elements until grass is established. Repair eroded areas as required.

G. Keep paved areas clean. Promptly remove topsoil or other dirt dropped on surfacing.

3.05 RIPRAP:

A. Foundation Preparation:
1. Uniformly trim and dress areas on which are placed, conforming to cross sections indicated within an allowable tolerance of plus or minus 1 inch from indicated slope lines and grades of subgrade.
2. Fill areas below tolerance limit with suitable material and compact.
3. Do not place riprap until the base has been accepted by CPS Energy.

B. Placement of Geotextile Fabric:
1. Place on slopes within limits as indicated.
2. Roll geotextile fabric on prepared base in a neat manner and anchor.
3. Any damages to geotextile fabric during placement shall be repaired before proceeding with the Work.

C. Placement of Riprap:
1. Trim and dress areas requiring riprap to conform with lines as indicated within an allowable tolerance of 3 inches from indicated slope lines and grades of geotextile fabric. When regrading is required, existing geotextile fabric shall be removed and then replaced when slope meets specified tolerance.
2. Geotextile fabric shall be free of tears, holes, and sags prior to placement of riprap.
3. Place stone to full course thickness in one operation and in a manner to avoid displacing underlying material or damaging geotextile fabric.
4. Place stone on prepared base to produce a reasonably well-graded mass of stone in close contact and with a minimum of voids.

5. Place within a tolerance of plus or minus 3 inches from the theoretical slope lines and grades.
6. Finished riprap shall be free from pockets of small stones and clusters of larger stones. Hand-place if necessary to secure the desired results.
7. Maintain riprap protection until accepted; replace any material displaced.

3.06 MAINTENANCE:

A. Protect newly graded and topsoiled areas from actions of the elements.
B. Fill and repair settling, or erosion occurring prior to acceptance of the Work and reestablish grades to required elevations and slopes.
C. Correction of Settlement:
   1. Under provisions of the guarantee, correct any settlement of embankment, fill, or backfill and damages created thereby within 1 year after acceptance of the Work.
   2. Make repairs within 10 days after notification by CPS Energy of settlement.
   3. Make own arrangements for access to the Site for purposes of repair.

3.07 FIELD QUALITY CONTROL:

A. CPS Energy will, through services of an independent laboratory, test all embankments, fills, and subgrades under this Contract to determine conformance with specified density relationships.
B. Material Properties:
   1. Perform at least one classification test (ASTM D2487) and one moisture-density test (ASTM D698) on each soil type used in fill or backfill operations during construction.
      a. Each sample shall be taken from trenches or other excavations as directed by CPS Energy and should be generally representative of distinguishably differing materials encountered and used for backfill or fill.
      b. Perform one set of tests at the beginning of excavation and one additional set of tests when material properties vary (more or less plastic, different color, more or less granular, or other conditions) from the material initially tested.
      c. Additional tests shall be performed when directed by CPS Energy.
   2. Granular Material:
      a. Perform following tests at intervals specified during granular material construction from material source to ensure compliance with Specification.
         (1) Particle size test (ASTM C136): at least one test for every 3,000 cubic yards of granular pipe bedding material placed.
         (2) Relative density (ASTM D4253 and D4254): at least one per every 50 linear foot along pipeline.
         (3) Laboratory hydraulic conductivity tests (ASTM D2434): at least one test for every 9,000 cubic yards of granular pipe bedding material placed.
            (a) Laboratory test sample shall be compacted to meet requirements of Paragraph 3.03.C, this Section.
C. Compaction:
   1. Method of test may be either of the following at CPS Energy's option:
      a. ASTM D1556/D2216
      b. ASTM D2167/D2216.
      c. ASTM D6938.
      d. At least one test for every 1,000 cubic yards of material placed in a mass fill.
      e. At least one test for every 3,000 cubic yards of material placed in trenches or around structure.

f. At least one test for every 2,500 square yards of subgrade fill for GCL.
g. At least one test for every 100 feet of roadway for road subgrades and crushed rock surface course.
h. At least one test for every 500 square feet per lift in structural fill.
i. At least one test for every shift of compaction operations on a mass fill.

2. At least one test when CPS Energy suspects quality of moisture control or effectiveness of compaction. Remove or scarify fill failing to meet required densities and recompact as necessary to achieve specified results.
3. Removal of in-place material and replacement with approved new material will be required if scarifying and re-compaction do not produce the required densities.

D. Subgrades:
1. CPS Energy will inspect all subgrades to determine conformance with indicated lines and grades.
2. Subgrades for roadways shall have a maximum deviation of not more than 1/2 inch in any 10 feet when tested with a 10-foot straightedge applied parallel with and at right angles to centerlines of subgrade areas. Actual grade shall not be more than 0.1 foot from indicated grade.

END OF SECTION 312000

DIVISION 32 - EXTERIOR IMPROVEMENTS

SECTION 321100 - CRUSHED ROCK SURFACE COURSE

PART 1 - GENERAL

1.01 SUMMARY:

A. This Section includes crushed rock surface course and method of placement.

B. Related Work Specified Elsewhere:

1. SECTION 312000 - Site Preparation and Earthwork.

1.02 REFERENCES:

A. Applicable Standards:

1. American Society for Testing and Materials (ASTM): Equivalent AASHTO standards may be substituted as approved.
   a. C88 – Test Method for Soundness of Aggregates by use of Sodium Sulfate or Magnesium Sulfate.
   b. C117 – Test Method for Materials Finer than No. 200 Sieve in Mineral Aggregates by Washing.
   c. C131 – Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
   d. C136 – Test Method for Sieve Analysis of Fine and Coarse Aggregates.
   e. D75 – Practice for Sampling Aggregates.
   f. D698 – Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3).
   g. D4318 – Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
   h. D6938 – Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).
2. Texas Department of Transportation (TxDOT).

1.03 QUALITY ASSURANCE:

A. Sampling and Testing:

1. Tests to determine conformance with all requirements of this Specification for quality and properties of all Company-secured sources of materials shall be performed by an independent commercial laboratory retained and compensated by Company and approved by Owner. In lieu of testing, Company may submit certified state test results indicating the aggregate meets Specification requirements to Owner for approval.
2. Obtain representative samples of material in accordance with ASTM D75 for testing. Furnish laboratory sufficient material for testing from each sample at the time obtained. Copies of reports and certificates regarding tests and inspection of materials shall be distributed as specified in DIVISION 1. Furnish specific schedule for sampling to provide Owner the opportunity to observe sampling.
3. When incorporating materials into the Work, quality control testing will be performed during construction by a testing laboratory retained and compensated by Owner.

PART 2 - PRODUCTS

2.01 GENERAL: Crushed rock surface course shall consist of aggregate specified.

2.02 AGGREGATE:

A. Aggregate shall be Texas Department of Transportation (TxDOT), which is at least 85% limestone or dolomite produced by mechanical crushing. The aggregate shall be free from lumps or balls of clay, dirt, silt, vegetable matter, or other objectionable matter and reasonably free from thin and elongated pieces of aggregate. Aggregates shall consist of angular fragments, durable and sound, and shall be reasonably uniform in density and quality. Fine aggregate passing the No. 4 sieve shall consist of fines from the operation of crushing the coarse aggregate. If necessary, fine aggregate may be added to produce the correct gradation. The fine aggregate shall be produced by crushing stone, gravel, or slag that meets the requirements for wear and soundness specified for coarse aggregate.

B. Percentage of wear shall not exceed 35% for surface course when tested in accordance with ASTM C131. The sodium sulfate soundness loss shall not exceed 12% after 5 cycles when tested in accordance with ASTM C88.

C. Portion of aggregate which is retained on a No. 4 sieve shall contain 75% by weight of pieces with two or more fractured surfaces if the material is crushed gravel.

D. Portion of aggregate passing No. 40 sieve shall be as follows:
   1. Liquid Limit: Not more than 30 determined by ASTM D4318.
   2. Plastic Index: Between 2 and 8 determined by ASTM D4318.

E. Gradation shall not vary from low limit on one sieve to high limit on adjacent sieve or vice versa. Test by ASTM C136 and C117, and conform to the following or Engineer-approved equal:

Standard Square-Mesh Sieve U.S. Size or No.	Percent by Weight Retained Square-Mesh Sieve
1-1/2-inch	0 - 5
1-inch	---
¾-inch	5 - 30
3/8-inch	---
No. 4	35 - 60
No. 8	45 - 70
No. 40	60 - 84
No. 200	80 - 92*

* The fraction passing the No. 200 sieve shall not exceed ¾ of the fraction passing the No. 40 sieve.

2.03 EQUIPMENT:

A. General Requirements:
   1. Maintain all equipment, tools, and machines used in the performance of the Work required by this Section in a satisfactory working condition at all times.
   2. Equipment shall be subject to the approval of Owner.

B. Stationary Mixing Plants:
   1. Plants shall be designed to accurately proportion and thoroughly mix the material and water.
   2. Plants shall be equipped with weighing and measuring devices for proportioning on a weight basis or by volume based on weight.

C. Steel-Wheeled Rollers shall be self-propelled three-wheeled rollers, two-axle tandem rollers, or three-axle tandem rollers.
   1. Rollers shall weigh not less than 8 tons and develop contact pressures under the compression rolls of not less than 200-pounds-per-square-inch width.

2. Three-axle tandem rollers shall be so constructed that when locked in position for all treads to be in one plane, the roller wheels are held with such rigidity that if either front of center wheel is unsupported, the other two wheels will not vary from the plane more than 1/4-inch.
3. Roller wheels shall not have flat areas, openings, or projections.
4. All steel wheels shall be equipped with scrappers, so adjusted to keep the wheels clean at all times.

D. Rubber-Tired Rollers:
1. Rollers shall consist of two axles on which are mounted not less than nine pneumatic-tired wheels, mounted so the rear group of tires do not follow in the tracks of the forward wheels but will be centered between the forward wheels.
2. The axles shall be mounted in a rigid frame provided with a loading platform or body suitable for ballast loading.
3. Inflate tires uniformly.
4. May be self-propelled.
5. Tow with pneumatic-tired tractors or other pneumatic-tired equipment.

E. Vibratory Rollers:
1. Have either one or two smooth-surfaced steel drum(s) with a minimum diameter of 42 inches.
2. Have a minimum vibrating force of 300 pounds per cycle per inch of drum width.
3. Have a minimum vibrating frequency of 1,200 cycles per minute and shall be provided with a means of adjusting the resonance of the dynamic force.
4. May be self-propelled or towed.

F. Blade graders shall be self-propelled with a wheelbase of not less than 15 feet, and a blade of not less than 10 feet.

G. Sprinkling equipment shall consist of tank trucks, pressure distributors, or other similar equipment designed to apply water uniformly and in controlled quantities to variable width of surface.

H. Hauling equipment shall consist of pneumatic-tired vehicles and dump bodies suitable for dumping materials in windrows or layers on the subgrade.

I. Tampers shall be mechanical (of an approved type) and hand-operated, weigh not less than 50 pounds, and have a face area of not more than 100 square inches.

J. Miscellaneous equipment shall consist of scarifiers, tractors, spring-tooth or spike-tooth harrows, windrow equalizers, spreaders, and other equipment suitable for construction of select material surface course.

PART 3 - EXECUTION

3.01 GENERAL REQUIREMENTS:

A. Stockpiles:
1. Clear and level storage sites prior to stockpiling.
2. Place in the manner and at locations designated by Owner providing separate stockpiles for materials from separate sources.
3. Prevent aggregate from segregating during placement, storage, and handling at stockpiles.

B. Cold-Weather Limitations:
1. Surface course construction shall be prohibited when atmospheric temperature is below 35°F, unless approved by writing by Owner.
2. Do not place surface course on frozen subgrade.

3. Protect surface course and subgrade in freezing weather and repair areas damaged by freezing by reshaping and recompacting.

C. Preparation of Subgrade:
1. Clean of all foreign substances.
2. Owner will inspect for adequate compaction and surface tolerances as specified in SECTION 312000.
3. Correct any ruts or soft yielding spots or any areas with inadequate compaction, as specified in SECTION 312000.

D. Grade Control: Establish and maintain grade by means of grade stakes placed in lanes parallel to the centerline of the area to have crushed rock and spaced so string lines may be stretched between stakes, or by other method as approved by Owner.

3.02 MIXING AND PLACING OF MATERIALS:

A. If mixing is required, use stationary plant or road-mix method at Company's option.

B. Stationary-Plant Method:
1. Deposit and spread material in a uniform layer and compact to the thickness indicated and as specified below. Spread material uniformly on the prepared subgrade from moving vehicles or spreader boxes.
2. Level material to the required contour and grades with blade graders.
3. Remove those portions of the layer which become segregated in spreading and replace with satisfactory mixture or remix as requested by Owner.

C. Road-Mix Method:
1. Place material without segregation of sizes and spread from spreader boxes or moving vehicles equipped to spread material in layers of uniform thickness.
2. Mix materials with blade graders, harrows, discs, or other approved equipment. Continue initial mixing until the mixture is uniform throughout.
3. Add water to the extent necessary to prevent segregation during mixing operations and as needed to meet density requirements.
4. Add material to the mixture in such amounts and sizes as requested by Owner.

D. Shaping and Compacting Mixed Materials:
1. Compact in layers no less than 3 inches or no more than 7 inches thick. If the total depth of the compacted material is more than 7 inches, it shall be constructed in two or more layers and each layer shall be of approximately equal thickness.
2. Roll to specified compaction requirements throughout full depth of layer with vibratory rollers, steel-wheeled rollers, rubber-tired rollers, or combination.
3. Shape and smooth by blading and rolling with power roller or rubber-tired roller or both.
4. Hand-tamp in places not accessible to rolling equipment.
5. Aerate by blade graders, harrows, or other approved equipment when mixture is moistened by rain.

E. Degree of Compaction:
1. Compaction Testing:
a. The method of in-place compaction and moisture testing shall be as follows:
(1) Density and Moisture Content – ASTM D6938.
b. The minimum frequency of density tests will be as follows:
(1) At least one test every 100 feet along a roadway or one test every 1,200 square feet of surface course placed.
(2) At least one test when Owner suspects the quality of moisture control or effectiveness of compaction.

2. Base compaction on weight per cubic foot of material passing 3/4-inch sieve and compact each layer to at least 100% of maximum density at plus or minus 1.5% of the optimum moisture as determined by ASTM D698.
3. Density and moisture content of compacted material shall be measured following the procedures of ASTM D6938. Calibration tests shall be conducted on the first load of material placed that meets density requirements. Calibration checks of both the density and moisture gauges shall be made at the beginning of the work and at intervals as determined by Owner.
4. Remove or scarify and re-compact surface course failing to meet required densities.
5. Removal of in-place material and replacement with approved new material will be required if scarifying and re-compaction do not produce the required densities.

F. Smoothness Test:
1. Surface shall show no deviation in excess of 1/2-inch in any 10 feet when tested with a 10-foot straightedge applied parallel with and at right angles to the centerlines of the paved area.
2. Correct any deviation in excess of this amount by loosening, adding or removing material, reshaping, watering, and compacting as requested by Owner. In no case will the addition of thin layers of material be added to the top layer of surface course to meet grade. If the elevation of the top layer is 1/2 inch or more below grade, the top layer of surface shall be scarified to a depth of at least 3 inches, new material added, and the layer shall be blended and recompacted to bring it to grade. If the finished surface is above plan grade, it shall be cut back to grade and rerolled.

3.03 MAINTENANCE:

A. Maintain finished surface course in a moist condition until the next layer is placed and approved by Owner.

END OF SECTION 321100

SECTION 329200 - SEEDING

PART 1 - GENERAL

1.01 SUMMARY:

A. This Section includes seedbed preparation, seeding, mulching, fertilizing, and maintenance of areas indicated and/or disturbed by Company's construction activities and maintenance.

B. Related Work Specified Elsewhere:

1. SECTION 312000 - Site Preparation and Earthwork.

1.02 REFERENCES:

A. Applicable Standards:

1. American Society for Testing and Materials (ASTM): Equivalent AASHTO standards may be substituted as approved.
   a. D977 - Emulsified Asphalt.

1.03 SUBMITTALS:

A. Certificates: Includes, but not limited to, the following:

1. Seed shall be accompanied by certificate from vendor that seed meets requirements of these Specifications, stating botanical name, percentage by weight, percentage of purity, germination, and weed seed for each grass seed species.
2. Fertilizer shall be accompanied by certificate from vendor that fertilizer meets requirements of these Specifications.

PART 2 - PRODUCTS

2.01 TOPSOIL: Specified in SECTION 312000.

2.02 FERTILIZER:

A. Fertilizer shall be an inorganic 13-13-13 commercial grade.

1. Uniform in composition.
2. Free flowing and suitable for application with approved equipment.
3. Shall conform to applicable local, state and federal regulations.
4. Granular fertilizer shall contain a minimum percentage by weight of 10 percent nitrogen (of which 50 percent shall be organic), 10 percent available phosphoric acid, and 10 percent potash.
5. Agricultural ground limestone shall be measured by weight in tons.

B. The quantities and application rates of fertilizer and agricultural ground limestone shall be established by a knowledgeable person based on soil test data.

C. Deliver to Site in labeled bags or containers.

2.03 SEED:

A. Provide fresh, clean, new crop seed complying with tolerance for purity and germination established by Official Seed Analysts of North America and as required below.

B. Seed shall conform to all applicable laws of the State of Texas.

C. Seed shall be labeled according to the U.S. Department of Agriculture Federal Seed Act and shall be furnished in containers with tags showing seed mixture, purity, germination, weed content, name of seller, and date on which seed was tested.

1. Seed mixture shall be applied at the following rate and meet the following minimum percentage requirements for purity and germination:

Seed Name	Pounds Per Acre
Big Bluestem Kaw	12
Indiangrass Osage	12
Little Bluestem Aldous	8
Switchgrassblackwell	8
Side-Oats Grama El Reno	6
Western Wheatgrass Barton	20
Illinois Bundleflower Reno	0.1
Purple Prairieclover Kaneb	0.1
Oats or Wheat	18

2. Moldy seed or seed that has been damaged in storage shall not be used.

2.04 MULCH:

A. Wood Cellulose Fiber:
   1. Fiber shall be produced from nonrecycled wood such as wood chips or similar wood materials and shall be of such character that the fiber will disperse into a uniform slurry when mixed with water. Fiber shall not be produced from sawdust or from paper, cardboard, or other recycled materials.
   2. Mulch shall not contain germination or growth inhibiting ingredients.
   3. Mulch shall be dyed an appropriate color to aid in visual inspection.
   4. Mulch material shall be easily and evenly dispersed when agitated in water.
   5. Supply in packages of not more than 100 pounds gross weight, and be marked by the manufacturer to show the air dry weight content of the wood cellulose fiber.
   6. Mulch shall not be water-soluble and shall comply with the following properties:
      a. Moisture content, 15% maximum.
      b. Organic matter - wood fiber (oven-dried basis), 90% maximum.
      c. pH: 4.3 to 8.5.
      d. Water holding capacity (grams of water/100 grams fiber), minimum: 1,000.
   7. Submit wood cellulose fiber material and application rates for approval by CPS Energy.

B. Vegetative Mulch:
   1. Mulch shall be straw from stalks of wheat, rye, oats, or hay from fields of timothy, redtop, bromegrass, or other approved materials, and shall be partially decomposed. Mulch shall be free of noxious and undesirable seed and material.
   2. Tackifiers:
      a. Asphalt Emulsion: Conform to ASTM D977, Type SS-1.
      b. Organic Glue: Hydrobond as manufactured by Erosion Control Products or approved equal.

2.05 EROSION-CONTROL BLANKET:

A. Erosion-Control Blanket:
   1. Blanket fabric shall be furnished in rolled strips with a 4-foot minimum width and an area of 200 square yards.
   2. Approximate weight of fabric shall be 0.2-pound per square yard.
   3. Staples shall be of No. 11 gage or heavier steel wire, "U"-shaped and not less than 6 inches in length with a 1-inch crown.

PART 3 - EXECUTION

3.01 SEEDBED PREPARATION:

A. Grade areas to a smooth, even surface with loose, uniformly fine texture. Roll and rake, remove ridges and fill depressions to meet finish grades. Limit fine grading to areas which can be planted within the immediate future.

B. Dispose of any growth, rocks, or other obstructions which might interfere with tilling, seeding, or later maintenance operations. Remove stones over 1-1/2 inches in any dimension and sticks, roots, rubbish, and other extraneous matter.

C. Thoroughly loosen and pulverize topsoil to a depth of at least 3 inches. Minimum depth of topsoil at seeded areas shall be 4 inches.

D. Maintain tilled areas until seeded and mulched to provide a smooth area with no gullies or depressions.

E. Restore prepared areas to specified condition if eroded or otherwise disturbed after fine grading and prior to seeding.

3.02 APPLICATION - FERTILIZER:

A. Apply fertilizer at the rate of 300 pounds per acre to properly prepared seedbeds.

B. Incorporate fertilizer into the soil to a depth of at least 2 inches by discing, harrowing or raking. Fertilizer may be applied hydraulically on slopes 2 horizontal to 1 vertical or steeper. If fertilizer is applied hydraulically to these slopes, incorporation into the soil will not be required.

3.03 APPLICATION - SEED:

A. General:

1. Do not use wet seed or seed which is moldy or otherwise damaged in transit or storage.
2. Do not seed when wind velocity exceeds 5 miles per hour. Distribute seed evenly over entrire area by sowing equal quantity in two directions at right angles to each other.
3. Apply seed at no less than rate specified in Paragraph 2.03, this Section.

B. Hydro Seeding: Mix seed with water and constantly agitate. Do not add seed to water more than 4 hours before application.

1. On slopes flatter than 2 horizontal to 1 vertical, apply seed separately from fertilizer. Mechanically incorporate fertilizer into the soil prior to seeding activities. Cover seed with either hydraulic mulch or soil. If hydraulic mulching is not used, cover seed with soil to an average depth of 1/4-inch by raking or other approved methods.
2. On slopes 2 horizontal to 1 vertical and steeper, seed and fertilizer may be applied in a single operation. Incorporation into the soil will not be required. Hydraulic mulching will be required.

C. Seasonal Limitations: Perform seeding only during the following seasons:

1. March 1 to May 31.
2. August 10 to September 30.
3. If seeding occurs outside of the times listed above, Company shall return to site the next seeding season, upon the CPS Energy's request, to re-seed areas where grasses were not properly established.

3.04 APPLICATION - MULCH:

A. Apply a mulch covering to all seeded areas within 24 hours after seeding. Mulch not required on areas that are to be covered by an excelsior blanket or by an erosion-control blanket. Jute netting alone will not be considered an erosion-control blanket.

B. Apply vegetative mulch to loose depth of 1-1/2 inches by means of a mechanical spreader or other approved methods.

C. Apply wood cellulose fiber mulch hydraulically at the rate of 1000 pounds per acre.
   1. Mulch and seed may be applied in a single operation on slopes 2 to 1 or steeper.
   2. Apply mulch to achieve a uniform coverage of the soil surface.

D. Vegetative Mulch with Asphalt Emulsion:
   1. Temperature of mulch at time of application shall be between 125 and 175°F.
   2. Apply asphalt emulsion at the rate of 0.20 gallons per square yard.
   3. Mulching machine shall inject emulsified asphalt at the proper rate directly into the air stream carrying the straw.
   4. Hand-spray near structures.

E. Immediately following the application of the mulch, water the seeded area in one watering, in sufficient amount to penetrate the seedbed to a minimum depth of 2 inches. Perform so as not to cause erosion or damage to the seeded surface.

3.05 APPLICATION - EROSION CONTROL BLANKET:

A. Install erosion-control blanket where indicated in bottom of ditches and on all slopes 2 to 1 or greater. Install erosion-control blanket immediately following seeding operations.

B. Roll erosion-control blanket loosely over the required areas. Lifting and stretching of the material will not be permitted.

C. Secure erosion-control blanket by staples spaced as per manufacturer's recommendations.

D. Lap joints in the direction of water flow with at least a 4-inch overlap.

E. Any seeded or mulched areas disturbed by the installation of the erosion-control blanket shall be repaired at the Company's expense.

3.06 MAINTENANCE:

A. Mow grass to a height of 2 inches whenever average height of grass exceeds 5 inches.

B. Remove weeds by approved chemical treatment.

C. Erect and maintain signs or barricades to exclude traffic from seeded or sodded areas.

D. Seeded Areas: Perform maintenance for a period of three months after planting unless the desired cover is obtained in a shorter time and the shortening of the period of Company's responsibility is authorized.
   1. Water as required by good practice during the three-month maintenance period or until accepted by CPS Energy.
   2. Prior to acceptance, repair at Company's expense any portion of the seeded surface which becomes gullied or otherwise damaged, or destroyed.

3.07 ACCEPTANCE OF SEEDED AREAS:

A. When seeding Work is Substantially Complete, including maintenance, CPS Energy will, upon request, make an inspection to determine the acceptability:
   1. Seeding Work may be instpected for acceptance in parts agreeable to CPS Energy, provided Work offered for inspection is complete, including maintenance.
   2. To be acceptable, seeded areas shall have a good, uniform color and sturdy growth with no bare soil spots, over a minimum of 98 percent of the area seeded.

B. Replant rejected Work and continue specified maintenance until reinspected by CPS Energy and found to be acceptable.

3.08 CLEANUP:

A. Promptly remoce soil and debris created by seeding Work from paved areas. Clean wheels of vehicles prior to leaving Site to avoid tracking soil onto surfacing of roads, walks, or other paved areas.

END OF SECTION 329200

SECTION 334100 - STORM DRAINAGE SYSTEM

PART 1 - GENERAL

1.01 SUMMARY:

A. This Section includes storm drainage pipe and appurtenances, manholes, and inlet and outlet structures.

B. Related Work Specified Elsewhere:

1. Site Preparation and Earthwork: SECTION 312000.
2. Concrete: DIVISION 3.

1.02 REFERENCES:

A. Applicable Standards:

1. American Society for Testing and Materials (ASTM):
   a. M252 - Plastic and Polyethylene Corrugated Drainage Pipe or Tubing.
   b. M294 – Standard Specification for Corrugate Polyethylene Corrugated Pipe, 12 to 60-in Diameter.

1.03 SUBMITTALS:

A. Tests to determine conformance with all requirements of this Specification for quality and properties of all Company-secured materials, shall be performed by an independent commercial laboratory retained and compensated by Company, and approved by Engineer.

B. When incorporating materials into the Work, quality control testing will be performed during construction by a testing laboratory retained and compensated by CPS Energy.

C. Copies of reports and certificates regarding tests and inspection of equipment, materials, and completed Work shall be distributed as specified in DIVISION 1. Furnish specific schedule for sampling to provide Engineer with the opportunity to observe sampling.

PART 2 - PRODUCTS

2.01 CORRUGATED POLYETHYLENE PIPE:

A. Pipe and fittings shall conform to AASHTO M252 for pipe 10" to 15" diameter and AASHTO M294 for pipe 12" to 24" diameter except as modified herein.

B. Pipe and fittings shall not be made from reprocessed material.

C. Coupling bands shall be as per the manufacturer's recommendation to produce a watertight joint.

PART 3 - EXECUTION

3.01 GENERAL:

A. Lay all pipe carefully, true to lines and grades indicated. Any pipe which is not in true alignment or which shows undue settlement after laying shall be taken up and relaid at Company's expense.

B. Excavation and Filling for Storm Drainage Structures: Perform as specified in SECTION 312000.

C. Trenching and Filling: Perform as specified in SECTION 312000.

3.02 INSTALLATION - CORRUGATED POLYETHYLENE PIPE:

A. Install to conform to manufacturer's recommendations.

B. All cracked pipe shall be rejected.

END OF SECTION 334100

J.T. DEELY POWER PLANT
NORTH AND SOUTH BOTTOM ASH POND CLOSURE
Bexar County, TX

APRIL 2024

116817

Contract Drawings

GENERAL DRAWINGS

DWG. NO.	TITLE
CG100	COVER - INDEX
CG101	LEGEND, ABBREVIATIONS, VICINITY MAP & GENERAL NOTES
CS100	HAUL ROUTE PLAN

DEMOLITION DRAWINGS

DWG. NO.	TITLE
CD100	DEMOLITION PLAN - SHEET 1
CD101	DEMOLITION PLAN - SHEET 2
CD102	DEMOLITION PLAN - SHEET 3
CD103	DEMOLITION PLAN - SHEET 4
CD104	NOT USED
CD105	NOT USED
CD106	DEMOLITION PLAN - SHEET 7
CS101	UNIT 4 BAGHOUSE DEMOLITION

CIVIL DRAWINGS

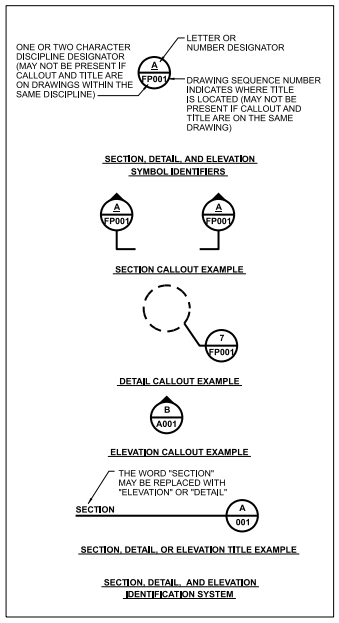
DWG. NO.	TITLE
CG102	SITE PLAN
CG103	KEY PLAN
CG104	EXISTING CONDITIONS
CG105	EROSION CONTROL PLAN
CG106	EXCAVATION GRADING PLAN - SHEET 1
CG107	EXCAVATION GRADING PLAN - SHEET 2
CG108	SITE FINISHING GRADING PLAN - SHEET 1
CG109	SITE FINISHING GRADING PLAN - SHEET 2
CG110	EXCAVATION GRADING SECTIONS
CG111	FINISH GRADING SECTIONS
CG112	DETAILS
CP100	SURFACING PLAN

ELECTRICAL DRAWINGS

DWG. NO.	TITLE
390855084_DEMO	UNIT 2-FF 4B LOWER B/H PNL PLC INTERCONN DIAG SHT 1
JTD-4-E07-03_DEMO	RECEPTACLE PANEL JTD BAGHOUSE UNIT 4
JTD-4-E07-05_DEMO	POWER DISTRIBUTION PANEL JTD BAGHOUSE UNIT 4

REFERENCE DRAWINGS

DWG. NO.	TITLE
G-3002	GENERAL PLOT PLAN
G-3005	SITE ARRANGEMENT PLAN
G-3024	UNDERGROUND UTILITIES
C-3307	STRUCTURAL CONCRETE YARD STRUCTURES ASH PIPING TRENCH, SUPPORTS AND MISC DETAILS



no.	date	by	ckd	description
0	01/19/24	MDB	AMM	ISSUED FOR BID

FILES

BURNS McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MO 64114
816-333-9400
Burns & McDonnell Engineering Co, Inc.
FIRM REG. NO. F-845

NORTH AND SOUTH
BOTTOM ASH POND CLOSURE

Cover - Index

DETAILS

STATE OF TEXAS
JOSEPH A. CHITTET
128620
LICENSED
PROFESSIONAL ENGINEER

FOR BID - NOT FOR CONSTRUCTION

THIS DOCUMENT IS RELEASED FOR BID, UNDER THE AUTHORITY OF SANDELL LEE SEDLACEK, P.E. 99056 ON 04/19/2024 IT IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.

LEGEND

NEW		EXISTING
	RAILROAD	
	ROADS	
750	CONTOURS	750
	TOP OF SLOPE (SEE NOTE 2)	
	TOE OF SLOPE (SEE NOTE 2)	
	SWALE	
	FLOWLINE	
ST ST ST	STORM SEWER	ST ST ST
ST	STORM SEWER W/ END SECTIONS	
CB-1	CATCH BASIN	
	DEMOLITION	
	AGGREGATE	
	CRUSHED ROCK	
	RIPRAP	
	CONCRETE	
	ASPHALT	
	TOPSOIL & SEED	
	FENCES	
	SILT FENCE	
℄	PROPERTY LINE	℄
	GUARDRAIL	
	STRUCTURES	
	VALVE	
	SURVEY MONUMENT	

NOTES:

1. ALL SYMBOLS ARE STANDARD WITHOUT RESPECT TO CONTRACTS.
2. TOP OR TOE OF SLOPE TO MATCH EXIST GRADE UNLESS AN ELEVATION OR SLOPE IS INDICATED.

Scale for Millimeters

Inches

ABBREVIATIONS

ABBREVIATION	TERM	ABBREVIATION	TERM
@	AT	MIN	MINIMUM
AHD	AHEAD	MISC	MISCELLANEOUS
ASPH	ASPHALT	M.O.	MID-ORDINATE
AUX	AUXILIARY	MW	MONITORING WELL
BK	BACK	N	NORTH
BLDG	BUILDING	NO	NUMBER
BM	BENCHMARK	OD	OUTSIDE DIAMETER
BMCD	BURNS & MCDONNELL	OPNG	OPENING
BOT	BOTTOM	±	PLUS OR MINUS
CB	CATCH BASIN	PC	POINT OF CURVE
CDOT	COLORADO DEPARTMENT OF TRANSPORTATION	PCC	PORTLAND CEMENT CONCRETE
C TO C	CENTER TO CENTER	PI	POINT OF INTERSECTION
CL	CENTERLINE	PL	PROPERTY LINE
CHDPE	CORRUGATED HIGH DENSITY POLYETHYLENE	PSI	POUNDS PER SQUARE INCH
CJ	CONSTRUCTION JOINT	PT	POINT OF TANGENT
CMAP	CORRUGATED METAL ARCH PIPE	P.R.C.	POINT OF REVERSE CURVE
CMP	CORRUGATED METAL PIPE	P.V.C.	POINT OF VERTICAL CURVE
CONC	CONCRETE	P.V.I.	POINT OF VERTICAL INTERSECTION
CPT	CORRUGATED POLYETHYLENE TUBING	P.V.R.C.	POINT OF VERTICAL REVERSE CURVE
DBL	DOUBLE	P.V.T.	POINT OF VERTICAL TANGENT
DET	DETAIL	R	RADIUS
DI	DROP INLET	RD	ROAD
DIA	DIAMETER	RPT	RADIUS POINT
DWG	DRAWING	RCP	REINFORCED CONCRETE PIPE
ECB	EXISTING CATCH BASIN	RR	RAILROAD
EDB	ELECTRICAL DUCT BANK	RT	RIGHT
E	EAST	ROW	RIGHT-OF-WAY
EF	EACH FACE	S	SOUTH
EJ	EXPANSION JOINT	SG	SUBGRADE
EL	ELEVATION	SLP	SLOPE
EMH	ELECTRICAL MANHOLE	SHLDR	SHOULDER
EQN	EQUATION	SS	STAINLESS STEEL
EXIST	EXISTING	STD	STANDARD
EW	EACH WAY	ST	STORM SEWER
FBD	FLAT BOTTOM DITCH	STA	STATION
FLL	FLOWLINE	SWG	SWING
FO	FIBER OPTIC	T&B	TOP AND BOTTOM
GA	GAGE	TEMP	TEMPORARY
GALV	GALVANIZED	TOA	TOP OF ASPHALT
GCP	GROUND CONTROL POINT	TOC	TOP OF CONCRETE
HDPE	HIGH DENSITY POLYETHYLENE	TO GRATING	TOP OF GRATING
HORIZ	HORIZONTAL	TOM	TOP OF MANHOLE
HPT	HIGH POINT	TOP	TOP OF PAVEMENT
HWY	HIGHWAY	TOR	TOP OF RAIL
ID	INSIDE DIAMETER	TOSB	TOP OF SUBBALLAST
IF	INSIDE FACE	TOSG	TOP OF SUBGRADE
INTSCT	INTERSECTION	TYP	TYPICAL
INV	INVERT	UON	UNLESS OTHERWISE NOTED
L	LONG	VC	VERTICAL CURVE
LCP	LEACHATE COLLECTION PIPE	VERT	VERTICAL
LF	LINEAR FEET	W	WEST
LT	LEFT	W/	WITH
MAX	MAXIMUM	W/O	WITH OUT
MH	MANHOLE	WWF	WELDED WIRE FABRIC

NOTES:

1. ALL ABBREVIATIONS ARE BURNS & McDONNELL STANDARDS WITHOUT RESPECT TO CONTRACTS.
2. ABBREVIATIONS ARE APPLICABLE TO ALL DWGS.

VICINITY MAP
NOT TO SCALE

NORTH

SITE ADDRESS
12940 US-181
SAN ANTONIO, TX
78223

EXISTING CONDITIONS NOTES:

1. THE LOCATIONS OF STRUCTURES AND UNDERGROUND UTILITIES AS INDICATED HAVE BEEN OBTAINED FROM EXISTING RECORDS AND FIELD SURVEYS. UNDERGROUND STRUCTURES AND UTILITIES MAY BE PRESENT WHICH ARE NOT DOCUMENTED OR LOCATED.
2. ALL WORK SHALL BE DONE TO THE LINES, SLOPES, THICKNESS, AND GRADES INDICATED IN THE CONTRACT DRAWINGS. MAXIMUM SLOPE SHALL BE 3H:1V UNLESS INDICATED OTHERWISE. ALL ESTABLISHED MONUMENTS, BENCHMARKS, REFERENCE POINTS, STAKES, AND OTHER CENTRAL POINTS SHALL BE CAREFULLY PRESERVED BY THE CONTRACTOR. CONTRACTOR SHALL NOTIFY OWNER IN WRITING OF BENCHMARKS, REFERENCE LINES, OR OTHER CONTROL POINTS WHICH MAY HAVE BEEN DISTURBED OR WHICH APPEAR TO BE OFF LINE OR GRADE.
3. CONTRACTOR SHALL FIELD-CHECK ALL EXISTING CONDITIONS AND BE THOROUGHLY FAMILIAR WITH THE SITE BEFORE ANY WORK COMMENCES. ANY DISCREPANCIES IN THE DRAWINGS SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER AND CONSTRUCTION FIELD REPRESENTATIVE BEFORE ANY FURTHER WORK COMMENCES.
4. CONTRACTOR SHALL FIELD-VERIFY EXISTING STRUCTURES, UTILITIES, AND SURVEY INFORMATION, AND TAKE NECESSARY PRECAUTIONS DURING DEMOLITION AND CONSTRUCTION. CONTRACTOR SHALL VERIFY EXISTING AND MARKED LOCATIONS OF ALL UTILITIES, INCLUDING SERVICE CONNECTIONS TO UNDERGROUND UTILITIES, PRIOR TO BEGINNING WORK. CONTRACTOR SHALL CONTACT THE OWNER AND ALL ASSOCIATED UTILITY COMPANIES AND AGENCIES TO IDENTIFY THE LOCATION OF UTILITIES. THERE IS NO GUARANTEE, EITHER EXPRESSED OR IMPLIED, THAT THE LOCATIONS, SIZE, AND TYPE OF MATERIAL OF EXISTING UNDERGROUND UTILITIES INDICATED ARE REPRESENTATIVE OF THOSE TO BE ENCOUNTERED DURING CONSTRUCTION.
5. CONTRACTOR SHALL NOTIFY TEXAS 811 48 HOURS BEFORE PROCEEDING WITH ANY EXCAVATION.
6. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE OWNER OF OPERATIONAL PLANS. IN THE EVENT AN UNEXPECTED UTILITY OR STRUCTURE INTERFERENCE OR CONFLICT IS ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER. ANY UTILITY SERVICES OR STRUCTURES DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED IMMEDIATELY AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
7. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING ITEMS NOT TO BE DAMAGED DURING DEMOLITION AND CONSTRUCTION. THE CONTRACTOR SHALL REPAIR OR REPLACE DAMAGED OR DISTURBED ITEMS TO THE SATISFACTION OF THE OWNER.

GENERAL NOTES:

1. COORDINATES SHOWN ARE SURFACE VALUES DISPLAYED IN U.S. SURVEY FEET, BASED ON THE NORTH AMERICAN DATUM OF 1983 (NA2011) EPOCH 2010.00 FROM THE TEXAS COORDINATE SYSTEM ESTABLISHED FOR THE SOUTH CENTRAL ZONE, WITH A SURFACE ADJUSTMENT FACTOR OF 1.00017 APPLIED. ELEVATIONS SHOWN ARE NAVD88 (GEOID 03).
2. CONTRACTOR SHALL RE-ESTABLISH ALL CONTROL POINTS DISTURBED AND/OR REMOVED DURING CONSTRUCTION. CONTROL POINTS SHALL BE IN APPROXIMATE LOCATION OF THE DISTURBED CONTROL POINT AND SET BY A REGISTERED LAND SURVEYOR IN THE STATE OF TEXAS. SUBMIT ALL COORDINATES AND ELEVATIONS TO OWNER. PERMANENT BENCHMARKS SHALL NOT BE DISTURBED BY CONTRACTOR'S OPERATIONS, NOTIFY OWNER IF PERMANENT BENCHMARK IS FOUND TO BE IN CONFLICT.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MEANS AND METHODS OF CONSTRUCTION UNLESS NOTED OTHERWISE. CONTRACTOR SHALL FURNISH ALL LABOR, EQUIPMENT, MATERIALS, AND TOOLS NECESSARY TO COMPLETELY PERFORM THE WORK IN SAFE, EXPEDITIOUS, AND WORKMANLIKE MANNER. CONTRACTOR SHALL COORDINATE SCHEDULE OF THE WORK WITH OWNER. THE CONTRACTOR ACCEPTS FULL RESPONSIBILITY FOR PROPER HANDLING AND INSTALLATION OF MATERIALS.
4. CONTRACTOR SHALL UNDERTAKE ALL NECESSARY MEASURES TO ENSURE SAFETY OF ALL PERSONS AND STRUCTURES AT THE PROJECT SITE AND ADJACENT TO THE PROJECT SITE. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY CLAIMS RESULTING FROM CONTRACTOR OR SUBCONTRACTOR ACTIVITIES. VISITS TO THE SITE BY THE ENGINEER OR OWNER SHALL NOT RELIEVE THE CONTRACTOR OF SUCH RESPONSIBILITY.
5. THE CONTRACTOR SHALL ACCEPT FULL RESPONSIBILITY FOR MATERIALS THROUGH PROJECT COMPLETION. CONTRACTOR SHALL STORE MATERIALS IN A SECURE LOCATION (ON OR OFF-SITE).
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER SAFEGUARDING OF THE WORK AREA AND MATERIALS STORED ON THE SITE TO PREVENT THEFT, VANDALISM OR DAMAGE.
7. CONTRACTOR SHALL NOT DISTURB ADJACENT PROPERTIES UNLESS OTHERWISE SHOWN IN THESE PLANS AND UNLESS PERMISSION HAS BEEN GRANTED BY LAND OWNER AND GOVERNING AUTHORITY.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL CONSTRUCTION PERMITS REQUIRED TO PERFORM THE WORK. CONTRACTOR SHALL PROVIDE CERTIFICATES OF INSURANCE AND OTHER DOCUMENTATION REQUIRED BEFORE PERFORMING THE WORK.
9. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH OSHA STANDARDS.
10. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS.
11. THESE NOTES AND OTHER DRAWING NOTES CONTAINED HEREWITH ARE PROVIDED TO MEET SPECIFIC REQUIREMENTS AND TO SUPPLEMENT THE CONTRACT DOCUMENTS. THESE NOTES NEITHER REPLACE NOR OVERRIDE THE PROVISIONS AND REQUIREMENTS OF THE CONTRACT DOCUMENTS.
12. UNKNOWN SITUATIONS OR CONDITIONS NOT COVERED IN THE CONTRACT DOCUMENTS MAY ARISE DURING CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE OWNER IF SUCH A CONDITION IS IDENTIFIED.
13. ALL DIMENSIONS, ELEVATIONS, AND CONDITIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR AND ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER FOR CLARIFICATION BEFORE PROCEEDING WITH THE AFFECTED PART OF WORK.
14. THE CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE HIMSELF/HERSELF WITH THE EXISTING CONDITIONS BEFORE SUBMITTING HIS/HER BID.
15. FEATURES NOT FULLY SHOWN OR CALLED FOR ON THE CONTRACT DRAWINGS OR SPECIFICATIONS, THEIR CONSTRUCTION SHALL BE OF THE SAME CHARACTER AS FOR SIMILAR CONDITIONS THAT ARE SHOWN OR CALLED FOR, SUBJECT TO THE APPROVAL OF THE ENGINEER AND THE OWNER.
16. ONCE THE WORK HAS BEEN STARTED, THE CONTRACTOR SHALL COMPLETE THE WORK WITHOUT ANY INTERRUPTIONS.
17. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING POTABLE WATER AND TEMPORARY SANITARY FACILITIES FOR CONTRACTOR'S PERSONNEL. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR INSTALLING AND REMOVING ANY REQUIRED TEMPORARY UTILITY CONNECTIONS.
18. GRADES AND ELEVATIONS SHOWN ARE FINISHED GRADE UNLESS OTHERWISE INDICATED.
19. INSTALL EROSION CONTROL MEASURES PER THE SWPPP AND AS NECESSARY TO PERFORM WORK IN ACCORDANCE WITH ALL APPLICABLE LAND DISTURBANCE ORDINANCES AND REGULATIONS.
20. CONTRACTOR IS RESPONSIBLE FOR MANAGING STORMWATER FOR THE PROJECT SITE. NO STORMWATER SHALL BE PONDED ON-SITE DURING OR AFTER CONSTRUCTION.

VOLTAGE (NOMINAL, kV, ALTERNATING CURRENT)	MINIMUM CLEARANCE DISTANCE (FEET)
UP TO 50	15
OVER 50 TO 200	20
OVER 200 TO 350	25
OVER 350 TO 500	30
OVER 500 TO 750	40
OVER 750 TO 1,000	50
OVER 1,000	(AS ESTABLISHED BY THE UTILITY OWNER/OPERATOR OR REGISTERED PROFESSIONAL ENGINEER WHO IS A QUALIFIED PERSON WITH RESPECT TO ELECTRICAL POWER TRANSMISSION AND DISTRIBUTION).

NOTE: THE VALUE THAT FOLLOWS "TO" IS UP TO AND INCLUDES THAT VALUE. FOR EXAMPLE, OVER 50 TO 200 MEANS UP TO AND INCLUDING 200kV.

STATE OF TEXAS
JOSEPH A. CHITTET
128626
LICENSED
PROFESSIONAL ENGINEER

FOR BID - NOT FOR CONSTRUCTION

THIS DOCUMENT IS RELEASED FOR BID, UNDER THE AUTHORITY OF RANDELL LEE SEDLACEK, P.E. 89056 ON 04/19/2024 . IT IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.

no.	date	by	ckd	description
0	01/19/24	MDB	AMM	ISSUED FOR BID

BURNS McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MO 64114
816-333-9400
Burns & McDonnell Engineering Co, Inc.
FIRM REG. NO. F-845

designed: M. BLEYTHING | detailed: S. NICHOLS

cps ENERGY

J.T. DEELY POWER PLANT
BEXAR COUNTY, TEXAS

BOTTOM ASH POND CLOSURE
LEGEND, ABBREVIATIONS, VICINITY MAP & GENERAL NOTES

project: 116817 | contract:
drawing: CG101 | rev.: 0
sheet: | of: | sheets:
file: 116817CG101.DGN

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4/18/2024 jrsteger on 11:49:30 AM

NOTES:

1. CONTRACTOR TO USE THE PROPOSED HAUL ROUTE FOR HAUL OF BOTTOM ASH MATERIAL FROM BOTTOM ASH PONDS TO ON-SITE LANDFILL.
2. CONTRACTOR TO UPGRADE ROAD AS NEEDED FOR CONSTRUCTION ACTIVITY.
3. ROAD SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITION (OR BETTER) AT THE COMPLETION OF CONSTRUCTION. CONTRACTOR TO DOCUMENT CONDITION OF ROAD PRIOR TO CONSTRUCTION.
4. CONTRACTOR WILL BE RESPONSIBLE FOR DUST CONTROL AND ROAD MAINTENANCE DURING CONSTRUCTION.

NORTH

0 400' 800'
SCALE IN FEET

FOR BID - NOT FOR CONSTRUCTION

STATE OF TEXAS
JOSEPH A. CHITTET
128620
LICENSED
PROFESSIONAL ENGINEER

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BURNS McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MO 64114
816-333-9400
Burns & McDonnell Engineering Co, Inc.
FIRM REG. NO. F-845

designed M. BLEYTHING | detailed S. NICHOLS

cps ENERGY

J.K. SPRUCE POWER PLANT
BEXAR COUNTY, TEXAS

BOTTOM ASH POND CLOSURE
HAUL ROUTE PLAN

project 116817 | contract

drawing **CS100** | rev. **0**

sheet | of | sheets

file:116817CS100.DGN

4/18/2024 jrsiegerman 4:43:26 PM

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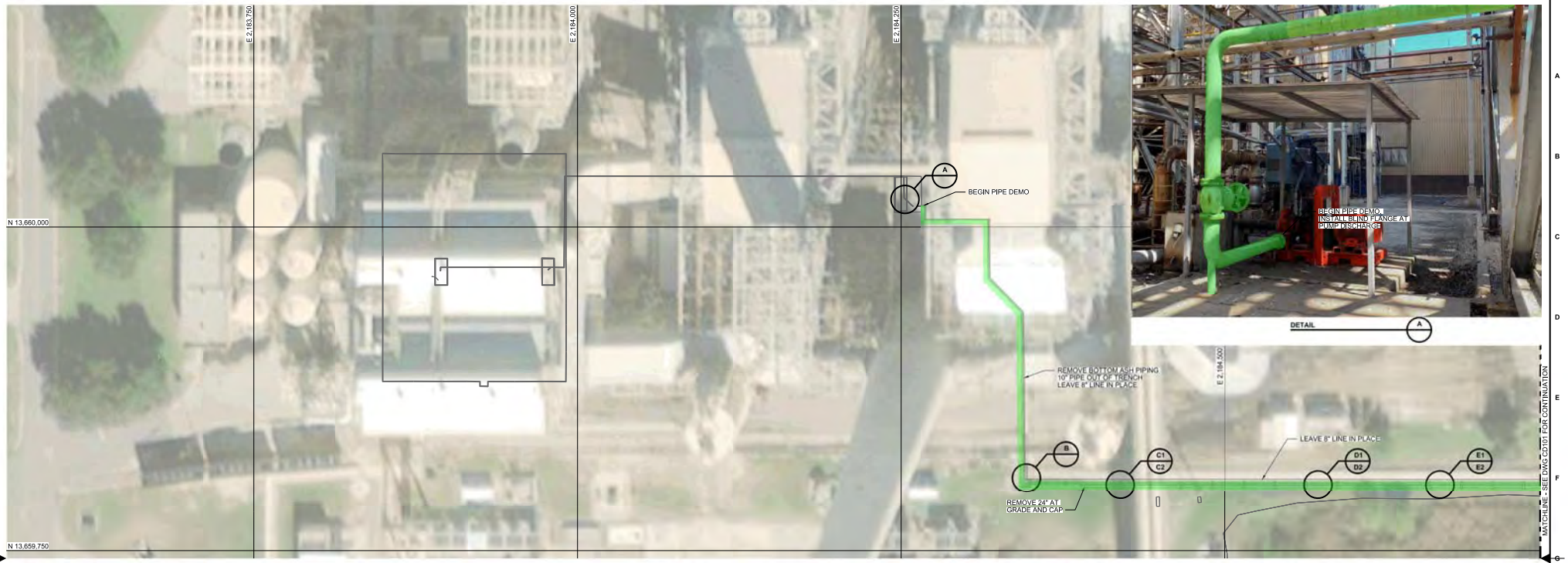


DETAIL B

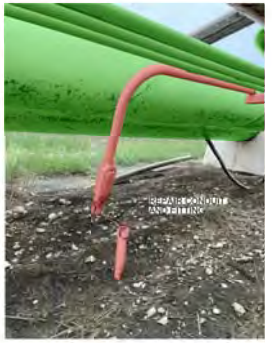
DETAIL C1

DETAIL C2

DETAIL D1

DETAIL D2

DETAIL E1



DETAIL E2

NOTES:

1. CONTRACTOR TO REMOVE ALL PIPING, CONDUIT AND SUPPORTS AS INDICATED.
2. ALL MATERIAL REMOVED FOR DEMOLITION WILL BE DISPOSED OF OFFSITE AT CONTRACTORS EXPENSE.
3. SEE DEMOLITION SPECIFICATION SECTION 02 41 00 FOR FURTHER INFORMATION.

LEGEND

DEMO
KEEP

NORTH

SCALE IN FEET

FOR BID - NOT FOR CONSTRUCTION

THIS DOCUMENT IS RELEASED FOR BID, UNDER THE AUTHORITY OF RANDELL LEE SEDLACEK, P.E. 99606 ON 04/18/2024 IT IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.

no.	date	by	ckd	description
0	01/19/24	MDB	AMM	ISSUED FOR BID

BURNS McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MO 64114
816-333-9400
Burns & McDonnell Engineering Co, Inc.
FIRM REG. NO. F-845

designed: M. BLEYTHING
detailed: S. NICHOLS

cps ENERGY
J.T. DEELY POWER PLANT
BEXAR COUNTY, TEXAS

BOTTOM ASH POND CLOSURE
DEMOLITION PLAN
SHEET 1

project: 116817
contract:
drawing: CD100
rev.: 0
sheet: of sheets
file:116817CD100.DGN

4/18/2024 jrsiegeman 4:32:30 PM

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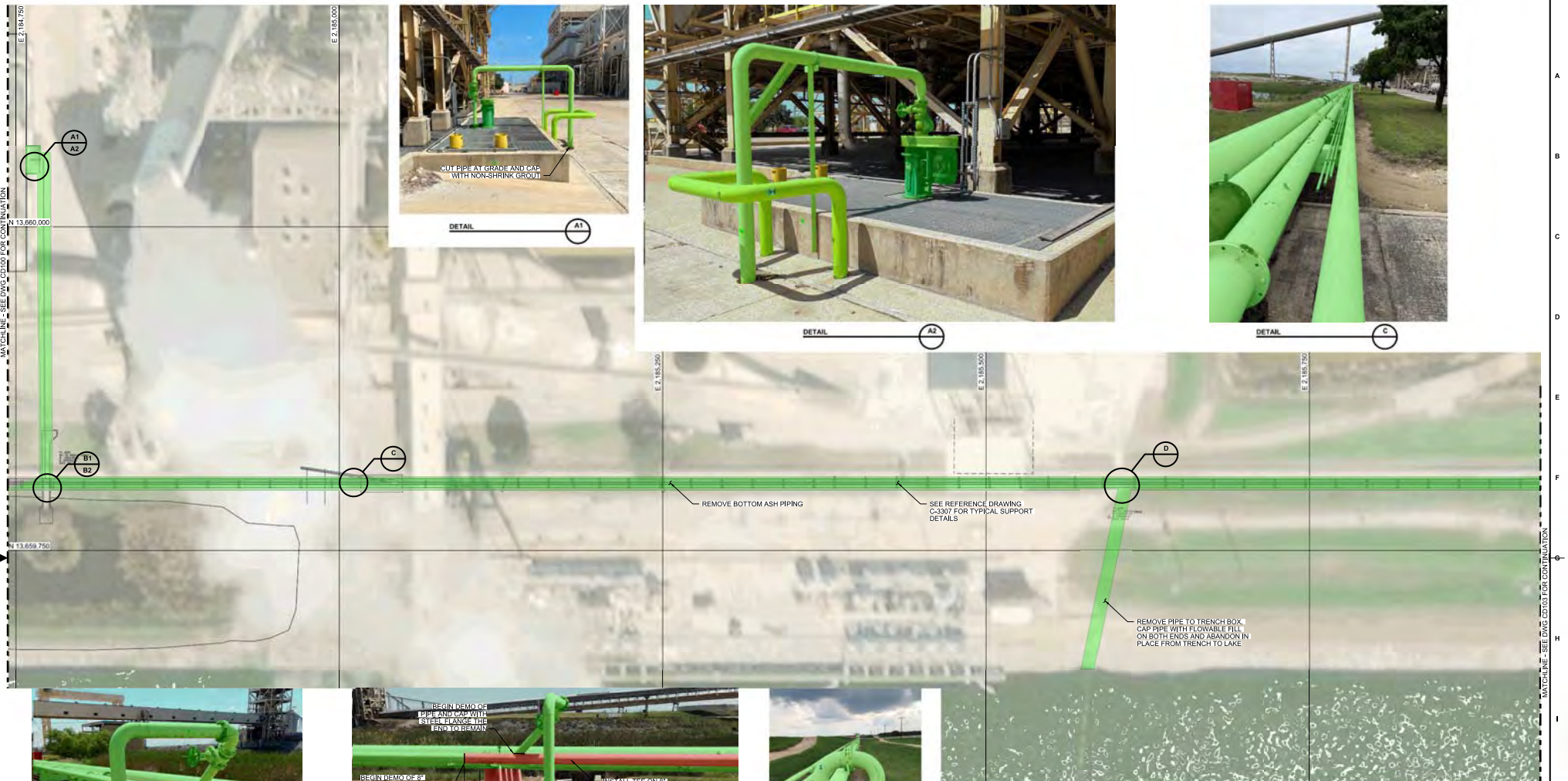
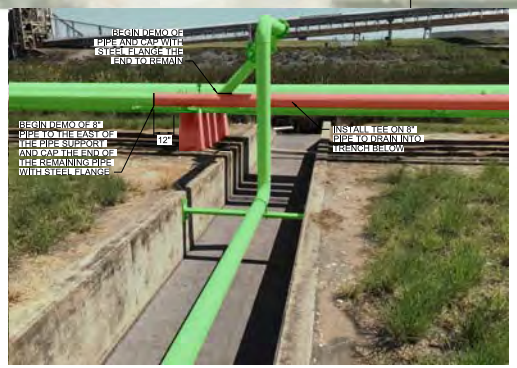


DETAIL A1

DETAIL A2

DETAIL C

DETAIL B1



DETAIL B2

DETAIL D

LEGEND

- DEMO
- KEEP

NOTES:

1. CONTRACTOR TO REMOVE ALL PIPING, CONDUIT AND SUPPORTS AS INDICATED.
2. ALL MATERIAL REMOVED FOR DEMOLITION WILL BE DISPOSED OF OFFSITE AT CONTRACTORS EXPENSE.
3. SEE DEMOLITION SPECIFICATION SECTION 02 41 00 FOR FURTHER INFORMATION.

NORTH

SCALE IN FEET 0 30' 60'

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KANSAS CITY, MO 64114
816-333-9400
Burns & McDonnell Engineering Co, Inc.
FIRM REG. NO. F-845

designed M. BLEYTHING | detailed S. NICHOLS

cps ENERGY
J.T. DEELY POWER PLANT
BEXAR COUNTY, TEXAS

BOTTOM ASH POND CLOSURE
DEMOLITION PLAN
SHEET 2

project 116817 | contract —
drawing CD101 | rev. 0
sheet of sheets
file:116817CD101.DGN

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4/18/2024 jrsiegeman4:32:02 PM

NOTES:

1. CONTRACTOR TO REMOVE ALL PIPING, CONDUIT AND SUPPORTS AS INDICATED.
2. ALL MATERIAL REMOVED FOR DEMOLITION WILL BE DISPOSED OF OFFSITE AT CONTRACTORS EXPENSE.
3. SEE DEMOLITION SPECIFICATION SECTION 02 41 00 FOR FURTHER INFORMATION.

LEGEND

DEMO

NORTH

SCALE IN FEET

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KANSAS CITY, MO 64114
816-333-9400
Burns & McDonnell Engineering Co, Inc.
FIRM REG. NO. F-845

designed: M. BLEYTHING | detailed: S. NICHOLS

cps ENERGY

J.T. DEELY POWER PLANT
BEXAR COUNTY, TEXAS

BOTTOM ASH POND CLOSURE
DEMOLITION PLAN
SHEET 3

project: 116817 | contract:
drawing: CD102 | rev.: 0
sheet: of: sheets:
file:116817CD102.DGN

4/18/2024 jrsiegeman 4:20:02 PM

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MATCHLINE - SEE DWG CD102 FOR CONTINUATION

MATCHLINE - SEE DWG CD101 FOR CONTINUATION

REMOVE SHEETPILE AND FOUNDATION

12

REMOVE TIMBER COLUMNS TO A MINIMUM OF 1' BELOW EXCAVATION GRADE (SEE DWG CD103)

13

REMOVE PIPING AND SUPPORTS

14

SOUTH BOTTOM ASH POND

REMOVE SHEETPILE AND PIPING

CAP PIPING FROM NORTH

REMOVE MANHOLE AND PIPING

REMOVE BELOW GRADE PIPING 12" SCH 40 FROM MANHOLE TO DISCHARGE

15

REPAIR CONCRETE DITCH WHERE PIPE IS REMOVED

E 2,166,000

E 2,166,250

E 2,166,500

E 2,166,750

N 13,660,000

N 13,659,750

DETAIL 12

DETAIL 14

DETAIL 13

DETAIL 15

NOTES:

1. CONTRACTOR TO REMOVE ALL PIPING, CONDUIT AND SUPPORTS AS INDICATED.
2. ALL MATERIAL REMOVED FOR DEMOLITION WILL BE DISPOSED OF AT CONTRACTORS EXPENSE.
3. SEE DEMOLITION SPECIFICATION SECTION 02 41 00 FOR FURTHER INFORMATION.

LEGEND

DEMO

NORTH

0 30' 60'

SCALE IN FEET

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KANSAS CITY, MO 64114
816-333-9400
Burns & McDonnell Engineering Co, Inc.
FIRM REG. NO. F-845

designed M. BLEYTHING | detailed S. NICHOLS

cps ENERGY

J.T. DEELY POWER PLANT
BEXAR COUNTY, TEXAS

BOTTOM ASH POND CLOSURE
DEMOLITION PLAN
SHEET 4

project 116817 | contract

drawing **CD103** | rev. **0**

sheet | of | sheets

file:116817CD103.DGN

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NOTES:

1. ELECTRICAL DEMOLITION SHOWN ON THIS SHEET - SEE DEMOLITION SPECIFICATIONS SECTION 02 41 00 FOR FURTHER INFORMATION.
2. CONTRACTOR TO COORDINATE WITH CPS FOR ALL ELECTRICAL DEMOLITION WORK.

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BURNS McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MO 64114
816-333-9400
Burns & McDonnell Engineering Co, Inc.
FIRM REG. NO. F-845

designed: M. BLEYTHING | detailed: S. NICHOLS

CPS ENERGY
J.T. DEELY POWER PLANT
BEXAR COUNTY, TEXAS

BOTTOM ASH POND CLOSURE
DEMOLITION PLAN
SHEET 7

project: 116817 | contract: —
drawing: CD106 | rev.: 0
sheet: of sheets
file:116817CD106.DGN

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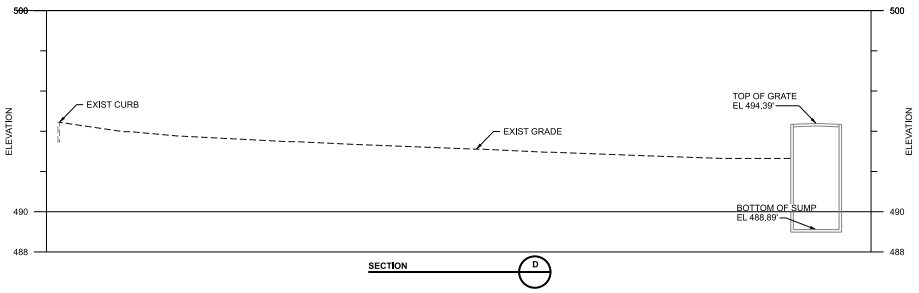

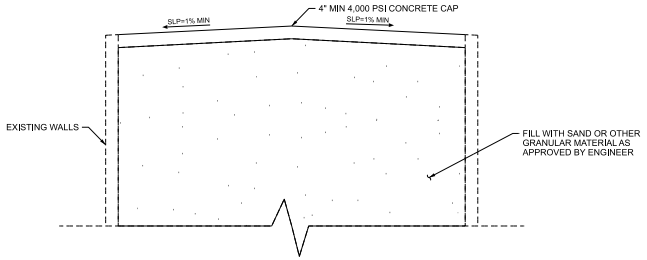

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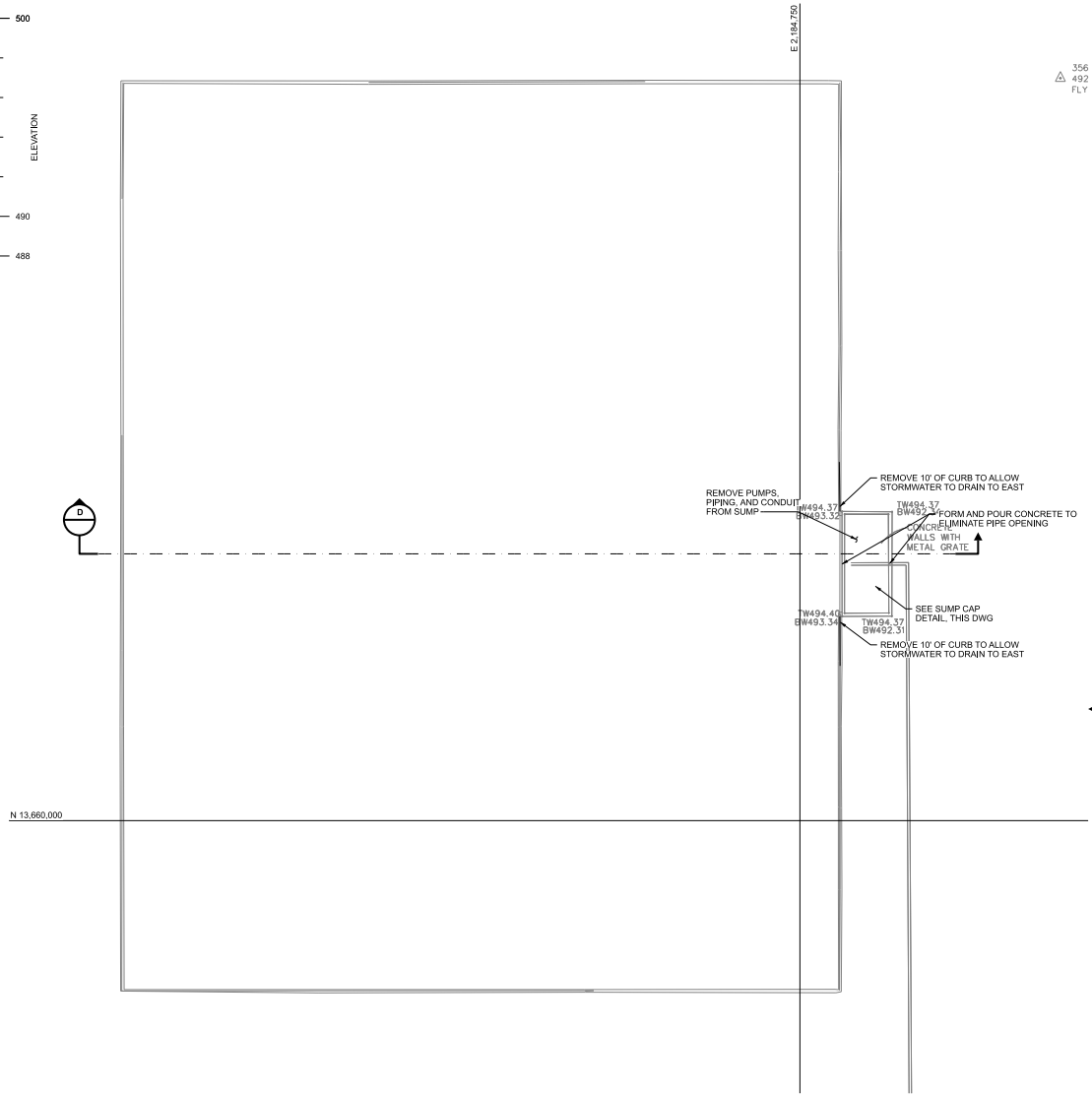
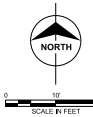
NOT TO SCALE





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KANSAS CITY, MO 64114
816-333-9400
Burns & McDonnell Engineering Co, Inc.
FIRM REG. NO. F-845

designed: M. BLEYTHING | detailed: S. NICHOLS

cps ENERGY

J.T. DEELY POWER PLANT
BEXAR COUNTY, TEXAS

BOTTOM ASH POND CLOSURE
UNIT 4 BAGHOUSE DEMOLITION

project: 116817 | contract:
drawing: **CS101** | rev.: **0**
sheet: | of: | sheets:
file: 116817CS101.DGN

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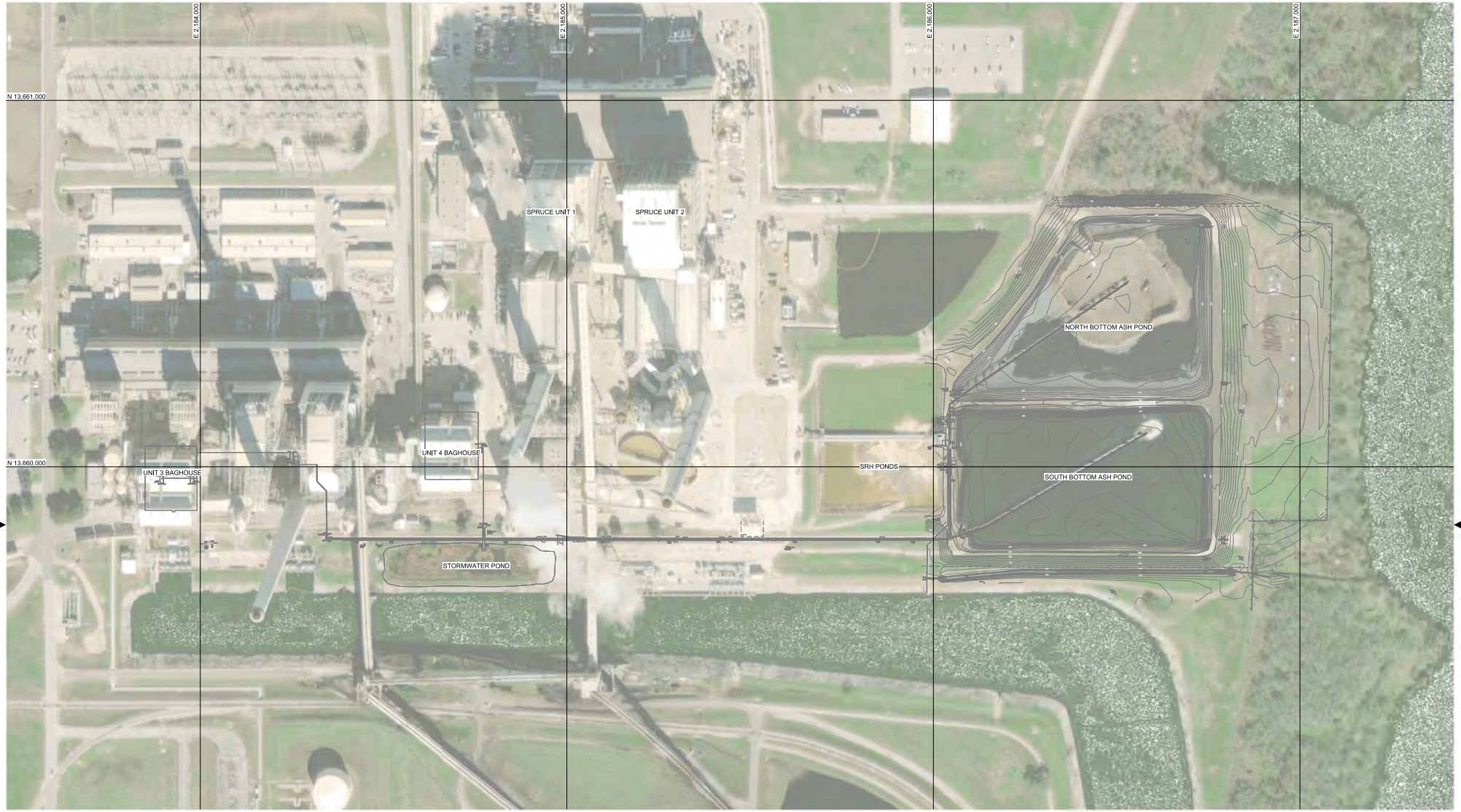

NOTES:

1. SEE REFERENCE DRAWING G-3002 FOR FURTHER INFORMATION.

NORTH

0 100' 200'
SCALE IN FEET

FOR BID - NOT FOR CONSTRUCTION

STATE OF TEXAS
JOSEPH A. CHITTET
128620
LICENSED
PROFESSIONAL ENGINEER

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BURNS McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MO 64114
816-333-9400
Burns & McDonnell Engineering Co, Inc.
FIRM REG. NO. F-845

designed: M. BLEYTHING | detailed: S. NICHOLS

cps ENERGY

J.T. DEELY POWER PLANT
BEXAR COUNTY, TEXAS

BOTTOM ASH POND CLOSURE
SITE PLAN

project 116817 | contract
drawing CG102 | rev. 0
sheet of sheets
file:116817CG102.DGN

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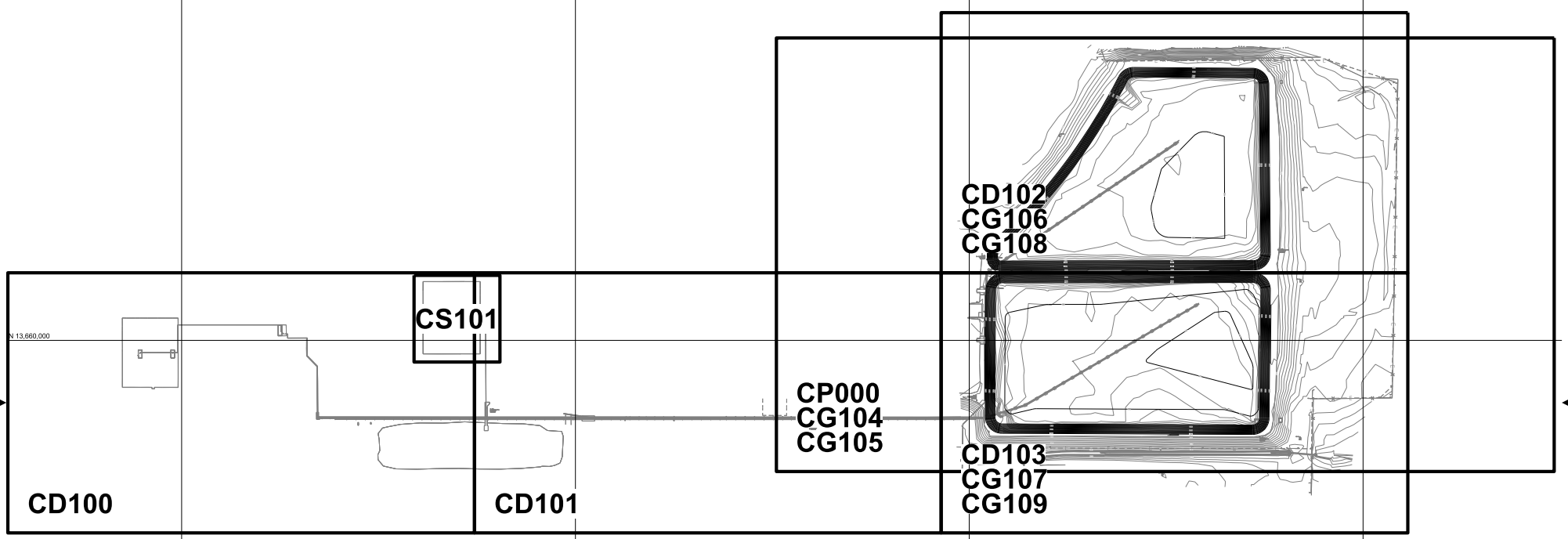

NORTH

0 100' 200'
SCALE IN FEET

FOR BID - NOT FOR CONSTRUCTION

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BURNS McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MO 64114
816-333-9400
Burns & McDonnell Engineering Co, Inc.
FIRM REG. NO. F-845

designed: M. BLEYTHING | detailed: S. NICHOLS

cps ENERGY

J.T. DEELY POWER PLANT
BEXAR COUNTY, TEXAS

BOTTOM ASH POND CLOSURE
KEY PLAN

project: 116817 | contract:
drawing: CG103 | rev.: 0
sheet: of sheets
file:116817CG103.DGN

4/18/2024 jrsiegerman 3:59:15 PM

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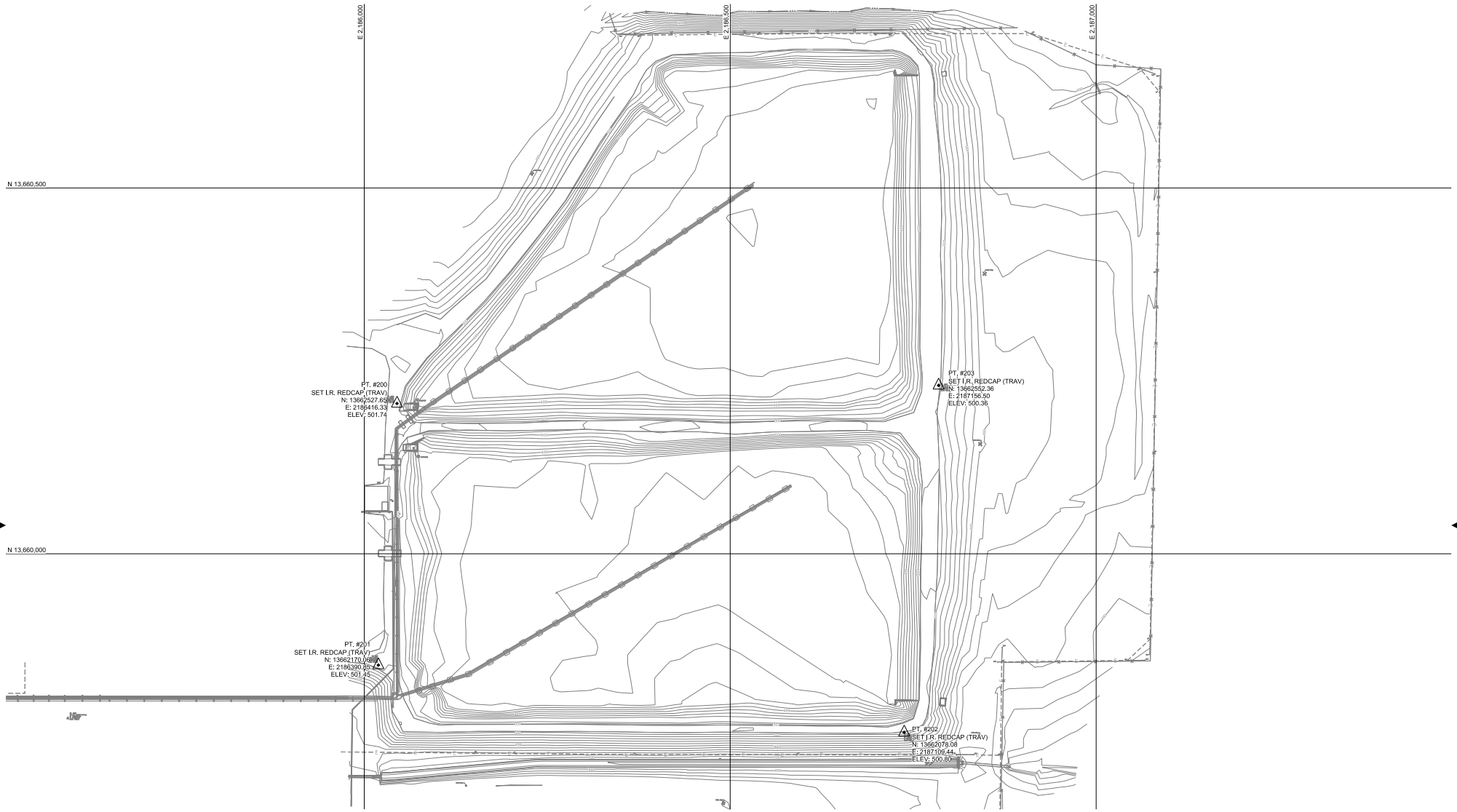

NOTES:

1. SEE REFERENCE DRAWING G-3002 AND G-30024 FOR BOTTOM ASH POND DESIGN GRADES.

NORTH

0 50' 100'
SCALE IN FEET

FOR BID - NOT FOR CONSTRUCTION

STATE OF TEXAS
JOSEPH A. CHITTET
128620
LICENSED
PROFESSIONAL ENGINEER

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no.	date	by	ckd	description
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BURNS McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MO 64114
816-333-9400
Burns & McDonnell Engineering Co, Inc.
FIRM REG. NO. F-845

designed: M. BLEYTHING
detailed: S. NICHOLS

cps ENERGY

J.T. DEELY POWER PLANT
BEXAR COUNTY, TEXAS

BOTTOM ASH POND CLOSURE
EXISTING CONDITIONS

project: 116817
contract:
drawing: CG104
rev.: 0
sheet: of sheets
file: 116817CG104.DGN

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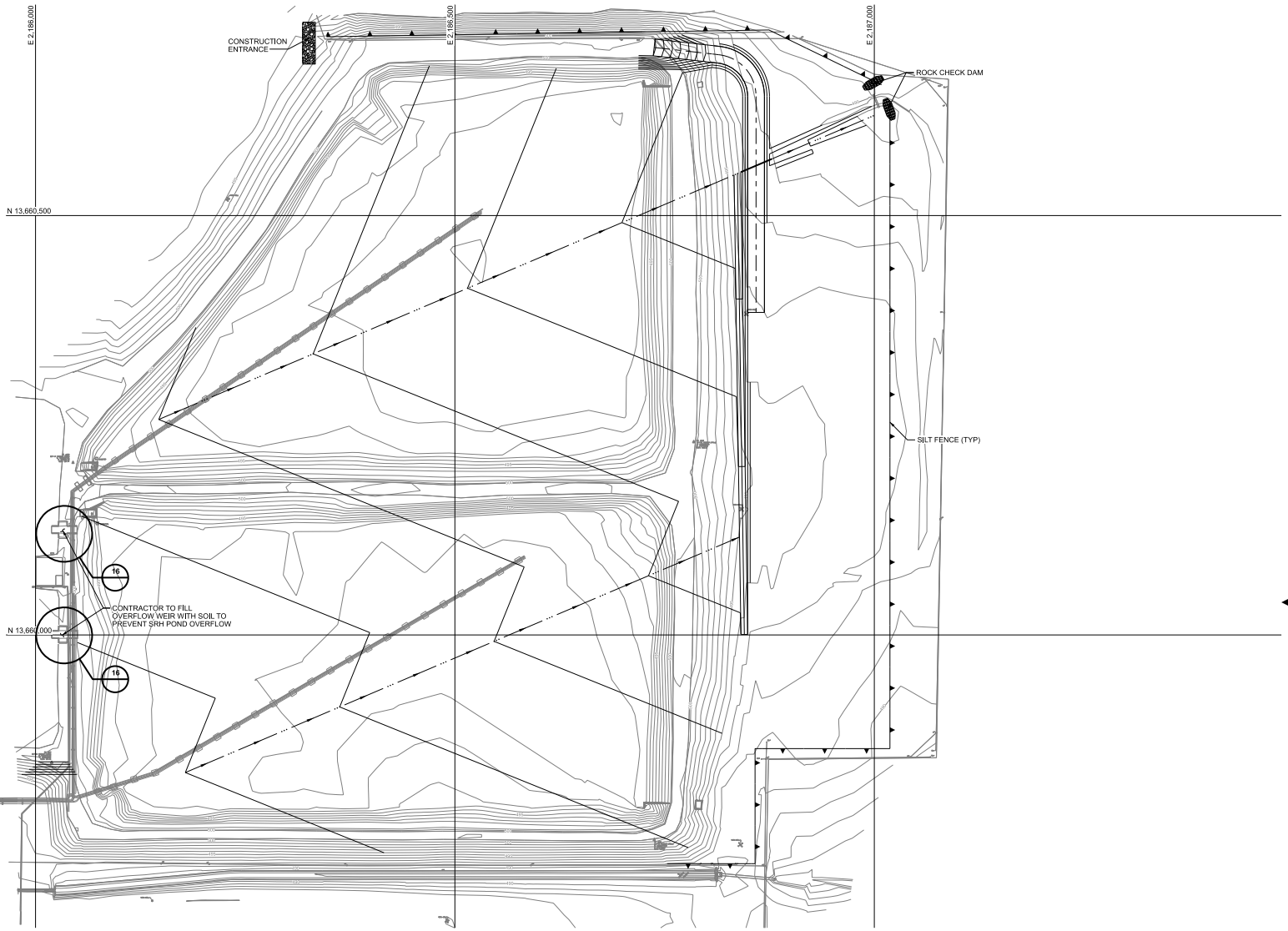
STORMWATER NOTES:

1. STORMWATER THAT HAS BEEN IN CONTACT WITH CCR SHALL NOT BE ALLOWED TO DISCHARGE OFFSITE.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR DEWATERING DURING CONSTRUCTION. WATER TO DISCHARGE FROM THE EXISTING CULVERT ON THE EAST LEVEE SHALL ADHERE TO PLANT NPDES DISCHARGE REQUIREMENTS.

EROSION AND SEDIMENT CONTROL NOTES:

1. ALL SEDIMENT AND EROSION CONTROL ITEMS SHALL BE COORDINATED AS THE PHASES OF THE PROJECT PROGRESSES.
2. CONSTRUCTION ACTIVITY POLLUTION PREVENTION IS REQUIRED FOR THIS PROJECT. PREVENTION OF POLLUTION RESULTING FROM CONSTRUCTION ACTIVITIES SHALL BE ACCOMPLISHED BY CONTROLLING SOIL EROSION, WATERWAY SEDIMENTATION, AND AIRBORNE DUST GENERATION. CONTRACTOR SHALL ENSURE THAT NO SEDIMENT RESULTING FROM CONSTRUCTION ACTIVITIES INFRINGES ONTO ADJACENT PROPERTIES. CONTRACTOR SHALL COORDINATE EROSION AND SEDIMENT CONTROL WITH OTHER CONSTRUCTION ENTITIES PERFORMING WORK ON ADJACENT PROPERTIES.
3. THE CONTRACTOR SHALL CONTROL EROSION AND SEDIMENTATION TO THE EXTENT PRACTICABLE. ALL APPLICABLE SOIL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED AND MAINTAINED THROUGHOUT THE DURATION OF CONSTRUCTION ACTIVITIES. PRIOR TO INITIATING CONSTRUCTION IN AN AREA, ALL APPLICABLE TEMPORARY EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE IN PLACE. UPON PROJECT COMPLETION ALL TEMPORARY SOIL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED AFTER FINAL SURFACING HAS BEEN ESTABLISHED.
4. THE CONTRACTOR SHALL UTILIZE APPROPRIATE BEST MANAGEMENT PRACTICES (BMPs). THOSE BMPs SHALL CONSIST OF ROCK CHECK DAMS, FIBER LOGS, STRAW WATTLES, SILT FENCE OR OTHER MEANS TO CONTROL EROSION AS NEEDED. THE CONTRACTOR SHALL PROVIDE AND FOLLOW THE EROSION AND STORMWATER POLLUTION PREVENTION PLAN (SWPPP) PLANS AS NEEDED.
5. CONTRACTOR SHALL PLACE BMPS AS SHOWN PRIOR TO BEGINNING WORK. THE DEVICES SHALL BE PLACED DOWN-SLOPE OF DISTURBED AREAS WHERE SHEET EROSION WOULD OCCUR. SILT SHALL BE REMOVED AS REQUIRED. AFTER SIGNIFICANT RUNOFF EVENTS, THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL STRUCTURES FOR SILT BUILD-UP THAT INTERFERES WITH THE PERFORMANCE OF THE EROSION CONTROL STRUCTURE AND REPAIR OR REPLACE THOSE STRUCTURES, AS NECESSARY.
6. THE CONTRACTOR SHALL INSTALL ADDITIONAL EROSION CONTROL ITEMS AS NECESSARY TO CONTROL AND COLLECT SEDIMENT. PER THE REQUIREMENTS OF THE STORMWATER POLLUTION PREVENTION PLAN SEE THE IOWA CONSTRUCTION SITE EROSION CONTROL MANUAL FOR ADDITIONAL EROSION CONTROL TECHNIQUES AND REQUIREMENTS.
7. LOCATIONS OF SILT FENCE AS SHOWN ON THE DRAWINGS ARE THE MINIMUM REQUIREMENTS. CONTRACTOR SHALL RELOCATE THEM OR ADD ADDITIONAL EROSION CONTROL FACILITIES AS REQUIRED TO MEET THE EROSION AND SEDIMENT CONTROL REQUIREMENTS INCLUDING THE NPDES GENERAL STORMWATER PERMIT FOR CONSTRUCTION ACTIVITIES.
8. ALL EROSION CONTROL FEATURES SHALL BE INSPECTED AT LEAST ONCE EVERY SEVEN (7) DAYS AND AFTER EVERY 1/2-INCH OR GREATER RAINFALL EVENT AS REQUIRED BY THE CURRENT NPDES PERMIT FOR THE PROJECT.

DETAIL 16



NOTES:
SEE TYPICAL DETAILS ON SHEET CG012.

NORTH

SCALE IN FEET 0 50' 100'

FOR BID - NOT FOR CONSTRUCTION

STATE OF TEXAS JOSEPH A. CHITTET 128620 LICENSED PROFESSIONAL ENGINEER

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BURNS McDONNELL
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816-333-9400
Burns & McDonnell Engineering Co, Inc.
FIRM REG. NO. F-845

designed M. BLEYTHING | detailed S. NICHOLS

cps ENERGY

J.T. DEELY POWER PLANT
BEXAR COUNTY, TEXAS

BOTTOM ASH POND CLOSURE
EROSION CONTROL PLAN

project 116817 | contract

drawing **CG105** | rev. **0**

sheet of sheets

file116817CG105.DGN

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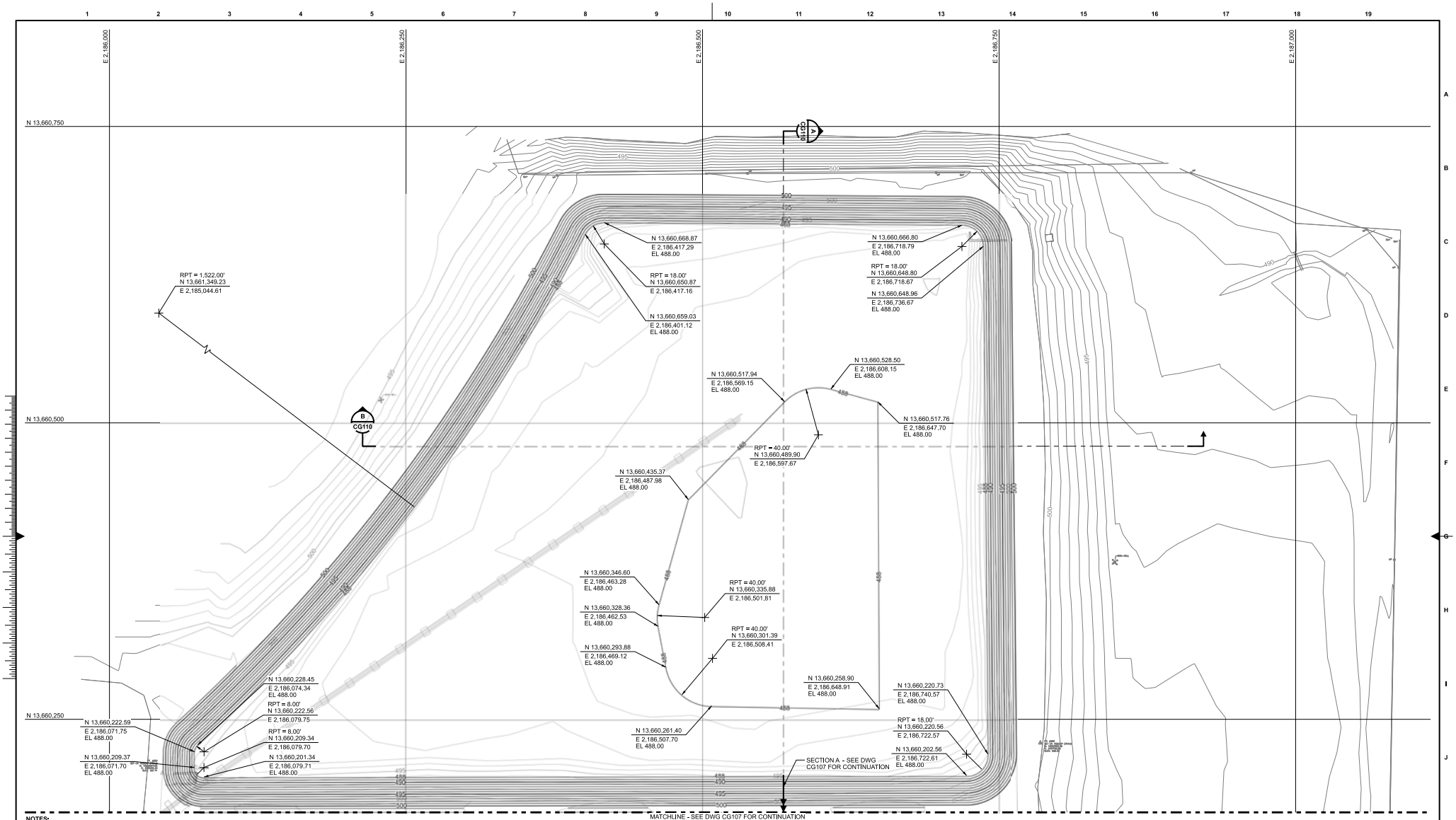

NOTES:

1. EXCAVATION GRADES ARE APPROXIMATE AND MAY VARY FROM INDICATED IN DESIGN IN ORDER TO REMOVE ALL CCR MATERIAL.
2. IF ADDITIONAL CCR MATERIAL AND CCR-CONTAMINATED MATERIALS ARE ENCOUNTERED OUTSIDE OF CCR MATERIAL EXCAVATION GRADES, CONTRACTOR SHALL NOTIFY OWNERS FOR APPROVAL BEFORE COMMENCEMENT OF ADDITIONAL EXCAVATION. OVER EXCAVATION WITHOUT PRIOR WRITTEN APPROVAL OF THE OWNER IS AT CONTRACTOR'S COST.
3. CONTRACTOR TO DEWATER AND HAUL ALL CCR MATERIAL TO THE EXISTING LANDFILL FOR FINAL PLACEMENT. MATERIAL SHALL BE SUITABLY DRY SO THAT MATERIAL CAN BE COMPACTED WHEN ARRIVING AT LANDFILL. OWNER WILL DIRECT CONTRACTOR WHERE TO PLACE MATERIAL AT LANDFILL.
4. EXCAVATION GRADES SHOWN ARE TO BOTTOM OF CCR MATERIAL. CONTRACTOR SHALL REMOVE ALL CCR MATERIAL PLUS ONE FOOT OF ADDITIONAL NATIVE MATERIAL. CONTRACTOR TO WORK WITH OWNER TO DOCUMENT REMOVAL OF CCR MATERIAL AND ADDITIONAL ONE FOOT OF NATIVE MATERIAL.

1. OWNER WILL HIRE 3RD PARTY SURVEYOR TO COMPLETE VERIFICATION SURVEY ONCE ALL CCR HAS BEEN REMOVED FROM THE ASH POND. CONTRACTOR TO COORDINATE WITH SURVEYOR BASED ON CONTRACTORS MEANS AND METHODS FOR REMOVAL OF ASH. VERIFICATION CAN BE COMPLETED BY TRADITIONAL SURVEY, AERIAL (DRONE) SURVEY, BATHYMETRICS SURVEY, GPS OR OTHER AS APPROVED.
2. CONTRACTOR WILL BE PROVIDED A TIN SURFACE OF THE CCR MATERIAL EXCAVATION GRADES. CONTRACTOR TO TRACK WORK USING THEIR OWN SURVEY EQUIPMENT. CONFIRMATION SURFACE WILL BE PERFORMED BY OWNER FOR ENTIRE EXCAVATION AT THE END OF THE PROJECT.
3. THERE SHOULD BE NO UNDERMINING OF THE EXISTING SLOPES DURING MATERIAL REMOVAL ALONG THE SIDE SLOPES. SIDE SLOPES SHALL BE NO STEEPER THAN 2H:1 AFTER MATERIAL REMOVAL AND RESTORATION.

NORTH

0 30' 60'
SCALE IN FEET

FOR BID - NOT FOR CONSTRUCTION

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9400 WARD PARKWAY
KANSAS CITY, MO 64114
816-333-9400
Burns & McDonnell Engineering Co, Inc.
FIRM REG. NO. F-845

designed: M. BLEYTHING | detailed: S. NICHOLS

cps ENERGY

J.T. DEELY POWER PLANT
BEXAR COUNTY, TEXAS

BOTTOM ASH POND CLOSURE
EXCAVATION GRADING PLAN
SHEET 1

project: 116817 | contract:
drawing: CG106 | rev.: 0
sheet: of: sheets:
file:116817CG106.DGN

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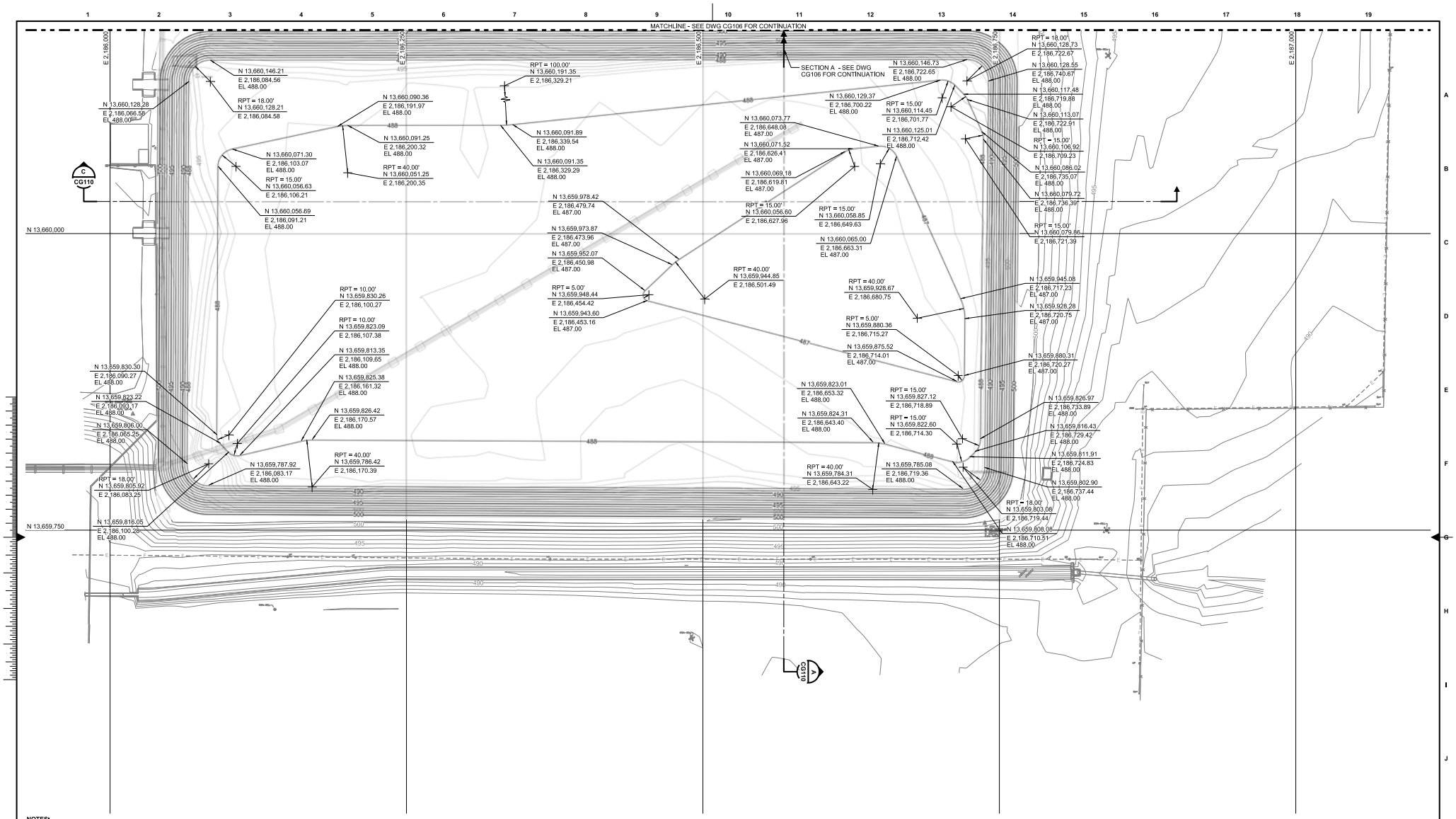

NOTES:

1. EXCAVATION GRADES ARE APPROXIMATE AND MAY VARY FROM INDICATED IN DESIGN IN ORDER TO REMOVE ALL CCR MATERIAL.
2. IF ADDITIONAL CCR MATERIAL AND CCR-CONTAMINATED MATERIALS ARE ENCOUNTERED OUTSIDE OF CCR MATERIAL EXCAVATION GRADES, CONTRACTOR SHALL NOTIFY OWNERS FOR APPROVAL BEFORE COMMENCEMENT OF ADDITIONAL EXCAVATION. OVER EXCAVATION WITHOUT PRIOR WRITTEN APPROVAL OF THE OWNER IS AT CONTRACTOR'S COST.
3. CONTRACTOR TO DEWATER AND HAUL ALL CCR MATERIAL TO THE EXISTING LANDFILL FOR FINAL PLACEMENT. MATERIAL SHALL BE SUITABLY DRY SO THAT MATERIAL CAN BE COMPACTED WHEN ARRIVING AT LANDFILL. OWNER WILL DIRECT CONTRACTOR WHERE TO PLACE MATERIAL AT LANDFILL.
4. EXCAVATION GRADES SHOWN ARE TO BOTTOM OF CCR MATERIAL. CONTRACTOR SHALL REMOVE ALL CCR MATERIAL PLUS ONE FOOT OF ADDITIONAL NATIVE MATERIAL. CONTRACTOR TO WORK WITH OWNER TO DOCUMENT REMOVAL OF CCR MATERIAL AND ADDITIONAL ONE FOOT OF NATIVE MATERIAL.

1. OOWNER WILL HIRE 3RD PARTY SURVEYOR TO COMPLETE VERIFICATION SURVEY ONCE ALL CCR HAS BEEN REMOVED FROM THE ASH POND. CONTRACTOR TO COORDINATE WITH SURVEYOR BASED ON CONTRACTORS MEANS AND METHODS FOR REMOVAL OF ASH. VERIFICATION CAN BE COMPLETED BY TRADITIONAL SURVEY, AERIAL (DRONE) SURVEY, BATHYMETRICS SURVEY, GPS OR OTHER AS APPROVED.
2. CONTRACTOR WILL BE PROVIDED A TIN SURFACE OF THE CCR MATERIAL EXCAVATION GRADES. CONTRACTOR TO TRACK WORK USING THEIR OWN SURVEY EQUIPMENT. CONFIRMATION SURFACE WILL BE PERFORMED BY OWNER FOR ENTIRE EXCAVATION AT THE END OF THE PROJECT.
3. THERE SHOULD BE NO UNDERMINING OF THE EXISTING SLOPES DURING MATERIAL REMOVAL ALONG THE SIDE SLOPES. SIDE SLOPES SHALL BE NO STEEPER THAN 3H:1 AFTER MATERIAL REMOVAL AND RESTORATION.

NORTH

0 30' 60'
SCALE IN FEET

FOR BID - NOT FOR CONSTRUCTION

STATE OF TEXAS
JOSEPH A. CHITTET
128620
LICENSED PROFESSIONAL ENGINEER

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no.	date	by	ckd	description
0	01/19/24	MDB	AMM	ISSUED FOR BID

BURNS McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MO 64114
816-333-9400
Burns & McDonnell Engineering Co, Inc.
FIRM REG. NO. F-845

designed: M. BLEYTHING
detailed: S. NICHOLS

cps ENERGY
J.T. DEELY POWER PLANT
BEXAR COUNTY, TEXAS

BOTTOM ASH POND CLOSURE
EXCAVATION GRADING PLAN
SHEET 2

project: 116817
contract:
drawing: CG107
rev.: 0
sheet: of sheets
file: 116817CG107.DGN

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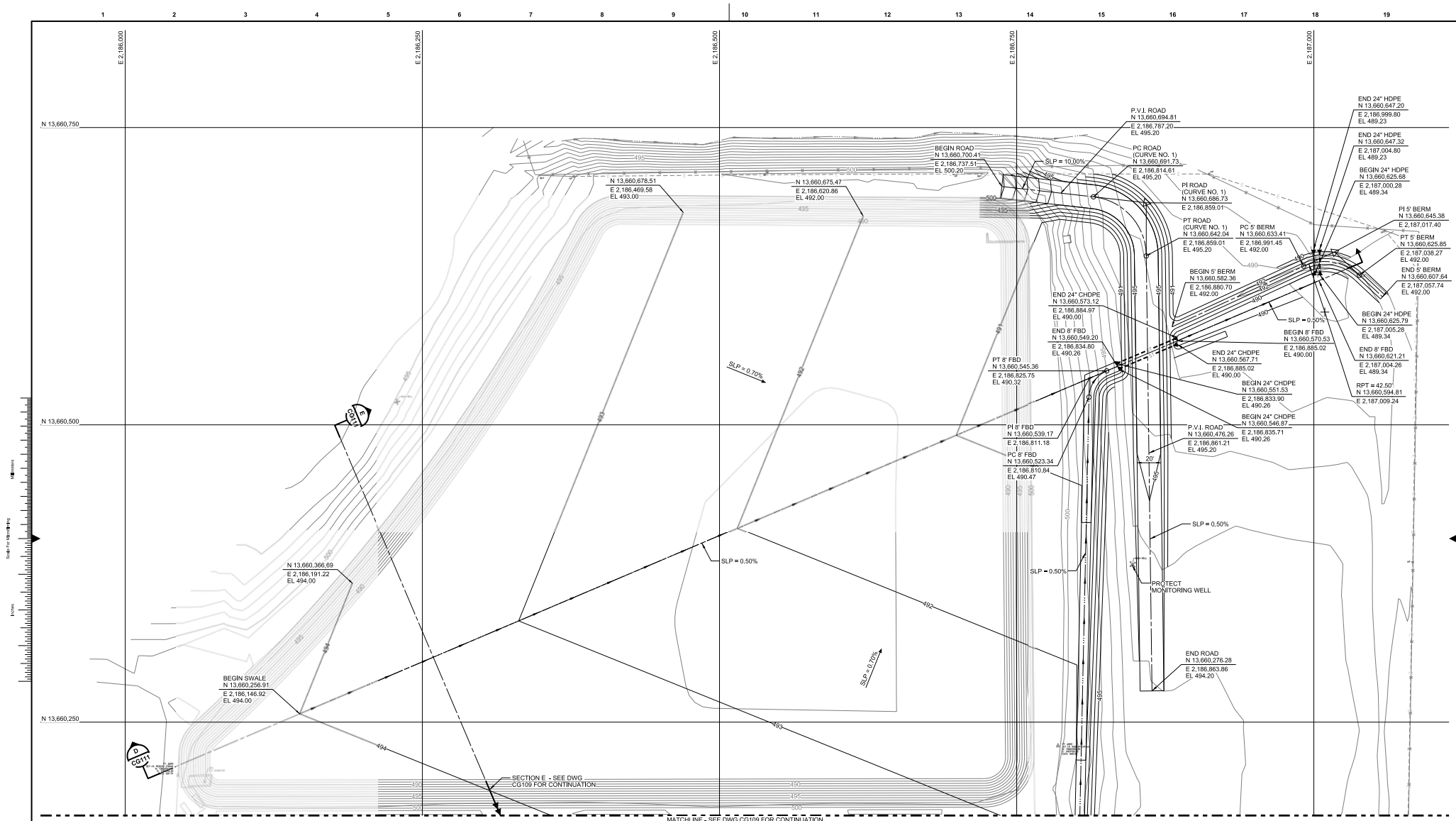
4/18/2024 jrsiegerman 3:36:35 PM



CURVE DATA
CURVE NO. 1
Δ = 83° 34' 36"
D = 114° 35' 30"
R = 50.00'
T = 44.69'
L = 72.93'

NORTH
0 30' 60'
SCALE IN FEET

FOR BID - NOT FOR CONSTRUCTION

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designed: M. BLEYTHING
detailed: S. NICHOLS

cps ENERGY
J.T. DEELY POWER PLANT
BEXAR COUNTY, TEXAS

BOTTOM ASH POND CLOSURE
SITE FINISHING GRADING PLAN
SHEET 1

project: 116817
contract:
drawing: CG108
rev.: 0
sheet: of: sheets:
file: 116817CG108.DGN

4/18/2024 jrsiegerman 3:28:21 PM

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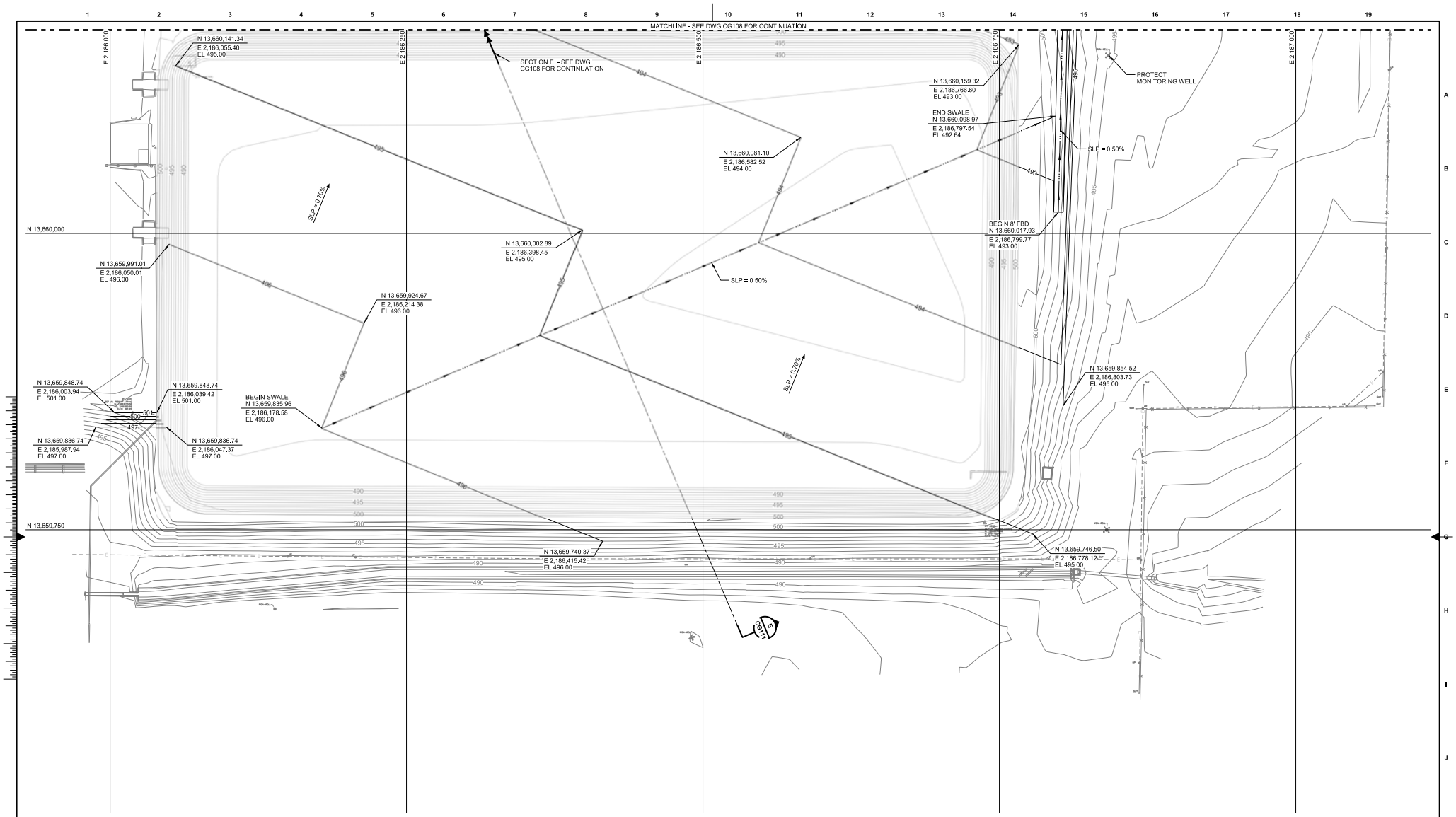

NORTH

0 30' 60'
SCALE IN FEET

FOR BID - NOT FOR CONSTRUCTION

STATE OF TEXAS
JOSEPH A. CHITTET
126620
LICENSED
PROFESSIONAL ENGINEER

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designed M. BLEYTHING | detailed S. NICHOLS

cps ENERGY
J.T. DEELY POWER PLANT
BEXAR COUNTY, TEXAS

BOTTOM ASH POND CLOSURE
SITE FINISHING GRADING PLAN
SHEET 2

project 116817 | contract
drawing **CG109** | rev. **0**
sheet | of | sheets
file:116817CG109.DGN

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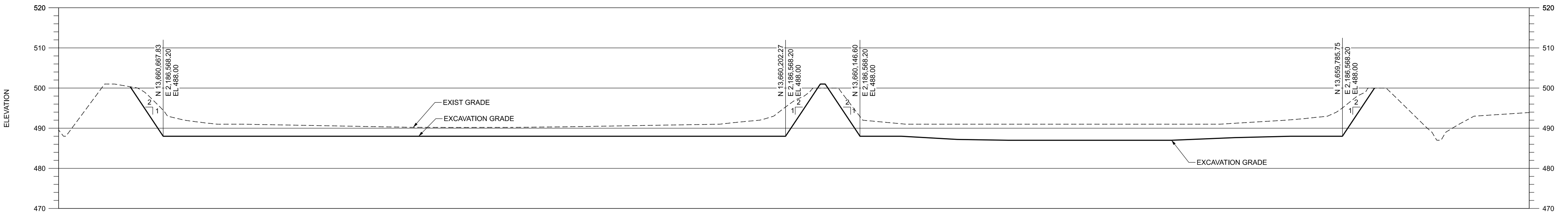

SECTION A CG106 CG107

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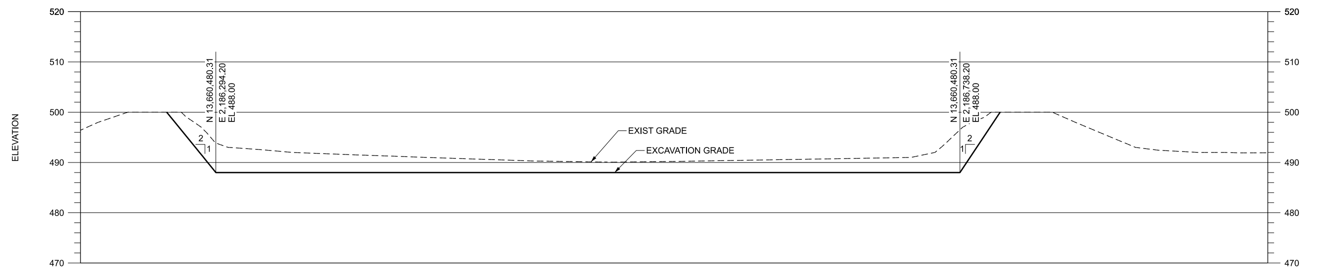
VERT: 0 10' 20' SCALE IN FEET



SECTION B CG106

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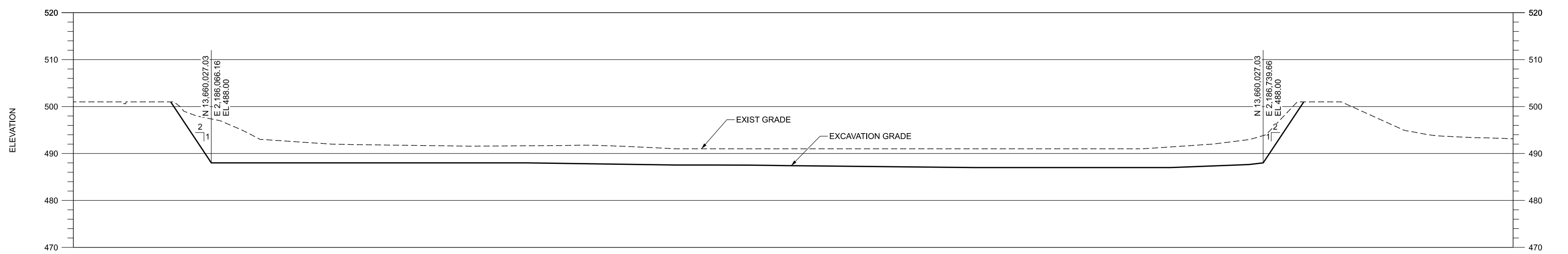

SECTION C CG107

HORIZ: 0 30' 60' SCALE IN FEET

VERT: 0 10' 20' SCALE IN FEET

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designed M. BLEYTHING | detailed S. NICHOLS

CPS ENERGY
J.T. DEELY POWER PLANT
BEXAR COUNTY, TEXAS

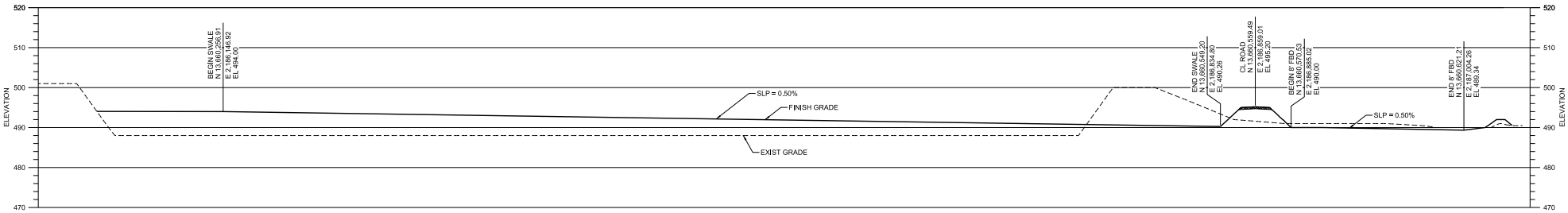
BOTTOM ASH POND CLOSURE
EXCAVATION GRADING SECTIONS
SHEET 1

project 116817 | contract

drawing **CG110** — rev. **0**

sheet of sheets

file116817CG110.DGN



SECTION D CG108

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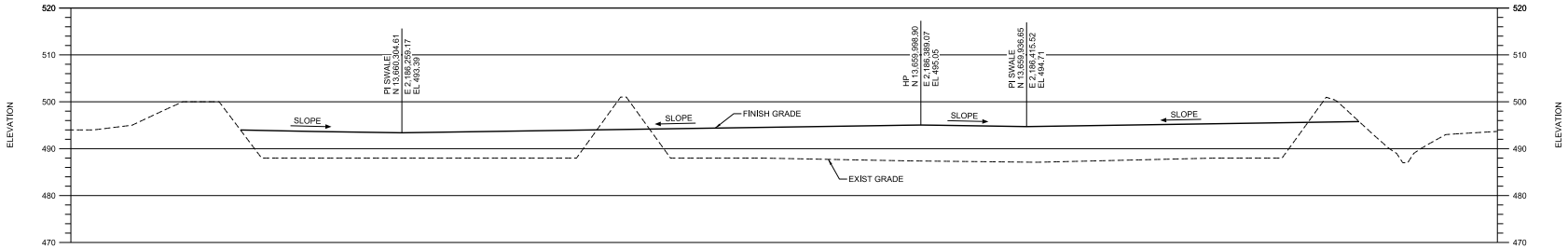
VERT: 0 10' 20' SCALE IN FEET



SECTION E CG108 CG109

HORIZ: 0 30' 60' SCALE IN FEET

VERT: 0 10' 20' SCALE IN FEET

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816-333-9400
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FIRM REG. NO. F-845
designed M. BLEYTHING
detailed S. NICHOLS

cps ENERGY

J.T. DEELY POWER PLANT
BEXAR COUNTY, TEXAS

BOTTOM ASH POND CLOSURE
FINISH GRADING SECTIONS
SHEET 2

project 116817 | contract —
drawing CG111 | rev. 0
sheet of sheets
file116817CG111.DGN

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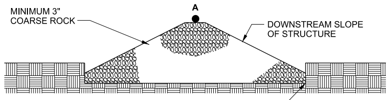
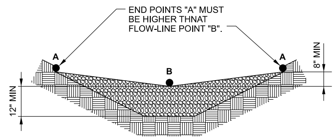
4/18/2024 jrsiegerman 3:25:18 PM

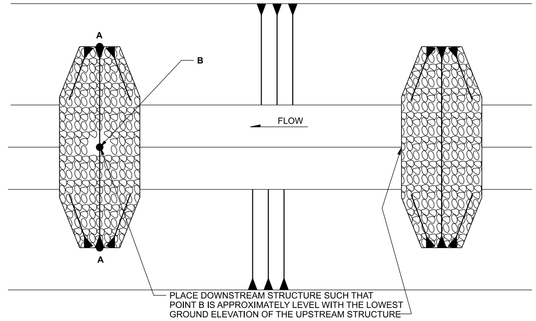


SIDE VIEW
NOT TO SCALE

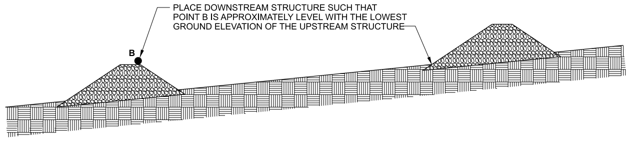


FRONT VIEW
NOT TO SCALE

D50 OF ROCK (MM)	SUGGESTED ROCK DIAMETER AND FLOW DEPTHS					
	DOWNSTREAM FACE OF STRUCTURE					
	35%	30%	25%	20%	15%	10%
	MAXIMUM FLOW DEPTH ON ROCK (MM)					
75	150	180	200	250	330	500
150	300	360	400	500	660	1000

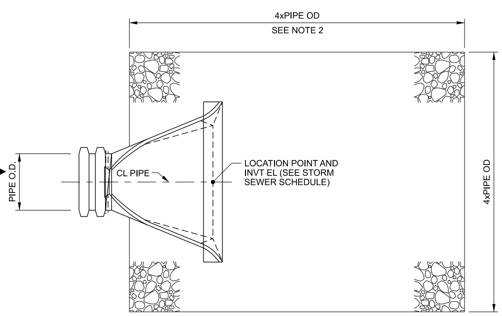


PLAN VIEW
NOT TO SCALE

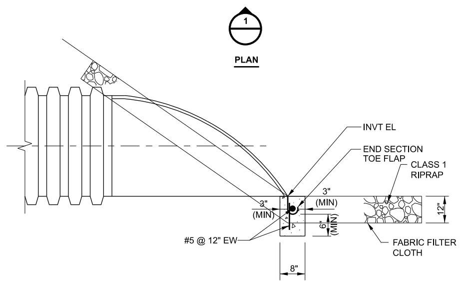


FLOWLINE PROFILE
NOT TO SCALE

ROCK CHECK DAM IN DITCH
NOT TO SCALE



PLAN

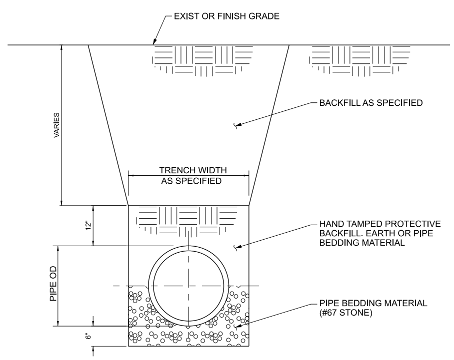


ELEVATION

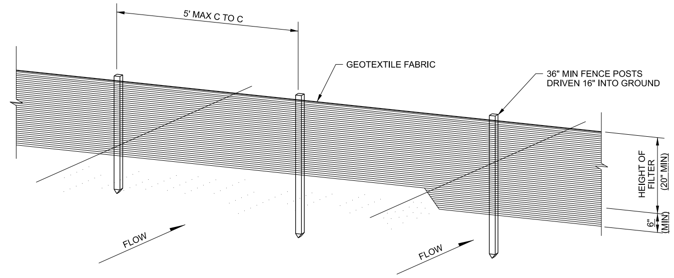
NOTES: (RIPRAPPED CHDPE END SECTION)

1. VERTICAL REBAR SHALL EXTEND THROUGH END SECTION TOE FLAP.
2. PLACE RIPRAP AT ALL END SECTIONS UNLESS LOCATED IN A CONCRETE LINED DITCH.

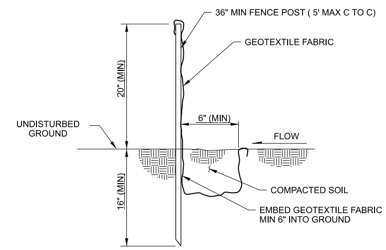
RIPRAPPED CHDPE END SECTION
NOT TO SCALE



TYPICAL PIPE TRENCH
NOT TO SCALE



PERSPECTIVE VIEW



SILT FENCE TRENCH INSTALLATION DETAIL
NOT TO SCALE

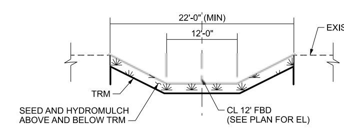
CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

1. GEOTEXTILE FABRIC TO BE FASTENED SECURELY TO TO FENCE POSTS WITH STAPLES.
2. WHEN TWO SECTIONS OF GEOTEXTILE FABRIC ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED.
3. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

POSTS: STEEL EITHER "T" OR "U" TYPE OR 2" HARDWOOD.

GEOTEXTILE FABRIC: FILTER X, MIRAFI 100X, STABILINKA T140N OR APPROVED EQUAL.

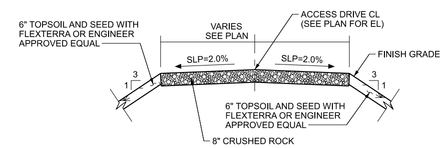
PREFABRICATED UNIT: ______ OR APPROVED EQUAL



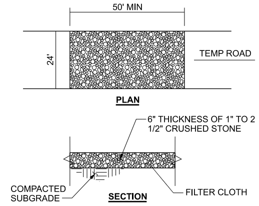
NOTES:

1. SEE SURFACING PLANS FOR EXTENTS OF TRM. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
2. TRM SHALL BE NORTH AMERICAN GREEN C450 TRM OR ENGINEER APPROVED EQUAL.

TYPICAL 8' FBD DETAIL
NOT TO SCALE



TYPICAL ACCESS DRIVE DETAIL
NOT TO SCALE



STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE

CONSTRUCTION SPECIFICATIONS (STABILIZED CONSTRUCTION ENTRANCE)

1. STONE SIZE - USE 2" STONE, RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - NOT LESS THAN 50 FEET.
3. THICKNESS - NOT LESS THAN SIX (6) INCHES.
4. WIDTH - TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY - FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

FOR BID - NOT FOR CONSTRUCTION

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Burns & McDonnell Engineering Co, Inc.
FIRM REG. NO. F-845

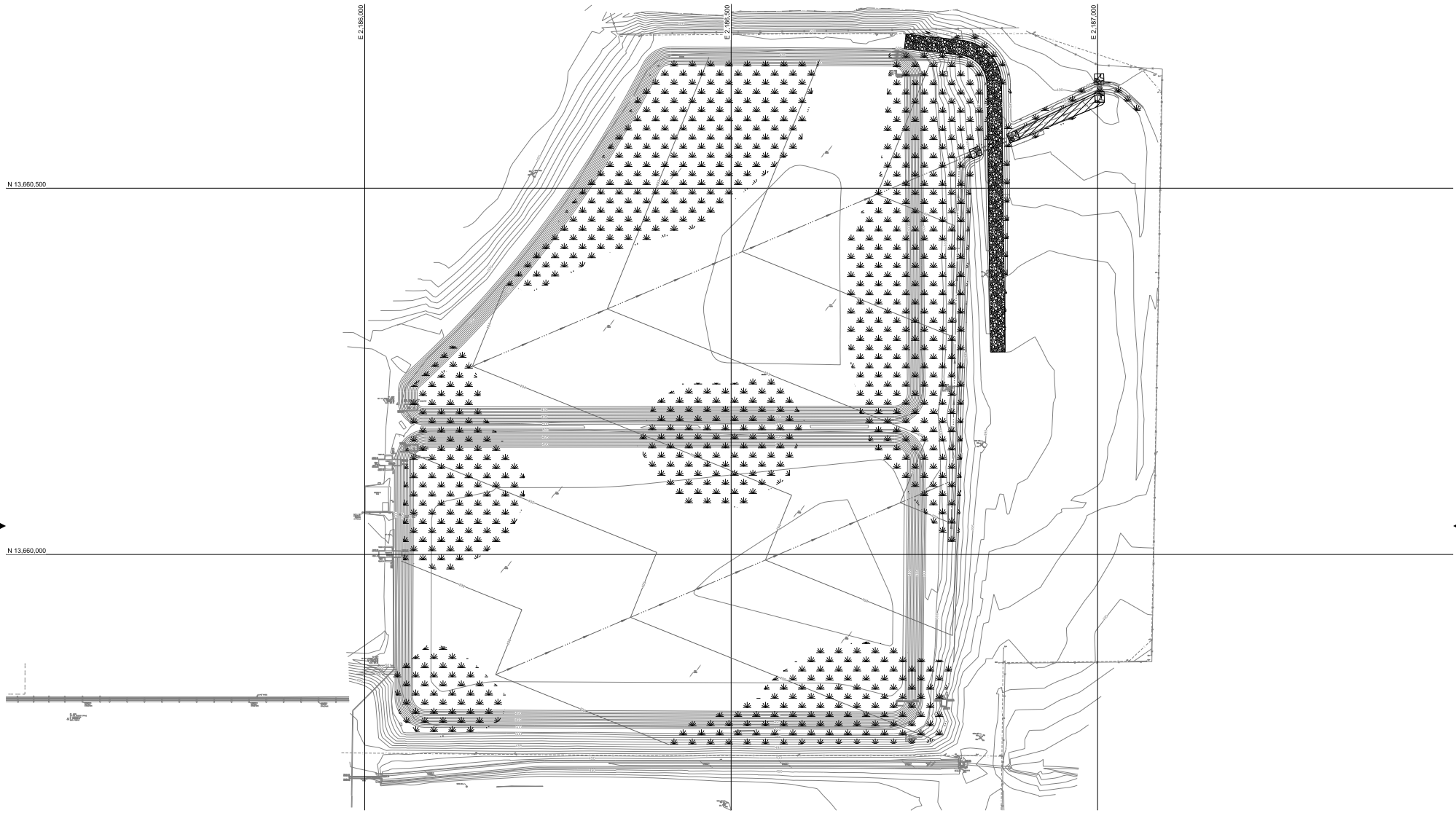
designed: M. BLEYTHING | detailed: S. NICHOLS

J.T. DEELY POWER PLANT
BEXAR COUNTY, TEXAS

BOTTOM ASH POND CLOSURE
DETAILS

project: 116817 | contract:
drawing: CG112 | rev. 0
sheet ___ of ___ sheets
file116817CG112.DGN

$FILE$ DT $USERNAME$TIME$



LEGEND

- 6" TOPSOIL AND HYDROSEED
- RIPRAP
- 8" CRUSHED ROCK ROAD
- TRM LINED CHANNEL

NOTES:

1. CONTRACTOR WILL BE RESPONSIBLE FOR STABILIZATION OR RESURFACING OF ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES, INCLUDING AND OUTSIDE OF LIMITS SHOWN.

NORTH

0 50' 100'
SCALE IN FEET

FOR BID - NOT FOR CONSTRUCTION

STATE OF TEXAS
JOSEPH A. CHITTET
128620
LICENSED
PROFESSIONAL ENGINEER

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FIRM REG. NO. F-845

designed: M. BLEYTHING | detailed: S. NICHOLS

cps ENERGY

J.T. DEELY POWER PLANT
BEXAR COUNTY, TEXAS

BOTTOM ASH POND CLOSURE
SURFACING PLAN

project: 116817 | contract: —
drawing: CP100 | rev.: 0
sheet: of sheets
file:116817CP100.DGN

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4/18/2024 jrsiegerman 3:40:25 PM

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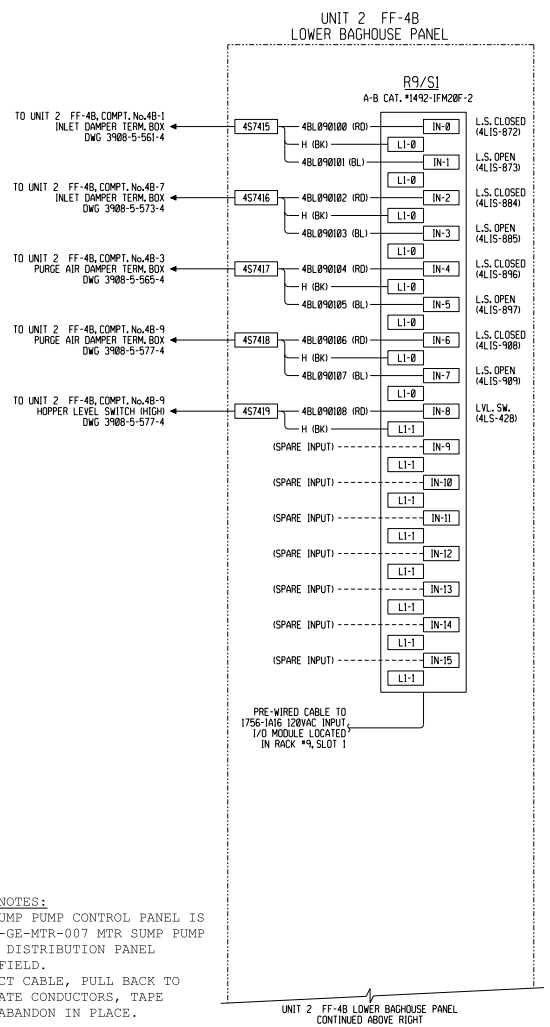
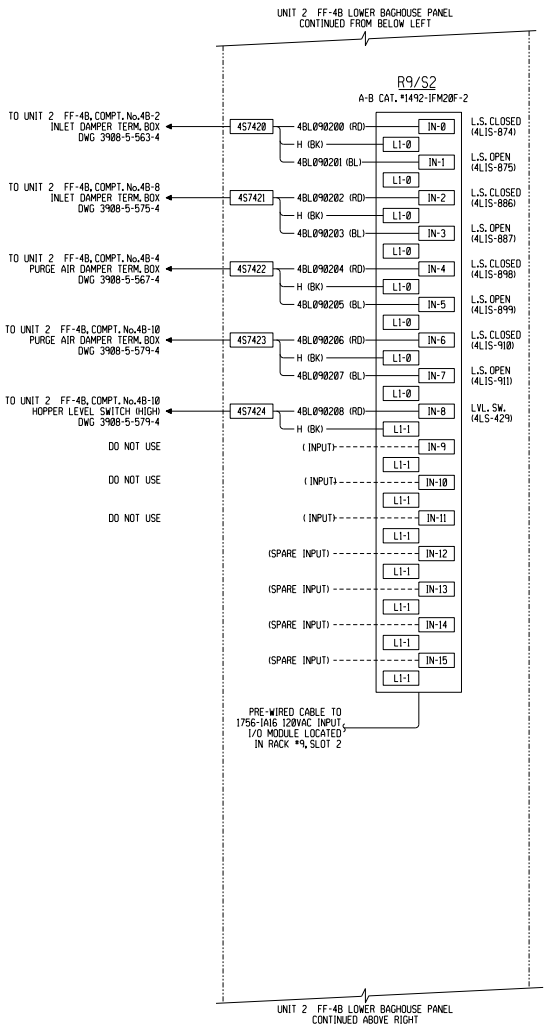
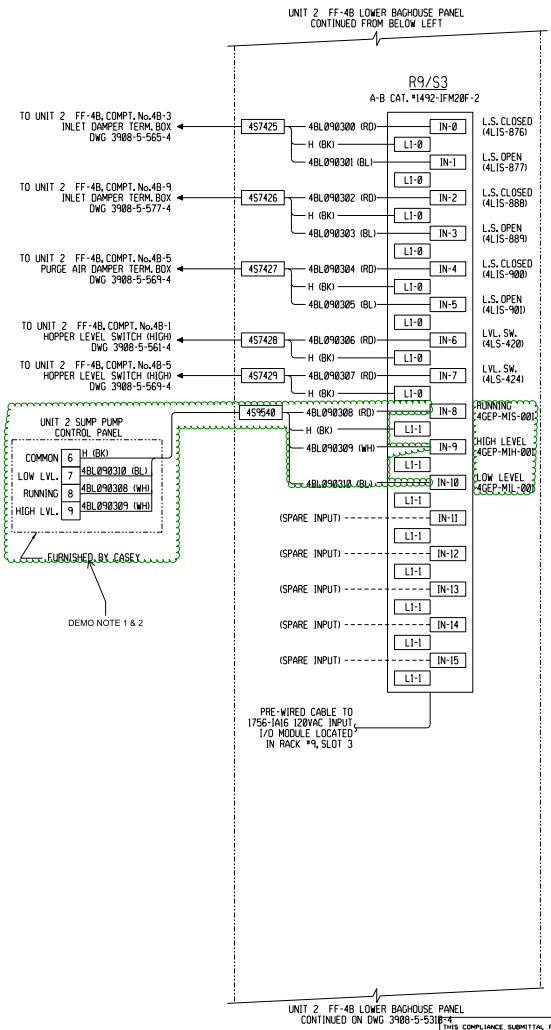






DEMOLITION NOTES:
1. UNIT 2 SUMP PUMP CONTROL PANEL IS LABELED "C4-GE-MTR-007 MTR SUMP PUMP BHOUSE JTD2 DISTRIBUTION PANEL 2FF-4A" IN FIELD.
2. DISCONNECT CABLE, PULL BACK TO TRAY, INSULATE CONDUCTORS, TAPE GREEN, AND ABANDON IN PLACE.

NOTES:
1. FOR CONTROL SYSTEM OVERVIEW, SEE DWG 3908-5-201-3.

DEMOLITION

PRELIMINARY - NOT FOR CONSTRUCTION

NO.	REVISION	DWN.	CHK.	DATE
B	DELETED JUMPERS, ADDED I.O. & CABLE NUMBERS	JPD	RES	11-21-05
0	DRAWING CHECKED	RES	SP	01-27-06
1	CPS REVISED AS BUILT	RWB	RLL	02-01-07
D-3	ISSUED FOR OWNER REVIEW - DEMO	RWB	RLL	10/26/2

NO.	REVISION	DWN.	CHK.	DATE

ISSUE RECORD

REV.	DATE	TO	FOR
A	10-12-05	CUSTOMER	INFORMATION
B	12-07-05	CASEY	INFORMATION
B	01-06-06	CUSTOMER	INFORMATION
0	01-27-06	CUSTOMER	CONSTRUCTION
1	05-08-06	CUSTOMER	FOR RECORD
1	06-06-06	CUSTOMER	RECORD
2	09-19-06	CUSTOMER	RECORD

DRN. BY	JPD	DATE	08-24-05
CHKD. BY	SP	DATE	01-27-06
APPVD. BY		DATE	
SCALE			
CERTIFIED BY:		DATE:	

CITY PUBLIC SERVICE OF SAN ANTONIO
J. T. DEELY UNITS 1 & 2 BAGHOUSE PROJECT
SAN ANTONIO, TEXAS

ELECTRICAL
UNIT 2-FF 4B LOWER B/H PNL
PLC INTERCONN DIAG SHT 1

Wheelabrator Air Pollution Control Inc.

DRAWING NUMBER: 3908-5-530B-4
REV. NO.: 1

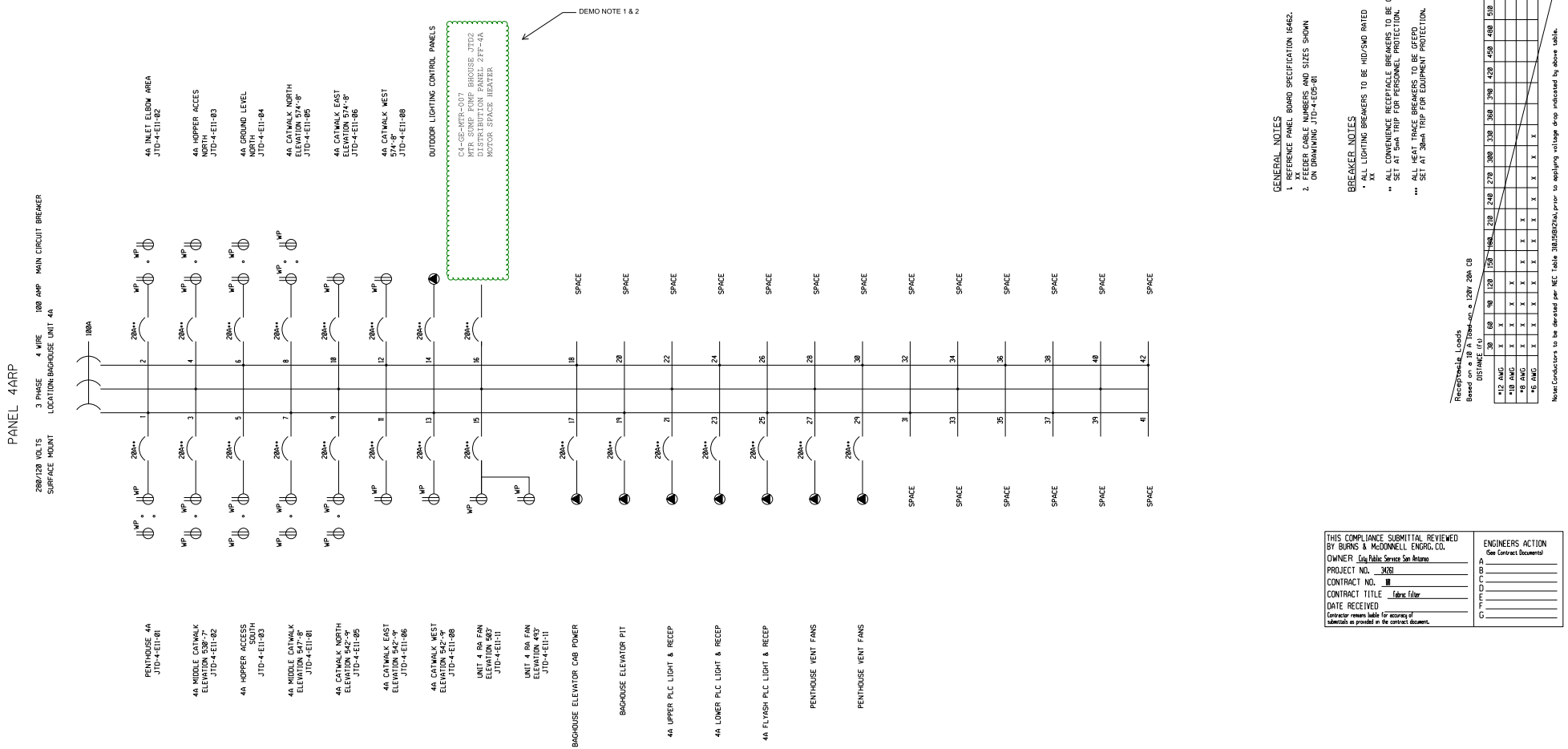
THIS COMPLIANCE SUBMITTAL REVIEWED BY BURNS & MCDONNELL ENGR. CO.
OWNER City Public Service San Antonio
PROJECT NO. 3421
CONTRACT NO. 18
CONTRACT TITLE FABRIC FILTER
DATE RECEIVED
Contractor remains liable for accuracy of submittals as provided in the contract document.

ENGINEER'S ACTION (See Contract Documents)
A
B
C
D
E
F
G

TRANSMITTAL No: $VBATRANSMITTALNO$

PLOT DATE: $DATE$ $TIME$
LAST PLOTTED BY: $USERNAME)

$FILE$



GENERAL NOTES

1. REFERENCE PANEL BOARD SPECIFICATION 16462.
   XX
2. FEEDER CABLE NUMBERS AND SIZES SHOWN ON DRAWING JTD-4-E05-01

BREAKER NOTES

* ALL LIGHTING BREAKERS TO BE HID/SWD RATED
XX

** ALL CONVENIENCE RECEPTACLE BREAKERS TO BE GFCI SET AT 5mA TRIP FOR PERSONNEL PROTECTION.

*** ALL HEAT TRACE BREAKERS TO BE GFEPD SET AT 30mA TRIP FOR EQUIPMENT PROTECTION.

Receptacle Loads
Based on a 98 A load on a 120V 20A CB

DISTANCE (ft)	30	60	90	120	150	180	210	240	270	300	330	360	390	420	450	480	510	540	570	600	630	660
#12 AWG	X	X	X	X	X	X	X	X	X	X	X	X	X									
#10 AWG	X	X	X	X	X	X	X	X	X	X	X	X	X									
#8 AWG	X	X	X	X	X	X	X	X	X	X	X	X	X									
#6 AWG	X	X	X	X	X	X	X	X	X	X	X	X	X									

Note: Conductors to be derated per NEC Table 310.15(B)(2)(a), prior to applying voltage drop indicated by above table.

THIS COMPLIANCE SUBMITTAL REVIEWED BY BURNS & McDONNELL ENGRG. CO.	ENGINEERS ACTION (See Contract Documents)
OWNER City Public Service San Antonio	A
PROJECT NO. 34251	B
CONTRACT NO. NA	C
CONTRACT TITLE Fabric Filter	D
DATE RECEIVED	E
Contractor remains liable for accuracy of submittals as provided in the contract document.	F
	G

DEMOLITION

PRELIMINARY - NOT FOR CONSTRUCTION

DRAWINGS UPDATED PER CONTRACTOR REDLINES. ACTUAL INSTALLATION HAS NOT BEEN VERIFIED.

DEMOLITION NOTES:
1. FEEDER BREAKER IS HANDWRITTEN LABELED "SUMP PUMP" IN PANEL 4ARP.
2. DISCONNECT CABLE, PULL BACK TO TRAY, INSULATE CONDUCTORS, TAPE GREEN, AND ABANDON IN PLACE.

NO	REVISION	ENGR	DRN	DATE
D-3	ISSUED FOR OWNER REVIEW - DEMO	PJG	PJG	10/28/20
2	FOR RECORD	TJB	KVL	9-14-06

NO	REVISION	ENGR	DRN	DATE
1	ISSUED FOR CONSTRUCTION	MJM	BLV	12/2/05
0	ISSUED FOR CONSTRUCTION	MJM	BLV	10/15/05
C	ISSUED FOR CUSTOMER REVIEW	MJM	BLV	10/21/05
B	ISSUED FOR CUSTOMER REVIEW	TPE	BLV	8/30/05
A	PROGRESS ISSUE	TPE	RVP	5/31/05

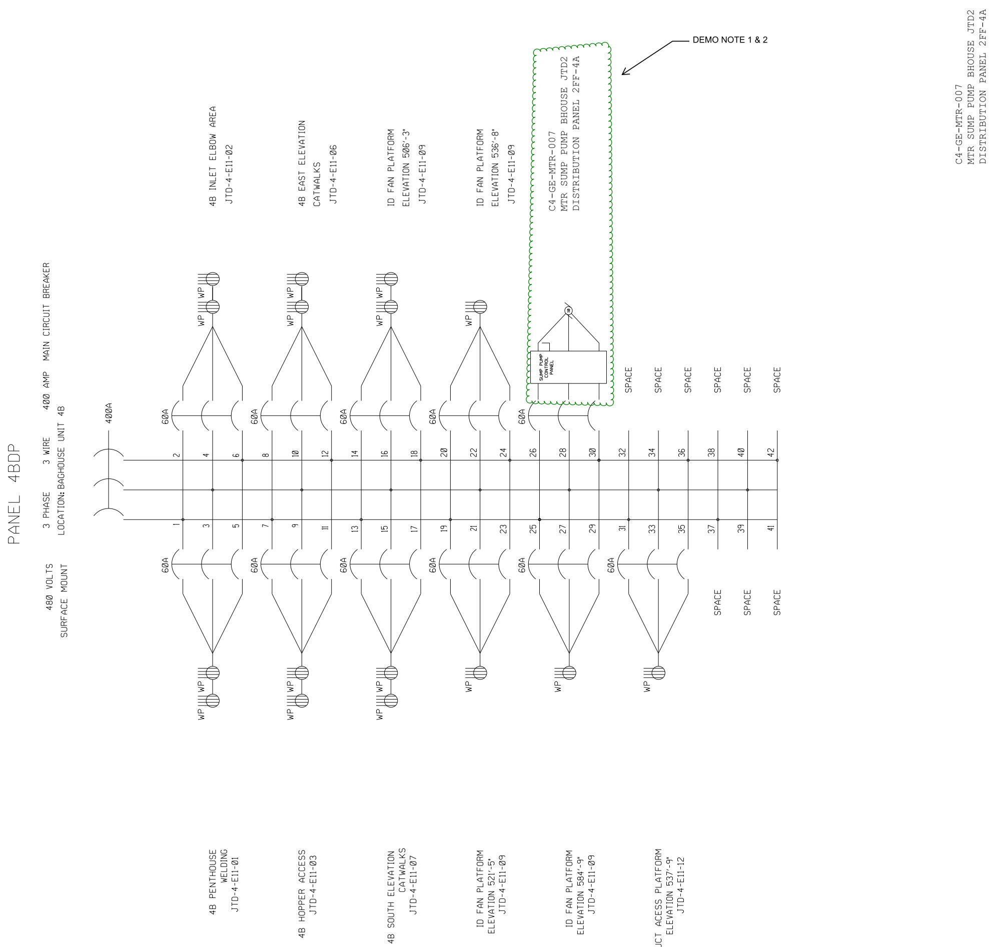
DRN BY: RVP DATE 2-9-05
ENGR BY: TPE DATE 2/18/05
CHD BY: DATE
CAD ID: JTD-4-E07-03 JOB NO. 20-5405
SCALE: NOTED PRINTED

INTERSTATES ENGINEERING
1520 NORTH MAIN P.O. BOX 260
SIOUX CENTER, IA 51250
PHONE: (712) 722-1662 E-MAIL: ENG@INTERSTATES.COM

CASEY INDUSTRIAL
BAGHOUSE
SAN ANTONIO, TX

RECEPTACLE PANEL
JTD BAGHOUSE UNIT 4

JTD-4-E07-03 2
DWG. NO. REV.



C4-GE-MTR-007
MTR SUMP PUMP BHOUSE JTD2
DISTRIBUTION PANEL 2FF-4A

GENERAL NOTES

1. REFERENCE PANEL BOARD SPECIFICATION 16462. XX
2. FEEDER CABLE NUMBERS AND SIZES SHOWN ON DRAWINIG JTD-4-E05-01

BREAKER NOTES

* ALL LIGHTING BREAKERS TO BE HID/SWD RATED XX

** ALL CONVENIENCE RECEPTACLE BREAKERS TO BE GFCI SET AT 5mA TRIP FOR PERSONNEL PROTECTION.

*** ALL HEAT TRACE BREAKERS TO BE GFEPD SET AT 30mA TRIP FOR EQUIPMENT PROTECTION.

Welding Receptacle Loads

Based on 48A (max continuous) load on a 480V 60A CB

DISTANCE (ft)

	30	60	90	120	150	180	210	240	270	300	330	360	390	420	450	480	510	540	570	600	630	660
#6 AWG	X	X	X	X	X	X	X	X														
#4 AWG	X	X	X	X	X	X	X	X	X	X	X	X	X									
#3 AWG	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					
#2 AWG	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	

Note: Conductors to be derated per NEC Table 310.15(B)(2)(a), prior to applying voltage drop indicated by above table.

THIS COMPLIANCE SUBMITTAL REVIEWED BY BURNS & McDONNELL ENGRG. CO.	ENGINEERS ACTION (See Contract Documents)
OWNER City Public Service San Antonio	A
PROJECT NO. 34261	B
CONTRACT NO. 1M	C
CONTRACT TITLE Fabric Filter	D
DATE RECEIVED	E
Contractor remains liable for accuracy of submittals as provided in the contract document.	F
	G

DRAWINGS UPDATED PER CONTRACTOR REDLINES. ACTUAL INSTALLATION HAS NOT BEEN VERIFIED.

DEMOLITION NOTES:
1. FEEDER BREAKER IS HANDWRITTEN LABELED "SUMP PUMP" IN PANEL 4BDP.
2. DISCONNECT CABLE, PULL BACK TO TRAY, INSULATE CONDUCTORS, TAPE GREEN, AND ABANDON IN PLACE.

DEMOLITION

PRELIMINARY - NOT FOR CONSTRUCTION

NO	REVISION	ENGR	DRN	DATE
D-4	ISSUED FOR OWNER REVIEW - DEMO	PJG	PJG	10/28/20

NO	REVISION	ENGR	DRN	DATE
3	FOR RECORD	TJB	KVL	9-14-06
2	ISSUED FOR CONSTRUCTION	TPE	MJM	03/21/06
1	ISSUED FOR CONSTRUCTION	TPE	MJM	1/16/06
0	ISSUED FOR CONSTRUCTION	TPE	MJM	11/15/21
A	ISSUED FOR CUSTOMER REVIEW	TPE	MJM	10/21/05

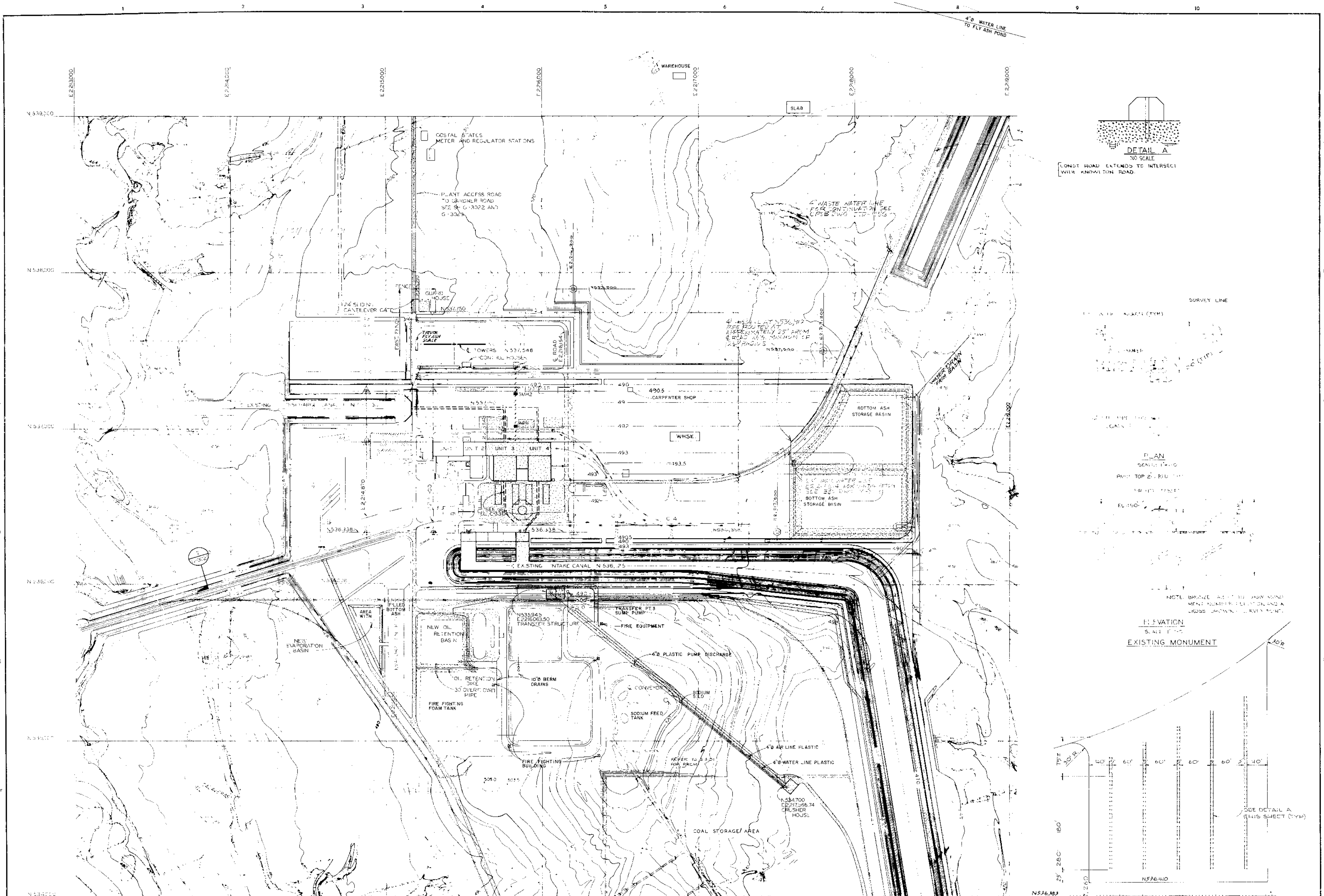
DRN BY: RVP DATE 2-9-05
ENGR BY: TPE DATE 2/18/05
CKD BY: DATE
CAD ID JTD-4-E07-05 JOB NO. 20-5405
SCALE NOTED PRINTED

INTERSTATES ENGINEERING
1520 NORTH MAIN P.O. BOX 260
SIOUX CENTER, IA 51250
PHONE: (712) 722-1662 E-MAIL: ENG@INTERSTATES.COM

CASEY INDUSTRIAL
BAGHOUSE
SAN ANTONIO, TX

POWER DISTRIBUTION PANEL
JTD BAGHOUSE UNIT 4

DWG. NO. JTD-4-E07-05 REV. 3



LEGEND
- MONUMENT-EXISTING
- MONUMENT-NEW
- D-4A CONTRACT
- DUCT BANK (EXISTING)
- ELECTRIC MANHOLE (EXISTING)
- CIRCULATING WATER LINE
- SECURITY LINE

NEW CONSTRUCTION PARKING-D2A CONTRACT
SCALE 1"=60'

STATE OF TEXAS — JOHN R. STACK — 28734 — REGISTERED PROFESSIONAL ENGINEER

7-15-87	FIELD STRUCTURES ADDED TO DRAWING	14
2-10-87	ADDED NEW MONUMENTS (AERIAL MAPPING)	13
1-24-83	SHOW STRUCTURES E OF PLANT	12 B.L.D.
[illegible]	ADDED NORTH BOTTOM ASH BASIN [illegible]	11 DTS
1/20/82	REMOVED R.R. TRACK SCALE ADDED TRACK FLY ASH SCALE	10 DTS
		9
12-1-78	CONFORMED TO CONSTRUCTION RECORDS	8 TMS TMS
9/30/74	APPROVED FOR CONST, CONTRACT D-4A	7 HLK
8/9/74	ISSUED FOR GEN CONST ADDENDUM 2 - CONTRACT D-4A	6 HLK
6/28/74	ISSUED FOR GEN CONST BIDS - CONTRACT D-4A	5 HLK
3/2/74	ADDED NEW EVAPORATION BASIN	4 HLK
1/23/74	REVISED CONSTRUCTION PARKING	3
12/18/73	APPROVED FOR CONST - CONTRACT D-2A	2
11/28/73	ADDENDUM 2, CONTRACT D-2A REVISED CIRCLED AREAS	1
11/2/73	ISSUED FOR CONST BIDS - CONTRACT D-2A	0
DATE	REVISIONS AND RECORD OF ISSUE	NO. BY

SCALE

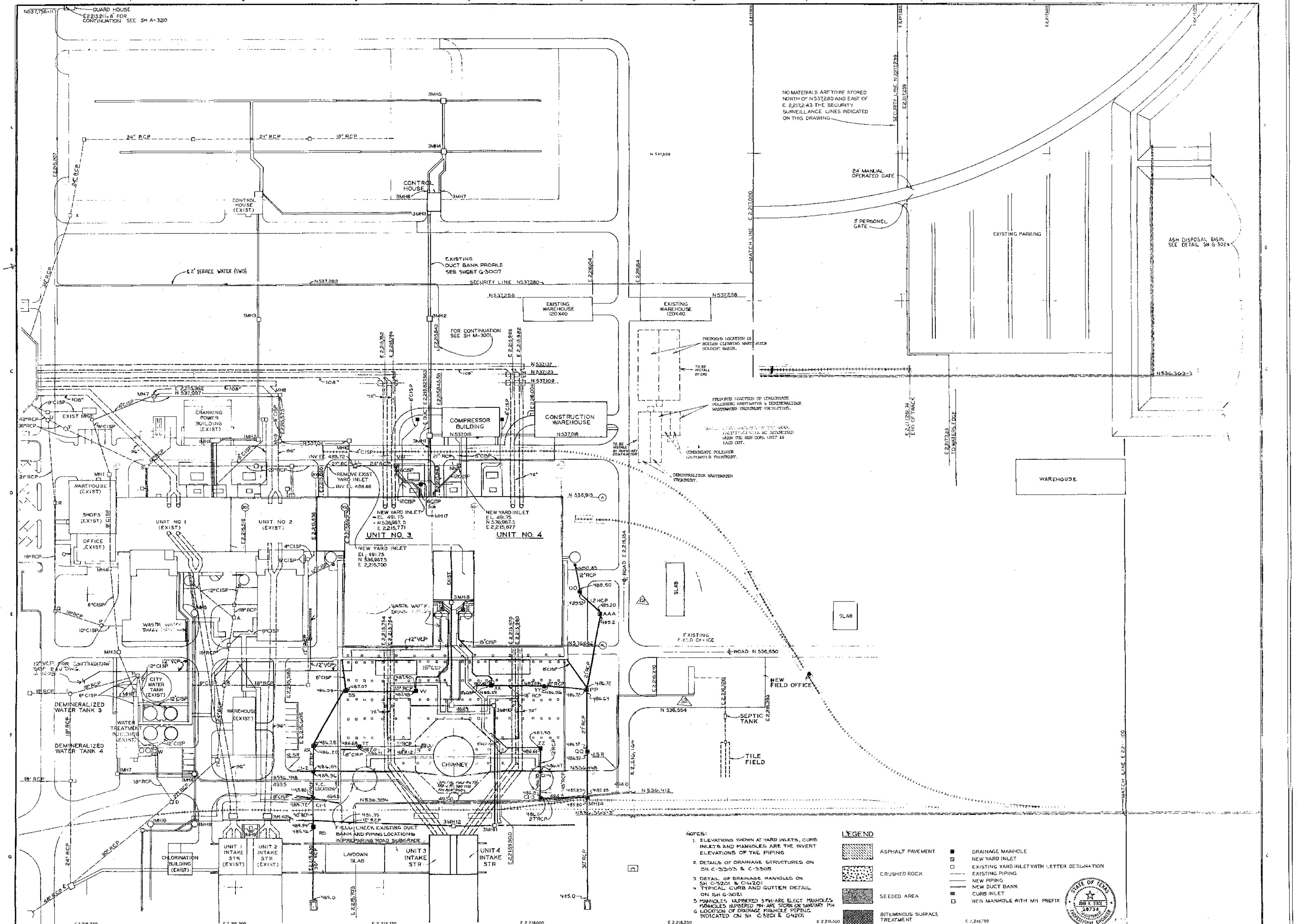
CHECKED HLK
DRAWN BRS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF TEXAS

BLACK & VEATCH
CONSULTING ENGINEERS
PROJECT 6314

CITY PUBLIC SERVICE BOARD
J. T. DEELY PLANT - UNIT 1
GENERAL
PLOT PLAN

B.&V. DWG NO. G-3002



NOTES:

1. ELEVATIONS SHOWN AT YARD INLETS, CURB INLETS AND MANHOLES ARE THE INVERT ELEVATIONS OF THE PIPING
2. DETAILS OF DRAINAGE STRUCTURES ON SH. C-3303 & C-3305
3. DETAIL OF DRAINAGE MANHOLES ON SH C-3201 & C-4201
4. TYPICAL CURB AND GUTTER DETAIL ON SH G-3021
5. MANHOLES NUMBERED 3MH-ARE ELECT MANHOLES MANHOLES NUMBERED MH-ARE STORM OR SANITARY MH
6. LOCATION OF DRAINAGE MANHOLE PIPING INDICATED ON SH C-3201 & C-4201

LEGEND

ASPHALT PAVEMENT
CRUSHED ROCK
SEEDED AREA
BITUMINOUS SURFACE TREATMENT

DRAINAGE MANHOLE
NEW YARD INLET
EXISTING YARD INLET WITH LETTER DESIGNATION
EXISTING PIPING
NEW PIPING
NEW DUCT BANK
CURB INLET
NEW MANHOLE WITH MH PREFIX

STATE OF TEXAS — JOHN R. STACK — 28734 — REGISTERED PROFESSIONAL ENGINEER

7-13-87	ADDED SLAB	12	A.G.	2-3-82	ADDED 300 TON MONIER FLY ASH SILO	8	DTS	12-2-74	REVISED ASH PIPE TRENCH LOCATION, CIRCLED AREA	3	HLK			
1-20-87	NOTE: SIZE OF CIRCULATING WATER	11	F.T.	2/17/79	AS BUILT - WASTE WATER FACILITIES	7		9/30/74	APPROVED FOR CONST, CONTRACT D-4A	2	HLK			
1-8-87	LOCATED PROPOSED FACILITIES	10	F.T.	12-1-78	CONFORMED TO CONSTRUCTION RECORDS	6	TAB	TS	8/9/74	ISSUED FOR GEN CONST ADDENDUM 2- CONTRACT D-4A	1	HLK		
1-24-83	SHOW BLDGS. E. OF PLANT	9	B.L.D.S.	4-16-76	REVISED AS CIRCLED	5			6/28/74	ISSUED FOR GEN. CONST. BIDS CONTRACT D-4A	0	BVR		
				10/3/75	REVISED DRAIN LINE ROUTING - PRECIP AREA	4	HES	HES	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

SCALE: 1" = 50'

DEPT HEAD CLM
DESIGNER JRS
CHECKED HLK
DRAWN GIC

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF TEXAS.
SIGNED John R. Stack
DATE 9-30-74 REG. NO. 28734

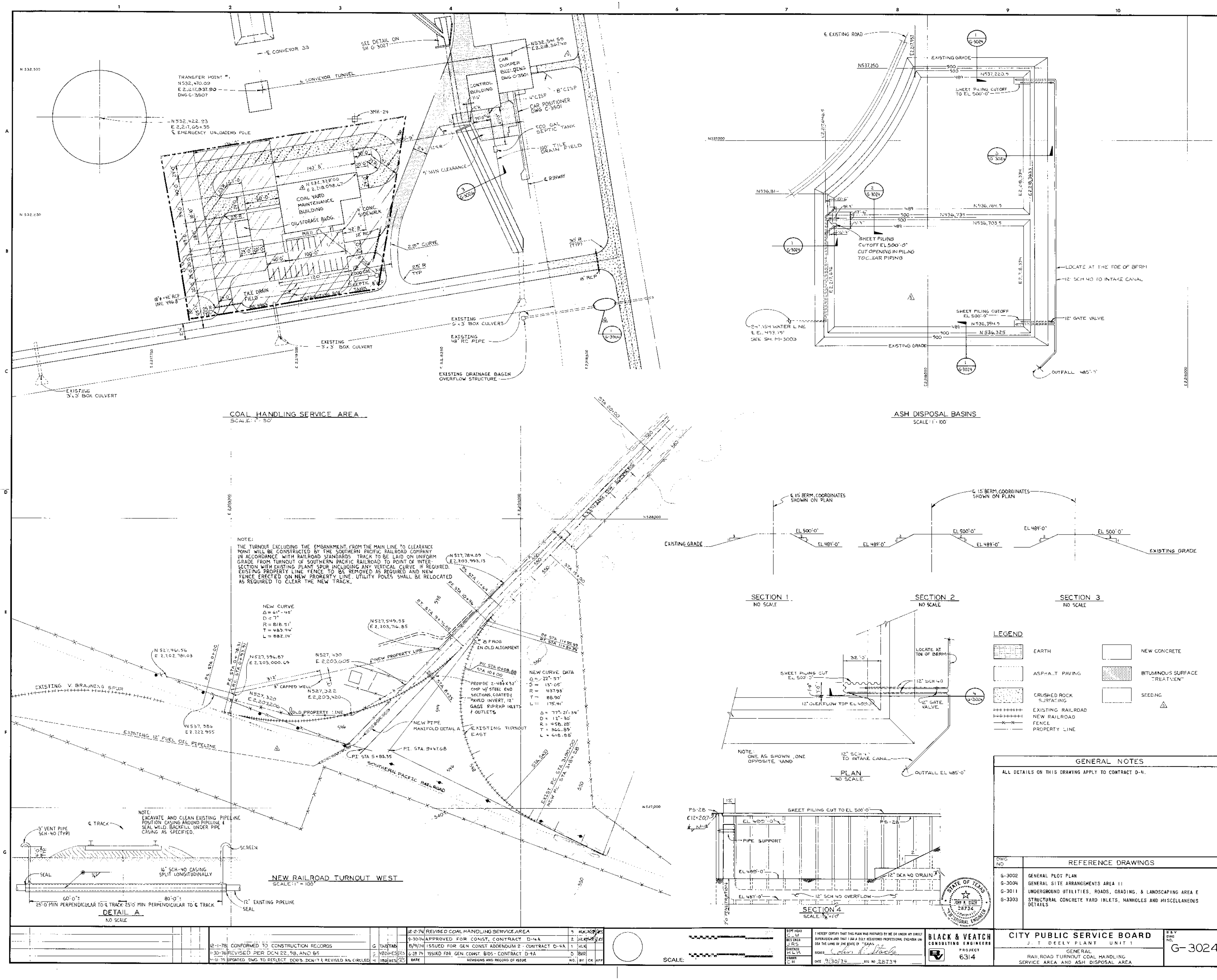
BLACK & VEATCH
CONSULTING ENGINEERS
PROJECT 6314

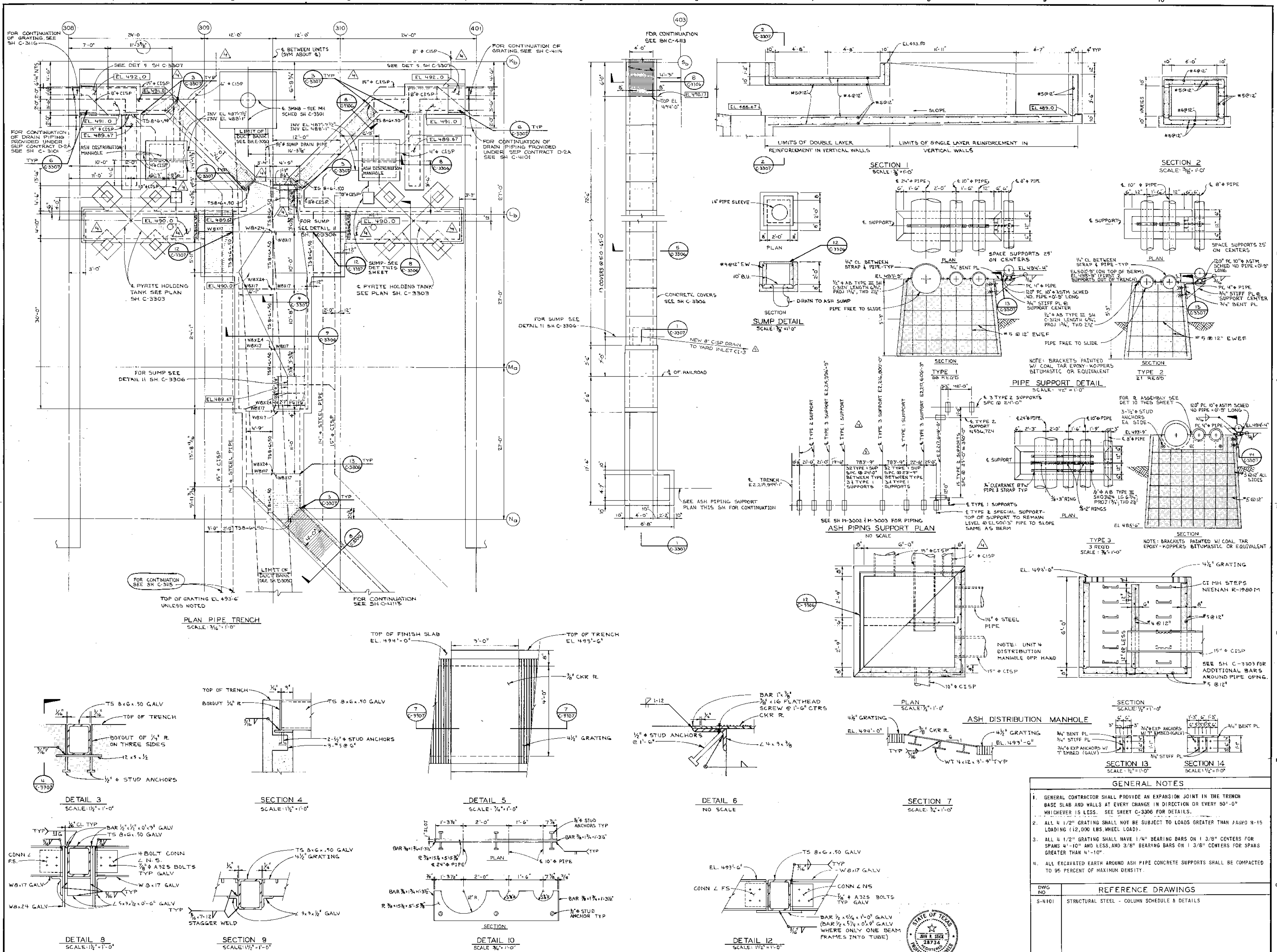
CITY PUBLIC SERVICE BOARD

J. T. DEELY PLANT - UNIT 1

GENERAL
SITE ARRANGEMENT PLAN
UNDERGROUND UTILITIES
AREA A

G-3005


COAL HANDLING SERVICE AREA
SCALE: 1" = 50'
ASH DISPOSAL BASINS
SCALE: 1" = 100'
NEW RAILROAD TURNOUT WEST
SCALE: 1" = 100'
SECTION 1
NO SCALE
SECTION 2
NO SCALE
SECTION 3
NO SCALE
SECTION 4
PLAN
NO SCALE
DETAIL A
NO SCALE
COAL YARD MAINTENANCE BUILDING
OIL STORAGE BLDG.
CAR DUMPER BUILDING DWG C-3501
CONTROL BUILDING
NOTE:
THE TURNOUT EXCLUDING THE EMBANKMENT, FROM THE MAIN LINE TO CLEARANCE POINT WILL BE CONSTRUCTED BY THE SOUTHERN PACIFIC RAILROAD COMPANY IN ACCORDANCE WITH RAILROAD STANDARDS. TRACK TO BE LAID ON UNIFORM GRADE FROM TURNOUT OF SOUTHERN PACIFIC RAILROAD TO POINT OF INTERSECTION WITH EXISTING PLANT SPUR INCLUDING ANY VERTICAL CURVE IF REQUIRED. EXISTING PROPERTY LINE FENCE TO BE REMOVED AS REQUIRED AND NEW FENCE ERECTED ON NEW PROPERTY LINE. UTILITY POLES SHALL BE RELOCATED AS REQUIRED TO CLEAR THE NEW TRACK.
NOTE:
EXCAVATE AND CLEAN EXISTING PIPELINE POSITION CASING AROUND PIPELINE & SEAL WELD. BACKFILL UNDER PIPE CASING AS SPECIFIED.
SOUTHERN PACIFIC RAILROAD
EXISTING V. BRAUNING SPUR
EXISTING 12" FUEL OIL PIPELINE
LEGEND
EARTH
ASPHALT PAVING
CRUSHED ROCK SURFACING
EXISTING RAILROAD
NEW RAILROAD
FENCE
PROPERTY LINE
NEW CONCRETE
BITUMINOUS SURFACE TREATMENT
SEEDING
GENERAL NOTES
ALL DETAILS ON THIS DRAWING APPLY TO CONTRACT D-4.
REFERENCE DRAWINGS
G-3002 GENERAL PLOT PLAN
G-3004 GENERAL SITE ARRANGEMENTS AREA II
G-3011 UNDERGROUND UTILITIES, ROADS, GRADING, & LANDSCAPING AREA E
G-3303 STRUCTURAL CONCRETE YARD INLETS, MANHOLES AND MISCELLANEOUS DETAILS
12-1-78 CONFORMED TO CONSTRUCTION RECORDS
1-30-76 REVISED PER DCN 22, 58, AND 65
12-2-74 REVISED COAL HANDLING SERVICE AREA
9-30-74 APPROVED FOR CONST. CONTRACT D-4A
8/9/74 ISSUED FOR GEN CONST ADDENDUM 2 - CONTRACT D-4A
6-28-74 ISSUED FOR GEN. CONST. BIDS - CONTRACT D-4A
REVISIONS AND RECORD OF ISSUE
BLACK & VEATCH
CONSULTING ENGINEERS
PROJECT 6314
CITY PUBLIC SERVICE BOARD
J. T. DEELY PLANT UNIT 1
GENERAL
RAILROAD TURNOUT COAL HANDLING SERVICE AREA AND ASH DISPOSAL AREA
G-3024
SCALE:



GENERAL NOTES

1. GENERAL CONTRACTOR SHALL PROVIDE AN EXPANSION JOINT IN THE TRENCH BASE SLAB AND WALLS AT EVERY CHANGE IN DIRECTION OR EVERY 50'-0" WHICHEVER IS LESS. SEE SHEET C-3306 FOR DETAILS.
2. ALL 4 1/2" GRATING SHALL NOT BE SUBJECT TO LOADS GREATER THAN AASHO H-15 LOADING (12,000 LBS. WHEEL LOAD).
3. ALL 4 1/2" GRATING SHALL HAVE 1/4" BEARING BARS ON 1 3/8" CENTERS FOR SPANS 4'-10" AND LESS, AND 3/8" BEARING BARS ON 1 3/8" CENTERS FOR SPANS GREATER THAN 4'-10".
4. ALL EXCAVATED EARTH AROUND ASH PIPE CONCRETE SUPPORTS SHALL BE COMPACTED TO 95 PERCENT OF MAXIMUM DENSITY.

REFERENCE DRAWINGS

DWG NO	REFERENCE DRAWINGS
S-4101	STRUCTURAL STEEL - COLUMN SCHEDULE & DETAILS

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP
12-1-78	CONFORMED TO CONSTRUCTION RECORDS	7	TS	TS	
4-26-78	ADDED 8" ASH SUMP PIPE SUPPORTS, TYPE I, II, III AND CONFORMED TO CONST RECORDS - DCN 109, 116, & 332	6	TAB		
1-30-76	REVISED TO ACCOMODATE DCN 22	5	VBD	HES	RS
4-11-75	UPDATED DWG TO REFLECT DCN 18, & REVISED AS CIRCLED	4	VBD	HES	
12/2/74	MOVED SUMPS, REVISED ASH PIPING TRENCH & SUPPORT PLAN	3	HES	UBD	RS
9/30/74	APPROVED FOR CONST, CONTRACT D-4A	2	HES	HES	RS
8-21-74	ISSUED FOR GEN CONST ADDENDUM 3 - CONTRACT D-4A	1	HES		
6-20-74	ISSUED FOR GEN CONST BIDS - CONTRACT D-4A	0	HES		

SCALE: 3/16" = 1'-0"

DEPT HEAD CLM · DES ENGR JRS · CHECKED HES · DRAWN RBE

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF TEXAS

SIGNED John R. Stack
DATE 9/30/74 REG. NO. 28734

STATE OF TEXAS · JOHN R. STACK · 28734 · REGISTERED PROFESSIONAL ENGINEER

BLACK & VEATCH
CONSULTING ENGINEERS
PROJECT 6314

CITY PUBLIC SERVICE BOARD
J. T. DEELY PLANT - UNIT 1
STRUCTURAL CONCRETE
YARD STRUCTURES
ASH PIPING TRENCH, SUPPORTS AND MISC DETAILS

B & V DWG NO. C-3307