

**ADDENDUM NO. 4**  
**MBWWTP RENEWABLE ENERGY PROJECT**  
**CONTRACT NO. W-17-024-201**

**CITY OF CHATTANOOGA, TENNESSEE**

**\*\*\*\*\*Special Notice\*\*\*\*\***

THE BID DATE FOR THIS PROJECT HAS BEEN CHANGED TO NOVEMBER 12, 2019. THE TIME AND LOCATION OF THE BID OPENING HAVE NOT CHANGED.

**ADDITIONAL INFORMATION DOCUMENTS**

The following documents:

- Questions and Responses No. 03

are being provided with this addendum for informational purposes only. The document listed above is not, and will not, be considered part of the Contract Documents.

**SPECIFICATIONS**

Section 00 21 13;

Add the following Paragraph 14.03 after Paragraph 14.02

“14.03 Alternates

- A. The Bidder shall submit a bid for each item shown in the alternate(s).
- B. Bidding of Alternate No. 1 is optional.
- C. The price for each alternate will be the amount added to or deleted from the base Bid if Owner selects the alternate.”

Paragraph 15.01

Delete:

- E. Certification By Proposed Prime or Subcontractor Regarding Equal Employment Opportunity
- F. Certification Regarding Debarment, Suspension and Other Responsibility Matters

Add:

- E. Affirmative Action Plan
- F. Iran Divestment Act Compliance Certification

G. PVSyst Simulation Output including Production output in MWh over the life of the solar array (25-year)

H. Appendix B: Product Data – Equipment Supply Matrix

Section 00 41 00, Article 7.01

Add

F. Affirmative Action Plan

G. Iran Divestment Act Compliance Certification

H. PVSyst Simulation Output including Production output in MWh over the life of the solar array (25-year)

Delete Section 01 22 00 and replace with Section 01 22 00 included with this addendum.

Delete Section 01 31 29 and replace with Section 01 31 29 included with this addendum.

Section 32 11 23; Paragraph 2.01

Change, “...Section 303 of the Standard Specifications.”

To, “...Section 303 of the Tennessee Department of Transportation Standard Specifications for Road and Bridge Construction.”

And Paragraph 2.02

Change, “...Section 303 of the Standard Specifications.”

To, “...Section 303 of the Tennessee Department of Transportation Standard Specifications for Road and Bridge Construction.”

Section 32 31 13; Paragraph 2.1

Change, “Overall height for new fencing shall be seven feet including...”

To, “Overall height for new fencing shall be eight feet including...”

## **DRAWINGS**

Delete Sheet 1 of 14, G-01 “Civil and General Legend” and Replace with Sheet 1 of 14, G-01 “Civil and General Legend” included with this addendum.

Delete Sheet 2 of 14, C-01 “Overall Site Plan” and Replace with Sheet 2 of 14, C-01 “Overall Site Plan” included with this addendum.

Delete Sheet 3 of 14, C-02 “Wetlands Cross Section” and Replace with Sheet 3 of 14, C-02 “Wetlands Cross Section” included with this addendum.

Delete Sheet 5 of 14, C-04 “Initial ESPC Plan” and Replace with Sheet 5 of 14, C-04 “Initial ESPC Plan” included with this addendum.

Delete Sheet 6 of 14, C-05 “Intermediate ESPC Plan” and Replace with Sheet 6 of 14, C-05 “Intermediate ESPC Plan” included with this addendum.

Delete Sheet 7 of 14, C-06 “Final ESPC Plan” and Replace with Sheet 7 of 14, C-06 “Final ESPC Plan” included with this addendum.

Delete Sheet 8 of 14, C-07 “Civil Standard Details” and Replace with Sheet 8 of 14, C-07 “Civil Standard Details” included with this addendum.

Delete Sheet 10 of 14, E-01 “Photovoltaic Array Proposed Layout Plan” and Replace with Sheet 10 of 14, E-01 “Photovoltaic Array Proposed Layout Plan” included with this addendum.

*Bidder Must Acknowledge Receipt of this Addendum on Bid Form*

**QUESTIONS AND RESPONSES No. 3**

**MBWWTP Renewable Energy Project  
CONTRACT NO. W-17-024-201**

**CITY OF CHATTANOOGA, TENNESSEE**

**October 29, 2019**

1. Q:- Can you extend the bid date?

*R: See Addendum No. 4. Bid Date has been changed to November 12, 2019. The time and location of the bid opening have not changed.*

2. Q: Section 15.01 indicates we need to include items E and F, which are Certifications regarding Equal Employment Opportunity and regarding Debarment. I didn't see any sort of document to that end. Is there a form we need to sign saying we will adhere to your policy on both?

*R: See Addendum No. 4.*

3. Q: I don't know if this needs to be submitted as a formal question, but the bid form for the solar project RFP shows allowances for three items, \$20k, \$10k, \$10k. Are you saying you want us to use \$40k as our plug in for those three items? If we think it will be more or less than that, should we note it?

*R: See Addendum No. 4. The Allowances are for owner directed for testing and verification activities beyond the scope of work required to complete the project included in Item 1 of the Bid Form.*

4. Q: Addendum 2 and 3 seem to contradict on the status of Chint and CPS inverters. Addendum 2, question 5 says CPS inverters are OK, which stands for Chint Power Systems. Addendum 3, question 6 says Chint is not allowed. We have found CPS to be very acceptable by the investment community.

*R: There was a contradiction between addendum 2 and 3 and we apologize for the confusion. Chint (aka CPS inverters) are not on the approved list of acceptable inverters within section 48 14 00.*

4. Q: Is there information on the site soils conditions?

*R: There is no current information on the site soils conditions. The contractor may perform site soils investigations prior to bid with approval by the Owner.*

## Part 1 General

### 1.01 Scope

- A. The Bid lists each item of the Project for which payment will be made. No payment will be made for any items other than those listed in the Bid.
- B. Required items of work and incidentals necessary for the satisfactory completion of the work which are not specifically listed in the Bid, and which are not specified in this section to be measured or to be included in one of the items listed in the Bid, shall be considered as incidental to the work. All costs thereof, including Contractor's overhead costs and profit, shall be considered as included in the lump sum or unit prices bid for the various Bid items. The Contractor shall prepare the Bid accordingly.
- C. Work includes furnishing all plant, labor, equipment, tools and materials, which are not furnished by the Owner and performing all operations required to complete the work satisfactorily, in place, as specified and as indicated on the Drawings.

### 1.02 Descriptions

- A. Measurement of an item of work will be by the unit indicated in the Bid.
- B. Payment will include all necessary and incidental related work not specified to be included in any other item of work listed in the Bid.
- D. Unless otherwise stated in individual sections of the Specifications or in the Bid, no separate payment will be made for any item of work, materials, parts, equipment, supplies or related items required to perform and complete the work. The costs for all such items required shall be included in the price bid for item of which it is a part.
- E. Payment will be made by extending unit prices multiplied by quantities provided and then summing the extended prices to reflect actual work. Such price and payment shall constitute full compensation to the Contractor for furnishing all plant, labor, equipment, tools and materials not furnished by the Owner and for performing all operations required to provide to the Owner the entire Project, complete in place, as specified and as indicated on the Drawings.

### 1.03 Item 1 – Solar PV Array

- A. Item 1 listed in the Bid will include furnishing all design, products, materials and equipment and performing all labor necessary to construct, test and put into operation the MBWWTP Renewable Energy Project except for the Item 2 - Solar Panel Equipment only.
- B. Item 1 Total Price shall include all design and coordination to develop and provide the fully Engineered system described in the Specifications. This includes a final design package stamped by an Engineer licensed in the State of Tennessee.

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Measurement and Payment

- C. Item 1 Total Price shall include performing all labor necessary to construct, test and put into operation the Item 2 Solar Panel Equipment.

#### 1.04 Item 2 – Solar Panels Equipment Only

- A. Item 2 shall include only the cost of furnishing the Solar Panel Equipment. Furnishing all other design, products, materials, equipment and performing all labor necessary to construct, test and put into operation the MBWWTP Renewable Energy Project shall be included in Item 1 Total Price.

#### 1.05 Cash Allowances

- A. General

1. The Cash Allowances listed in the Bid are for the use of the Owner beyond the required scope of work. All Soils and Concrete Testing, Construction Verification Surveying, and Quality Verification Testing necessary to complete the MBWWTP Renewable Energy Project shall be included in Item 1 of the Bid Form.
2. The Contractor shall include in the Bid Total all allowances stated in the Contract Documents. These allowances shall cover the net cost of the services provided by a firm selected by the Owner. The Contractor's handling costs, labor, overhead, profit and other expenses contemplated for the original allowance shall be included in item 1 and not in allowances.
3. No payment will be made for nonproductive time on the part of testing personnel due to the Contractor's failure to properly coordinate testing activities with the work schedule or the Contractor's problems with maintaining equipment in good working condition.
4. No payment shall be provided for services which fail to verify required results.

- B. Should the net cost be more or less than the specified amount of the allowance, the Contract will be adjusted accordingly by change order. The amount of change order will not recognize any changes in handling costs at the site, labor, overhead, profit and other expenses caused by the adjustment to the allowance.

- C. Documentation

1. Submit copies of the invoices with each periodic payment request from the firm providing the services.
2. Submit results of services provided which verify required results.

- D. Schedule of Cash Allowances

1. Soils and Concrete Testing

- a. Allow the amount provided in the Bid for the services of a geotechnical engineering firm and testing laboratory to verify soils conditions including trench excavation and backfill and similar issues and for the testing of concrete cylinders for poured in place concrete as requested by the Owner.
  - b. This allowance is solely for the use of the Engineer for verification and in no way relieves the Contractor of the responsibility to perform all soil and concrete testing required to complete the work.
2. Construction Verification Surveying
    - a. Allow the amount provided in the Bid for construction surveying by an independent surveying firm, selected by the Owner, to perform horizontal and vertical alignment checks at the discretion of the Engineer.
    - b. This allowance is solely for the use of the Engineer for verification of the Contractor's reference points, centerlines and work performed. The presence of this cash allowance in no way relieves the Contractor of the responsibility of installing reference points, centerlines, temporary bench marks or verifying that the work has been performed accurately.
  2. Quality Verification Testing
    - a. Allow the amount provided in the Bid for the services of an independent, qualified specialty subcontractor to verify equipment quality when directed by the Engineer.
    - b. This allowance is solely for the use of the Engineer for verification and in no way relieves the Contractor of the responsibility to verify all quality of the work.

## 1.06 Erosion and Sedimentation Control

### A. General

1. No separate payment shall be made for temporary and/or permanent erosion and sedimentation controls, except as noted below. All other temporary and/or permanent erosion and sedimentation control costs shall be included in the Item 1 Lump Sum.
2. No payment will be made for any portion of the Project for which temporary erosion and sedimentation controls are not properly maintained.

Measurement and Payment

**1.07 Earthwork**

A. Earth Excavation

1. No separate payment will be made for earth excavation. The cost of such work and all costs incidental thereto shall be included in the Item 1 Lump Sum.
2. No separate payment will be made for providing sheeting, bracing and timbering.

- B. Backfilling: No separate payment will be made for backfilling or excavation, hauling and placement of borrow material. The cost of all such work and all costs incidental thereto shall be included in Item 1 Lump Sum.

**1.08 Trench Excavation and Backfill**

- A. No separate or additional payment shall be made for Trench Excavation and Backfill including any special or unique method, means, techniques or equipment necessary for the Contractor's compliance with these Specifications, regulatory requirements, permits, laws or regulations which govern this Project.

- B. Trench Excavation: No separate payment shall be made for trench excavation. All costs shall be included in the Item 1 Lump Sum.

- C. Sheeting, Bracing and Shoring: No separate payment will be made for providing sheeting, bracing and timbering.

**1.09 Clean-Up**

No payment will be made for any portion of the Project for which clean-up and restoration has not been completed, to the satisfaction of the Engineer and Owner.

END OF SECTION



## Part 1 General

### 1.01 Scope

- A. The Contractor shall use Project Document Tracking and Control System (DTCS) which will be coordinated by the Engineer as stated below. The primary function of the system is to facilitate timely processing and approval of the contract documentation in coordination with the Overall Project Schedule (OPS) established by these Specifications and the Contractor. This system will utilize Oracle Primavera Project Management (P6) for Critical Path Method (CPM) scheduling and Claim Digger for schedule review and comparison.
- B. The document tracking and control system will:
1. Facilitate communication among the Owner, Engineer and Contractor;
  2. Facilitate turn-around time with regard to responses and approvals;
  3. Provide a location for Project information and facilitate the Project participants in performing their tasks based on the latest Project data;
  4. Provide a standard system of Project reporting and administration with accountability.
- D. The Engineer will utilize the system to create the required Project documents. The Project documents generated by the Engineer shall be created and maintained within the DTCS. The system will be used to create and/or track the following documents:
1. Project Contact List: Addresses, phone numbers, personnel contacts, etc.
  2. Shop drawing submittal log.
  3. Transmittals.
  4. Requests for Information & Answers (RFIs).
  5. Change Documents, Including:
    - a. Requests for Proposal (RFPs).
    - b. Proposed Changes (PCOs).
    - c. Change Negotiation Memos (CNMs).
    - d. Change Orders (COs).

- e. Change Request Forms (CRFs)
- 6. Daily Reports: Integrated with the Overall Project Schedule, including Contractor's daily reports and Engineer's reports.
- 7. Field Orders and Clarification Memos.
- 8. Notices of Non-Compliance.
- 9. Construction Issue Memos.
- 10. Punch lists.
- 11. Meeting Minutes and Agendas.
- 12. Correspondence.
- 13. Progress Payments (integrated with cost-loaded P6 schedule).
- 14. Work plans.
- 15. Start-up plans.
- 16. Equipment Operation and Maintenance Training.
- 17. Spare Parts.
- 18. Equipment Vendor other requirements.

## 1.02 System Definitions and Descriptions

### A. Submittals/Shop Drawings

1. **Requirements:** This Section of the Specifications specifies supplemental requirements to Section 01 33 23, related to the processing of submittals and shop drawings. The Engineer will monitor and manage submittal processing. The DTCS shall be utilized to log and track submittals, generate transmittal letters, and generate dunning letters through the review process.
2. **Submittal Log:** The Engineer will create the submittal log. The log will list all of the submittals required for review by the Engineer. Within 15 days of the Notice to Proceed, the Engineer will provide the Contractor with the submittal log. The Contractor shall have 15 days to review the log and propose amendments. The Contractor may wish to expand the log and alter the packaging requirements. The Engineer will review the proposed amendments and adjust the log if it deems the amendments reasonable.
3. **Submittal Identification and Packaging:** Submittals shall be incorporated into packages, with numbering as determined by the Engineer. The initial submittal shall be identified as Rev 0. Subsequent re-submittals shall be identified 1, 2, etc. The Engineer will log and track all submittals utilizing the DTCS. Each review cycle shall be entered into the DTCS. The Contractor shall identify as an activity in the CPM schedule, all major equipment submittals as well as those involving complex reviews and long lead deliveries. Submittal schedule information shall be updated monthly with the Contractor's updated project CPM schedule.
4. **Samples:** A list of all required sample submittals will be provided by the Engineer. Sample submittals may be identified as individual submittals within the submittal packages.
5. **Guarantees/Warranties:** A list of all required Guarantee/Warranty submittals will be provided by the Engineer. These submittals may be identified as individual submittals within the submittal packages.
6. **Operation and Maintenance Manuals:** A list of all required Operation and Maintenance Manual (O&M) submittals will be provided by the Engineer. These submittals are individual submittals in accordance with Specification Section 01 78 23, rather than the corresponding equipment section.
7. **Test Reports:** These submittals will be identified as individual submittals within the submittal packages identified with numbering as specified above.
8. **Submittal Procedures:** The Contractor shall prepare all submittal packages utilizing the submittal numbering system and description described above.

Submittals prepared by the Contractor, which fail to follow the conventions described above, will be returned "un-reviewed". After the submittal log has been assembled, reviewed and implemented, should the Contractor determine that a submittal that is not listed in the log is required, the Contractor should consult with the Engineer to determine if the submittal should be added to the log.

9. Submittal Transmissions: To the maximum extent possible, transmit submittals to the Engineer electronically. Exceptions are samples and color charts. Other exceptions to the electronic format requirement must be approved by the Engineer. Electronic and hard copies of the O&M submittals shall be provided in accordance with Section 01 78 23.

B. Transmittal Log

1. General: The Contractor shall generate transmittals for transmitting submittals, reports and other data to the Engineer.
2. Requests for Information (RFIs): The Contractor shall be responsible for generating RFIs. The Contractor shall e-mail the RFI to the Engineer. The Engineer will monitor and manage the RFI log and answer directly within each RFI. In addition, the RFIs will reference the relative Specification Section and Drawings. The Engineer will coordinate the answers to RFIs based upon a review of the Contract Documents.

- C. Change Documents: Change documents include Request for Proposals (RFPs), Proposed Change Orders (PCOs), Change Negotiation Memos (CNMs), Change Orders (COs), and Change Request Forms (CRFs). All change documents will be generated between the Contractor and Engineer, and will be monitored and managed by the Engineer.

- D. Daily Reports: The Contractor shall create daily reports. The Contractor shall complete each daily report no later than 10:00 a.m. of the subsequent day that Contractor or subcontractor performed work under the Contract. Required information shall include the Contractor's name, date the work was performed, description of the work performed, equipment on site and whether or not it was utilized, field force, visitors, key materials and equipment delivered, , and the predominant weather conditions, specifying the impact of those conditions to the work and the duration of the impact. Daily reports which fail to list all of the required information stated above will not be acceptable.

- E. Construction Issue Memos and Notices: The Engineer will monitor and manage the Issues and Notices log. Construction Issue Memos and Notices will identify the date of issue or notice, and track the item through the assignment of a sequential numbering system.

- F. Punch lists: The Engineer, who will monitor and manage the punch list log, will create punch lists for each area shown in the Project Drawings.

- G. Meeting Minutes and Agenda: The Engineer will monitor and manage the meeting

minutes process. The Contractor is responsible for utilizing meeting minutes and responding to meeting minutes items assigned to the Contractor.

- H. On a monthly basis, the Contractor shall meet with the Engineer to discuss and agree on the actual progress of the Work. The Contractor shall update the OPS to reflect the agreed upon progress. Once the OPS has been updated, the Contractor shall e-mail that update to the Engineer. Maintenance of the record documents by the Contractor shall be verified before processing will be approved. Failure of the Contractor to maintain record documents, properly prepare daily reports and submit project schedule updates will be just cause for withholding of the monthly or final payments.

END OF SECTION

**GENERAL SITE NOTES:**

- SOURCE OF TOPOGRAPHY SHOWN ON THE CIVIL PLANS ARE BASE MAPS PROVIDED BY: JACOBS ENGINEERING GROUP INC. ADDITIONAL MAPPING HAS BEEN ADDED FROM AS-BUILT AND RECORD DRAWING DATA PROVIDED BY THE CITY OF CHATTANOOGA, TENNESSEE. THE EXISTING CONDITIONS MAY VARY FROM THOSE SHOWN ON THESE PLANS. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS AND ADJUST WORK PLAN ACCORDINGLY PRIOR TO BEGINNING CONSTRUCTION.
- EXISTING TOPOGRAPHY, STRUCTURES, AND SITE FEATURES ARE SHOWN SCREENED AND/OR LIGHT-LINED. NEW FINISH GRADE, STRUCTURES, AND SITE FEATURES ARE SHOWN HEAVY-LINED.
- HORIZONTAL DATUM: TENNESSEE STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM OF 1983 (NAD 83).
- VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
- MAINTAIN, RELOCATE, OR REPLACE EXISTING SURVEY MONUMENTS, CONTROL POINTS, AND STAKES WHICH ARE DISTURBED OR DESTROYED. PERFORM THE WORK TO PRODUCE THE SAME LEVEL OF ACCURACY AS THE ORIGINAL MONUMENT(S) IN A TIMELY MANNER, AND AT THE CONTRACTOR'S EXPENSE.
- COORDINATES AND DIMENSIONS SHOWN FOR ROADWAY IMPROVEMENTS ARE TO FACE OF CURB OR EDGE OF PAVEMENT.
- STAGING AREA SHALL BE FOR CONTRACTOR'S EMPLOYEE PARKING, CONTRACTOR'S TRAILER(S) AND ON-SITE STORAGE OF MATERIALS.
- PROVIDE TEMPORARY FENCING AS NECESSARY TO MAINTAIN SECURITY AT ALL TIMES.
- ELEVATIONS GIVEN ARE TO FINISH GRADE UNLESS OTHERWISE SHOWN.
- SLOPE UNIFORMLY BETWEEN CONTOURS AND SPOT ELEVATIONS SHOWN.
- ALL DISTURBED AREAS NOT RECEIVING A HARD SURFACE SHALL BE COVERED WITH GRASS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING AND MAINTAINING EROSION CONTROL DEVICES DURING CONSTRUCTION. EROSION CONTROL DEVICES SHOWN ARE THE MINIMUM REQUIRED.
- CONTRACTOR SHALL TAKE ALL OTHER MEASURES TO POSITIVELY PRECLUDE EROSION MATERIALS FROM LEAVING THE SITE.
- CONTRACTOR IS RESPONSIBLE FOR OBTAINING A NPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FOR LARGE CONSTRUCTION ACTIVITIES.

**SITE DESIGN NOTES:**

- POTENTIAL FOR UNSUITABLE MATERIALS IS HIGH IN WETLANDS AND FLOODPLAINS. MATERIAL REMOVED FROM THESE AREAS MAY NOT BE SUITABLE FOR USE DURING CONSTRUCTION.
- ELEVATION OF THE LOWEST EDGE OF ALL PHOTOVOLTAIC PANELS AT OR ABOVE THE 100-YEAR WATER SURFACE ELEVATION. FEMA FLOODPLAIN ELEVATION IS AT 653'.
- THE FOLLOWING MUST BE ELEVATED AT LEAST 1 FOOT ABOVE THE 100-YEAR WATER SURFACE ELEVATION:
  - ELEVATION SURFACE EQUIPMENT
  - INVERTER SKID PLATFORMS
  - PERMANENT STRUCTURES

**SURVEY LEGEND**

- LIGHT POLE
- POWER POLE
- GUY POLE
- GUY ANCHOR
- SANITARY SEWER MANHOLE
- STORM MANHOLE
- CORRUGATED METAL PIPE
- DUCTILE IRON PIPE
- INVERT
- REINFORCED CONCRETE PIPE
- SANITARY SEWER MANHOLE

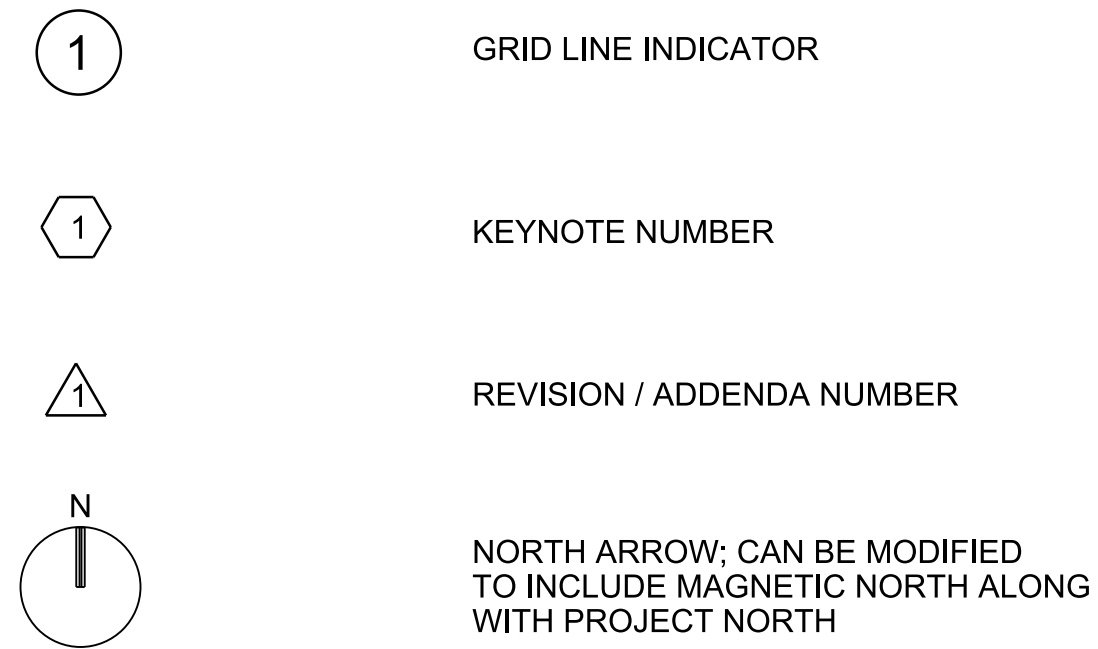
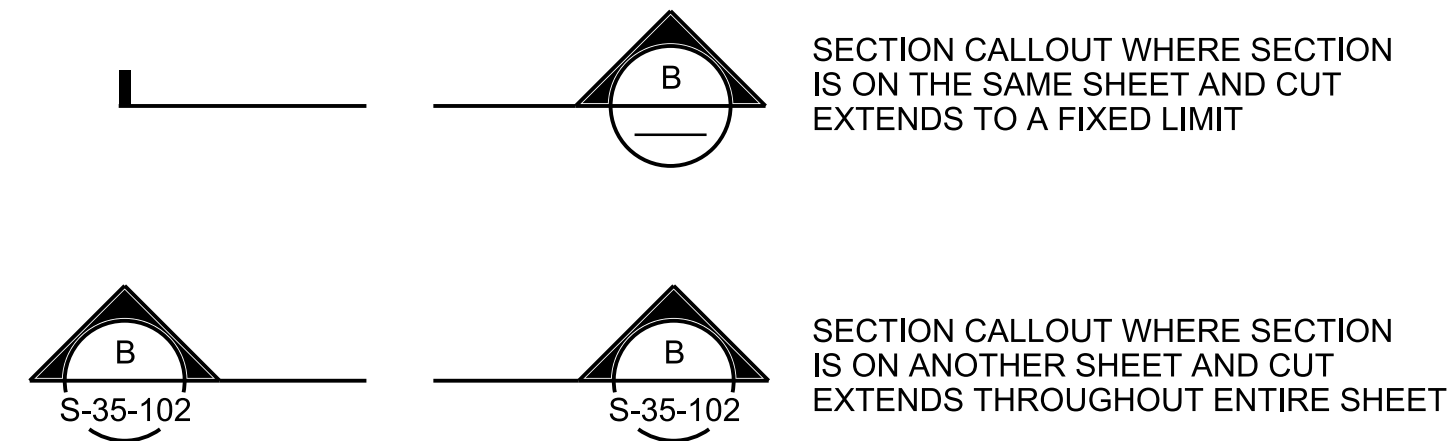
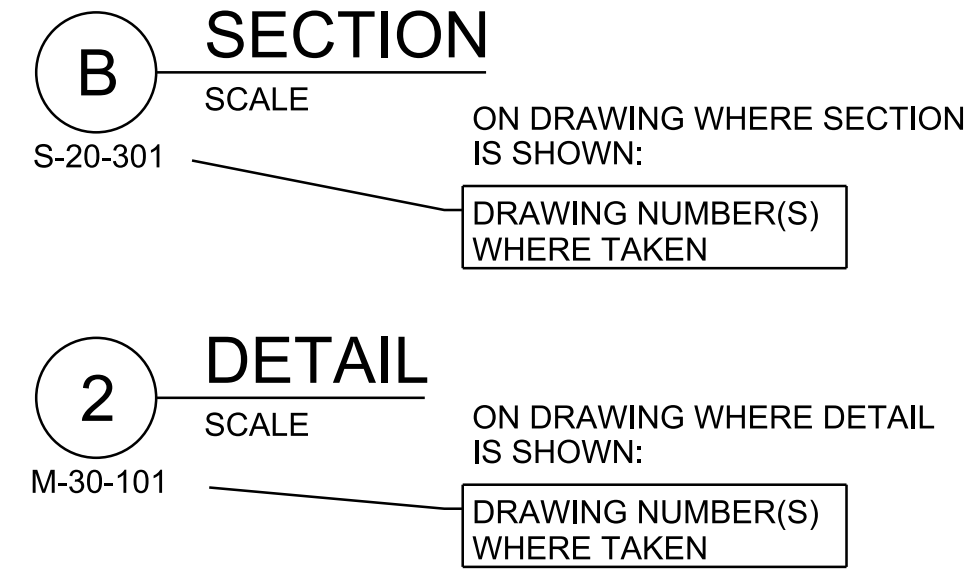
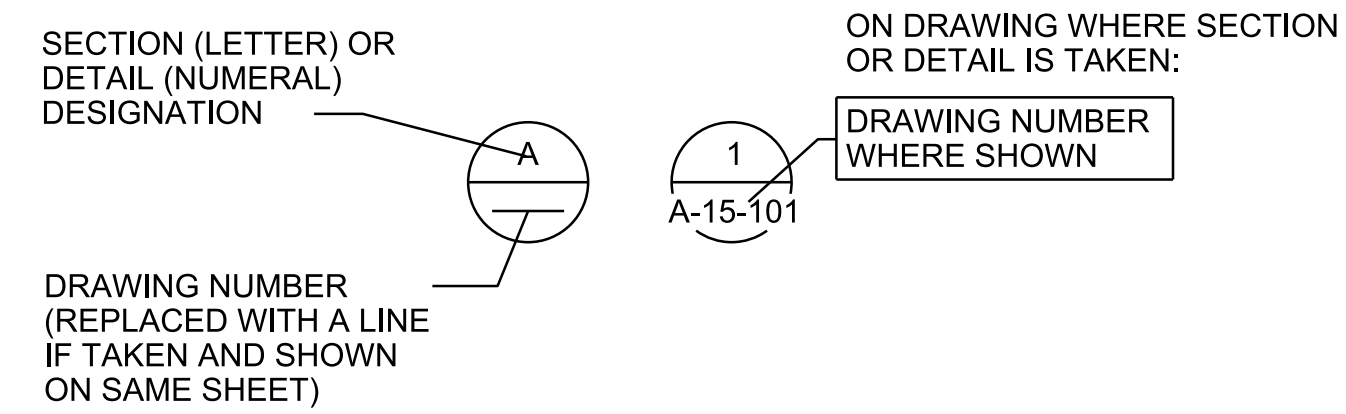
- 660 CONTOUR LINE
- EDGE ASPHALT LINE
- FENCE LINE
- SD STORM SEWER LINE
- SS SANITARY SEWER LINE

- GRAVEL
- ZONE AE  
BASE FLOOD ELEVATION 653±.  
SEE NOTE 9.

**CIVIL LEGEND:**

- 158.5 SPOT ELEVATION
- 155 CONTOUR LINE
- PROPERTY LINE
- SECTION LINE
- CENTER LINE, BUILDING, ROAD, ETC.
- DRAINAGEWAY OR DITCH
- FENCE
- WETLAND
- SIGN
- POST OR GUARD POST
- N 1000.00  
E 1000.00 STRUCTURE, BUILDING OR FACILITY  
LOCATION POINT - COORDINATES
- DEMOLITION
- STRUCTURE, BUILDING OR FACILITY
- PAVEMENT
- CONCRETE
- GRAVEL

**SECTION / DETAIL DESIGNATIONS:**



**DESIGN DETAIL DESIGNATION:**

DESIGN DETAIL DESIGNATION (NUMERAL) 1234-567 SHOWN ON DESIGN DETAIL DRAWING(S)

- NOTES:**
- ALL DESIGN DETAILS ARE TYPICAL AND MUST BE USED IF DESIGN DETAIL DESIGNATION IS NOT SHOWN.
  - THE TERM STANDARD DETAIL, OR A FORM OF IT, IS SYNONOMOUS WITH DESIGN DETAIL. THE DESIGN DETAILS REPRESENT THE CHARACTER AND NATURE OF THE WORK REQUIRED THROUGHOUT THE PROJECT. ALL ASSOCIATED WORK SHALL BE IN ACCORDANCE WITH THE DESIGN DETAILS SHOWN WHETHER THE DETAILS ARE SPECIFICALLY REFERENCED OR NOT.

**JACOBS**  
 JACOBS ENGINEERING GROUP, INC.  
 631 BROAD STREET  
 SUITE 300  
 CHATTANOOGA, TN 37402

CITY OF CHATTANOOGA, TENNESSEE  
 DEPARTMENT OF PUBLIC WORKS - WASTE RESOURCES DIVISION  
 MOCASSIN BEND WASTEWATER TREATMENT PLANT  
**MBWWTP RENEWABLE ENERGY PROJECT**  
 CLIENT PROJECT No. W-17-004-201  
 PROJECT SITE ADDRESS: MOCASSIN BEND WASTEWATER TREATMENT FACILITY, 458 MOCASSIN BEND RD., CHATTANOOGA, TN 37405  
 CITY OF CHATTANOOGA, TENNESSEE DEPARTMENT OF PUBLIC WORKS  
 ENGINEERING SERVICES DIVISION, 1230 MARKET STREET, CHATTANOOGA, TN 37402

REV	DATE	REVISION DESCRIPTION
1	2019-10	REVISION 1
0	2019-09	INITIAL ISSUE

THIS LINE IS ONE INCH LONG WHEN PLOTTED FULL SCALE

THIS DRAWING MUST BE USED IN CONJUNCTION WITH THE APPLICABLE OR GOVERNING TECHNICAL SPECIFICATIONS AND OTHER CONTRACT DOCUMENTS.

PROJECT NO: C6X61104  
 DATE: SEPTEMBER 2019  
 DISC. LEAD: JE DRAWN BY: DR CHECKER: JE

SHEET TITLE  
 CIVIL AND GENERAL LEGEND

DWG: G-01  
 SHEET: 1 of 14

**GENERAL NOTE:**

- THIS IS A STANDARD LEGEND SHEET. THEREFORE, NOT ALL OF THE INFORMATION SHOWN MAY BE USED ON THIS PROJECT.



# SHEET KEYNOTES

- DO NOT DISTURB WETLAND AREA SOUTH OF GRADING LIMITS AND NORTH OF TREE LIMITS. DO NOT REMOVE TREES IN THIS AREA.
- WETLANDS INSIDE OF GRADING LIMITS MUST NOT BE DISTURBED PRIOR TO RECEIVING PERMITS

# SHEET NOTES

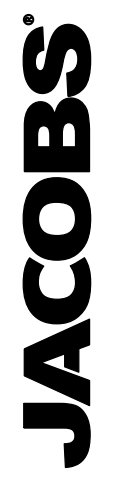
- WETLANDS INSIDE GRADING LIMITS MUST NOT BE DISTURBED PRIOR TO RECEIVING SECTION 404 INDIVIDUAL PERMIT AND SECTION 401 AQUATIC RESOURCES ALTERATION PERMIT.
- CONTRACTOR SHALL USE SWAMP MATS FOR CROSSING WETLAND AREAS, IF NECESSARY.
- BENCHMARK CONTROL POINT LOCATED SOUTH OF PROJECT SITE. CONTROL POINT DETAILS-  
N 260820.893  
E 2166246.407  
EL. 666.00  
1/2" REBAR & CAP

# LEGEND:

- FENCE
- WETLAND
- DRAINAGEWAY OR DITCH
- TREE SHADE BUFFER LIMIT
- CONSTRUCTION LIMITS
- 30' WETLAND BUFFER
- POST-CONSTRUCTION WETLANDS



Know what's below.  
Call before you dig.



JACOBS ENGINEERING GROUP, INC.  
631 BROAD STREET  
SUITE 300  
CHATTANOOGA, TN 37402



CITY OF CHATTANOOGA, TENNESSEE  
DEPARTMENT OF PUBLIC WORKS - WASTE RESOURCES DIVISION  
MOCASSIN BEND WASTEWATER TREATMENT PLANT  
**MBWWTP RENEWABLE ENERGY PROJECT**  
CLIENT PROJECT No. W-17-004-201  
PROJECT SITE ADDRESS: MOCASSIN BEND WASTEWATER TREATMENT FACILITY, 458 MOCASSIN BEND RD., CHATTANOOGA, TN 37405  
CITY OF CHATTANOOGA, TENNESSEE, DEPARTMENT OF PUBLIC WORKS  
ENGINEERING SERVICES DIVISION, 1230 MARKET STREET, CHATTANOOGA, TN 37402

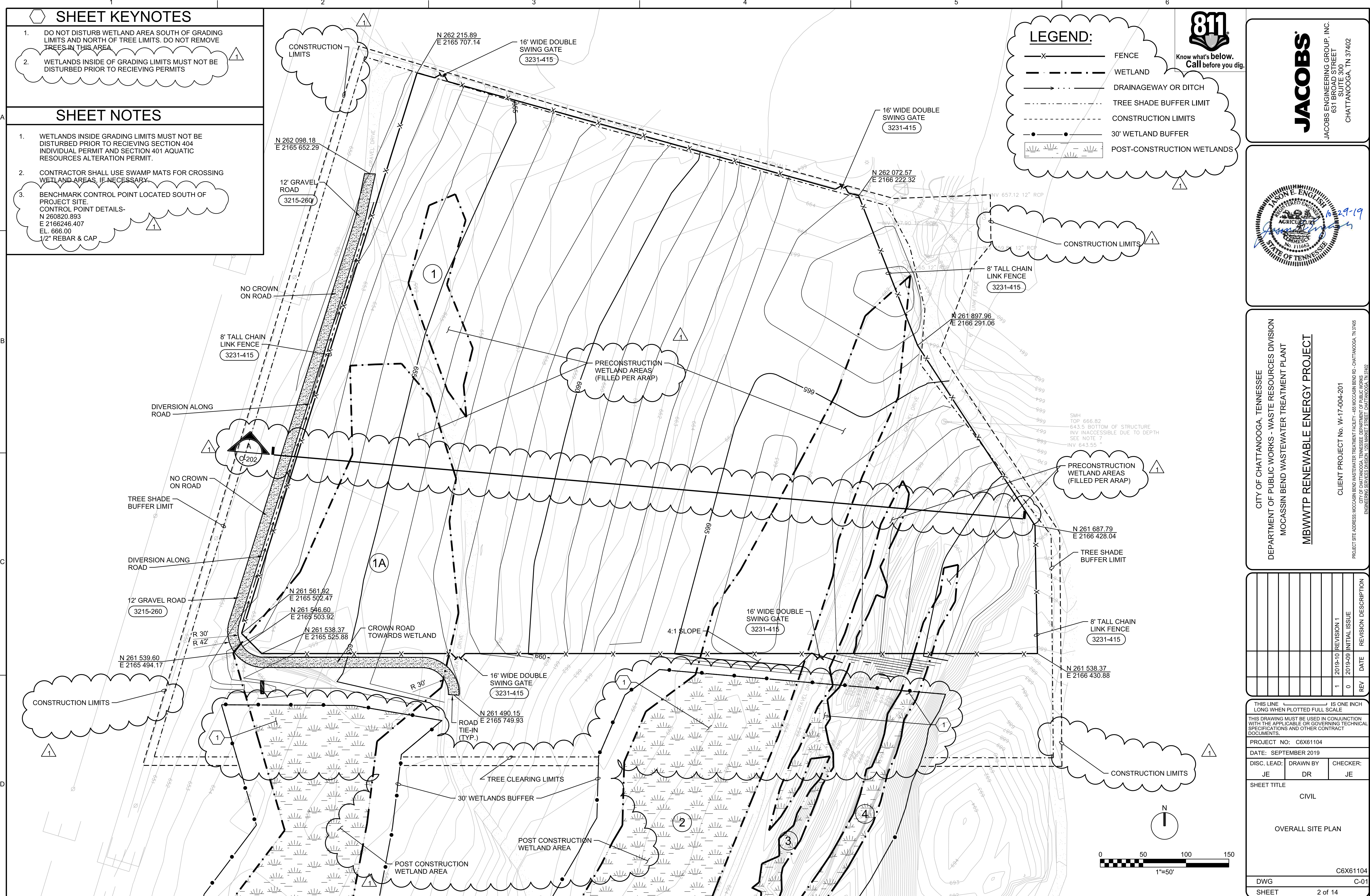
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1	2019-10	REVISION 1
0	2019-09	INITIAL ISSUE

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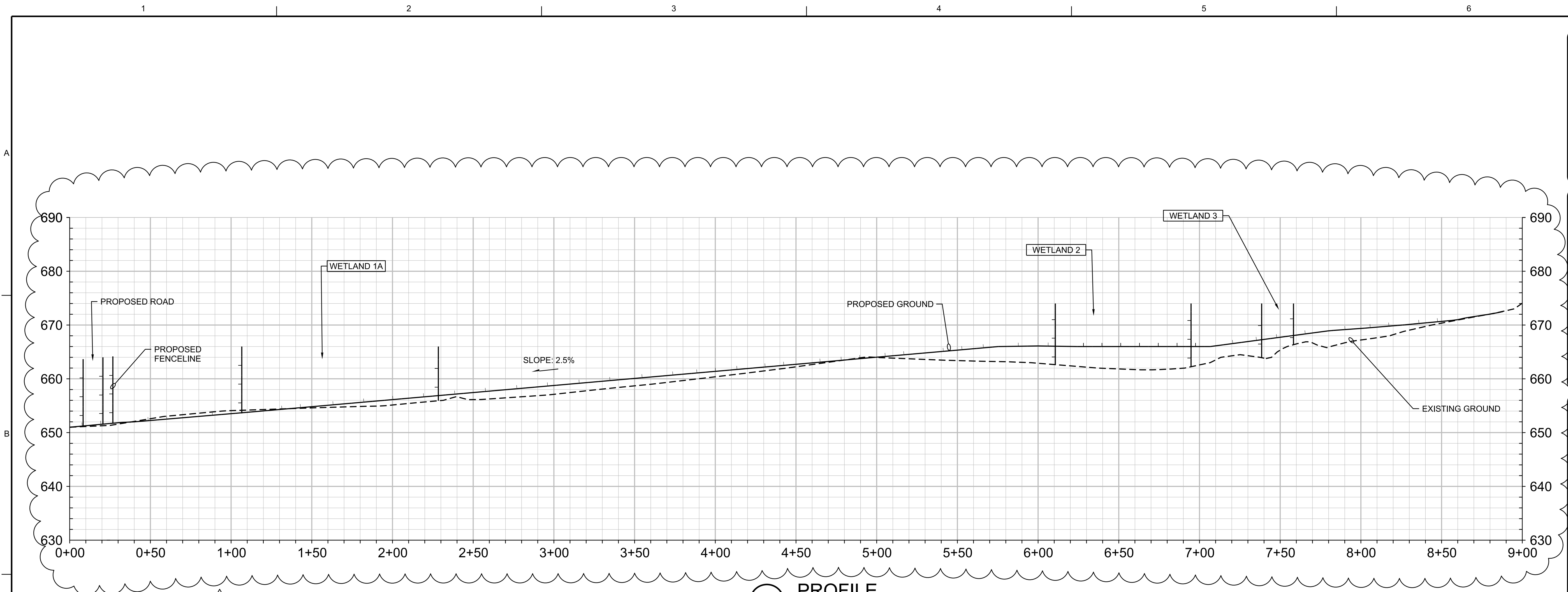
PROJECT NO: C6X61104  
DATE: SEPTEMBER 2019  
DISC. LEAD: JE  
DRAWN BY: DR  
CHECKER: JE

SHEET TITLE: CIVIL  
OVERALL SITE PLAN  
DWG: C6X61104  
SHEET: 2 of 14

PRELIMINARY DESIGN





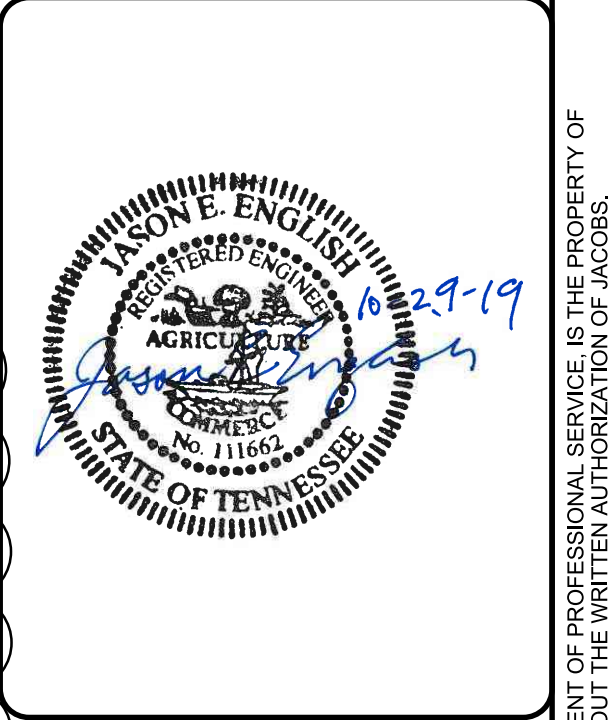


**A PROFILE**  
 H: 1" = 33.33'  
 V: 1" = 10'  
 C-01

WETLAND ID	AMOUNT OF FILL (CY)	AMOUNT OF EXCAVATION (CY)	PERMANENT WETLAND IMPACTS (ACRES)
1	52.0	34.8	0.225
1A	1899.2	307.8	1.468
2	3372.6	0	0.882
3	313	0	0.096
4	178.6	0	0.059
			2.73

**WETLAND IMPACTS**  
 NTS

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 DEPARTMENT OF PUBLIC WORKS - WASTE RESOURCES DIVISION  
 MOCASSIN BEND WASTEWATER TREATMENT PLANT  
**MBWWTP RENEWABLE ENERGY PROJECT**  
 CLIENT PROJECT NO. W-17-004-201  
 PROJECT SITE ADDRESS: MOCASSIN BEND WASTEWATER TREATMENT FACILITY, 456 MOCASSIN BEND RD., CHATTANOOGA, TN 37405  
 CITY OF CHATTANOOGA, TENNESSEE, DEPARTMENT OF PUBLIC WORKS  
 ENGINEERING SERVICES DIVISION, 1230 MARKET STREET, CHATTANOOGA, TN 37402

REV	DATE	REVISION DESCRIPTION
1	2019-10	REVISION 1
0	2019-09	INITIAL ISSUE

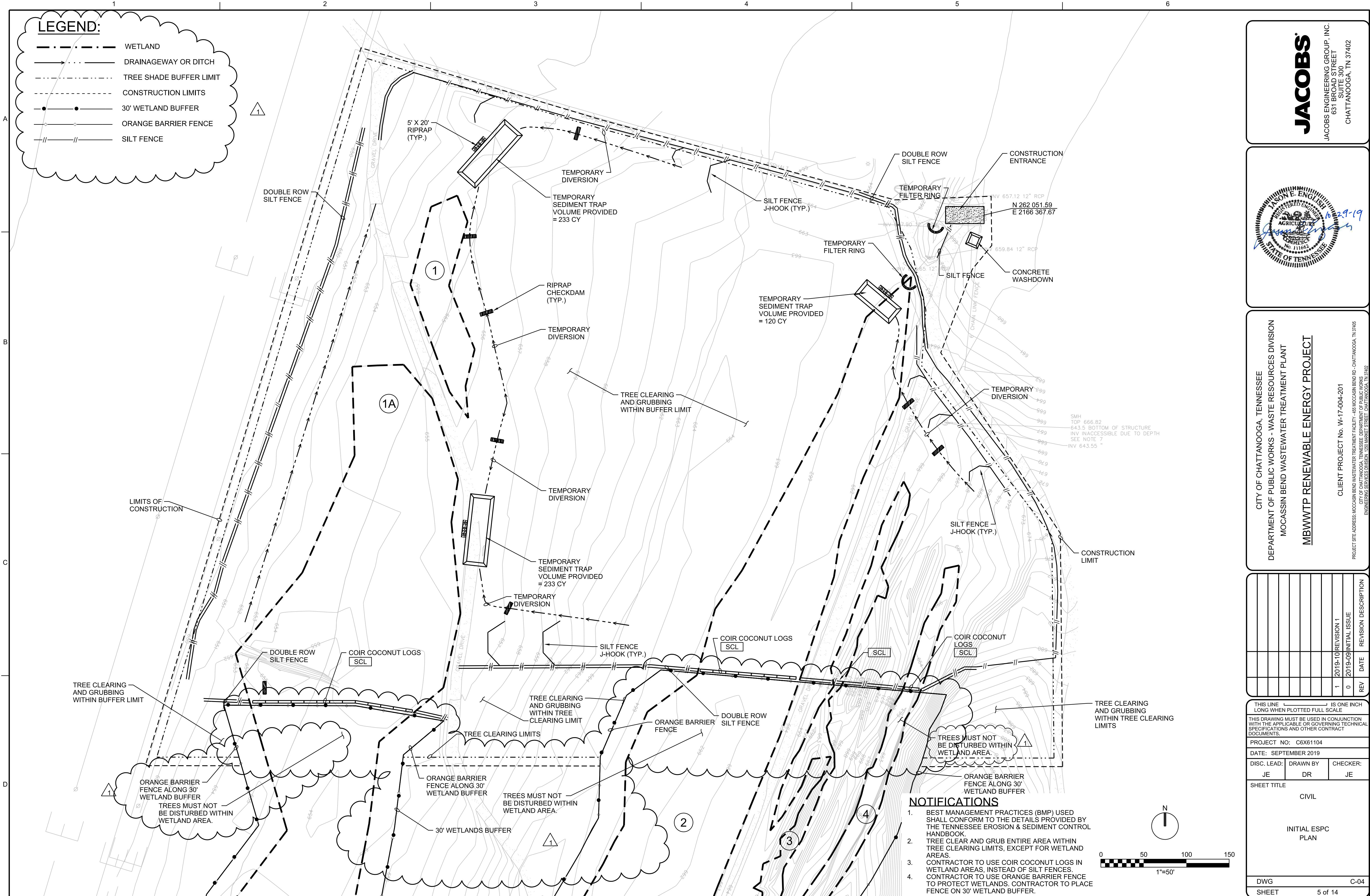
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 PROJECT NO: C6X61104  
 DATE: SEPTEMBER 2019  
 DISC. LEAD: JE    DRAWN BY: DR    CHECKER: JE  
 SHEET TITLE: CIVIL  
 WETLANDS CROSS SECTION  
 C6X61104  
 DWG: C-02  
 SHEET: 3 of 14

PRELIMINARY DESIGN



**LEGEND:**

- WETLAND
- DRAINAGEWAY OR DITCH
- TREE SHADE BUFFER LIMIT
- CONSTRUCTION LIMITS
- 30' WETLAND BUFFER
- ORANGE BARRIER FENCE
- SILT FENCE



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Professional Engineer Seal for Jason E. English, State of Tennessee, License No. 1029-19.

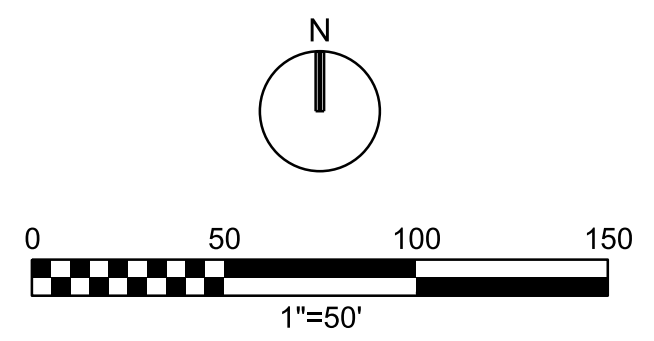
CITY OF CHATTANOOGA, TENNESSEE  
 DEPARTMENT OF PUBLIC WORKS - WASTE RESOURCES DIVISION  
 MOCASSIN BEND WASTEWATER TREATMENT PLANT  
**MBWWTP RENEWABLE ENERGY PROJECT**  
 CLIENT PROJECT No. W-17-004-201  
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0	2019-09	INITIAL ISSUE

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 PROJECT NO: C6X61104  
 DATE: SEPTEMBER 2019  
 DISC. LEAD: JE    DRAWN BY: DR    CHECKER: JE  
 SHEET TITLE: CIVIL  
 INITIAL ESPC PLAN  
 DWG: C-04  
 SHEET: 5 of 14

**NOTIFICATIONS**

- BEST MANAGEMENT PRACTICES (BMP) USED SHALL CONFORM TO THE DETAILS PROVIDED BY THE TENNESSEE EROSION & SEDIMENT CONTROL HANDBOOK
- TREE CLEAR AND GRUB ENTIRE AREA WITHIN TREE CLEARING LIMITS, EXCEPT FOR WETLAND AREAS.
- CONTRACTOR TO USE COIR COCONUT LOGS IN WETLAND AREAS, INSTEAD OF SILT FENCES.
- CONTRACTOR TO USE ORANGE BARRIER FENCE TO PROTECT WETLANDS. CONTRACTOR TO PLACE FENCE ON 30' WETLAND BUFFER.



PRELIMINARY DESIGN







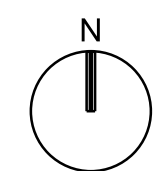
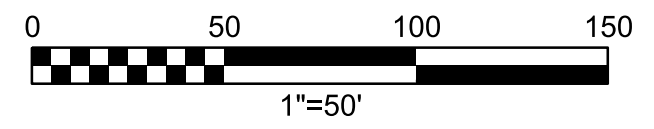
**LEGEND:**

- FENCE
- WETLAND
- DRAINAGEWAY OR DITCH
- TREE SHADE BUFFER LIMIT
- CONSTRUCTION LIMITS
- 30' WETLAND BUFFER
- POST-CONSTRUCTION WETLANDS

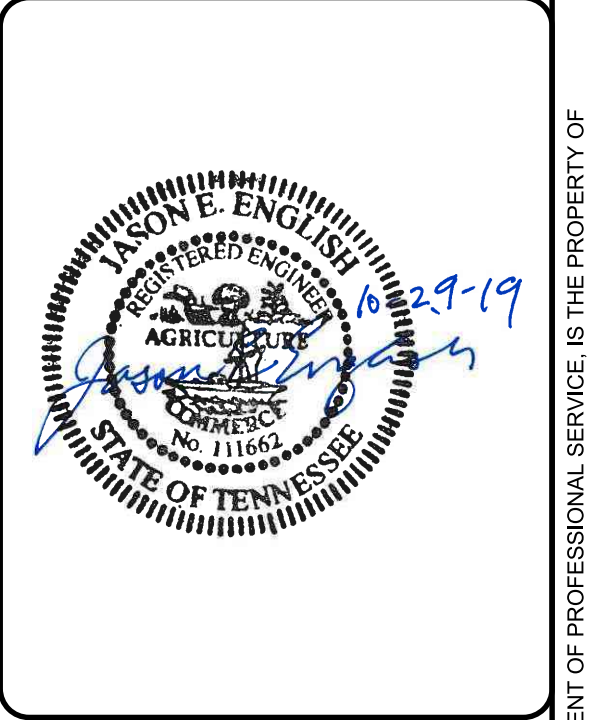


**NOTIFICATIONS**

1. BEST MANAGEMENT PRACTICES (BMP) USED SHALL CONFORM TO THE DETAILS PROVIDED BY THE TENNESSEE EROSION & SEDIMENT CONTROL HANDBOOK.
2. TREE CLEAR AND GRUB ENTIRE AREA WITHIN CONSTRUCTION LIMITS.



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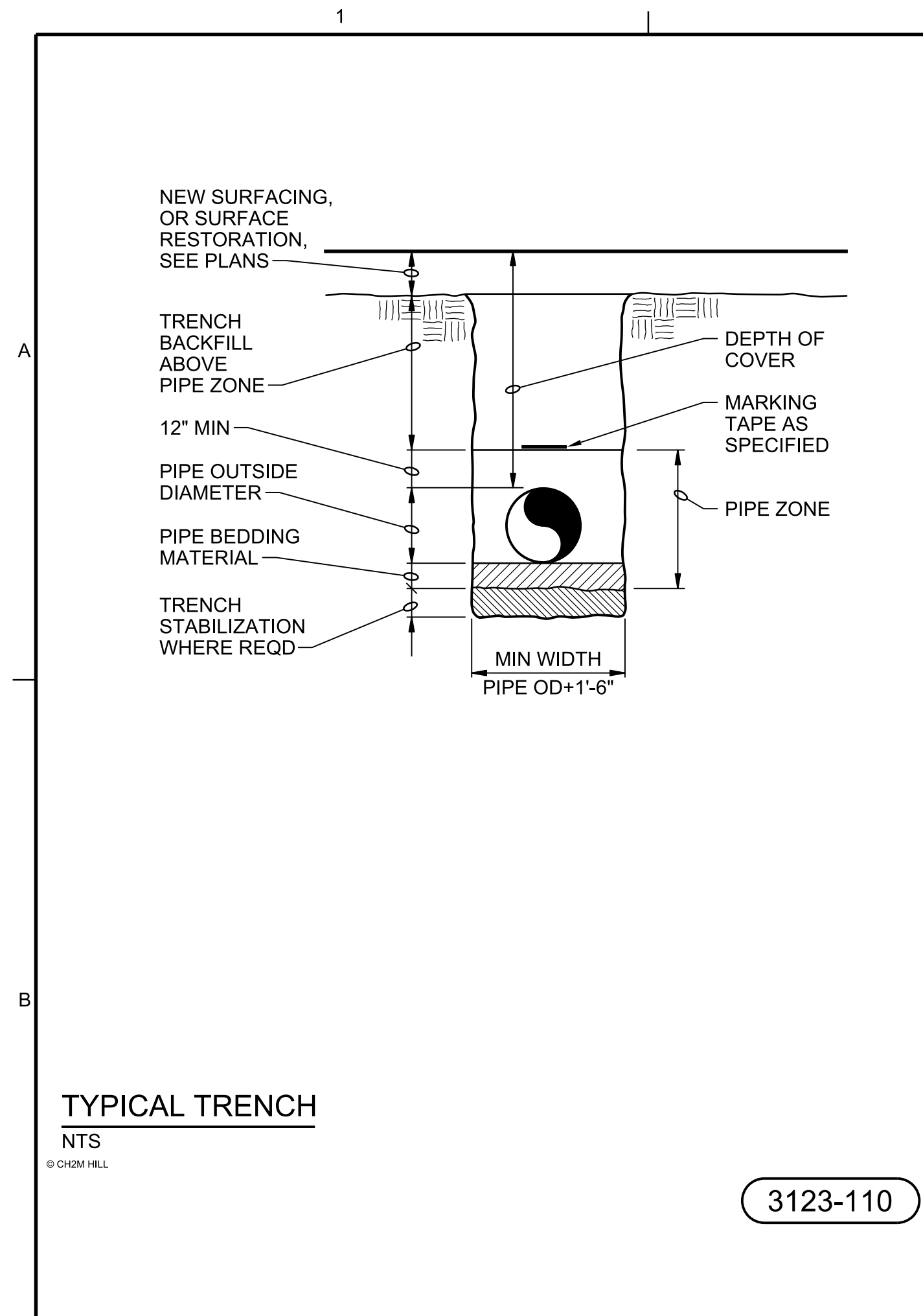
CITY OF CHATTANOOGA, TENNESSEE  
 DEPARTMENT OF PUBLIC WORKS - WASTE RESOURCES DIVISION  
 MOCASSIN BEND WASTEWATER TREATMENT PLANT  
**MBWWTP RENEWABLE ENERGY PROJECT**  
 CLIENT PROJECT No. W-17-004-201  
 PROJECT SITE ADDRESS: MOCASSIN BEND WASTEWATER TREATMENT FACILITY, 458 MOCASSIN BEND RD., CHATTANOOGA, TN 37405  
 CITY OF CHATTANOOGA, TENNESSEE, DEPARTMENT OF PUBLIC WORKS  
 ENGINEERING SERVICES DIVISION, 1230 MARKET STREET, CHATTANOOGA, TN 37402

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 PROJECT NO: C6X61104  
 DATE: SEPTEMBER 2019  
 DISC. LEAD: JE    DRAWN BY: DR    CHECKER: JE  
 SHEET TITLE: CIVIL  
 FINAL ESPC PLAN  
 DWG: C-06  
 SHEET: 7 of 14

PRELIMINARY DESIGN

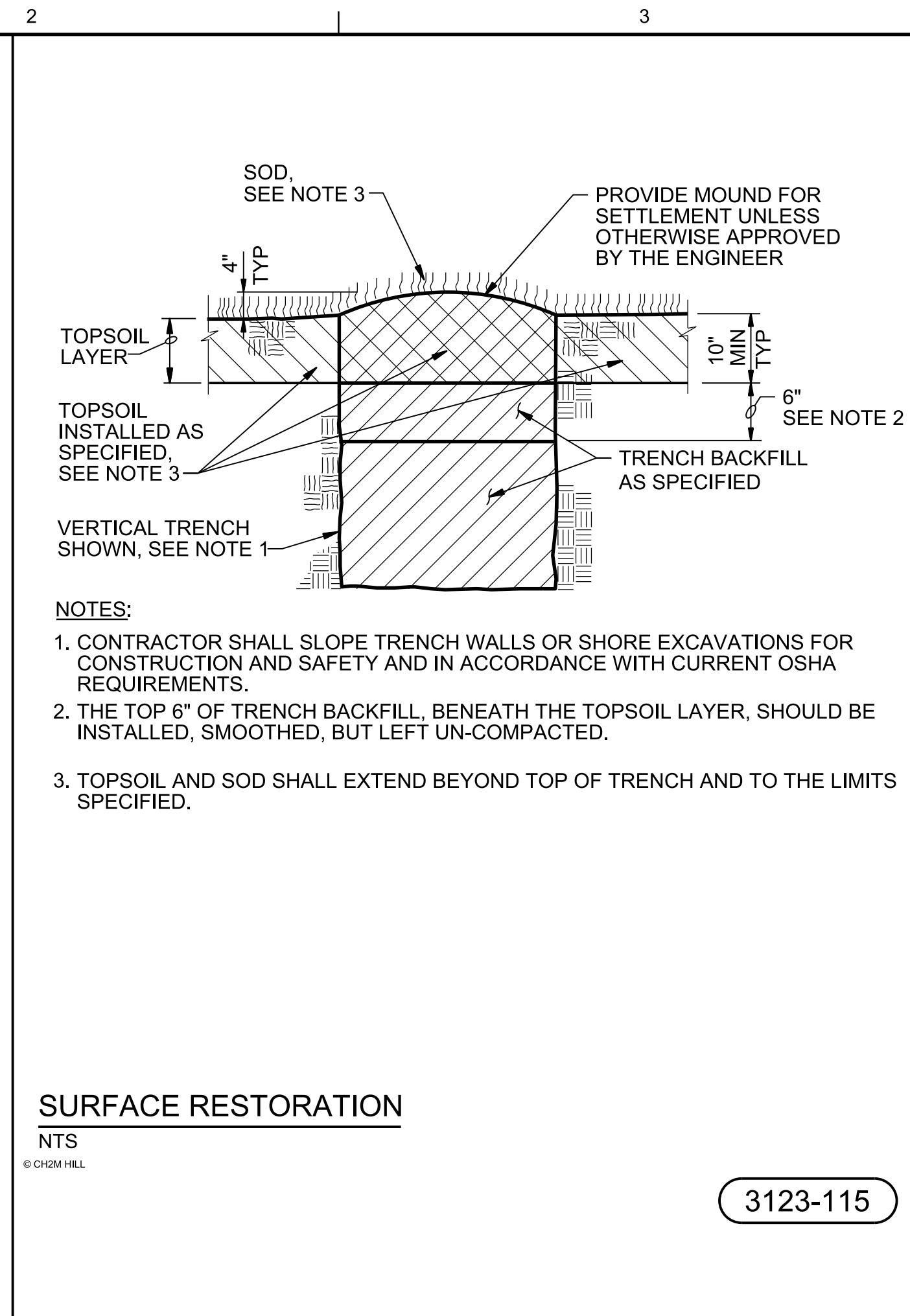




**TYPICAL TRENCH**

NTS  
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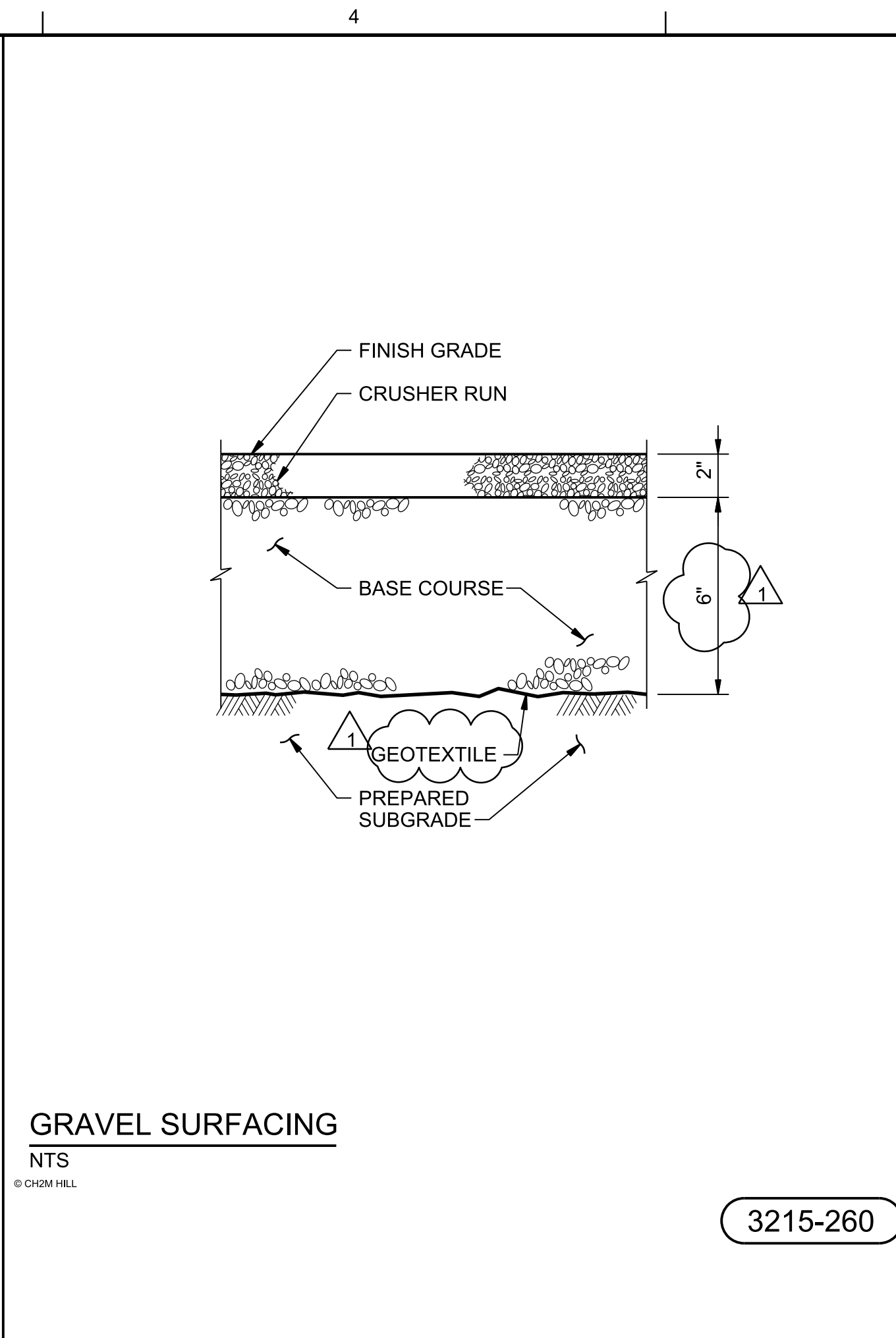
3123-110



**SURFACE RESTORATION**

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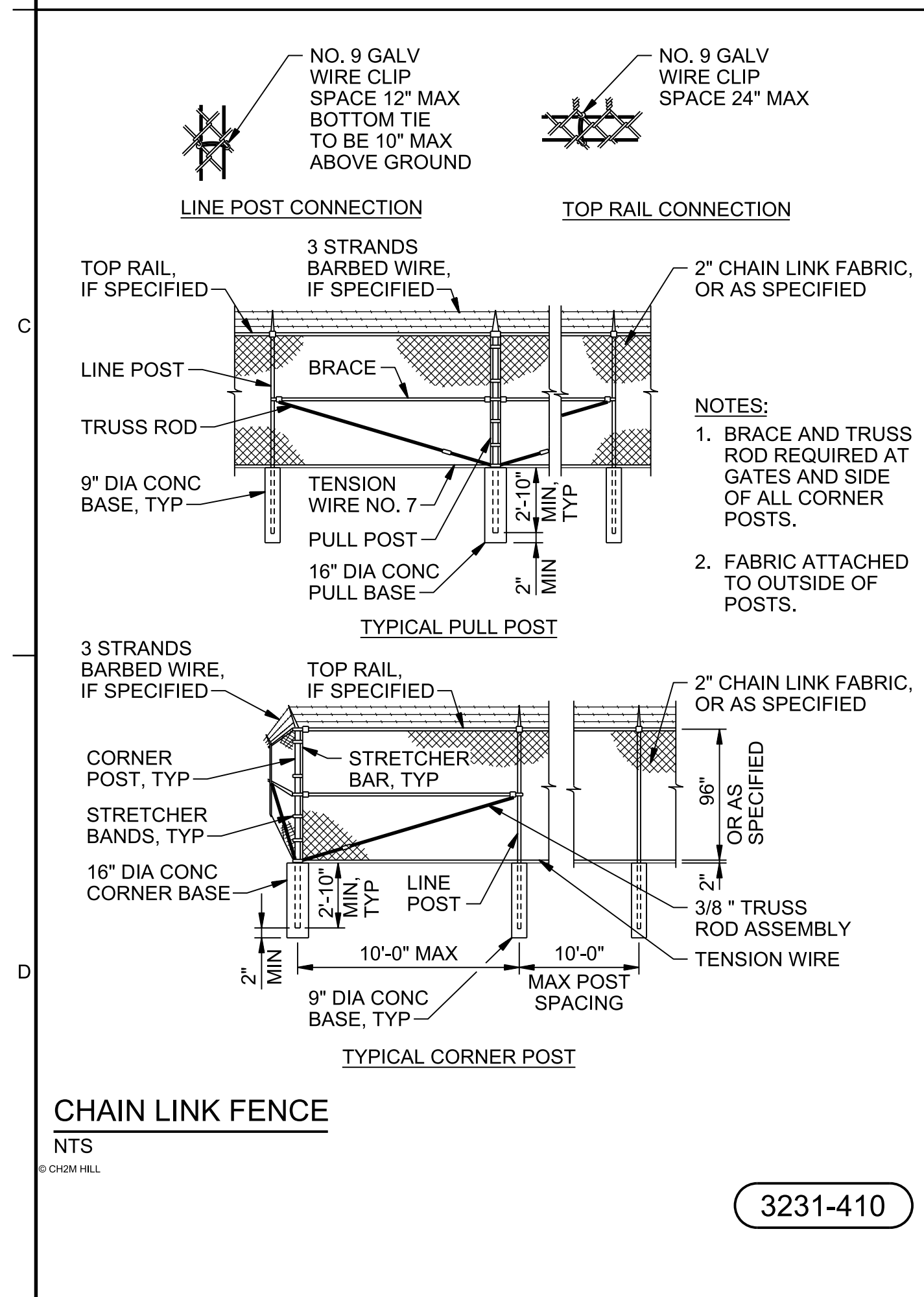
3123-115



**GRAVEL SURFACING**

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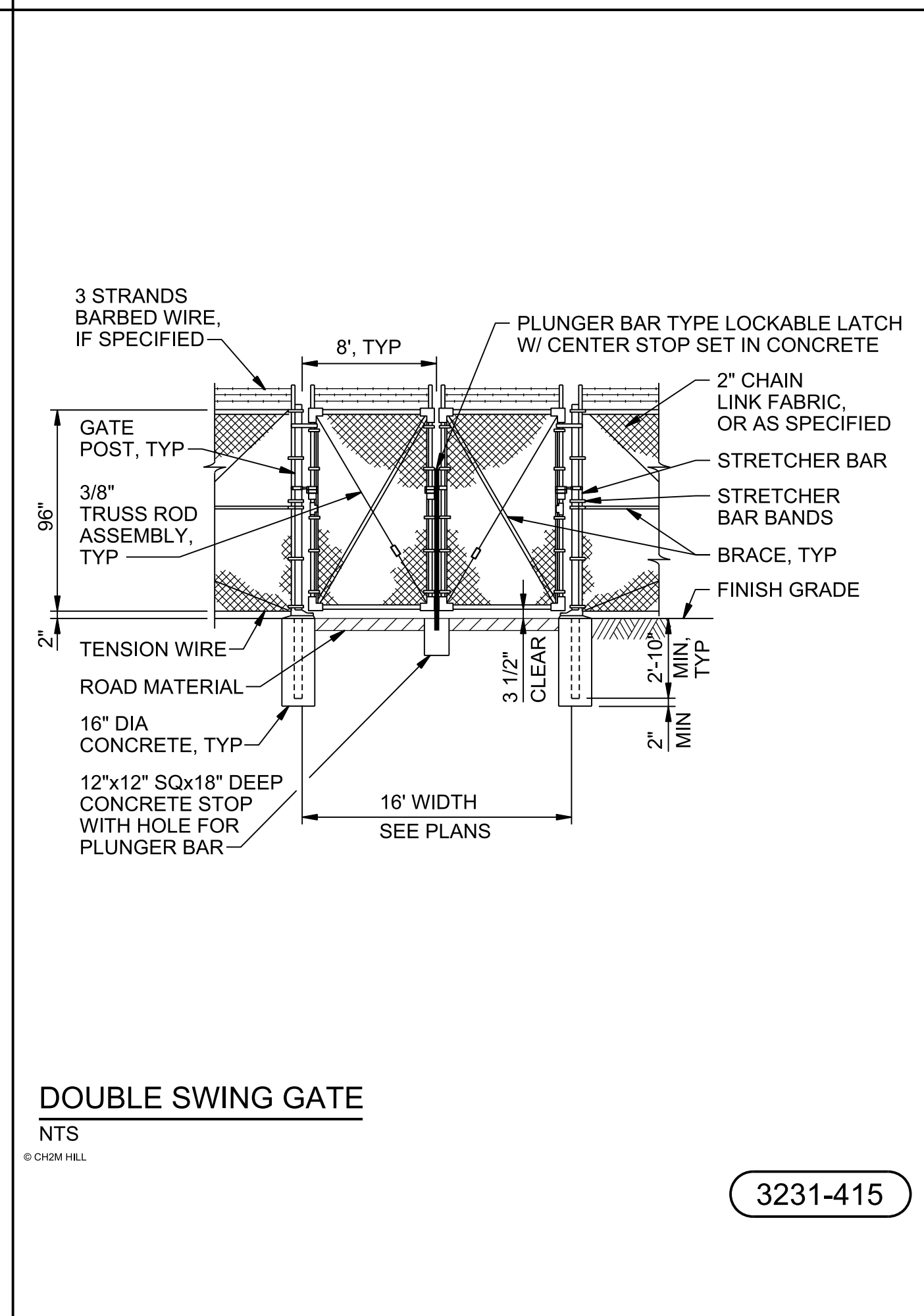
3215-260



**CHAIN LINK FENCE**

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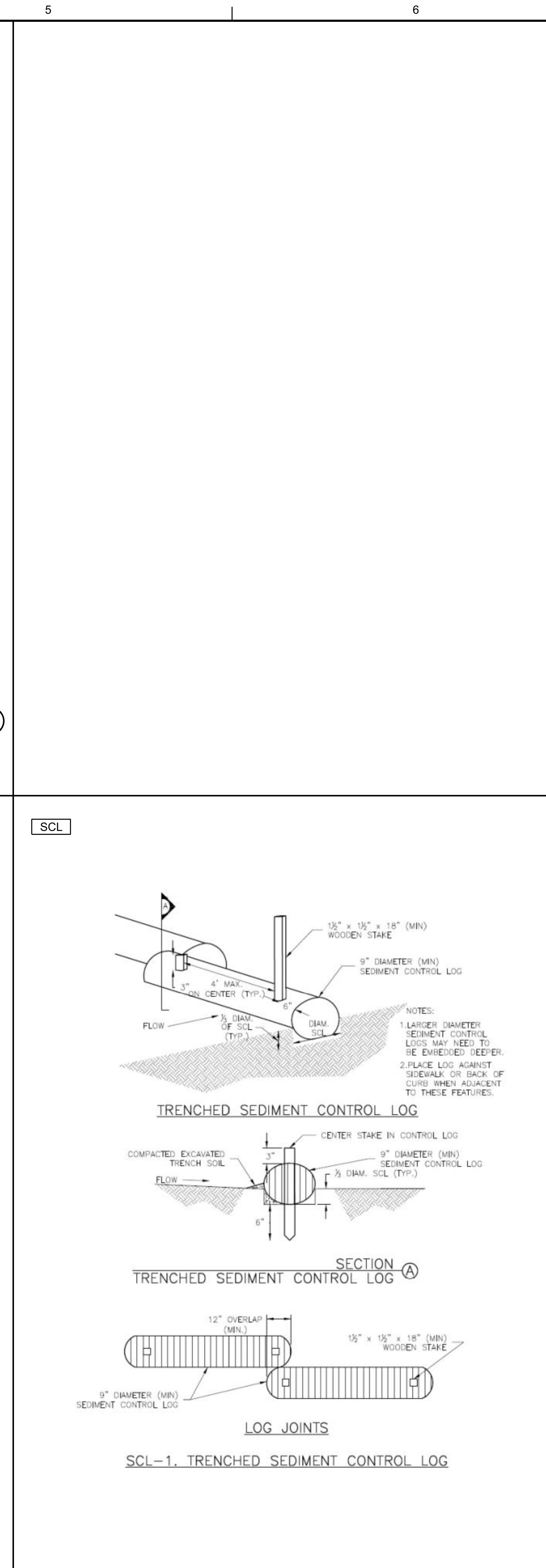
3231-410



**DOUBLE SWING GATE**

NTS  
© CH2M HILL

3231-415



**SCL**

**TRENCHED SEDIMENT CONTROL LOG**

**SECTION A**

**LOG JOINTS**

**SCL-1. TRENCHED SEDIMENT CONTROL LOG**

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CITY OF CHATTANOOGA, TENNESSEE  
 DEPARTMENT OF PUBLIC WORKS - WASTE RESOURCES DIVISION  
 MOCASSIN BEND WASTEWATER TREATMENT PLANT  
**MBWWTP RENEWABLE ENERGY PROJECT**

CLIENT PROJECT No. W-17-004-201  
 PROJECT SITE ADDRESS: MOCASSIN BEND WASTEWATER TREATMENT FACILITY, 458 MOCASSIN BEND RD., CHATTANOOGA, TN 37405  
 CITY OF CHATTANOOGA, TENNESSEE, DEPARTMENT OF PUBLIC WORKS  
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 PROJECT NO: C6X61104  
 DATE: SEPTEMBER 2019  
 DISC. LEAD: JE    DRAWN BY: DR    CHECKER: JE  
 SHEET TITLE: CIVIL  
 CIVIL STANDARD DETAILS  
 C6X61104  
 C-07  
 SHEET 8 of 14

PRELIMINARY DESIGN

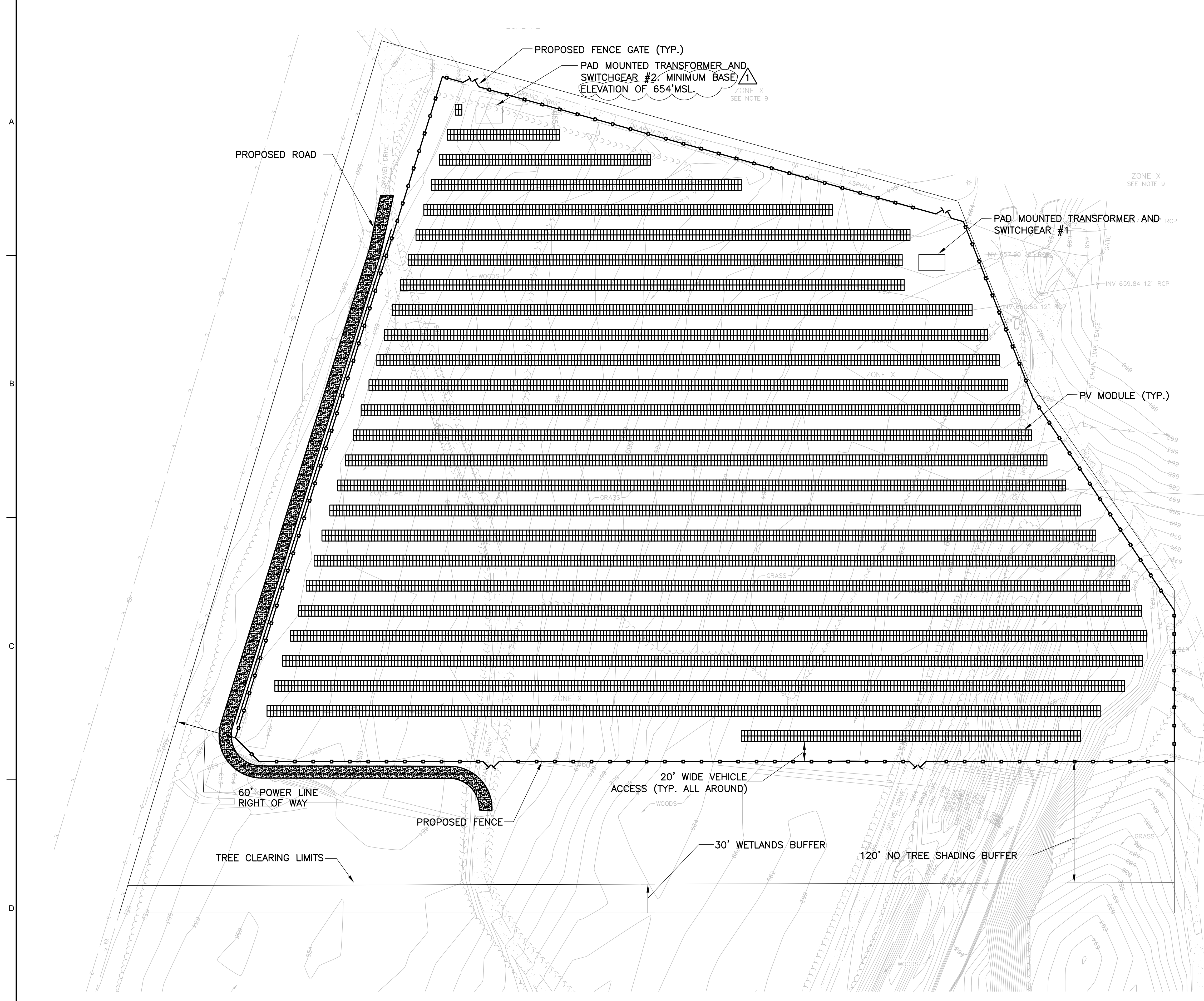


**SOLAR ARRAY DATA**

NUMBER OF MODULES (INDICATIVE): 9400  
 MODULE WATTAGE: 395W  
 MODULE TILT ANGLE: 23°  
 ROW SPACING: 14'  
 SYSTEM DC RATING (INDICATIVE): 3.7MW  
 TOTAL ARRAY AREA: 10 ACRES  
 TOTAL PROJECT AREA: 15 ACRES  
 (INCLUDING TREE BUFFER)

**JACOBS**  
 JACOBS ENGINEERING GROUP, INC.  
 4510 TURNBULL ROAD  
 SUITE 110  
 CHATTANOOGA, TN 37421  
 TEL: (423) 779-3075

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- NOTES:**
- REFER TO DRAWING E-02, ELECTRICAL OVERALL SITE PLAN, FOR INTERCONNECTION TO EXISTING SITE UTILITIES.
  - EQUIPMENT LAYOUT SHOWN IS FOR BASIS OF DESIGN ONLY. FINAL LAYOUT AND CONFIGURATION OF ALL EQUIPMENT SHALL BE DETERMINED BY THE SYSTEM DESIGNER AND APPROVED BY THE OWNER.
  - REFER TO DRAWING E-03, PHOTOVOLTAIC SYSTEM SCHEDULES, FOR SYSTEM DESIGN RATING AND BASIS OF DESIGN EQUIPMENT.
  - REFER TO DRAWINGS E-04 - E-05 FOR PHOTOVOLTAIC SYSTEM ONE LINE DIAGRAM.
  - ELEVATION OF THE LOWEST EDGE OF ALL PHOTOVOLTAIC PANELS SHALL BE AT OR ABOVE THE 100-YEAR WATER SURFACE ELEVATION.
  - THE FOLLOWING MUST BE ELEVATED AT LEAST 1 FOOT ABOVE THE 100-YEAR WATER SURFACE ELEVATION:
    - A. ELECTRICAL SERVICE EQUIPMENT
    - B. INVERTER SKID PLATFORMS
    - C. PERMANENT STRUCTURES

**PHOTOVOLTAIC ARRAY PROPOSED LAYOUT PLAN**  
 SCALE: 1" = 50'

**BASIS OF DESIGN ONLY  
 NOT FOR CONSTRUCTION**

CITY OF CHATTANOOGA, TENNESSEE  
 DEPARTMENT OF PUBLIC WORKS - WASTE RESOURCES DIVISION  
 MOCASSIN BEND WASTEWATER TREATMENT PLANT  
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PROJECT NO: C6X61104  
 DATE: JULY 2019  
 DISC. LEAD: JRA    DRAWN BY: JPH    CHECKER: JPH

SHEET TITLE  
**PHOTOVOLTAIC ARRAY PROPOSED LAYOUT PLAN**

DWG E-01  
 SHEET 10 of 14

PRELIMINARY DESIGN DOCUMENT