TERREBONNE PARISH CONSOLIDATED GOVERNMENT

SOUTH WASTEWATER TREATMENT PLANT
HURRICANE IDA LEVEE REHABILITATION CELL NO. 1
TPCG PROJECT NO. 23-SEW-77/IDA-0091
FEMA Project No. 720545

****

ADDENDUM NO. 1

Date Issued: November 9, 2023

****

This Addendum No. 1 shall be part of the above referenced project.

Acknowledge receipt of this Addendum No. 1 by inserting its number in the space provided in the Louisiana Uniform Public Work Bid Form of the Request for Proposals. Failure to do so may subject the bidder to disqualification.

Kevan Keiser, P.E.

GIS Engineering, LLC.

SOUTH WASTEWATER TREATMENT PLANT

HURRICANE IDA LEVEE REHABILITATION CELL NO. 1

TPCG PROJECT NO. 23-SEW-77/IDA-0091

FEMA Project No. 720545

This Addendum is issued for the purpose of modifying, clarifying, or revising, as applicable, the specified items of the original Contract Documents. It is also issued for the purpose of adding, as applicable, the attached specified items to the original Contract Documents, or deleting, as applicable, the attached specified items from the original Contract Documents. The Addendum and attachments shall be construed as much a part of the original Contract Documents as contained therein. Changes made by Addenda shall take precedence over original Contract Documents.

PART I – WRITTEN CONTRACTORS QUESTIONS

PART II – MODIFICATIONS TO CONTRACT DOCUMENTS, TECHNICAL SPECIFICATIONS, PLANS, AND OTHER DOCUMENTS

Modifications to Contract Documents and Technical Specifications.

PART III – ATTACHMENTS

1. Pre-Bid Conference Sign-In Sheet
2. Pre-Bid Conference Meeting Notes
3. Revised Technical Specification No. 02300 – Embankment
4. Revised Plan Sheet No. 7 – Concrete Mat Details

PART I – Written Contractors' Questions

NOTE – The responses presented in PART I may differ from those presented in the Pre-Bid Conference. The responses in PART I are current as of the date of this Addendum and if different supersede those provided at the Pre-Bid Conference or any previous addenda.

Contractors' General Questions Received

1. Please confirm that measurement for payment of the embankment line item will be by "Truck Measurement"

   Response: This can be paid by truck measurement or net section from approved borrow source. Please reference revised Technical Specification No. 02300 Embankment, Section 1.31 – Hauled in Fill Material and Section 1.5.2 Truck Measurement provided in Part III of this addendum.

2. Will contract time be "paused" during any required embankment settlement hold periods?

   Response: No. The contractor will be allowed to install erosion control mats while reconstructing the containment levee. Once the contractor has completed the erosion control mats and the levee alignment. The Post 28-day settlement will only be taken on the crown of the of levee alignment.

3. Please specify the allowable fill section to be considered as the "bridge lift".

   Response: The "bridge lift" will only be allowed on the slopes of the levee alignment along the inner cell area. See Technical Specification Section 02300 Embankment sections 1.5.1 (g) and 3.1.

4. Please confirm that all materials removed from Cell 1 that are in conflict with installation of new levee embankment will be able to be disposed of, at no cost to the contractor, at the Ashland waste facility.

   Response: Yes, please coordinate with Engineer prior to disposal.

5. Please confirm that the contractor will be permitted to utilize the crown of the Cell 1 levee for installation of the erosion control mats.

   Response: This is the means and methods of the contractor. As long as the contractor does not perform this work prior to the final lift of the levee crown, the contractor may install using this method.

6. Can TPCG Pollution Control pump the water inside Cell 1 down any?

   Response: No.

7. Please specify how to compact the grade below waterline.

   Response: See Technical Specification Section 02300 Embankment sections 3.3.2.

8. Are there any weight limits on the bridges to be crossed?

   Response: There are no posted weight limits on the bridges. It is the contractor's responsibility to determine if their equipment can cross the bridges. Similar projects have been done already onsite and equipment crossed the bridges.

9. Where is the aggregate to be replaced on top of the levee? Where can we stockpile material?

   Response: The contractor is to use the aggregate to maintain the existing access road (on the existing access levees). No aggregate will be placed on the levee section to be reconstructed and armored. Contractor may stockpile material at center of cells.

10. Can grubbed material be wasted on outside slope?

    Response: Yes, but contractor must maintain drainage at project site.

11. Can we get in Cell pond in boat since work below waterline?

    Response: Yes, contractor to beware of conditions in the pond.

12. Does one year correction period (Gen. Conditions I-46) apply to settlement of levee?

    Response: No. The settlement is to be measured after 28 days. The erosion control mats and other items of work will be covered under the one-year correction period.

13. As mentioned in the pre-bid meeting, what is the fluff factor that was used to determine the quantity for item number 02922-1 "Hauled in Fill Material for Levee Embankment"?

    Response: The fluff factor used was 1.5. The volume fill table on page 24 of the plan set does not take into account the clearing and grubbing volume.

14. Does the quantity in the unit price bid form for item number 026551-1 "Erosion Control Concrete Mats", include the square area of mat needed to accomplish the anchoring of the top as depicted on page 7?

    Response The required roll width is 16' wide instead of 12' wide. The concrete mat will be installed at the 7' EL instead of 8' EL.

15. On page 7, the length of the concrete mat is shown at 12’ and on page 8 the typical levee section and scale shows this being closer to 17’ on the slope alone. Can you clarify which is the correct length to be protected?

    Response: See revised Plan Sheet No. 7 in Part III of this Addendum.

16. Will the contractor be allowed to work on the improved levee with equipment in order to install the concrete mats?

    Response: Yes, however, should the contractor cause rutting and damage to the improved levee, the contractor will need to re-shape the levee before final acceptance.

17. Will the contractor be required to install the concrete mat splices in the dry?

    Response: This is the contractors means and methods.

18. The specifications state that Builders Risk is required. Please verify that this is actually required due to the nature of the project.

    Response: Builders risk will NOT be required for this project.

19. We had the following question asked by our bond company. " We are also evaluating the liquidated damages section of the contract because the liquidated damages are $1,500 if late on substantial completion and another $1,500 if the final completion date is missed so we are reviewing that to determine if that means if both dates are missed simultaneously that the liquidated damages in that scenario could be $3,000 per day."

    Response: The client’s intent is $1,500 per day, not compounded.

PART II – Modifications To Contract Documents, Technical Specifications, Plans, and Other Documents

Contract Documents:

NONE

Technical Specifications:

1. Technical Specification No. 02300 – Embankment
    a. Please replace with the revised specification provided in Part III of this addendum.

Plans

1. Plan Sheet No. 7 – Concrete Mat Details
    a. Please replace with revised Plan Sheet as provided in Part III of this addendum.

PART III - ATTACHMENTS

Pre-Bid Conference Minutes & Sign-In Sheet

ENGINEERING LLC

Coastal Design & Infrastructure

197 Elysian Dr.
Houma, LA 70363
P: (985) 219-1000 | F: (985) 475-7014
www.gisyeng.com

Date: November 2, 2023

Project: Terrebonne Parish Consolidated Government
South Wastewater Treatment Plant Hurricane Ida Levee Rehabilitation Cell No. 1
TPCG Project No. 23-SEW-77
GIS Project No. 39130-1415

Location: GIS Engineering, LLC
197 Elysian Drive
Houma, LA 70363

PRE-BID CONFERENCE
MINUTES

SAFETY TOPIC: Daylight Savings Time – Use this time to check fire extinguishers, carbon monoxide monitors, and watch for school zones.

1. Roster Signatures and Introductions

    a. Owner – Terrebonne Parish Consolidated Government (TPCG)
    b. Engineer – GIS Engineering, LLC (GIS)

2. Scope of Work

    This project consists of the following:
    - Levee rehabilitation of approximately 4,300 linear feet of existing levee to an elevation of +8.0' NAVD88 along the eastern side of the treatment plant's Cell No.1.
    - Concrete mats for erosion control will also be installed along the interior levee side slopes, with the intent to reduce future erosion on the levee.
    - Aggregate road maintenance on access road as directed by the Engineer.

3. Delivery of Bids:

    Sealed bids will be received on November 14, 2023, by the Terrebonne Parish Consolidated Government (TPCG) Purchasing Division, at the City of Houma Service Complex, 301 Plant Road, in Houma, Louisiana until 2:00 P.M. as shown on the Purchasing Division Conference Room Clock, and, at the time and place, shall be publicly opened and read aloud. No bids will be received after 2:00 P.M.

4. Proper Preparation and Submission of Bids (*Section 10.0 of Section B – Instruction to Bidders)*

    a. Bids to be submitted by the time and at place indicated in the Invitation to Bidders and shall be enclosed in a sealed envelope.
    b. Envelope shall include Project title and name, address and state license number of the Bidder.
    c. Each Bid Proposal packet shall include:
        i. Completed Uniform Public Work Bid Form
        ii. Signature Authorization with written evidence of authority (LA R.S. 38:2212(B)(5))

iii. Bid Bond with Power of Attorney, or Certified Check or Cashier's Check, all in the amount of 5% of the total amount of the bid.
iv. Completed Unit Price Form.

5. Bid Completeness Requirements – *including, but not limited to, the following:*

    a. Acknowledgement of Addenda on Bid Proposal Form.
    b. Properly fill in unit price and extension price of each item included in the Bid Form.
    c. Complete bidder information as requested.
    d. Sign and Attest the bid.

6. Project Addenda:

    a. Clarifications in response to questions concerning Contract Documents will be issued in an Addendum.
    b. Send all questions to BidQuestions@gisy.com. Any questions submitted outside of this provided email address will not be considered. – Please be sure to add the project name to the subject line.
    c. Addenda will be issued as soon as possible, but no later than Wednesday, November 9, 2023 before 2:00 P.M. Addenda will be available at http//www.centralbidding.com by clicking on the Project Link, and will also be sent via email provided on the sign-in sheet for this meeting.

7. Contract Documents and Requirements:

    a. Listed in Section F – Standard Form of Agreement Between Owner and Contractor
    b. Contract Documents include complete Plan, Specifications, Addenda and Reference Documents.

8. General Project Information:

    a. Contract Time: 120 Calendar Days from Notice to Proceed.
    b. Estimated Project Budget: $1,100,000.00
    c. Required Contractor's License: Heavy Construction and/or Hwy, Street, Bridge Construction
    d. Liquidated Damages: $1,500.00 per day. Refer to Article 3 of Section F - Standard Form of Agreement Between Owner and Contractor of the Contract Documents for specifics.
    e. Contractor's Liability Insurance: Please refer to Paragraph 5.4 of Section I – General Conditions for requirements.
    f. There will be mandatory monthly progress meetings with Engineer and Owner personnel during construction.

9. Special Provisions Highlights
    a. 1.04 – Project Budget of $1,100,000.00
    b. 1.07 – Load Limits – The load limits of the 2 bridges near the project site are not posted. However, similar projects have already been completed at the site without issue.
    c. 1.14 – Maintenance of Drainage
    d. 1.15 – Tax Exemption
    e. 1.23 – As-Built Drawings
    f. 1.25 – Reference the LA DOTD Purple Book
    g. 1.26 – Substantial Completion
    h. 1.34 – Work Plan

10. Agency/Owner Comments
    a. The ponds cannot be pumped lower than they are now.
    b. Material (such as aggregates) can be stockpiled in the center of Cells 1, 2, and 3 or in other areas that client give contractor permission to stockpile material.
    c. Grubbed material can be wasted on the outside slope of the levee as long as contractor doesn't affect drainage.
    d. Contractor is allowed to use an airboat inside of the pond.

11. Bid Questions & Responses

    a. Questions received prior to this pre-bid conference will be addressed in an upcoming addendum within the following days.
    b. All future questions shall be in writing and sent to the email address BidQuestions@gisy.com. We will not accept any questions over the phone or sent to direct emails.
    c. The last day to submit written questions will be Wednesday, November 8, 2023 until 2:00 P.M.

12. Site Familiarity

    Anyone wishing to conduct a site visit, please coordinate this with Joe Chauvin at jchauvin@gisy.com

13. Adjourn

Project Contact Information

GIS Engineering, LLC	985-219-1000
Bill Blanchard	Sr. Project Manager
Kevan Keiser	Project Manager
Joseph Chauvin	Construction Manager
Ann Schouest	Project Associate
Dwayne Veillon	Project Associate

ENGINEERING LLC

Terrebonne Parish Consolidated Government
South Treatment Plant Cell No. 1
TPCG Project No. 23-SEW-77
Thursday, November 2, 2023
2:00 P.M.

TERREBONNE PARISH

ATTENDANCE REGISTER

NAME	COMPANY NAME	PHYSICAL ADDRESS	TELEPHONE NUMBER	EMAIL ADDRESS
Richard Boudreaux	Norris & Boudreaux	1606 Bull Run Rd Schriever, LA 70395	985-446-7308	richard@norrisandboudreaux.com
Trac Eschette	Onshore Materials LLC	127 Lincoln Lane Thib., LA 70301	985-449-0391	trac@onshoreco.com
TYLER DUPLANTIS	TD CONSTRUCTION GROUP, LLC	1555 SAINT PATRICK ST. THIBODAUX, LA 70301	985-414-3368	TYLER@TDCONSTRUCTIONGROUP.COM
DOLTON JORDAN	QSM	1432 LA-311 Schriever, LA 70395	228-547-2021	dolton@theqsmgroup.com
Matt Daigle	Sealevel	1069 Hwy 3185 Thibodaux, LA	985-413-9505	mdaigle@sealevelinc.com
Mario Lefort	OuterLimit Contractors	266 old Safari Hghts Cut off, LA	985-637-2400	mariolefort@yahoo.com
Jimmy LEDET	BYRON E. TALBOT CONTRACTOR	301 MAIN PROJECT RD SCHRIEVER, LA 70395	985 852 8142	Jledet@Byronetalbot.com
EugeneRobichaux	Low Land Const.	206 Industrial Av. C Houma, La 70363	985-446-1314	gene@lowlandcci.com
BILL BLANCHARD	GIS ENG.		985-665-2117	billb@gisy.com
Dwayne Veillon	GIS Eng		985-665-2388	dveillon@gisy.com

NAME	COMPANY NAME	PHYSICAL ADDRESS	TELEPHONE NUMBER	EMAIL ADDRESS
KEVAN D KEISER	GIS	197 ELYSIAN DR HOUMA, LA 70363	985-219-1000	kkeiser@gisy.com
Donovan Smith	GIS		985-438-0776	donovans@gisy.com
Joe Chauvin	GIS	197 Elysian Drive Houma, LA 70363	985-258-9279	jchauvin@gisy.com
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PART III - ATTACHMENTS

Revised Technical Specifications No. 02300

TABLE OF CONTENTS

1.0 GENERAL

1.1 DESCRIPTION

This Work consists of furnishing all labor, equipment, materials and performing all operations in connection with the construction of the proposed levee embankment. The embankment material shall be placed in loose lifts thickness not exceeding 8 inches, processed and adequately compacted as defined herein to achieve the required minimum shear strength in order to meet the grades, elevations, and slopes as shown on the plans and as herein after specified.

Embankment shall be constructed using fill materials furnished from the CONTRACTOR supplied offsite borrow pit. The offsite borrow pit material shall be transported to the site by the CONTRACTOR.

The CONTRACTOR shall be responsible for all required geotechnical testing, excavation and hauling from the contractor supplied off-site borrow source to the project site.

Any necessary degrading or excavation required for the construction of the new headwork structures shall be performed in accordance with Sections 203 and 802 of the LADOTD Standard Specifications for Roads and Bridges 2016 Edition.

1.2 REFERENCES

The following publications, but referred to before and thereafter by the basic designation only, form a part of this Specification to the extent indicated by the references thereto:

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) STANDARD

ASTM D698	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12400 ft-lbf/ft^3 (600 kN-m/m^3))
ASTM D1140	Standard Test Methods for Determining the Amount of Material Finer than 75-µm (No. 200) Sieve in Soils by Washing
ASTM D1556	Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method
ASTM D2216	Laboratory Determination of Water, (Moisture) Content of Soil and Rock by Mass
ASTM D2487	Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D2974	Standard Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils

ASTM D3740	Evaluation of Agencies Engaged in the Testing and/or Inspection of Soil and Rock as used in Engineering Design and Construction
ASTM D4318	Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
ASTM D4643	Standard Test Method for Determination of Water (Moisture) Content of Soil by Microwave Oven Heating
ASTM D6938	Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

UNITED STATES ARMY CORPS OF ENGINEERS (USACE)

EM 1110-2-1913	Design and Construction of Embankments

1.3 MEASUREMENT

1.3.1 Embankment - Hauled in Fill Material

Fill material quantities for the construction of the proposed levee shall be measured by either of the two methods below.

(a) Net Section Excavated from Borrow Pit: levee fill material shall be measured based on the net section excavated from the CONTRACTOR supplied borrow pit. The quantity of excavated material removed from the borrow pit and to be paid for will be measured by the Cubic Yard (CY) by computing the volume along the centerline between the before-excavation cross sections and the after excavation cross sections using the average end area method. Cross-sections shall be taken by the CONTRACTOR at a maximum of 25' within the borrow area. These surveys shall be stamped by a Registered Land Surveyor in the State of Louisiana. Material removed or wasted from the pit and not used for levee construction will not be measured for payment. This material shall be surveyed and subtracted from the quantity calculations.

(b) Truck Measurement: If a commercial borrow pit is to be used as the fill material borrow source, CONTRACTOR shall follow Section 109 of the LaDOTD Standard Specifications, 2016 Edition, for measurement of fill quantity. Levee fill material shall be hauled on approved vehicles and will be measured therein at the point of delivery at the project site or as directed by the ENGINEER. Vehicles shall be loaded to at least a predetermined permanently fixed mark, which defines a known volume, upon arrival at the point of delivery. Vehicles shall be measured in increments of 0.5 cubic yards, except when tailgate spreader boxes are used to place aggregate materials for asphalt surface treatment, the volume of the spreader box will be added to the volume of the vehicle. If materials are measured by weight and converted to volume for payment, conversion will be made to the nearest 0.1 cubic yard. CONTRACTOR shall also comply with section 401.09.2 Adjusted Vehicular Measurement of the LaDOTD Standards Specifications, which states that the proposed material shall be measured at the point of delivery by the Cubic Yard in approved

hauling vehicles in accordance with section 109.01, as stated above. Materials delivered by volume will be measured by the cubic yard in hauling vehicles and divided by a 1.30 factor as shown in Table 401-1 to determine the pay volume for clay materials. Refer to Section 1.5 of this technical specification for further requirements if truck measurement is to be performed.

Embankment that may be placed beyond the limits presented on the plans shall not be accepted and shall be removed at the expense of the CONTRACTOR. Payment for embankment required beyond that shown on the Contract Drawings and approved by the ENGINEER prior to placement shall be on the basis of the Unit Price Bid per cubic yard as defined herein.

1.3.2 Acceptance of Embankment

Completed segments of the embankment (500' min.) will be inspected for completeness, elevation, width, etc. and allowed to settle for 28 days. Initial surveys (pre 28-day) will not require certification by a licensed professional land surveyor in the State of Louisiana, but shall be performed under the supervision of the ENGINEER. As-built surveys for final acceptance shall be taken after the 28 day period by the CONTRACTOR under the direction of a licensed professional land surveyor in the State of Louisiana, and submitted to the ENGINEER for approval. If any portion of the embankment is below the proposed elevation of +8.0' or the typical section has not been achieved after 28 days, the ENGINEER shall require the CONTRACTOR to place additional material prior to acceptance by the ENGINEER. If any portion of the embankment is above +8.3' or 0.3' above the typical section, that portion of the embankment will not be measured for payment. CONTRACTOR may leave the embankment overage in place and does not have to remove the overage. However, this material will be surveyed and subtracted from the quantity calculations. For further surveying requirements reference Section No. 01 01 02 of these Technical Specifications.

1.4 PAYMENT

Payment for items included in this section shall be made at the applicable contract unit price for the Bid Items listed below.

Bid Item No.	Item Description	Unit of Measure
02300-1	Hauled-In Fill Material for Levee Embankment	Cubic Yard

Price and payment shall constitute full compensation for transporting/hauling, furnishing all plant, labor, equipment, and materials; placing, spreading, compacting, and maintenance as shown on the drawings and specified herein.

1.5 QUALITY CONTROL

1.5.1 General

The CONTRACTOR shall establish and maintain quality control for embankment construction operations to assure compliance with contract requirements, and maintain records of his/her quality control for all

construction operations including but not limited to the following:

(a) Equipment. Type, size, and suitability for construction of the prescribed Work.

(b) Materials: Suitability, layout, maintaining existing drainage, moisture control.

(c) Construction: Layout, maintaining existing drainage, moisture control, thickness of layers, spreading and compacting.

(d) Grade and Cross Section: Crown width, crown slope, side slopes, and grades. Check fills to determine if placement conforms to prescribed grade and cross section.

(e) Grade Tolerances: Check fills to determine if placement conforms to prescribed grade and cross section.

(f) Compliance Surveys: After review of embankment work and authorization by ENGINEER and prior to the OWNER's final survey, CONTRACTOR shall furnish plotted cross sections at intervals and locations corresponding to the original survey. Upon completion of suitable reaches of embankment, the CONTRACTOR shall perform, plot and submit compliance cross section surveys at a maximum of 200-foot intervals and all P.I.'s curve P.C.'s, P.T.'s, levee transitions and breakpoints. All sections shall be taken at locations corresponding to the original survey. They shall be plotted by the CONTRACTOR on a minimum scale of 1-inch equals 10 feet horizontally and 1 inch equals 5 feet vertically with the theoretical design cross section and allowable grade tolerances superimposed thereon. Additionally, the CONTRACTOR shall perform, plot, and submit a levee centerline profile with shots taken at a maximum of 200-foot intervals.

(g) Embankment and Berm Fill: Fill materials to be utilized for levee construction shall be primarily clays (CH) and silty clays (CL) as defined by the Unified Soil Classification System. Large roots and organic matter shall not be placed within the embankment section. Refer to section 3.1 of this specification for soil classification requirements.

(h) Placement and Compaction of Embankment Fill: For the embankment, compaction will be required to achieve shear strengths assumed for the analysis. The soil should be placed in lifts not exceeding thicknesses of 8 inches scarifying the surface of successive lifts. Embankment fill should be spread and disked to dry back in situ moisture contents to acceptable levels as specified in section 3.1. When proper moisture is achieved, each lift should be compacted to achieve and minimum of 90% compaction, based on the maximum dry density of the standard proctor test results for the material.

(i) Professional Certification: All surveys shall be performed in the presence of the ENGINEER (or the Engineer’s Project Representative). Compliance Surveys shall be performed under the direction of and certified by a Professional Land Surveyor currently licensed in the state of Louisiana.

1.5.2 Truck Measurement

If truck measurement is selected as the measurement method for the proposed embankment construction, the CONTRACTOR shall comply with the following requirements, in conjunction with requirements stated in section 1.3.1 (b) of this specification:

(a) All dump trucks must obey all LaDOTD rules and regulations.
(b) All dump trucks must be measured and documented in the presence of the Engineer or Engineers' Representative. Measurements include, but are not limited to, the following:
    i. Length (inside dimension)
    ii. Width (inside dimension)
    iii. Height (inside dimension)
    iv. Gross Cy (L*W*H/27)
    v. Deductions (If Applicable)
    vi. Net Cubic Yards (CY)
(c) All dump trucks must be placard with the Contractor's name, size of load (CY), and ID number of dump truck.
(d) All dump trucks hauling must have the following information:
    i. Haul tickets must be legible.
    ii. Tickets shall have the correct CYs, driver's name, truck ID number, ticket number and time of delivery to project site.
(e) All loads being delivered to the project site shall be accompanied with its corresponding load ticket. No load tickets will be accepted once the dump truck leaves the project site. The Engineers' Representative shall have all load tickets at the end of each work day.
(f) Any under loaded dump truck not meeting the measurement in cubic yards (CY) as shown on its corresponding load ticket will be deducted or voided.
(g) All load tickets must be signed by the Engineer or Engineers' Representative.

1.6 EQUIPMENT

Scarifiers, disks, dozers, spreaders, and other equipment shall be types suitable for construction of levee embankment. CONTRACTOR shall include within the Work Plan, as per Special Provision 1.35, specific equipment to be used for the proposed embankment construction. CONTRACTOR to be aware that due to existing site conditions, dump trucks may not be suitable for embankment construction for this project.

1.7 SUBMITTALS

1.7.1 Submittal Package Requirements

The following information shall be submitted by the CONTRACTOR for approval in a single, complete package. Approval of a submittal does not relieve the testing requirements of paragraph 1.5 & 3.1 of this Technical Specification.

(1) Plotted cross sections.

(2) Excavation and dewatering plan.

1.7.2 Submittal Package Requirements in Detail

1.7.2.1 Plotted Cross Sections

Plotted cross sections of the borrow area shall be developed in sufficient quantity (maximum of 25-ft. intervals) to give a true representation of the topography of the borrow area. The proposed excavation lines shall be superimposed on these cross sections, so that an accurate computation of the available material can be made.

1.7.2.2 Excavation Plan

The CONTRACTOR shall provide the ENGINEER a plan for clearing, stripping, and excavating materials from the borrow area. In its plan, the CONTRACTOR shall work areas, stockpile areas, etc. The CONTRACTOR shall indicate in writing and show on its layout plans details of the following:

(1) A stockpile plan for cleared and stripped material and debris to include disposal areas.

(2) The locations for disposal of wasted material discovered in the borrow area. Location of any haul roads constructed to help the CONTRACTOR in its hauling operations.

(3) A plan for stockpiling embankment material before it is transported to the project site to include locations, stockpile heights, slopes, and limits.

(4) The method and route for transporting the excavated material from the CONTRACTOR furnished borrow area to the project site.

(5) The proposed methods for dewatering or draining and keeping dry during excavation the borrow area excavated under this contract, including any protection dikes constructed to alleviate drainage problems.

(6) A complete list of excavation and transportation equipment planned for use in its operations.

(7) The CONTRACTOR'S proposed sequence of excavating the borrow area showing starting and ending work locations.

2.0 PRODUCTS

2.1 GENERAL

2.1.1 All embankment material shall be free from masses of organic matter, sticks, branches, roots, and other debris including hazardous and regulated solid wastes.

2.1.2 Isolated pieces of wood will not be considered objectionable in the embankment if their length does not exceed 12", their cross sectional area is less than 4 square inches, and they are distributed throughout the fill.

2.1.3 No more than 1% by volume of objectionable material shall be contained in the fill material placed in each cubic yard of the levee section.

2.2 EMBANKMENT MATERIAL

The soil used for fill embankment material for the proposed levee construction shall be material furnished by the CONTRACTOR. This material shall be selected as cohesive soil classified in accordance with ASTM D2487 as a CL or CH material with Atterberg Liquid limits no greater than 75. Fill material to be used for levee construction shall have a sand content no greater than 35% by dry weight, a plasticity index (PI) of 10 or greater, and an organic content of 9% or less.
No material shall be used for embankment placement prior to acceptance by the ENGINEER. Material quantity that has been sampled for testing shall be segregated and preserved (stockpile or windrows, etc.) and not placed for embankment pending soils analysis results and approved by the ENGINEER.

2.2.1 UNSUITABLE MATERIAL

Materials which are classified as unsuitable for embankment and berm or fill material are defined as masses of organic matter, sticks, branches, roots, and other debris. As earth from borrow area may contain excessive amounts of wood, isolated pieces of wood will not be considered objectionable in the embankment provided their length does not exceed 1 foot, their cross-sectional area is less than 4 square inches, and they are distributed throughout the fill. Not more than 1 percent (by volume) of objectionable material shall be contained in the earth material placed in each cubic yard of the levee or berm section. Pockets and/or zones of wood shall not be placed in the embankment.

3.0 EXECUTION

3.1 GEOTECHNICAL TESTING

The CONTRACTOR shall perform and pay for all required testing requirements specified herein. All testing shall be performed at and by an independent and accredited geotechnical laboratory. The CONTRACTOR, as a minimum, shall perform the specified number of each of the tests to demonstrate to the satisfaction of the ENGINEER that the fill material to be utilized for embankment construction is in compliance as specified below.

3.1.1 Soil Classification Tests:

Determination of soil classification shall be in accordance with the Unified Soil Classification System defined by ASTM D2487 as CL or CH with Atterberg Limits no greater than 75. The CONTRACTOR shall perform a minimum of one test for every 2,000 cubic yards of material and when visual inspection as directed by the ENGINEER indicates a change in materials. CONTRACTOR shall perform soil classification tests at off-site CONTRACTOR supplied pit.

3.1.2 Moisture Content Tests:

Determination of moisture content shall be performed in accordance with ASTM D2216, ASTM D6938 or ASTM D4643. CONTRACTOR shall perform moisture content tests every 1,000 linear feet of levee embankment per lift or at the direction of the ENGINEER's representative after material is placed on levee before compaction is performed. The CONTRACTOR shall perform the necessary work in moisture control to bring the material within acceptable levels as defined in the range limits below in order to achieve +5% / -3% of optimum moisture. Clay material shall have a moisture content ranging between the following limits:

	Moisture Content (In percent dry weight)	
Type of Material	Maximum	Minimum
ML	26	15
CL	30	18
CH	45	20

Soil classified as ML shall be suitably blended with CH or CL to formulate a material that classifies as a CL before it is loaded for transport.

3.1.3 Moisture Density Relationships.

The moisture-density relationships for each different classification of cohesive material utilized shall be determined in accordance with ASTM D698. Prior to placing any fill material containing cohesive material, a minimum of 5 point compaction test shall be performed on representative samples of the material to be used as fill and moisture density relationships curves shall be done at the same frequency as soil classification tests. Additional tests will be required each time a new material is encountered or as directed by the ENGINEER. The moisture-density curves will be compiled to form a family of curves which will be utilized to estimate optimum properties (maximum dry density and optimum moisture content) to be used with field density testing.

3.1.4 In-Place Density Testing.

In-place density tests for compacted fill material shall be made in accordance with ASTM D1556, or ASTM D6938, and shall be made at a minimum frequency of one density test per lift per 200 linear feet per lift placed and compacted, or at the direction of the ENGINEER's representative. A lift on any one side of the existing embankment will be considered one lift. The location of the test shall be representative of the area being tested or as directed by the ENGINEER. For each in-place density test, the CONTRACTOR shall determine the percent of ASTM D698 maximum dry density and the percent (plus 5 or minus 3) optimum water content using the control compaction curves for the same type of material. One standard proctor test shall be performed every 1,000 linear feet of embankment or at the direction of the ENGINEER's representative. Standard proctor tests shall be performed in accordance with ASTM D698. The appropriate control compaction curve shall be selected by using the visual soil classification test.

The results of the soil classification test, in-place density test, and moisture content test shall be reported to the ENGINEER's representative by the end of the working day following the in-place density test. Embankment material not meeting the required specifications for in-place density shall be retested after additional compaction has been completed. When nuclear method is used for in-place density testing, the

first test and every tenth test thereafter for each material type shall include a sand cone correlation test in accordance with the location of the nuclear test, shall include a nominal 6 inch diameter sand cone, and shall include a minimum wet soil weight of 6 pounds extracted from the hole. Nuclear density equipment shall not be used during rain. The density correlations shall be submitted with test results. Each transmittal including density test data shall include a summary of all density correlations for the job neatly prepared on a summary sheet including at a minimum:

(1) Meter serial number and operators initials.

(2) Standard count for each test.

(3) Material type.

(4) Probe depth.

(5) Moisture content by each test method and the deviation.

(6) Wet density by each test method and the deviation.

The ENGINEER may request additional tests if there is a reason to doubt the adequacy of the compaction, or special compaction procedures are being used, or materials change, or if the ENGINEER determines that the CONTRACTOR's testing is inadequate or the CONTRACTOR is concentrating on backfill and fill operations in a relatively concentrated area.

3.1.5 Organic Content Tests

Determination of Organic Content shall be performed in accordance with ASTM D2974, Method C. Organic Content should be less than 9%. The CONTRACTOR shall perform organic content tests at the CONTRACTOR supplied borrow pit every 2,000 cubic yards.

3.1.6 Sand Content Tests

Determination of Sand Content shall be performed in accordance with ASTM D1140 at the CONTRACTOR Supplied Pit every 2,000 cubic yards. Sand Content should be less than 35% by dry weight.

3.2 SURFACE PREPARATION

After clearing and grubbing and any required excavation of the proposed embankment foundation, test pits and other similar cavities and depressions shall be broken down, where so directed, to flatten out the slopes. The entire earth surface on or against which embankment fill is to be placed shall be thoroughly broken to a depth of 6 inches. If for any cause, this broken surface becomes compacted in such a manner that, in the opinion of the ENGINEER, a plane of seepage or weakness might be induced, it shall again be adequately scarified before depositing material thereon. All scarifying and breaking of ground surface shall be done parallel to the centerline of the levee. All of the foregoing Work shall be completed at least 200 feet but not greater than 500 feet in advance of the embankment and berm construction.

Special attention should be given to any weak areas or depressions discovered during the excavation operation. When possible, these areas, including holes from stump/root removal, should be thoroughly

cleaned out and backfilled with an inorganic clay fill material placed and compacted under controlled conditions. However, if compaction is not possible, a “bridge lift” to provide dry conditions for placement and compaction of overlying materials may be re required in these areas. This bridge lift may be compacted by several passes of a bulldozer and without regard to compaction control.

No fill material for the construction of the proposed embankment shall be placed upon frozen ground.

3.3 PLACEMENT

3.3.1 Compacted Embankment

Material shall be placed in loose lift thicknesses not exceeding 8 inches and compacted to at least 90% of its maximum dry density. To facilitate compaction, fill should be placed at a moisture content within the limits of plus 5 to minus 3 percentage points of optimum moisture content (refer to section 3.1.2 above). After a layer of material has been dumped and spread, it shall be harrowed to break up and blend the fill materials and to obtain uniform moisture distribution. Harrowing shall be performed with a heavy disk plow, or other approved harrow, to the full depth of the layer. If one pass of the harrow does not accomplish the breaking up and blending of the materials, additional passes of the harrow shall be required, but in no case will more than three passes of the harrow on any one layer be required for this purpose. When the moisture content and the condition of the layer are satisfactory, the lift shall be compacted to a minimum of 90 percent of the maximum dry density as determined by the CONTRACTOR in accordance with ASTM D698. In areas which are not accessible by roller, the fill shall be placed in layers not more than 4 inches in uncompacted depth and compacted with an approved hand operated compactor to a density equal to that obtained in other areas which are accessible to rollers. Dumping, spreading, sprinkling, and compacting may be performed at the same time at different points along a section when there is sufficient area to permit these operations to proceed simultaneously. Compaction equipment shall be operated such that the strip being traversed by the roller shall overlap the rolled adjacent strip by not less than 3 feet.

3.3.2 Uncompacted Embankment

This material will be placed by uncompacted methods in areas of standing water, in locations where existing grades are below mean water levels, where excavations to remove stumps, roots, buried logs, old foundations, or other objectionable material has proceeded below the water table, or where otherwise called out in the plans. The purpose of the bridge lift is to raise the working grade such that levee material compaction is achievable and/or to provide dry conditions for the placement of geosynthetic reinforcement. These materials will be placed by mechanical methods using offsite borrow. Onsite dredging or hydraulic placement of this material is not acceptable for the bridge lift. Uncompacted levee fill should be placed in lifts of no more than 2-ft thickness. Depending upon the depth of the standing water and moisture content of the uncompacted fill, consideration should be given to placing an initial fill lift for the entire length of the levee alignment before proceeding with subsequent lifts as a measure for mitigation of mud waves. This method also initiates consolidation of foundation soils as well as decreases the potential for lateral spread and slope failure of uncompacted fill material during levee construction.

3.4 SLIDES

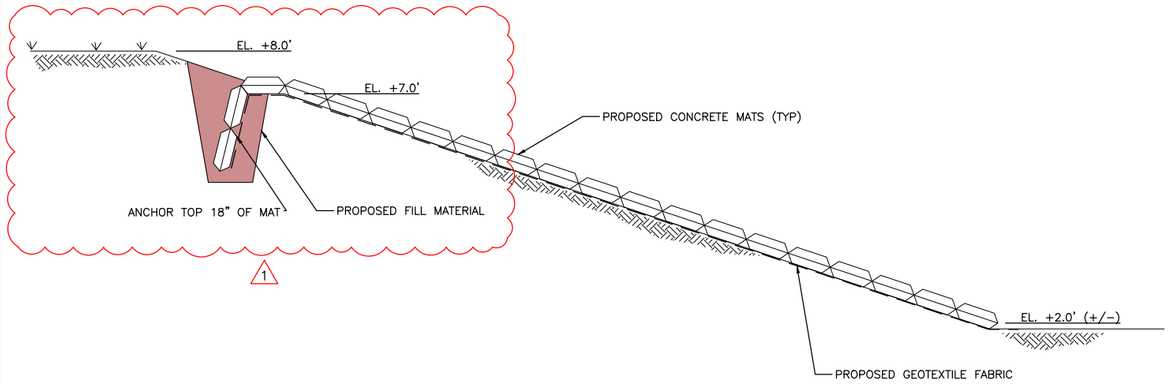
Should a slide occur in any part of the embankment during its construction, or after its completion, but prior to its acceptance, the CONTRACTOR shall, upon written order of the ENGINEER, either cut out

and remove the slide from the embankment and then rebuild that portion of the embankment, or construct a stability berm of such dimension, and placed in such manner, as the ENGINEER shall prescribe. In case the slide is caused through fault of the CONTRACTOR, the foregoing operations shall be performed at no additional cost to the OWNER. In case the slide is not the fault of the CONTRACTOR, the repair shall be made by an equitable adjustment. The method of slide correction will be determined by the ENGINEER.

END OF SECTION

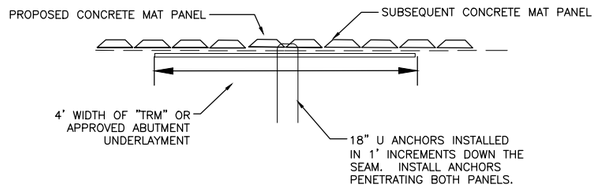
PART III - ATTACHMENTS

Revised Plan Sheet No. 7

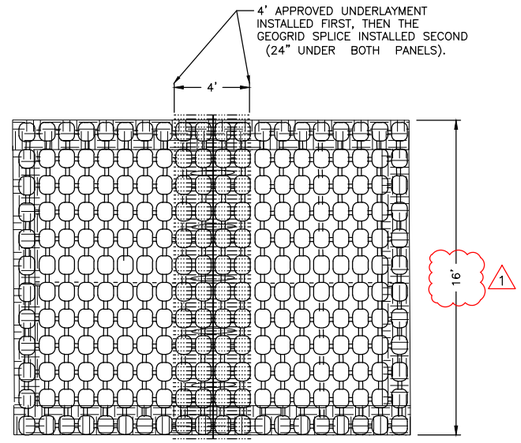


SIDE PROFILE - LEVEE BANKLINE PROTECTION
SCALE: N.T.S.

PROFILE VIEW
SLOPE SEAM ABUTMENT



PROFILE VIEW - PERPENDICULAR OVER LAPS
SCALE: N.T.S.



LONGITUDINAL VIEW SEAM DETAIL
SCALE: N.T.S.

CONSTRUCTION NOTES:

1. THE LEVEE EMBANKMENT MUST BE STABLE, UNIFORMLY GRADED, FREE OF ROCKS, ROOTS, AND OTHER DEBRIS.
2. SITE SPECIFIC SEED MIXES, INCLUDING NATIVE GRASSES, SHOULD BE INSTALLED ON THE PREPARED EMBANKMENT PRIOR TO INSTALLING THE EROSION CONTROL CONCRETE MAT MATERIALS. PREPARE THE SEED BED AND SEED THE AREA WITHIN 24 HOURS OF A SEASONAL SITE SPECIFIC SEED BLEND OF TEMPORARY AND PERMANENT SEED MIX PRIOR TO UNROLLING THE CONCRETE MATS. IN THE EVENT OF A RAIN EVENT PRIOR TO CONCRETE MATS INSTALLATION, THE EFFECTED AREAS WILL NEED RE-DISKED, HARROWED AND RESEEDED AGAIN PRIOR TO INSTALLATION.
3. THE TOE OF THE CONCRETE MAT NEEDS TO EXTEND BELOW THE ANTICIPATED LOW WATER.
4. CONCRETE MATS SHALL BE INSTALLED LONGITUDINALLY ALONG THE LEVEE SIDE SLOPES.
5. CONCRETE MAT SEAM ABUTMENTS ON THE SIDE SLOPES SHOULD HAVE A MIN OF 4' WIDTH OF TRM OR APPROVED ABUTMENT UNDERLAYMENT TO CONNECT THE SEAM WITH 24" UNDER EACH ADJOINING PANEL. USE APPROVED "U" ANCHORS OR STAINLESS STEEL ZIP TIES IN 1' INCREMENTS TO CONNECT THE SEAM TOGETHER.
6. INSTALL 18" "U" ANCHORS IN 1' INCREMENTS ACROSS THE OVERLAP. INSTALL ANCHORS DIRECTLY BEHIND BLOCKS. "U" ANCHORS CONSIST OF 3 REBAR "U" ANCHOR WITH 18" LEGS.
7. ON THE SLOPES, A TRANSITION TRENCH OF 12"-18" DEPENDING ON ANTICIPATED SCOUR AT THE LEADING EDGE OF THE CONCRETE MATS.
8. AT THE END OF THE LEVEE EMBANKMENT, EMBED THE MAT 24" PAST THE ANTICIPATED SCOUR POINT IN A TERMINATION TRENCH. THE ANCHOR TRENCH SHALL BE FILLED AND COMPACTED WITH SUITABLE FILL, SPREADING TOPSOIL OVER MAT AND SWEEPING SOIL TO TRANSITION FROM MAT TO LANDSCAPE, OR AS DIRECTED BY THE ENGINEER.

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REVISIONS

No.	Description	Date
0	ISSUE FOR BID	10/2023
1	ADDENDUM #1	11/2023

STATE OF LOUISIANA
KEVAN D. KEISER
License No. 37243
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
10/2/23

THIS DRAWING HAS BEEN REDUCED TO ONE HALF SIZE

TERREBONNE PARISH CONSOLIDATED GOVERNMENT

SOUTH WASTEWATER TREATMENT PLANT LEVEE REHABILITATION AT CELL 1 (HURRICANE IDA)

CONCRETE MAT DETAILS

Project number	39130-1423
Date	OCTOBER 2023
Designed by	KDK
Drawn by	MAC, MJC
Checked by	JPC
Checked by	KDK
Plot Date	November 9, 2023

07

M:\Department 39\Client\TPCG - Terrebonne Parish\1423 South Treatment Plant\450 Execution\460 Drawings\461 DWGs\CONCRETE MAT DETAILS.dwg