STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. BOX 778
DOVER, DELAWARE 19903

JENNIFER COHAN
SECRETARY

VIA OVERNIGHT DELIVERY

October 5, 2018

Contract No. T201820003.01
Federal Aid Project No. ESTP-2018(22)
Slaughter Beach Scenic Overlook
Sussex County

Ladies and Gentlemen:

Enclosed is Addendum No. 1 for the referenced contract consisting of the following:

1. The Bid Proposal Cover, revised, to be substituted for the same page in the Proposal.
2. One (1) page, Special Provision 621502-Perforated Fiberglass Reinforced Polpropylene Decking, page 42, revised, to be substituted for the same page in the Proposal.
3. One (1) page, Special Provision 621503 - Composite Wood Decking, page 44, revised, to be substituted for the same page in the Proposal.
4. One (1) page, Special Provision 621505 - 6x6 Treated Southern Yellow Pine Timbers, page 46, revised, to be substituted for the same page in the Proposal.
5. Four (4) pages, Special Provision 763501 - Construction Engineering, pages 50, 51, 52 and 53, revised, to be substituted for the same pages in the Proposal.
6. One (1) page, Special Provision 763502 - Site Furnishings, page 54, revised, to be substituted for the same page in the Proposal.
7. One (1) page, Bid Proposal Form, page 1, revised, to be substituted for the same pages in the Proposal. Item Number 621505 has a revised quantity.
8. The following Plan Sheets have been revised and replaced: 4 and 9.
9. Expedite File Disc, Amendments No. 1.

Please note the revisions listed above and submit your bid based upon this information.

Sincerely,

~signature on file~

Robert A. Kovacs
Competitively Bid Contracts Coordinator
Delaware Department of Transportation

Addendum No. 1
October 5, 2018

STATE OF DELAWARE

DEPARTMENT OF TRANSPORTATION

BID PROPOSAL

for

CONTRACT T201820003.01

FEDERAL AID PROJECT NO. ESTP-2018(22)

CFDA NO. 20.205

Slaughter Beach Scenic Overlook

Sussex County

ADVERTISEMENT DATE: September 24, 2018

COMPLETION TIME: 82 Calendar Days

SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION
DELAWARE DEPARTMENT OF TRANSPORTATION
AUGUST 2016

Bids will be received in the Bidder's Room at the Delaware Department of Transportation's Administration Building, 800 Bay Road, Dover, Delaware prior to 2:00 P.M. local time **October 16, 2018**

621502 - PERFORATED FIBERGLASS REINFORCED POLPROPYLENE DECKING

DESCRIPTION:

This work consists of providing and installing the Perforated Reinforced Fiberglass Polypropylene (PFRPP) decking as indicated on the plans and in this specification including the treated Southern Yellow Pine Joists, Beams & Connectors and as directed by the Engineer.

The contractor shall provide all labor, materials and appurtenances and shall include the TSYP joist and beams necessary for the construction of the PFRPP decking, including decking, connections and layout of decking, Provide #1 Pan Head Stainless Steel screws per 1'-0" X 5'-0" section , in accordance with the mfg's details as specified herein as directed by the Engineer.

MATERIALS:

The contractor shall select from one of the following or approved equal to manufacture: the PFRPP Decking:

ThruFlow, Inc.
700 Gillard St.
Wallaceburg ON N8A 4L3 Canada
1-888-478-3569
www.thruflow

McNichols Co.
McNichols Square Grid (MSM)
P.O. Box 3030000
Tampa FL 33630-3300
1-800-273-9212
www.mcnichols.com

I) Slip, fade resistant, mold and mildew resistant PFRPP Decking content and approved for direct ground and water contact.

II) Color Light Gray.

III) Stainless steel screws.

IV) Submittals
a. Provide submittals as listed below.
b. Product data: manufacturer's standard specifications and descriptive literature, including:
1. Manufacturer's product data sheets.
2. Manufacturer's installation instructions.
3. Material safety data sheets (MSDS)
c. Samples: one 12" X 24" sample illustrating size, profile, color and surface finish.
d. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.

e. Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria, and physical requirements.

V) PERFORMANCE REQUIREMENTS

Base Material	PFRPP fiberglass reinforced polypropylene	
Sizes (L x W x H)	inch	12 x 60 x 1.2
	mm	305 x 1524 x 30
Support span	inch	15
	mm	381

621503 - COMPOSITE WOOD DECKING

DESCRIPTION:

This work consists of providing and installing the composite wood decking as indicated on the plans and in this specification and as directed by the Engineer.

The contractor shall provide all labor, materials and appurtenances necessary and shall include the TSYP joist and beams for the construction of the composite wood decking, including composite decking boards, connections and layout of the Boardwalk, provide 2 ¼" #7 Stainless Steel trim head screws, counter sunk, 2-screws at each end and joist center minimum , per 2X6 deck board, in accordance with the mfg's details as specified herein as directed by the Engineer.

MATERIALS:

The contractor shall select from one of the following or approved equal to manufacture: The Composite Wood Decking.

Moisture Shield
2X6 Composite wood decking
(actual size) 1.5" X 5.50" X 12'-0"
914 Jeffson
Springdale, AR 72764
Phone 866-729-2378
www.moistureshield.com

Trex Company, Inc.
2X6 Trex Trandscend Deck Board
(actual size) 1.3" - 1.6" X 5.40" X 12'-0"
160 Exteter Drive
Winchester VA 22602
Phone 540-542-6300
www.trex.com

I) Slip, fade resistant, mold and mildew resistant composite wood decking, high recycled content and approved for direct ground and water contact.

II) Color "driftwood gray" or gray.

III) Stainless steel screws.

IV) Submittals
a. Provide submittals as listed below.
b. Product data: manufacturer's standard specifications and descriptive literature, including:
1.Manufacturer's product data sheets.
2. Manufacturer's installation instructions.
3. Material safety data sheets (MSDS)
c. Samples: one 12" long decking sample illustrating size, profile, color and surface finish.
d. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
e. Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria, and physical requirements.

V) PERFORMANCE REQUIREMENTS

a. Comply with ICC-ES Report ESR-2388.
b. Composite Wood Decking: to ASTM D7032 and ASTM D1037.
c. Thermal Transmission: To ASTM C518.
d. Surface Burning Characteristics: To ASTM E84 Class C or Class III.

621505 - 6X6 TREATED SOUTHERN YELLOW PINE TIMBERS

DESCRIPTION:

This item shall consists of furnishing all materials, equipment and labor to install 6X6 timer curbs and rail posts and retention wall in accordance with the notes and details on the Plans; the Standard Specifications: and as directed by the Engineer.

MATERIALS AND CONSTRUCTION METHODS:

The timbers, unless otherwise noted on the Plans, shall be treated Southern Yellow Pine, Kiln dried #1 smooth cut on 4-sides. Timber shall be treated with cremated copper arsenate (CCA) with a minimum retention of 1.0 pounds per cubic foot. Timber shall be treatedin accordance with the American Wood Protection Association (AWPA) standards, Section C-1, timber shall meet the requirements of UC-4B for Salt Water Marine Use.

Timbers shall be installed with gaps not exceeding 1/8 inch.

Connections of timbers to the boardwalk structure for post & curbs shall be with galvanized steel lag bolts or bolts with hex nuts, as shown in the plans, notes and details and shall be galvanized in accordance with ASTM A-123 or ASTM A153 . Where lag bolts are used on the top of 6X6 timbers, used as 6X6 boardwalk curbs, they shall be counter sunk and plugged. Connection of timbers for the 6X6 retaining wall will be as shown in the plans, notes and details and shall be with 120-d galvanized steel spikes, galvanized according to ASTM-123 or ASTM A153. Counter sink and plug visible spike heads.

METHODS OF MEASUREMENT:

The quantity of composite wood decking will be measured as ~~square foot (SF)~~ linear foot (LF).

BASIS OF PAYMENT:

The quantity of composite wood decking will be paid for at the Contract ~~SF~~ LF price. Price and payment will constitute full compensation for furnishing and installing all materials, labor, tools, equipment and incidentals required to complete the work.

9/4/2018

Description:

This specification contains the requirements for grading operations utilizing Global Positioning Systems (GPS).

Use of this procedure and equipment is intended for grading the subgrade surface; it is not intended for the use in constructing final surface grades.

The Contractor may use any manufacturer's GPS machine control equipment and system that results in achieving the grading requirements outlined in section 202 of the standard specifications. The Contractor shall convert the electronic data provided by the Department into the format required by their system. The Department will only provide the information outlined in this document and no additional electronic data will be provided.

The Contractor shall perform at least one 500 foot test section with the selected GPS system todemonstrate that the Contractor has the capabilities, knowledge, equipment, and experience to properly operate the system and meet acceptable tolerances. The engineer will evaluate and make the determination as to whether additional 500 foot test sections are required. If the Contractor fails to demonstrate this ability to the satisfaction of the Department, the Contractor shall construct the project using conventional surveying and staking methods.

Materials:

All equipment required to perform GPS machine control grading, including equipment needed by DelDOT to verify the work, shall be provided by the Contractor and shall be able to generate end results that are in accordance with the requirements of Division 200 - EARTHWORK of the Standard Specifications.

Construction:

A. DelDOT Responsibilities:

1. The Department will set initial vertical and horizontal control points in the field for the project as indicated in the contract documents, (plans set). If the Contractor needs to establish new control points they shall be traversed from existing control points and verified to be accurate by conventional surveying techniques.

2. The Department will provide the project specific localized coordinate system.

3. The Department will provide data in an electronic format to the Contractor as indicated in the General Notes.

   a. The information provided shall not be considered a representation of actual conditions to be encountered during construction. Furnishing this information does not relieve the Contractor from the responsibility of making an investigation of conditions to be encountered including, but not limited to site visits, and basing the bid on information obtained from these investigations, and the professional interpretations and judgments of the Contractor. The Contractor shall assume the risk of error if the information is used for any purpose for which the information is not intended.

   b. Any assumption the Contractor makes from this electronic information shall be at their risk. If the Contractor chooses to develop their own digital terrain model the Contractor shall be fully responsible for all cost, liability, accuracy and delays.

   c. The Department will develop and provide electronic data to the Contractor for their use as part of the contract documents in a format as indicated in the General Notes. The Contractor shall independently ensure that the electronic data will function in their machine control grading system.

4. The Files that are provided were originally created with the computer software applications MicroStation (CADD software) and INROADS (civil engineering software). The data files will be provided in the native formats and other software formats described below. The contractor shall perform necessary conversion of the files for their selected grade control equipment. The Department will furnish the Contractor with the following electronic files:

5. The Engineer shall perform spot checks of the Contractor's machine control grading results, surveying calculations, records, field procedures, and actual staking. If the Engineer determines that the work is not being performed in a manner that will assure accurate results, the Engineer may order the Contractor to redo such work to the requirements of the contract documents, and in addition, may require the Contractor to use conventional surveying and staking, both at no additional cost to the Department.

B . Contractor's Responsibilities

1. The Contractor shall provide the Engineer with a GPS rover and Automatic Level, for use during the duration of the contract. At the end of the contract, the GPS rover and Automatic Level will be returned to the Contractor. The Contractor shall provide a total of 8 hours of formal training on the Contractor's GPS machine control system to the Engineer and up to three additional Department appointees per rover.

2. The Contractor shall review and apply the data provided by the Department to perform GPS machine control grading.

3. The Contractor shall bear all costs, including but not limited to the cost of actual reconstruction of work, that may be incurred due to application of GPS machine control grading techniques. Grade elevation errors and associated corrections including quantity adjustments resulting from the contractor's use of GPS machine control shall be at no cost to the Department.

4. The Contractor shall convert the electronic data provided by the Department into a format compatible with their system.

5. The Contractor's manipulation of the electronic data provided by the Department shall be performed at their own risk.

6. The Contractor shall check and if necessary, recalibrate their GPS machine control system at the beginning of each workday in accordance with the manufacturer's recommendations, or more frequently as needed to meet the requirements of the project.

7. The Contractor shall meet the accuracy requirements as detailed in the Standard Specifications.

8. The Contractor shall establish secondary control points at appropriate intervals and at locations along the length of the project. These points shall be outside the project limits and/or where work is performed. These points shall be at intervals not to exceed 1000 feet. The horizontal position of these points shall be determined by conventional survey traverse and adjustments from the original baseline control points. The conventional traverse shall meet or exceed the Department's Standards. The elevation of these control points shall be established using differential leveling from the project benchmarks, forming a closed loop. A copy of all new control point information including closure report shall be provided and approved by the Engineer prior to construction activities. The Contractor shall be responsible for all errors resulting from their efforts and shall correct deficiencies to the satisfaction of the Engineer and at no additional cost to the Department.

9. The Contractor shall provide stakes at all alignment control points, at every 500 foot stationing, and where required for coordination activities involving environmental agencies and utility companies at the Contractor's expense. Work that is done solely for utility companies and that is beyond the work performed under item 763501 - Construction shall follow and be paid for under item 763597 -Utility Construction Engineering.

10. The Contractor shall at a minimum set hubs at the top of finished grade at all hinge points on the cross section at 500 foot intervals on the main line and at least 4 cross sections on side roads and ramps as directed by the engineer or as shown on the plans. Placement of a minimum of 4 control points outside the limits of disturbance for the excavation of borrow pits, Stormwater Management Ponds, wetland mitigation sites etc. These control points shall be established using conventional survey methods for use by the Engineer to check the accuracy of the construction.

11. The Contractor shall preserve all reference points and monuments that are identified and established by the Engineer for the project. If the Contractor fails to preserve these items the Contractor shall reestablish them at no additional cost to the Department.

12. The Contractor shall provide control points and conventional grades stakes at critical points such as, but not limited to, PC's, PT's, superelevation points, and other critical points required for the construction of drainage and roadway structures.

13. No less than 2 weeks before the scheduled preconstruction meeting, the Contractor shall submit to the Engineer for review a written machine control grading work plan which shall include the equipment type, control software manufacturer and version, and proposed location of the local GPS base station used for broadcasting differential correction data to rover units.

14. The Contractor shall follow the guidelines set forth in the "Geometric Geodetic Accuracy Standards and Specifications for Using GPS Relative Positioning Techniques" and follow a minimum of Second Order Class 1, (2-I) classification standards.

Automated equipment operations have a high reliance on accurate control networks from which to take measurements, establish positions, and verify locations and features. Therefore, a strong contract control network in the field which is the same or is strongly integrated with the project control used during the design of the contract is essential to the successful use of this technology with the proposed Digital Terrain Model (DTM). Consistent and well designed site calibration for all machine control operations (as described below under Contract Control Plan) are required to ensure the quality of the contract deliverables. The Contract Control Plan is intended to document which horizontal and vertical control will be held for these operations. Continued incorporation of the Base Station(s) as identified in the Contract Control Plan is essential to maintaining the integrity of positional locations and elevations of features. The Contract Control Plan shall be submitted to the Department for review and approval by the Departments Survey Section 3 weeks prior to the start of any machine control work. The Contractor shall operate and maintain all elements of the Machine Grade Control continuously once the operations begin until otherwise approved by the Engineer.

Contract Control Plan:

The Contractor shall develop and submit a Contract Control Plan for all contracts which use Machine Control Grading. Contract control includes all primary and secondary horizontal and vertical control which will be used for the construction contract. Upon the Contractor's completion of the initial survey reconnaissance and control verification, but prior to beginning primary field operations, the Contractor shall submit a Contract Control Plan document (signed and sealed by the Delaware licensed Land Surveyor or Delaware Professional Engineer who oversees its preparation) for acceptance by the
Engineer, which shall include the following:

1. A control network diagram of all existing horizontal and vertical control recovered in the field as contract control.

2. Include a summary of the calculated closures of the existing control network, and which control has been determined to have been disturbed or out of tolerance from its original positioning.

3. An explanation of which horizontal and vertical control points will be held for construction purposes. If necessary include all adjustments which may have been made to achieve required closures.

4. An explanation of what horizontal and vertical control (including base stations) was set to accomplish the required stakeout or automated machine operation. Include how the position of these new control points was determined.

5. Describe the proposed method and technique (technology and quality control) for utilizing the control to establish the existing and/or proposed feature location and to verify the completed feature location and/or measured quantity.

6. A listing of the horizontal and vertical datums to be used and the combined factor to be used to account for ellipsoidal reduction factor and grid scale factor.

7. ~~If the Contractor chooses to use machine control as a method of measuring and controlling excavation, fill, material placement or grading operations as a method of measuring and controlling excavation, fill, material placement or grading operations, the Contractor Control Plan shall include the method by which the automated machine guidance system will initially be site calibrated to both the horizontal and vertical contract control, and shall describe the method and frequency of the calibration to ensure consistent positional results.~~

8. ~~Issues with equipment including inconsistent satellite reception of signals to operate the GPS machine control system will not result in adjustment to the "Basis of Payment" for any construction items or be justification for granting contract time extension~~.

Method of Measurement:

The quantity of Construction Engineering will not be measured.

Basis of Payment:

Payment will be made at the Lump Sum price bid for the item "Construction Engineering". The price bid shall include the cost of furnishing all labor, equipment, instruments, stakes and other material necessary to satisfactorily complete the work as herein described under this item for all roads and structures that are a part of the contract. Adjustment in payment will be made for the deletion or addition of work not shown in the contract documents.

Monthly payment will be made under this item in proportion to the amount of work done as determined by the Engineer.

2/28/2018

763502 - SITE FURNISHINGS

Description:

Interpretative Panels, Bike Loops & Benches

This work consists of providing and installing the site furnishings as indicated on the plans and details in this specification and as directed by the Engineer.

The Contractor shall furnish all labor, materials and appurtenances necessary for the construction of the Interpretative Planes, including, but not limited to layout of posts, frames and all required connections and fittings in accordance with the manufacturer's specifications and details, as specified herein, or as directed by the Engineer.

The contractor shall also provide labor only for the layout and installation of the Bike Loops and Benches, including, but not limited to, layout of posts frames, concrete footings, excavation and backfill for the bike loops and connecters.

NOTE: The materials for the bike loops and benches shall be provided by the Town of Slaughter Beach. Panel will be supplied by the Owner and installed by the Contractor. Frame will be supplied by the Contractor.

Submittals:

Manufacturers shop drawings and specification for the interpretative panels framing shall be submitted to the Engineer for approval prior to manufacture and /or ordering. The Engineer shall retain the right to reject the interpretative panel framing not conforming to this specification or approved submittals.

Materials:

The contractor shall select from the following or an approved equal to manufacture. The interpretative panels frame and posts;

Pannier
35 Oak Road
Gibsonia, PA 15044
1-800-544-8428

24.5" X 18.5" sign frame with single pedestal aluminum base.

a. base material

Frame Size	(L x W x H)	inch	24.5" x 18.5" x 1.75"
Trim Size	(L x W)	inch	23.875" x 17.875"
Visual Area	(L x W)	inch	12" X 17"

b. The interpretative frames shall be 6061-T6 aluminum extrusion, 1/8" minimum wall thickness.

c. All components shall be black polyester powder coated (4mm minimum thickness).

d. DelDOT, DNREC Division of Fish & Wildlife and The Delaware Nature Society shall supply the interpretive panels. The Contractor shall install the panels as per the manufacturer's instructions. If the panels are not suppled prior to the end of this project the Contractor shall prepare the site for future installation by others. Site shall be left free of hazards.

e. The posts for the Bike Loops shall be embedded into the concrete footings as shown on the plans. The posts for the interpretative panels and benches shall be surface mounted as shown on the plans..

f. The Engineer shall approve layout of all items and amenities prior to installation of construction.

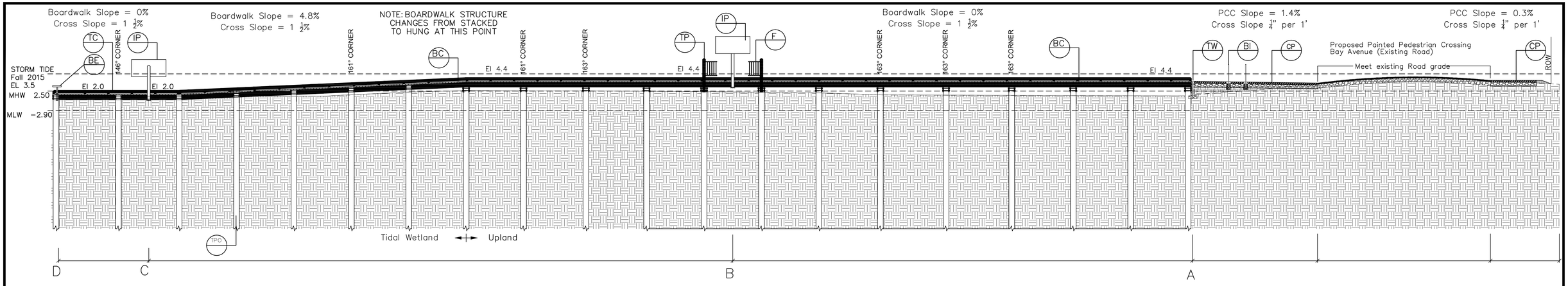
DELAWARE DEPARTMENT OF TRANSPORTATION PAGE: 1
SCHEDULE OF ITEMS DATE:

CONTRACT ID: T201820003.01 PROJECT(S): ESTP-2018(22)

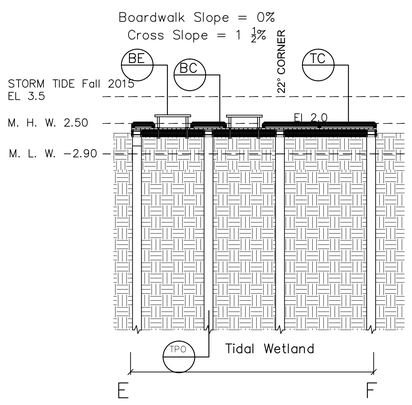
All figures must be typewritten.

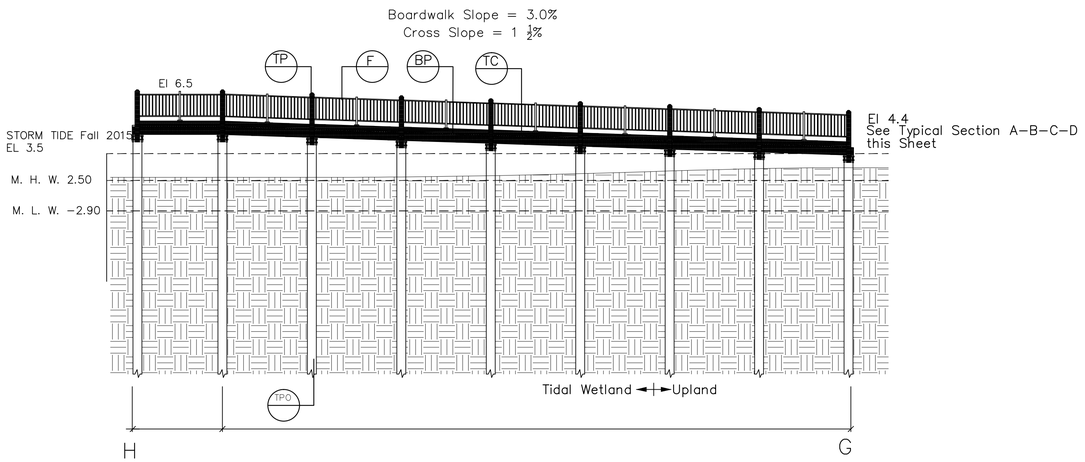
CONTRACTOR :_____

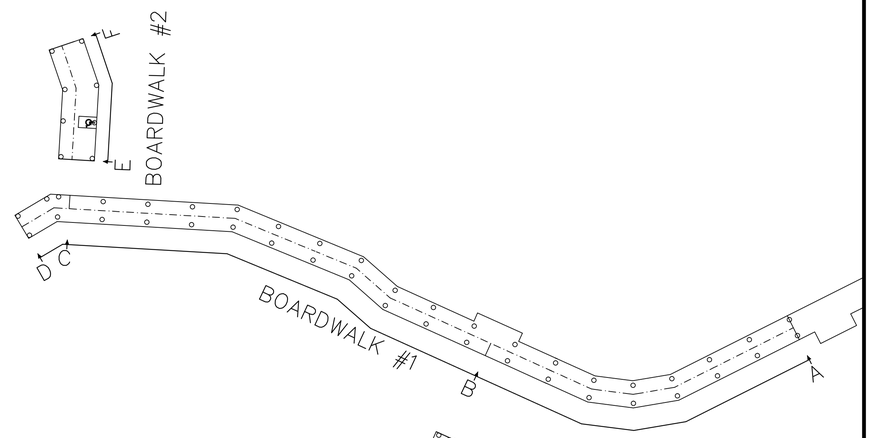
LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
	SECTION 0001 SLAUGHTER BEACH SCENIC OVERLOOK					
0010	201000 CLEARING AND GRUBBING	LUMP	LUMP			
0020	209001 BORROW, TYPE A	30.000 CY				
0030	301001 GRADED AGGREGATE BASE COURSE, TYPE B	8.000 CY				
0040	605000 FURNISH TIMBER PILES - TREATED, 12"	71.000 LF				
0050	621502 PERFORATED FIBERGLASS REINFORCED POLYPROPYLENE DECKING	693.000 SF				
0060	621503 COMPOSITE WOOD DECKING	1354.000 SF				
0070	621505 6"X6" TREATED SOUTHERN YELLOW PINE TIMBER	2380.000 LF				
0080	705001 PORTLAND CEMENT CONCRETE SIDEWALK, 4"	382.000 SF				
0090	705007 SIDEWALK SURFACE DETECTABLE WARNING SYSTEM	24.000 SF				



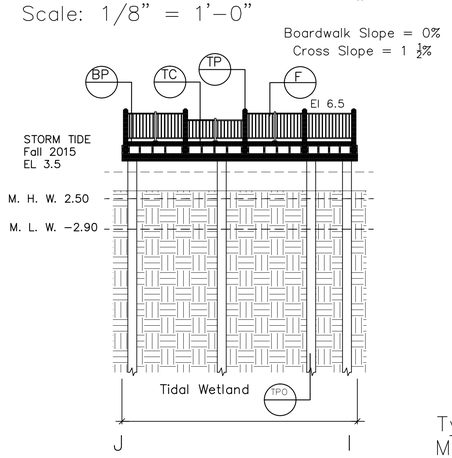
Typical Elevation A – B – C – D
Marsh Observation Boardwalk #1
Scale: 1/8" = 1'–0"





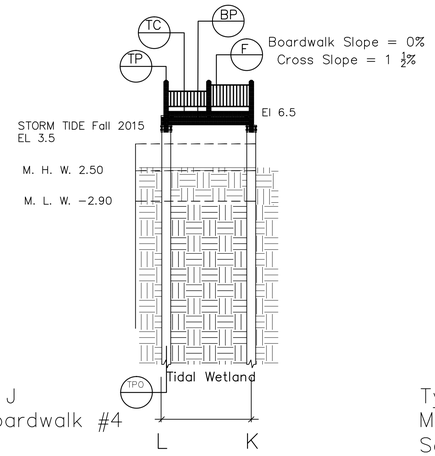


Typical Elevation E – F
Marsh Observation Boardwalk #2
Scale: 1/8" = 1'–0"



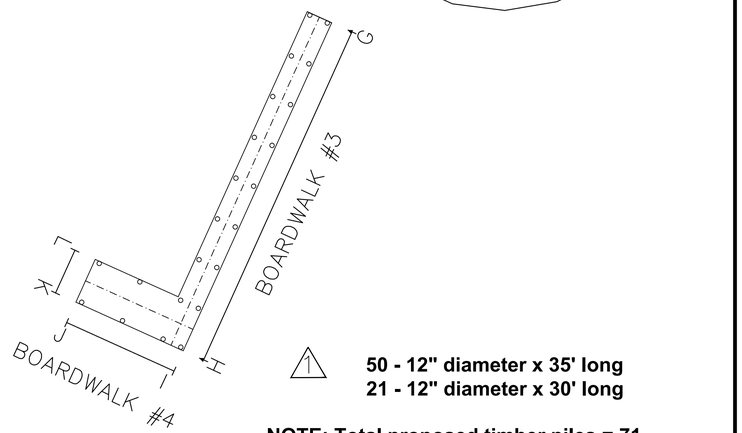
Typical Elevation I – J
Marsh Observation Boardwalk #4
Scale: 1/8" = 1'–0"

Typical Elevation G – H
Marsh Observation Boardwalk #3
Scale: 1/8" = 1'–0"



Typical Elevation K – L
Marsh Observation Boardwalk #4
Scale: 1/8" = 1'–0"

Key Plan
Scale: 1/16" = 1'–0"



1 **50 - 12" diameter x 35' long**
21 - 12" diameter x 30' long

NOTE: Total proposed timber piles = 71

NOTE: All timber piles shall be embedded 28'-0" below existing ground

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDA / REVISIONS		
1	added breakdown of timber piles and Depth Below Existing Grade	10/3/18 MS

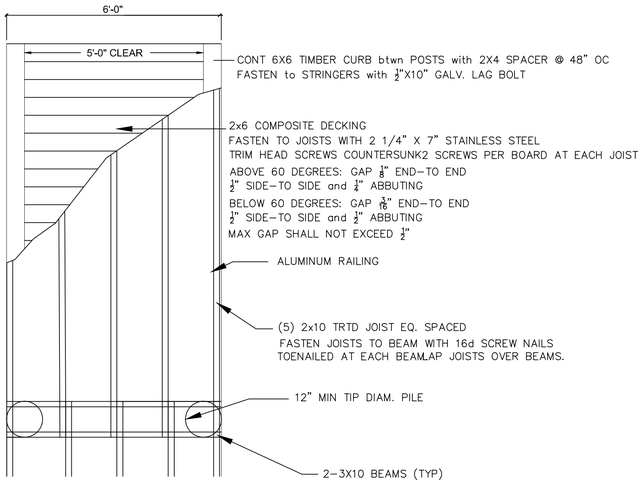
SCALE: AS NOTED

SLAUGHTER BEACH
SCENIC OVERLOOK

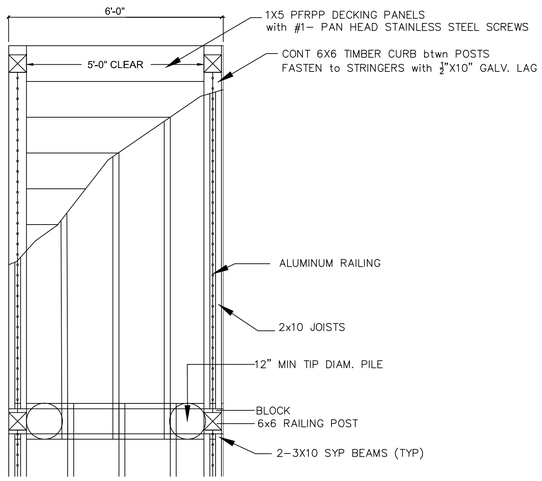
CONTRACT	ROAD NO.	
T201820003	DESIGNED BY:	MTS / PS
COUNTY	CHECKED BY:	MTS
SUSSEX		

TYPICAL SECTIONS

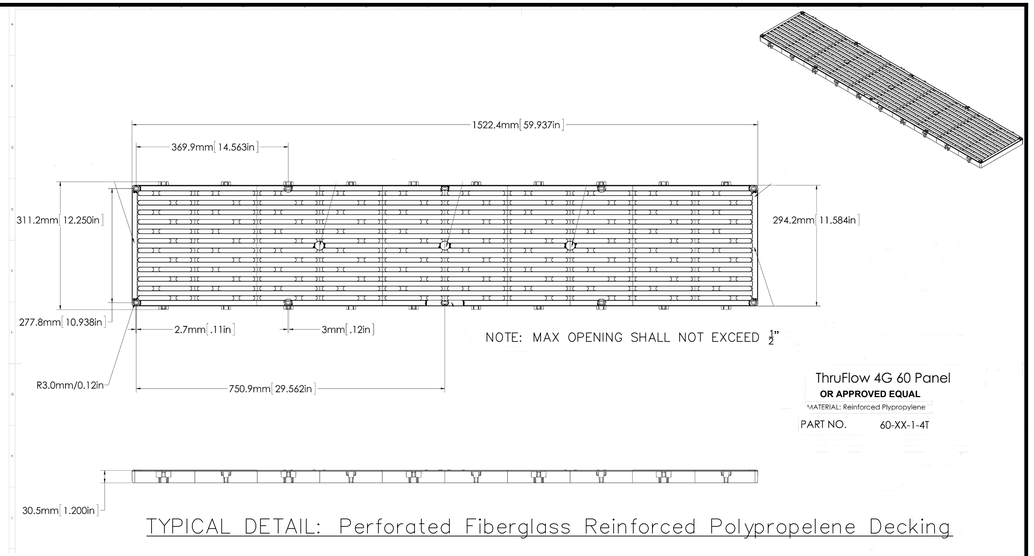
SHEET NO. 4
TOTAL SHTS 15



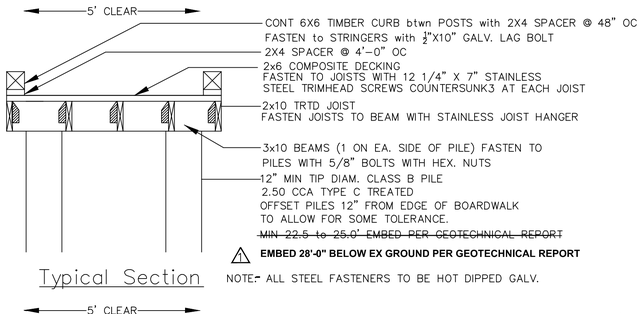
Typical Plan



Typical Plan

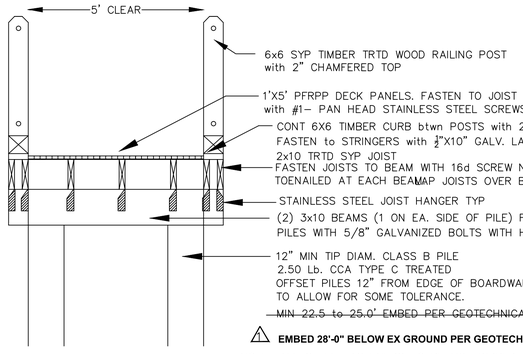


TYPICAL DETAIL: Perforated Fiberglass Reinforced Polypropelene Decking



NOTE: ALL STEEL FASTENERS TO BE HOT DIPPED GALV.

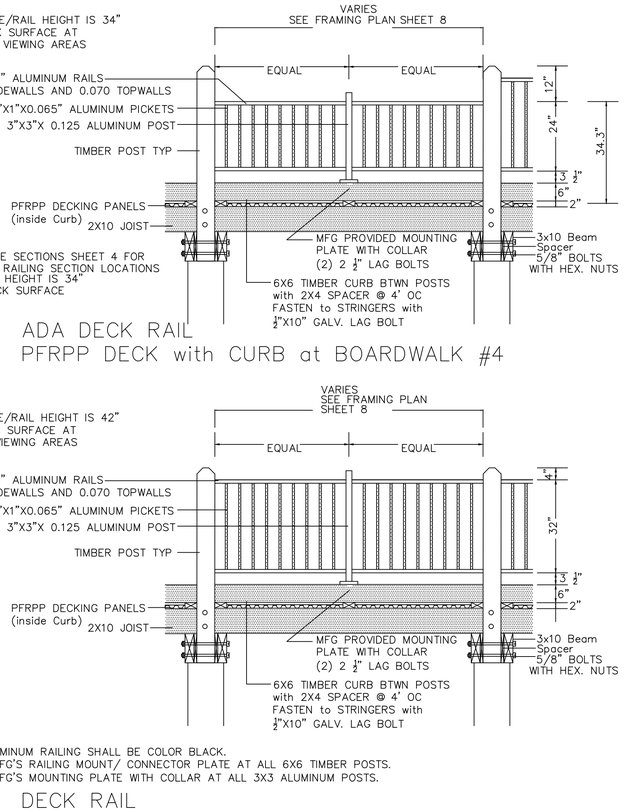
Typical Section



NOTE: ALL STEEL FASTENERS TO BE HOT DIPPED GALV.

Typical Section

Boardwalk with PFRPP Decking
Boardwalk #3



ADA DECK RAIL
PFRPP DECK with CURB at BOARDWALK #4

GENERAL NOTES: RAISED BOARDWALK

1. FOR BOARDWALK PLANS AND LAYOUT SEE SHEET 5, 6 AND 8.

2. FOR COMPOSITE DECKING AND PFRPP DECKING SPECIFICATIONS SEE SPECIAL PROVISIONS

3. ALL LUMBER ABOVE GRADE SHALL BE SOUTHERN YELLOW PINE, ACQ TREATED TO 1.0 PER AWPA STANDARDS; #1 GRADE FOR RAILING POSTS AND CURBS; #2 GRADE FOR BEAMS, JOISTS AND BLOCKING.

4. DESIGN LOADS: BOARDWALK 100 PSI

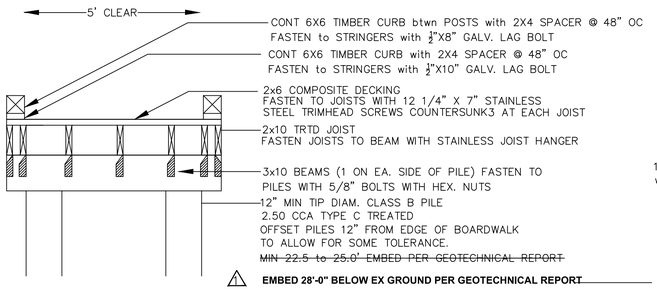
5. EXISTING CONDITIONS AND MEASUREMENTS SHOWN ON THESE DRAWING ARE APPROXIMATE. VERIFY CONDITIONS AND DIMENSIONS PRIOR TO INITIATION OF WORK. IF EXISTING CONDITIONS DIFFER FROM FROM THOSE SHOWN, NOTIFY THE OWNER IMMEDIATELY.

6. CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY SHORING AND PROTECTION REQUIRED TO STABILIZE AND PROTECT EXISTING CONSTRUCTION THROUGHOUT THE COURSE OF THE PROJECT.

7. CONSTRUCTION STEEL: COMPLY WITH AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS" LATEST EDITION.
STEEL SHAPES AND PLATES: ASTM A36
STEEL PIPE: ASTM A53, TYPE E OR S, GRADE B
FASTENERS: ASTM A307
GALVANIZE: ASTM A123 FOR SHAPES AND ASSEMBLIES, ASTM A153 FOR FASTENERS. USE GALVANIZED FASTENERS WHEN CONNECTING GALVANIZED MEMBERS.
WELDS: COMPLY WITH AWS D1 "STRUCTURAL WELDING CODE"
SUBMIT STEEL SHOP DRAWINGS FOR APPROVAL PRIOR TO FABRICATION.

8. WOOD FRAMING: COMPLY WITH THE NATIONAL FOREST PRODUCTS ASSOCIATION (NFPA) "NATIONAL DESIGN SPECIFICATIONS FOR WOOD CONSTRUCTION" LATEST EDITION.

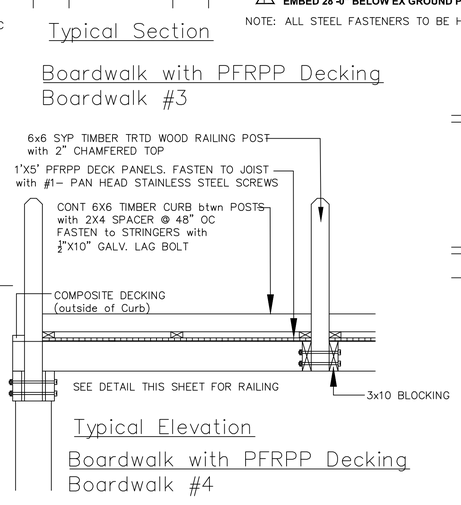
9. WOOD EXPOSED TO THE ENVIRONMENT AND WOOD DESIGNATED AS "TRTD" SHALL BE PRESSURE IMPREGNATED WITH ALKALINE COPPER QUATERNARY (ACQ) IN ACCORDANCE WITH AMERICCAN WOOD PRESERVERS ASSOCIATION (AWPA) STANDARD U1 WITH A MINIMUM RETNTION OF 1.0 LBS PER CUBIC FOOT OF WOOD. THE MINIMUM DEPTH OF PENETRATION SHALL BE 2.5" OR 85% OF THE SAPWOOD.



NOTE: ALL STEEL FASTENERS TO BE HOT DIPPED GALV.

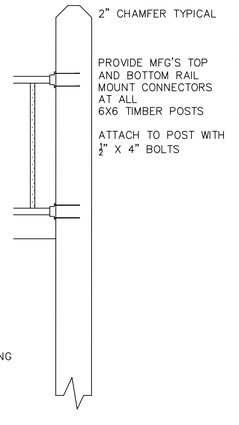
Typical Section

Boardwalk with Composite Decking
Boardwalk #1 and Boardwalk #2

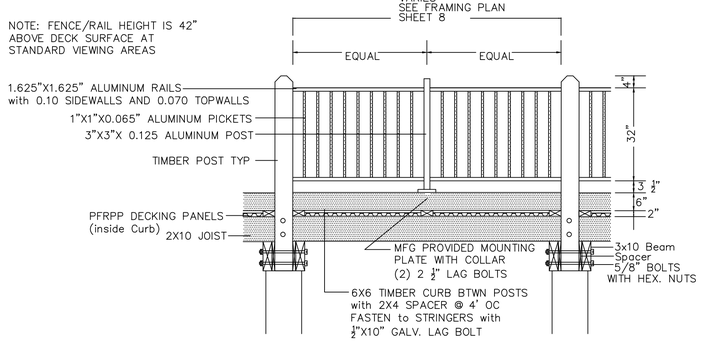


Typical Elevation

Boardwalk with PFRPP Decking
Boardwalk #4

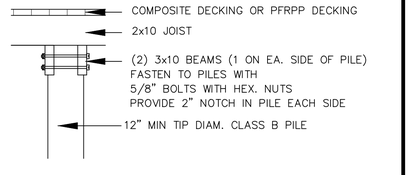


Typical Section
Post to Railing
Connection



NOTE: ALUMINUM RAILING SHALL BE COLOR BLACK.
PROVIDE MFG'S RAILING MOUNT/ CONNECTOR PLATE AT ALL 6X6 TIMBER POSTS.
PROVIDE MFG'S MOUNTING PLATE WITH COLLAR AT ALL 3X3 ALUMINUM POSTS.

DECK RAIL
PFRPP DECK with CURB at BOARDWALK #3 and #4



TYPICAL SECTION: Beams at Timber Piles
SCALE: 1/2" = 1'-0"

TYPICAL DETAIL: Boardwalk
SCALE: 1/2" = 1'-0"

TYPICAL DETAIL: Aluminum Railing with Timber Post
SCALE: 1/2" = 1'-0"

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDA / REVISIONS		
⚠ REVISED TIMBER PILE		
EMBEDMENT DEPTH TO 28'-0"	10/3/18	MS
BELOW EXISTING GROUND		

SCALE: AS NOTED

SLAUGHTER BEACH
OBSERVATION BOARDWALK

CONTRACT	ROAD NO.	
T201820003	DESIGNED BY:	
COUNTY	CHECKED BY:	
SUSSEX		

CONSTRUCTION DETAILS

SHEET NO	
9	
TOTAL SHTS	
15	