



JOHN ELIAS BALDACCI
GOVERNOR

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
16 STATE HOUSE STATION
AUGUSTA, MAINE
04333-0016

DAVID A. COLE
COMMISSIONER

June 25, 2009
Subject: **York**
Federal Project No's: BH-1511(000)X,
BH-1511(100)X, BH-1511(200)X
State Pin No's: 015110.00, 015111.00,
015112.00
Amendment No. 1

Dear Sir/Ms:

Make the following changes to the Bid Documents:

In the Bid Book (page 1), "NOTICE TO CONTRACTORS" **CHANGE** the bid opening date from July 1, 2009 to read **July 8, 2009**. Make this change in pen and ink.

In the Bid Book (page 1), "NOTICE TO CONTRACTORS", in the paragraph that begins; "For general information regarding Bidding and ...", **CHANGE** the sentence that begins; "Questions received after 12:00 noon ..." to read as follows "Questions received after 12:00 noon of the **Thursday** prior to bid date will not be answered." Make this change in pen and ink.

In the Bid Book (page 36), "SPECIAL PROVISIONS, SECTION 104, Utilities", at the end of the "UNDERGROUND" section **ADD** the following in pen and ink;
"The York Sewer District has two (2) sewer manholes within the project limits. These two manholes are located within the travel way of Route 103 on the North approach. The approximate locations are Station 17+75+/- and 20+50+/- . They plan to adjust these two manholes to finish grade, their estimated time is four working days. This shall be discussed in greater detail at the Pre-Construction Utility Meeting."

In the Bid Book before page 94, **ADD** the attached "SPECIAL PROVISION, SECTION 501, FOUNDATION PILES, (Sheet Pile)" 7 pages dated June 2009.

In the Bid Book after page 93, **ADD** the attached "SPECIAL PROVISION, SECTION 501, FOUNDATION PILES" 1 page dated June 2009.

In the Bid Book after page 95, **ADD** the attached "SPECIAL PROVISION, SECTION 506, Steel Coatings", 7 pages dated June 2009.



PRINTED ON RECYCLED PAPER

In the Bid Book (pages 97 through 99), “SPECIAL PROVISION, SECTION 531, BRIDGE STRUCTURE DESIGN BUILD, (Lump Sum – Station 44 Bridge), make the following **CHANGES**:

At the end of the “DESIGN REQUIREMENTS” section (page 98) **ADD** the following in pen and ink; “**The Professional Engineer responsible for designing the bridge and its features, shall be responsible for all shop drawing review from the contractors fabricator.**”

At the end of the “SUBMITTALS” section (page 98) **ADD** the following in pen and ink; “**The contractor shall supply three complete sets of shop drawings for the Department at a minimum of two weeks prior to fabrication beginning.**”

In the Bid Book (page109), **REMOVE** “SPECIAL PROVISION, SECTION 610, STONE FILL, RIPRAP, STONE BLANKET, AND STONE DITCH PROTECTION”, 1 page undated and **REPLACE** with the attached new “SPECIAL PROVISION, SECTION 610, STONE FILL, RIPRAP, STONE BLANKET, AND STONE DITCH PROTECTION”, 1 page undated.

In the Bid Book after page 109, **ADD** the attached “SPECIAL PROVISION, SECTION 638, BRIDGE LIGHTING, (NAVAGATIONAL LIGHTING SYSTEM)”, 2 pages dated June 3, 2009.

In the Bid Book (page124), “SPECIAL PROVISION, SECTION 652, MAINTENANCE OF TRAFFIC, (Work Zone Traffic Control)” , section “652.3.6 Traffic Control”, **CHANGE** the second sentence that reads “The Contractor shall complete the Station 34 and 44 bridges and open to traffic prior to closing the New Bridge.” To read as follows: “**The Contractor shall either complete and open to traffic the Station 34 and 44 bridges prior to closing the New Bridge or complete and open to traffic the New bridge prior to closing Station 34 or 44 bridge.**” Make this change in pen and ink.

In the Bid Book after page126, **ADD** the attached “SPECIAL PROVISION, SECTION 655, ELECTRICAL WORK, (Cathodic Protection)” 2 pages dated June, 2009.

In the Bid Book (page131), **REMOVE** “SPECIAL PROVISION, SECTION 703, AGGREGATES, 1 page undated and **REPLACE** with the attached new “SPECIAL PROVISION, SECTION 703, AGGREGATES, 2 pages undated.

In the Bid Book after page131, **ADD** the attached “SPECIAL PROVISION, SECTION 711, MISCELLANEOUS BRIDGE MATERIAL” 1 page undated.

In the plans **REMOVE** the following Plan Sheet and **REPLACE** them with the attached new Plan sheets:

SHEET NUMBER 4 OF 53
SHEET NUMBER 5 OF 53
SHEET NUMBER 16 OF 53

SHEET NUMBER 17 OF 53
SHEET NUMBER 48 OF 53

NOTE: Plan sheets will be FedExed/mailed to individuals who purchased plans in the quantity and size ordered.

NOTE: Geotechnical Information has been updated on our website.

The following questions have been received:

Question: Can Section 652 Maintenance of Traffic be changed to allow the contractor the option to complete the New Bridge and open to traffic prior to constructing the Station 34 and Station 44 bridges?

Response: See Change to SP 652 above.

Question: We can not find a Special Provision for Item 501.301 Steel Sheet Pile, Item 506 Steel Coating or Item 711 Steel Pipe Pile Material.

Response: Included in this addendum.

Question: Please confirm that the 30" dia. casing at the abutments and the steel sheet pile retaining wall is not coated.

Response: These elements are not coated.

Question: Note 5, under superstructure notes on sheet 3, states that the epoxy reinforcing steel is incidental to Section 502 pay items. The bid quantity for item 503.14 and 503.15 appears to include the superstructure epoxy reinforcing steel quantity. Please confirm.

Response: Note 5 indicates that reinforcing steel for superstructure (bar marks with "S" designation) are incidental to the Section 502 pay items. The 503.14 and 503.15 pay items include the reinforcing steel in the abutments and pier caps.

Question: Please confirm that the entire length of pipe pile is to be coated.

Response: Entire length coated.

Question: The reinforced pipe pile section on sheet 34 does not call for epoxy reinforcing steel. Is the pipe pile reinforcing steel epoxy coated?

Response: All reinforcing is epoxy coated (noted under materials on sheet 1 of 53).

Question: Is the superstructure reinforcing steel plan shown on sheet 45, for the NEBT beams, the same as for the NEXT beams?

Response: Yes.

Question: STA 44 Bridge, who is responsible for shop drawing review, the engineer of record or the Department?

Response: See change to Special Provision 531 above.

Question: (New Bridge over York River) Is the deck reinforcing steel shown on sheet 45 the same for the NEXT beam option?

Response: Yes

Question: (STA 44 Bridge) Are approach slabs required on this bridge? None shown?

Response: Design must meet the requirements of the MaineDOT BDG per Special Provision 531.

Question: (STA 44 Bridge) Is a leveling slab required if precast voided are used? One is shown in the cross section but there is no mention in the Special Provisions. Many bridges of this type are now being constructed without leveling slabs.

Response: Design must meet the requirements of the MaineDOT BDG per Special Provision 531.

Question: Because of the additional time required to do preliminary design for the STA 44 bridge and then to get specific subcontract/supplier quotes for individual designs, we request that the bid opening be postponed by one week.

Response: Yes, please see the first pen and ink change.

Question: From the Bid Package on line, I was unable to discern any details regarding the length of the steel casing around the H piles or any requirements regarding corrosion protection for the H piles.

Response: Steel casing lengths are shown on sheet 27 – Longitudinal Section. Coating requirements for H-Piles are described in Note #8 on Sheet 35.

Question: Which QC/QA Acceptance Method will be used on the pipe pile concrete?

Response: Pipe pile concrete is incidental to the pipe pile item. Since no acceptance method has been specified for this concrete, and there are more than 10 cubic yards, the default acceptance method is Method B.

Question: The P value for Station 44 Bridge is in cubic meters. Can this be changed to cubic yards?

Response: P values listed in Special Provision 502 (Page 94 & 95 of the Bid Book) shall reflect the price per Cubic Yard for all pay adjustment purposes.

Question: Special Provision 535 Calcium Nitrite, please confirm that the NEXT beams only require the standard 3.0 gals/cy of calcium nitrite.

Response: Both the NEBT and the NEXT Beam option require 5.5 gallon/CY of Calcium Nitrite

Question: Special Provision, Section 107, Fabrication Time, do you intend to have a time on fabrication and shop inspection for the NEXT beams?

Response: The allotted fabrication times shall apply to both the NEBT and the NEXT Beam option.

Question: Is there a bar schedule for the Superstructure reinforcing steel? Drawings 33 & 45 note “S” bars but the bars are not listed in the reinforcing steel schedule drawing 47.

Response: No schedule provided for the S bars.

Question: Pile Pipe reinforcing:

Are the bars epoxy coated or uncoated?

Can #4 Hoops be substituted for the #4 spirals?

Response: All reinforcing steel is epoxy coated and #4 hoops may be used in lieu of the spiral.

Question: Approach Slab reinforcing:

Uncoated or epoxy coated?
Are the bars incidental to B.I. #503.31?

Response: All reinforcing steel is epoxy coated and the approach slab reinforcing steel is measured and paid for under the respective 503 items.

Consider these changes and information prior to submitting your bid on **July 8, 2009**.

Sincerely,



Scott Bickford
Contracts & Specifications Engineer

June 2009

SPECIAL PROVISION
SECTION 501
FOUNDATION PILES

501.02 Materials.

Add the following paragraph:

Pipe pile material shall meet the requirements of the Section 711.01 of Special Provision Section 711 – Miscellaneous Bridge Material.

501.05 Special Requirements for Steel Pipe Piles and Steel H-Piles.

Add the following paragraph:

The fusion-bonded epoxy coating and top-coat surfaces on pipe piles will be protected from damage in the pile driver leads. Steel driving templates shall be lined with wood framing, recycled fire hoses or other suitable material, to protect the pile coatings from damage during driving. Any damage to the pile protective top-coat shall be field repaired in accordance with the coating manufacturer's recommendations. Any damage to the fusion-bonded epoxy coating shall be field repaired in accordance with Special Provision Section 506.

SPECIAL PROVISION
SECTION 501
FOUNDATION PILES
(Sheet Pile)

501.01 Description. This work shall consist of furnishing and driving steel sheet pile of the types and dimensions specified on the contract plans and/or as specified within this specification, to the required elevation or refusal. Sheet piles shall conform to and be installed, as detailed in these specifications, in reasonably close conformity to the lines, grades, and locations shown on the plans or as authorized by the Resident.

501.02 Submittals.

- A. Shop Drawings: Submit drawings for approval prior to start of the work or ordering materials. Include details of top protection, splices, fabricated additions to plain piles. Include method of installation, type and size of pile hammer, cut-off method, and corrosion protection. Drawings for sheet piling including fabricated sections shall show complete dimensions including details of piling and the driving schedule, sequence and location of piling. Include details and dimensions of templates and other temporary guide structures for installing the piling. Provide details of the method of handling sheet piling to prevent permanent deflection, distortion or damage to interlocks.
- B. Records: Pile driving records
- C. Certificates: Material certificates including chemical and physical test results.

501.03 Materials.

- A. Sheet piles shall be hot-rolled steel meeting the chemical and mechanical requirements of ASTM A328. The interlock of sheet piling shall be free-sliding, and maintain continuous interlocking when installed. Sheet piling including special fabricated sections shall be full-length sections of the dimensions shown. Fabricated sections shall conform to the requirements herein and the piling manufacturer's recommendations for fabricated sections. Provide sheet piling with standard pulling holes. Any metalwork fabrication for sheet pile sections shall conform to the requirements of Section 504, Structural Steel. Provide cast steel sheet pile protectors, in one-piece Z configuration, at the bottom of each pile.

- B. Sheet Pile Connectors – Where sheet pile changes direction, connectors shall be equivalent to those manufactured by PilePro LLC or Skyline Steel LLC or LB Foster Company. Connectors shall be of the same material as the sheet pile.
- C. Certification: Contractor shall certify that all component materials, manufacturing operations, and/or furnished products conform to all MaineDOT requirements pertinent to the project plans, special provisions and specifications for the contract items indicated.

501.04 Design Requirements The sheet pile system shall be designed in accordance with the following:

- A. The contractor shall perform a wave equation analysis for review and acceptance by the Project Geotechnical Engineer. The analysis shall consider the proposed driving equipment. The contractor must limit pile driving stresses to allowable levels of less than $0.9 F_y$. Ultimate pile capacity will not be a consideration for equipment acceptance.
- B. The Contract Plans
- C. The requirements specified herein
- D. The manufacturer's requirements

501.04 Construction Methods.

- A. Earthwork
 - 1. Any excavation and backfill shall be performed in accordance with Section 203 Excavation and Embankment
 - 2. Obstructions encountered in pile locations shall be dealt with as follows:
 - a. All rocks, timbers, or other obstructions within 5 feet of the existing ground surface which interfere with pile advance shall be removed. Excavation and removal of obstructions shall be paid for under pay item 203.20 Common Excavation.
 - b. In the case of an apparent obstruction below the level in (a), but above anticipated full depth, which prevents appreciable penetration of a pile (s), the abnormal condition will receive further consideration by the Resident. Depending on depth and resistance of the obstruction, the Resident will decide whether to consider the pile (s) acceptable or order the obstruction removed. The decision may be

deferred until the driving of adjacent piles indicates the obstruction to be isolated or extending over the area of several piles.

- c. Jetting shall be done only with permission of the Resident and must be addressed in the Contractor's SEWPCP. When water jets are used, the number of jets and the volume and pressure of the water at the nozzle shall be sufficient to erode freely them material adjacent to the piles. The plant shall have sufficient capacity to deliver at all times at least 100 psi pressure at two ¾ inch jet nozzles. Before the design penetration is reached, the jets shall be with drawn and the piles shall be driven with the hammer to the required penetration or bearing capacity.

B. Installation

1. Pile Hammer

For steel sheet piles, both a vibratory and an impact hammer shall be available to the Contractor to install the sheet piles. Use a pile hammer having a delivered force or energy suitable for the total weight of the pile and the character of subsurface material to be encountered. Operate hammer at the rate (s) recommended by the manufacturer throughout the entire driving period. Repair damage to piling caused by use of a pile hammer with excess delivered force or energy.

2. Pile Protection

Use a protective cap during driving to prevent damage to the top of the piles.

3. Templates for Sheet Piles

Prior to driving, provide template or driving frame suitable for aligning, supporting, and maintaining sheet piling in the correct position during setting and driving. Use a system of structural framing sufficiently rigid to resist lateral and driving forces and to adequately support the sheet piling until design tip elevation is achieved. Provide at least two levels of support, at third points. Templates shall not move when supporting sheet piling. Fit templates with wood blocking to bear against the web of each alternate sheet pile and hold the sheet pile at the design location alignment. Provide outer template straps or other restraints as necessary to prevent the sheets from warping or wandering from the alignment. Mark template for the location of the leading edge of each alternate sheet pile. If in view, also mark the second level to assure to that the piles are vertical and in position. If two guide marks cannot

be seen, other means must be used to keep the sheet pile vertical along its leading edge.

4. Pile Driving

Drive sheet pile to the indicated tip elevations. Maintain piling vertical during driving. Drive piles in such a manner as to prevent damage to the piles and to provide a continuous closure.

Where possible for sheet piles, drive Z-pile with the ball end leading. If an open socket is leading, a bolt or similar object placed in the bottom of the interlock will minimize packing material into it and ease driving for the next sheet. Incrementally sequence the driving of individual piles such that the tip of any sheet pile shall not be more than 4 feet below that of any adjacent sheet pile.

Piles that have heaved more than ¼ inch during the driving of other piling shall be resealed to the required penetration or bearing capacity at the Contractor's expense.

5. Cutting and Splicing

Piles driven to refusal or the point where additional penetration cannot be attained and are extending above the required top elevation in excess of the specified tolerance shall be cut off to the required elevation. Piles driven below the required top elevation and piles damaged by driving and cut off to permit further driving shall be extended as required to reach the top elevation by splicing when directed by the Resident. One splice per pile will be permitted. Not splices are permitted when they will be visible at or above the water surface. Piles adjoining spliced piles shall be full length unless otherwise approved. Welding of splices shall conform to the requirements of Section 504, Structural Steel. Ends of piles to be spliced shall be squared before splicing to eliminate dips or camber. Splice piles with concentric alignment of the interlocks so that there are no discontinuities, dips or camber at the abutting interlocks. Spliced piles shall be free sliding and able to obtain the maximum swing with contiguous piles. Trim the tops of piles excessively battered during driving, when directed at no cost. Use a straight edge in cutting by burning to avoid abrupt nicks. Bolt holes shall be drilled or may be burned and reamed by approved methods which will not damage the surrounding metal. Holes other than bolt holes shall be smooth and the proper size for rods or other items to be inserted. Do not use explosives for cutting. Any cuts shall be coated with zinc rich paint applied in accordance with the manufacturer's recommendations.

6. Welding

Shop and field welding, qualifications of welding procedures, welders, and welding operators shall be in accordance with AWS D1.1.

7. Tolerances in Driving

Sheet Piles

Drive all piles with a variation from vertical of not more than ¼ inch per foot. Place the pile so the face will not be more than 6 inches from vertical alignment at any point over the entire length of the earth retention system. Top of pile at elevation of cut-off shall be within 2 in. horizontally and 2 in. vertically of the location indicated. Manipulation of piles to force them into position will not be permitted. Check all piles for heave. Redrive all heaved piles to the required tip elevation.

C. Inspection

Perform continuous inspection during pile driving by frequent optical surveying of the pile alignment relative to an established reference base line. Inspect all piles for compliance with tolerance requirements regarding horizontal and vertical alignment. Bring any unusual problems which may occur to the attention of the Resident.

1. Inspection of Driven Piling

The Contractor shall inspect the interlocks of the portion of driven sheet piles that extend above ground. Remove and replace piles found to be out of interlock.

2. Pulling and Redriving

The Contractor may be required to pull selected piles after driving to bring into location tolerance, or to determine the condition of the underground portions of piles. The pile pulling method must be approved by the Resident. Remove and replace at the Contractor's expense any pile pulled and found to be damaged to the extent that its usefulness in the structure is impaired. Redrive piles pulled and found to be in satisfactory condition.

3. Installation Records

Maintain a pile driving record for each pile. Indicate on the installation record installation dates and times, type and size of hammer, rate of operation, total driving time, dimensions of driving helmet and cap used, blows or time

required per foot for each foot of penetration, driving resistance in blows for final 6 in. of penetration, pile locations, tip elevations, ground elevations, and cut-off elevations. Record any unusual pile driving problems. Submit complete records to the Resident.

501.05 Defective Pile and Corrective Measures The procedure incident to the driving of pile shall not subject the piles to excessive and undue abuse causing deformation. Any pile damaged due to internal defects, improper driving, or driven below cutoff elevation shall be consider defective and shall be corrected by and at the expense of the Contractor by a method approved by the Resident.

501.06 Driven Pile Capacity, Pile Testing, and Acceptance Pile testing and acceptance shall be done in accordance with Maine DOT Standard Specification subsection 501.07

501.06 Method of Measurement. The accepted quantity of steel sheet piling will be measured by the lump sum.

501.07 Basis of Payment. The accepted quantity of steel sheet piling will be paid for at the contract lump sum price, furnished, and complete in place. The price shall be full compensation for furnishing, coating, transporting, storing, handling, placing or erecting the material specified including installing sheet piles and all related hardware, installation and removal of any temporary bracing, installation and removal of pile driving template, removal and disposal of any obstructions, and any pile testing as specified by the plans and described in these specifications.

Full compensation for all jetting, drilling, providing special driving tips or heavier sections for steel piles or other work necessary to obtain the specified penetration and bearing value of the piles, for drilling holes through embankment and fill the space remaining around the pile with sand or pea gravel, for disposing of material resulting from frilling holes, and for all excavation and backfill involved in construction concrete extension as shown on the plans, and as specified in these specification and the special provision and as direct by the Resident shall be considered as included in the contract unit price paid for steel sheet piling and no additional compensation will be allowed therefore.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
501.301 Steel Sheet Piling	LS

New Bridge –York, Maine
PIN: 15110.00
June 2009

Special Provision
SECTION 506
Steel Coatings

506.01 Description of Work

This work shall consist of the surface preparation, application of a protective coating to steel substrate, and the containment and disposal of hazardous wastes in accordance with the Plans and this Specification.

506.02 Materials Requirements

506.02.1 General Material Requirements The Contractor shall supply the Resident (for work performed in shops, away from the job site, Resident refers to the Fabrication Engineer) with the applicable current product data sheets and material safety data sheets (MSDS) before any coating work is performed.

506.02.2 Fusion Bonded Epoxy (FBE) Material Requirements: The FBE coating shall be a one-part, powder coating meeting the following requirements:

Property	Test Method	Value
Impact Resistance	ASTM G 14 3 lb. @ 40° F	80 inch-lb Min.
Abrasion Resistance	ASTM D 4060 (CS 10 wheel, 1000 gr. Load)	<70 mg/ 1000 cycles
Chemical Resistance	ASTM G 20 Modified (30 day immersion)	10 % CaCl no effect 10 % NaOH no effect
Cathodic Disbondment	ASTM G 8, Method A	3/8 in disbondment radius

The Contractor shall supply certified copies of all test results to the Resident. The test results shall include the lot number tested, date, test method and testing agency. The tests shall have been performed within 12 months of the beginning of work.

The Contractor shall provide to the Resident a Certified Mill Test Reports for the material to be coated prior to beginning the coating process.
Prior to shipment, the applicator shall furnish written certification that the coated pieces meet the requirements of this Specification.

506.03 Construction Requirements

506.03.1 General Construction Requirements: Unless specified elsewhere in the Contract, the Contractor shall have the option of determining which coats are applied prior to and after steel erection or installation. Each coat shall be applied in accordance with the manufacturer's published data sheet and this Specification. In the event of a

conflict between the published data sheet and this Specification, the more stringent requirement will prevail.

When bridge beams or pipe piles are coated, the following information shall be stenciled over the top coat: paint system used, including coating manufacturer, number of coats and coat description, month and year coated. The stenciling material shall be identical to touch up material recommended by the top coat manufacturer and the color shall contrast with the top coat. Stenciling shall be on the inside face of the fascia beam, near abutment 1 for beams; for piles, stenciling shall be on the downstream side of the upstream pile near the pile cap of each pier unit. Information shall be in block characters three to five inches high. All top coated systems shall be stenciled, including one, two or three coat systems, top coated galvanized systems and dry powder systems.

Submittals: The Contractor shall submit for review by the Department the following as applicable 2 weeks prior to the Pre-work Conference:

- The manufacturers' published data sheet(s) for the specified protective coating system.
- Quality Control Plan.
- Containment Plan.
- The Contractor's qualifications.
- Material Safety Data Sheets.
- Environment Protection Plan
- Waste Management Plan
- All other documentation specified herein.

Pre-Work Conference: Two weeks prior to the beginning of work, the Contractor shall have a pre job work conference. 2 weeks notice shall be given to the Resident prior to the meeting. The Resident and the Contractor shall agree on the agenda, which may include the following as applicable:

- Status of submittals and review
- Procedures for lead abatement
- Coating application
- Inspection hold points
- Responsibilities and documentation methods of all parties
- Safety
- Progress Payments
- Schedule

Quality Control/Quality Assurance: The Contractor shall develop, submit, and implement a Quality Control Plan for all work done under Section 506 in accordance with Section 106.4 Quality Control. The Department will conduct Quality Assurance as outlined in 106.5 Quality Assurance. The QC plan shall include the names of all the Contractor's representatives on site, including the certified coating inspector who shall be responsible for the inspection and the acceptance of the Contractor's work prior to the

Department's inspection. The plan shall also define hold points from surface preparation inspection to final inspection, frequency of inspections, frequency of tests, submittal of daily work reports, coating/DFT reports and the process for rework. For non-compliance with the QC Plan see Standard Specification Section 106.4.6 QCP Non-Compliance.

Inspection: Quality Control (QC) is the responsibility of the Contractor. The Quality Control Inspector (Q.C.I.), the Contractor's authorized representative, shall inspect all aspects of the work and shall supervise required testing. The Q.C.I. shall record measurements and test results in a Job Control Record (JCR). The Q.C.I. shall reject materials and workmanship that do not meet contract requirements. The results of all testing shall be documented and a copy made available to the Department's Quality Assurance Inspector (Q.A.I.) on a daily basis or as requested by the Q.A.I.

Quality Assurance (QA) is the prerogative of The Department. The Q.A.I. will ensure that the QC role is functioning properly; verify documentation, periodically inspect workmanship and witness testing. QA testing deemed necessary by the Resident in addition to the minimum test requirements will be scheduled to minimize interference with the production schedule.

The JCR shall include the following, as applicable:

- Type of containment, when required.
- Surface preparation - cleanliness and anchor profile.
- Environmental conditions – ambient temperature, surface temperature, relative humidity, dew point.
- Coating batch and/or lot number, date of manufacture and shelf life.
- Manufacturer's certification of conformance.
- Dry Film Thickness (DFT) required/DFT measured.
- Cure data-time/temperature/relative humidity.
- Final inspection by the Q.C.I. and acceptance by the Resident.
- Disposition of non-conforming items.

Quality Assurance Inspector's Authority: The Q.A.I. has the authority to reject material or workmanship that does not meet the contract requirements.

Facilities for Inspection: For projects that have protective coating application in the shop or off-site, the Contractor shall provide a private office at the coating site for inspection personnel authorized by the Department. The office shall have an area not less than 100 ft² and shall be in close proximity to the work. The office shall be climate controlled to maintain the temperature between 65° F and 80° F. All exit(s) to the office shall have door(s) equipped with a lock and two keys, which shall be furnished to the Inspector(s). The office shall be equipped with a desk or table having a minimum size of 48 in. by 30 in, two chairs, a telephone, telephone answering machine, separate high speed internet line, plan rack and 2-drawer letter size file cabinet with a lock and two keys that shall be furnished to the Inspector(s).

The facilities and all furnishings shall remain the property of the Contractor upon completion of the work. Payment for the facilities, climate control, lighting, telephone installation, basic monthly telephone charges and all furnishings shall be incidental to the contract.

506.03.2 Fusion Bonded Epoxy Construction Requirements: The FBE shall be applied to all surface areas indicated on the plans. Steel pipe pile shall be coated in accordance with ASTM A 972/A 972M as amended herein. Steel H piles and sheet piling shall be coated in accordance with ASTM A 950/A 950M as amended herein. Epoxy-coated steel reinforcing bars shall be coated in accordance with AASHTO M 284M/M 284 (ASTM A 775/A 775M). All other steel products shall be coated in accordance with the plans and/or the direction of the Resident.

Fusion bonded coatings shall be applied in facilities with a minimum of five years documented experience of satisfactory performance. The applicator shall provide documentation (including Quality Control records) and references of successful application that are acceptable to the Resident.

Surface Preparation: All butt welds shall be ground flush prior to abrasive blast cleaning. The steel shall be abrasive blast cleaned to the requirements of SSPC SP10/NACE No.2, Near White Metal Blast. SSPC VIS. 1 shall be used to determine acceptable cleanliness. The Q.C.I. and Q.A.I. shall evaluate the first piece using VIS 1 as a comparator. No further blast cleaning shall be done until the Q.C.I. and Q.A.I. agree upon the acceptable Job Standard for cleanliness. If more than one method of abrasive blast cleaning is used (e.g. centrifugal blast and compressed air), the acceptable Job Standard shall be established for each method.

Application: The FBE powder shall be applied and cured in accordance with the applicable ASTM Standard and the manufacturer's published data sheet.

The DFT of the coating shall average between 10 mils and 18 mils for embedded work or coating exposed to atmosphere. A minimum thickness of 18 mils is required for piles or other items that will be subjected immersion service. The DFT shall be measured in accordance with SSPC PA 2 except that three spots shall be measured on each piece. If the average of three measurements per spot is less than the specified minimum, the piece shall be measured at one meter (3 feet) intervals along the length of the piece.

Inspection: The DFT shall be measured using a fixed-probe or magnetic pull-off gauge that is calibrated and operated in accordance with SSPC PA 2. The testing procedure and reporting shall be in accordance with ASTM G 12. The frequency of testing shall be each piece coated unless a lesser frequency of testing is directed by the Resident.

Holiday detection shall be performed in accordance with the applicable AASHTO or ASTM Standard.

Holiday repairs shall be done in accordance with the applicable AASHTO or ASTM Standards and the manufacturer's published data sheet. If there is a conflict between the Standard and manufacturer's published data sheet, the Resident shall determine which shall apply.

506.03.3 Hazardous Material Containment Construction Requirements: All Contractors and subcontractors who shall be involved with the containment of hazardous material shall have SSPC-QP2 certification prior to bid opening and shall keep this certification current throughout the duration of the Contract until final acceptance of the work.

The Contractor shall prepare an Environmental Protection Plan that shall include the following:

- *Regulated Area Monitoring and Maintenance.* A written program for establishing and maintaining regulated areas around activities which could generate airborne emissions of lead or other toxic metals.
- *High Volume Ambient Air Monitoring.* The Contractor shall contract with an independent environmental monitoring firm to conduct high volume ambient air monitoring to assure compliance with National Ambient Air Quality Standards (NAAQS). The Contractor shall have the monitoring begin at least 24 hours prior to initial abrasive blasting, for a baseline. Procedures for the monitoring which confirm that the monitoring equipment is properly calibrated, sited, and operated; filters are properly handled and transported; the laboratory analysis is performed correctly; and that all monitoring, calculations, documentation, and forms will be provided directly to the Department by the monitoring firm, with copies to the Contractor. Prior to any sampling, the Contractor shall clearly identify proposed monitor locations, including what corrective action will be implemented immediately in the event of unacceptable results.
- *Ground (Soil) Evaluations.* A written program for inspection of the ground and soil prior to commencement of the project and upon completion to assure that the ground is not impacted by project activities. This shall be carried out at the bridge site and at the area(s) used to store equipment and waste. The Contractor shall contract with an independent environmental monitoring firm, staffed with a Maine Certified Geologist, to conduct sampling and analysis of the soil to determine whether it has been impacted by project activities. All monitoring, calculations, documentation, and forms will be provided directly to the Resident by the monitoring firm, with copies to the Contractor. Clearly identify proposed sampling locations. Identify the corrective action that will be taken in the event of unacceptable results.
- *Remediation of Ground (Soil).* Include provisions in the Plan that in the event post-project inspection, sampling or analysis show unacceptable results, the Contractor will undertake the necessary clean up or remediation of the ground

(soil), as appropriate as to satisfy all necessary regulatory agencies. Cleanup is incidental to related contract items. There will be no additional payment made by the Department.

- *Final Cleaning/Clearance Evaluations.* A written program identifying the procedures and methods that will be used to conduct and document final project clean up, and final visual cleanliness inspections and evaluations. This process is to assure that the project area and surrounding equipment, structures, soil, water, and sediment along the resource have not been negatively impacted by project activities.
- *Laboratory Qualifications.* Provide the name of the laboratory and/or firm that will be used for regulated area exposure monitoring, worker protection, high volume ambient air monitoring and/or soils sampling and analysis, as required. Provide documentation that this firm is American Industrial Hygiene Association (AIHA) accredited for metals analysis, and has successfully participated (previous 12 months at a minimum) in the AIHA ELPAT program.
- *Worker Protection Compliance Program.* A written project-specific compliance program, prepared under the direction of, and signed and sealed by, a Certified Industrial Hygienist (CIH), for the protection of workers from lead, in accordance with 29 CFR 1926.62, and other toxic metals in the paint. Include the name, experience, and qualifications of the competent person who will be making routine inspections of project activities to ensure compliance with the program. If Subcontractors are operating under a separate program, include the program with the submittals.

The Contractor shall provide a Containment Plan designed, signed and sealed by a Professional Engineer, licensed in the State of Maine. All surface preparation and painting shall be performed in an approved containment system, conforming to the latest SSPC Technology Guide 6, *Guide for Containing Debris Generated During Paint Removal Operations, for Blast Cleaning, Table A, Class 1A*. The floor of the containment shall meet A1-Rigid and as a minimum, the walls shall meet A2-Flexible. A Containment Plan designed, signed and sealed by a. The containment shall be inspected by the same Professional Engineer, who stamped the containment drawings, for the proper installation of the containment prior to the start of blasting.

506.03.4 Hazardous Material Disposal Construction Requirements: The Contractor shall collect; store and dispose of all lead paint and related waste in compliance with all Federal and State laws and requirements. The following documents are incorporated into the Contract by reference and the Contractor shall provide the latest copies on site:

- SSPC-Guide 7, *Guide for the Disposal of Lead-Contaminated Surface Preparation Debris.*
- Maine Department of Environmental Protection's (DEP's) *Handbook for Hazardous Waste Generators*

- State of Maine Hazardous Waste Management Rules, 06-096 CMR Chapters 850-857

506.4 Method of Measurement

Steel coating shall be measured by the lump sum method, complete, and accepted. The limits shall be as shown on the plans or as described within the respective subsection.

Containment and pollution control measures will be measured for payment as one lump sum unit, consisting of all work previously described, completed, and accepted.

Disposal of hazardous or toxic materials will be measured for payment as one lump sum unit, consisting of all material satisfactorily disposed of in conformance with these specifications.

506.5 Basis of Payment

All work for Steel Coating will be paid for at the lump sum price for the respective item. Payment will be full compensation for all work and materials needed to complete the item; coating and cleaning materials, staging or accessing, testing, labor, surface preparation, cleaning, application, curing and repairs to coating.

Containment and pollution control will be paid for at the contract lump sum price, which price shall be full compensation for furnishing all materials, labor, equipment, and incidentals necessary for the satisfactory performance of the above work.

Disposal of hazardous or toxic materials will be paid at the contract lump sum price, which price shall be full compensation for all permits, tests, transportation, tipping fees, and incidentals necessary for the satisfactory performance of the above work.

<u>Pay Item</u>	<u>Description</u>	<u>Pay Unit</u>
506.9101	Fusion Bonded Epoxy (FBE) Material	Lump Sum

SPECIAL PROVISION
SECTION 610
STONE FILL, RIPRAP, STONE BLANKET,
AND STONE DITCH PROTECTION

Add the following paragraph to Section 610.02:

Materials shall meet the requirements of the following Sections of Special Provision 703:

Stone Fill	703.25
Plain and Hand Laid Riprap	703.26
Stone Blanket	703.27
Heavy Riprap	703.28
Definitions	703.32

Add the following paragraph to Section 610.032.a.

Stone fill and stone blanket shall be placed on the slope in a well-knit, compact and uniform layer. The surface stones shall be chinked with smaller stone from the same source.

Add the following paragraph to Section 610.032.b:

Riprap shall be placed on the slope in a well-knit, compact and uniform layer. The surface stones shall be chinked with smaller stone from the same source.

Add the following to Section 610.032:

Section 610.032.d. The grading of riprap, stone fill, stone blanket and stone ditch protection shall be determined by the Resident by visual inspection of the load before it is dumped into place, or, if ordered by the Resident, by dumping individual loads on a flat surface and sorting and measuring the individual rocks contained in the load. A separate, reference pile of stone with the required gradation will be placed by the Contractor at a convenient location where the Resident can see and judge by eye the suitability of the rock being placed during the duration of the project. The Resident reserves the right to reject stone at the job site or stockpile, and in place. Stone rejected at the job site or in place shall be removed from the site at no additional cost to the Department.

SPECIAL PROVISION
SECTION 638
BRIDGE LIGHTING
(NAVIGATIONAL LIGHTING SYSTEM)

Description: This work shall consist of providing the Navigational Lights and signs to properly mark the bridge to approaching marine traffic. Each light will consist of a fixture (marine lantern), internal assembly, and mountings, all as described herein. Each light (Red or Green) shall have sufficient candela output to provide a minimum of 2,000 yards range for the background lighting and atmospheric conditions in the vicinity of the bridge and will operate from 120 VAC, 60 Hertz, single phase electric power. A minimum of 25 candelas in Red and Green. The work also includes providing a determination of power requirements and the electrical service from a location off the bridge.

Materials: A total of six (6) Lights are required:

Two (2) Lights are to mark the channel center. They shall be suspended just below the bridge deck and show a Fixed Green Light visible all-round the horizon.

Four (4) Lights are to mark the channel limits. They shall be suspended just below the bridge deck and show a Fixed Red Light through 180 degrees (towards approaching vessels).

Navigation Lights shall show through a vertical angle of at least 20 degrees and shall conform to the Red and Green Chromaticity Standards for U.S. Coast Guard Marine Signal Lanterns.

Lighting Fixtures: The fixture shall be an Automatic Power, Inc., Model FA-143-LED Marine Lantern or approved equal. Lantern housing shall consist of heavy-duty, machined cast aluminum structural components and a precision-molded, glass single-piece (200 mm) 8-inch Fresnel lens. The lantern shall be hinged for easy access to the internal assembly. Closure of the Lantern shall be by captive toggle bolts and a watertight gasket. The Lantern shall have stainless steel lens protection rods (astragals) angled to minimize shadowing of the light beam at all viewing angles. Vertical lens rods are not acceptable.

The Lantern base shall incorporate a bottom cable entry and four attachment studs on a bolt circle that matches a 2-inch pipe coupling flange. Closure bolts and attachment hardware shall be of stainless steel.

An array of at least 12 particularly bright Red or Green light emitting diodes (LEDs) shall be symmetrically arranged around the lens focal point. The LED array shall be contained within a cylindrical diffuser to maximize horizontal uniformity of the Light beam. A special power supply, located within the Lantern base, will accept the 120 VAC mains input and provide proper current-limited DC voltage to the LED array. Although Red and Green LEDs require different operating voltages, the power supply must accommodate either color array and be interchangeable between the Red and Green Lanterns.

LED life shall meet or exceed 50,000 hours. Array shall be mounted on an internal shock and vibration isolator assembly. A lightning surge suppressor, capable of absorbing multiple strikes without replacement, shall be incorporated in the circuit.

Lights positioned below the bridge structure require a galvanized steel swivel suspension with a 2-inch hanger pipe and a locking mechanism to prevent sway. The suspension assembly shall include a retrieval chain to bring the Lantern to the bridge deck for easy service. The suspension must physically support the lantern and serve as conduit for the power cable. No exposed wiring is allowed. Suspension shall be Automatic Power's FA-230 Bridge Light Suspension or equal.

Submittals: Submittals shall include:

1. Product Data: For lighting fixture type, accessories and finishes.
2. Working Drawings: Depicting details of fixtures, locations, dimensions, weights, materials, methods of assembly, components, features, accessories, wiring diagrams, and all connections/fastening details to bridge structure.
3. Operation and Maintenance Data.

Quality Assurance: Quality assurance shall cover Electrical Components, Devices, and Accessories as listed and labeled as defined in US Coast Guard Regulations Governing Bridges 33CFR 118 "Bridge Lighting and Other Signals", Sections 118.65 "Lights on Fixed Bridges." Comply with NFPA 70.

Construction Requirements: The work under this item shall include all labor, materials, permits, and trades required to properly and completely install the wiring, conduit and navigational lights in full and complete working order. The navigational light wiring shall be accomplished by the contractor electrician who will also determine the power requirements to the navigational lights accepted for use by the Engineer. The contractor shall ensure that the power supply to the navigational lighting is permitted, proper, and acceptable to the appropriate local and state electrical permitting organizations and is acceptable to the Engineer for appurtenances on the structure and underground.

This work shall also include all labor, materials, permits, and trades required to properly remove and relocate existing navigational signs as shown in the plans.

Basis of Payment: The accepted quantity of structural steel will be paid for at the contract lump sum price. Payment will be full compensation for all labor, submittals, modifications, resubmittals, materials, equipment, and incidentals necessary to complete the work.

Payment will be made under:

<u>Pay Item</u>	<u>Description</u>	<u>Pay Unit</u>
638.02	Navigation Lights	Lump Sum
638.0212	Navigation Signs	Lump Sum

SPECIAL PROVISION
SECTION 655
ELECTRICAL WORK
(Cathodic Protection)

Description. This work shall consist of providing products and installing aluminum alloy cathodic protection anodes on each pipe pile. The model of anode installed shall be a commercially available unit. The manufacturer must have at least seven years of successful experience in making aluminum alloy cathodic protection anodes.

MATERIALS

Aluminum (Sacrificial) Anodes. Provide flush mounted aluminum alloy anodes, with an aluminum alloy ingot and a steel core. The anode type shown on the Plans uses a steel bar for the core extending above and below the ingot to provide for fastening to the pile at top and bottom. Other anode configurations, of models with equivalent consumption rates and greater anode capacity (ampere years) may be considered for approval by the Resident. However, all costs for any adjustment of Plans or additional installation costs are the sole responsibility of the Contractor.

For the type described herein and shown on the Plans the minimum dimension of the steel core bar are 1.5 inches by 3/16 inches. The aluminum alloy ingot shall have a minimum net weight of 34 pounds.

The material of ingot shall be aluminum alloy with the following composition:

<u>Element</u>	<u>Percent by Weight</u>
Copper	0.004, max.
Silicon	0.05-0.20
Iron	0.05-0.12
Zinc	4.0-6.5
Cadmium	0.002, max
Indium	0.14-.05
Others, each	0.002, max
Others, total	0.010, max
Aluminum	Remainder

CONSTRUCTION REQUIREMENTS

Aluminum (Sacrificial) Anodes. The anodes shall be installed on the inside, more sheltered side of each battered pile, and most sheltered side on vertical piles, as shown on the Plans. The top of the anodes shall be at Elevation -7.6 feet. Anodes shall be attached to threaded studs welded onto the pile. A minimum amount of coating will be removed to allow the stud to be welded to the pile. Area for weld shall be ground to a white metal surface. Stud shall be installed for the top and bottom of the anode. Anode shall be fixed to studs with steel nuts. After

the stud is welded and the anode attached, the weld area at the base of the stud shall be covered with underwater curable polyamide epoxy coating, troweled or hand applied to 4 mm thickness.

GENERAL REQUIREMENTS

Submittals. The Contractor shall submit the following for approval:

1. Manufacturer's literature, data, and instructions for all materials and equipment specified. Copies of each shall be maintained and readily accessible at the site of the Work.
2. Shop drawings and record drawings indicating the arrangement and dimensional locations of anodes.

COMPENSATION

Method of Measurement. The Cathodic Protection System will be measured for payment by the lump sum.

Basis of Payment. The accepted quantity of Cathodic Protection System will be paid for at the contract lump sum price, which shall be full compensation for furnishing all equipment, materials, labor, and incidentals necessary to provide the full completed system as described in the plans, specifications and in this Special Provision.

Payment will be made under:

Pay Item		Pay Unit
655.50	Cathodic Protection System	Lump Sum

SPECIAL PROVISION
SECTION 703
AGGREGATES

Replace subsections 703.25 through 703.28 with the following:

703.25 Stone Fill Stones for stone fill shall consist of hard, sound, durable rock that will not disintegrate by exposure to water or weather. Stone for stone fill shall be angular and rough. Rounded, subrounded, or long thin stones will not be allowed. Stone for stone fill may be obtained from quarries or by screening oversized rock from earth borrow pits. The maximum allowable length to thickness ratio will be 3:1. The minimum stone size (10 lbs) shall have an average dimension of 5 inches. The maximum stone size (500 lbs) shall have a maximum dimension of approximately 36 inches. Larger stones may be used if approved by the Resident. Fifty percent of the stones by volume shall have an average dimension of 12 inches (200 lbs).

703.26 Plain and Hand Laid Riprap Stone for riprap shall consist of hard, sound durable rock that will not disintegrate by exposure to water or weather. Stone for riprap shall be angular and rough. Rounded, subrounded or long thin stones will not be allowed. The maximum allowable length to width ratio will be 3:1. Stone for riprap may be obtained from quarries or by screening oversized rock from earth borrow pits. The minimum stone size (10 lbs) shall have an average dimension of 5 inches. The maximum stone size (200 lbs) shall have an average dimension of approximately 12 inches. Larger stones may be used if approved by the Resident. Fifty percent of the stones by volume shall have an average dimension greater than 9 inches (50 lbs).

703.27 Stone Blanket Stones for stone blanket shall consist of sound durable rock that will not disintegrate by exposure to water or weather. Stone for stone blanket shall be angular and rough. Rounded or subrounded stones will not be allowed. Stones may be obtained from quarries or by screening oversized rock from earth borrow pits. The minimum stone size (300 lbs) shall have minimum dimension of 14 inches, and the maximum stone size (3000 lbs) shall have a maximum dimension of approximately 66 inches. Fifty percent of the stones by volume shall have average dimension greater than 24 inches (1000 lbs).

703.28 Heavy Riprap Stone for heavy riprap shall consist of hard, sound, durable rock that will not disintegrate by exposure to water or weather. Stone for heavy riprap shall be angular and rough. Rounded, subrounded, or thin, flat stones will not be allowed. The maximum allowable length to width ratio will be 3:1. Stone for heavy riprap may be obtained from quarries or by screening oversized rock from earth borrow pits. The minimum stone size (500 lbs) shall have minimum dimension of 15 inches, and at least fifty percent of the stones by volume shall have an average dimension greater than 24 inches (1000 lbs).

Add the following paragraph:

703.32 Definitions (ASTM D 2488, Table 1).

Angular: Particles have sharp edges and relatively plane sides with unpolished surfaces

Subrounded: Particles have nearly plane sides but have well-rounded corners and edges

Rounded: Particles have smoothly curved sides and no edges

SPECIAL PROVISION
SECTION 711
MISCELLANEOUS BRIDGE MATERIAL

Replace 711.01 Steel Pipe Piles in its entirety with the following paragraphs:

711.01 Steel Pipe Piles, Splices And Tips Steel pipe piles shall conform to the requirements of ASTM A252, except as modified herein. The steel pipe piles shall be Grade 3, $F_y = 45$ ksi, with straight butt-welded seams. Lap welded seams are not acceptable. The steel shall be a Prequalified Base Metal from the AWS D1.1 Structural Welded Code - Steel. The first sentence of ASTM A 252 Subsection 13.2 is hereby deleted and replaced with, "Mill welded splices will only be acceptable if tension test specimens cut from sample splices conform to the tensile strength requirements prescribed in Tables 1 and 2."

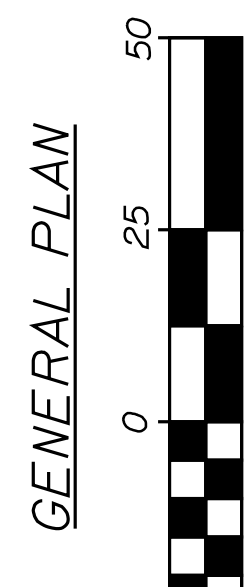
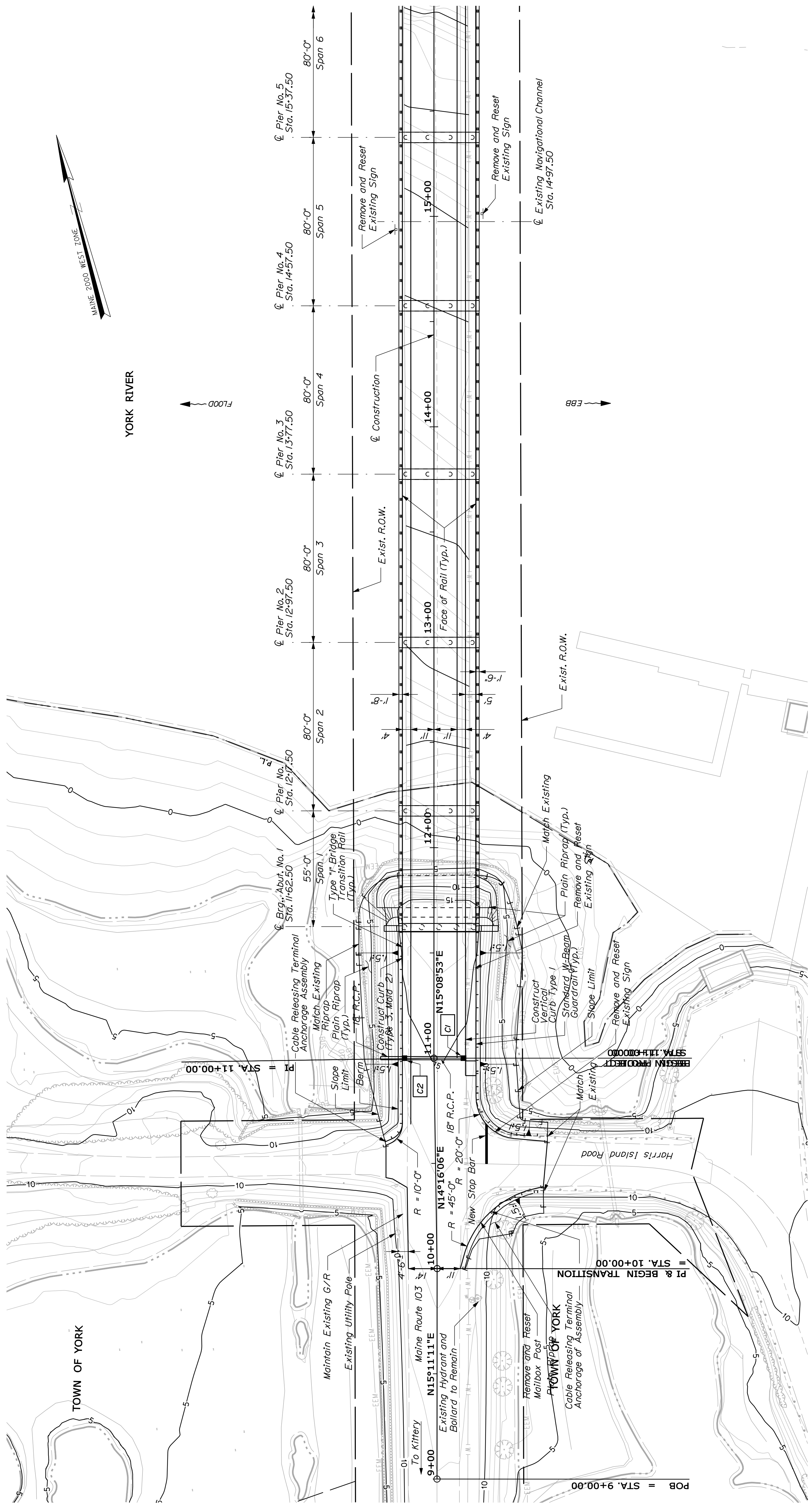
Pipe pile lengths shall be furnished from the mill conforming the following

Pipe Pile Segment Length at Mill	Maximum Shop Splices Permitted
10' Min	0
Over 10' – 20'	1
Over 20' – 30'	2
Over 30' – 40'	3
Over 40' – 50'	4
Over 50' – 60'	5

If pipe piles are designated to be coated the surfaces to be coated shall be suitable for coating. Surfaces shall be free of sharp edges, fins, weld spatter or other condition detrimental to protective coating. Welds shall blend smoothly with the pile material and be free of undercut overlap or other condition injurious to protective coating.

Cast steel points and open end cutting shoes shall conform to the requirements of ASTM A27 Grade 65/35 or ASTM A148 Grade 90/60. Pipe pile splice backup ring material shall be any steel listed in AWS Structural Steel Welding Code D1.1, Table 3.1 with the exception of 100 ksi minimum yield strength steels.

DATE	BY	DATE	BY
02/27/09	KDW	02/27/09	LSG
02/27/09	MAC III	02/27/09	CLC
02/27/09	DESIGNS-DET/ALCD3	02/27/09	DESIGNS-DET/ALCD3
REVISIONS 1	...	REVISIONS 1	...
REVISIONS 2	...	REVISIONS 2	...
REVISIONS 3	...	REVISIONS 3	...
REVISIONS 4	...	REVISIONS 4	...
FIELD CHANGES	...	FIELD CHANGES	...



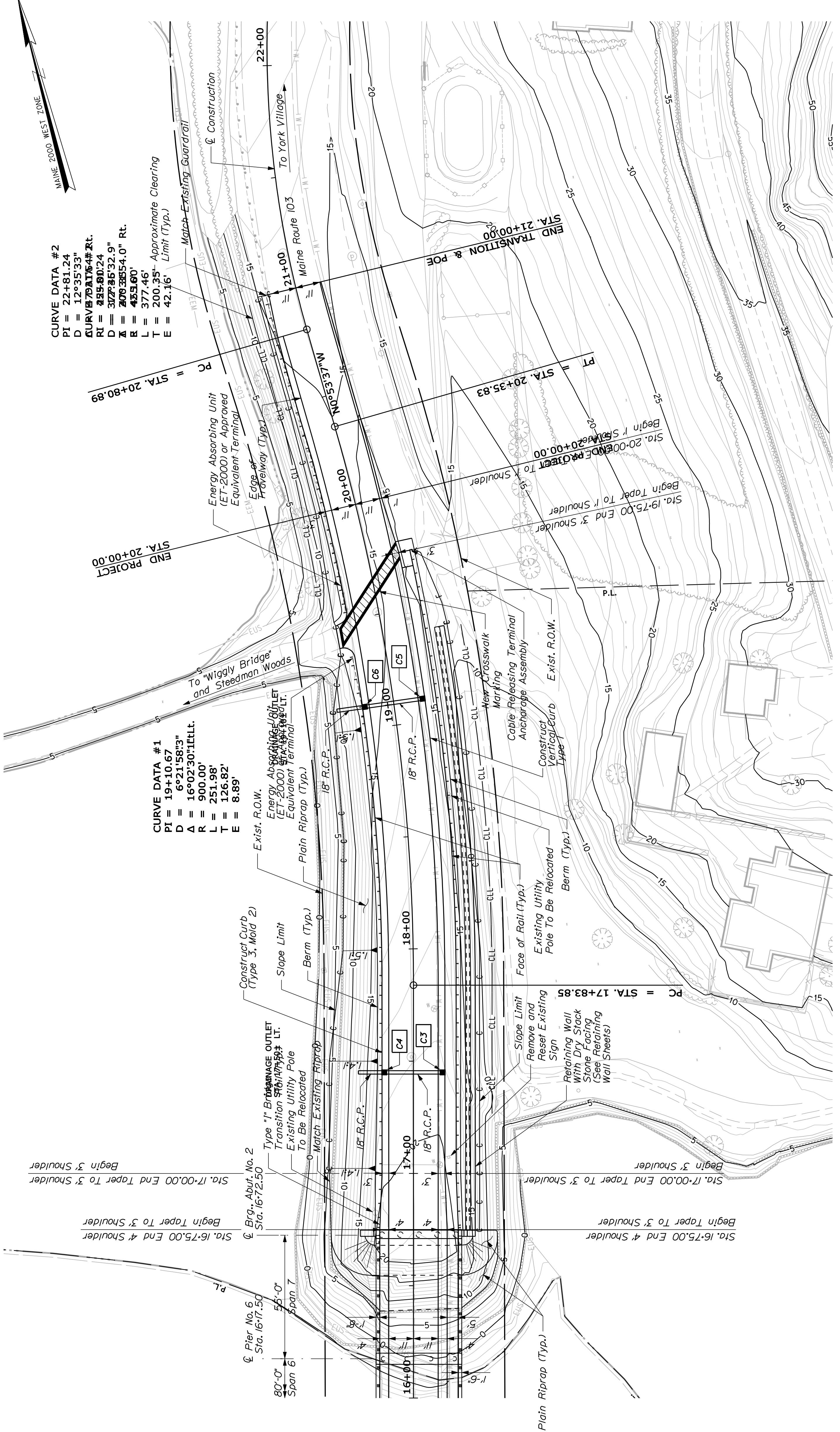
GENERAL PLAN SCALE
 25 0 25 50
 Notes:
 1. R.O.W. information provided by MaineDOT.
 2. Survey Base Plan by MaineDOT.

DRAINAGE NOTES:

- C1 Sta. 11+00.0, 14.0' RT to Sta. 11+00.0, 14.0' LT
 Const. 22 LF x 18" R.C.P.
 Const. CB B5-C @ +00.0, 14.0' RT
 Inv. Out = 9.07
 Grate Elev. = 14.61
- C2 Sta. 11+00.0, 14.0' LT to Sta. 11+00.0, 25.4' LT
 Const. 11 LF x 18" R.C.P.
 Const. CB B5-C @ +00.0, 14.0' LT
 Inv. In = 8.95
 Inv. Out = 8.70
 Grate Elev. = 14.49
 Pipe Outlet Inv. = 8.66

Item 604.262 - Catch Basin Type B5-C Sta. 11+00.0, 14.0' RT Sta. 11+00.0, 14.0' LT	EA	1	LF	60
Item 606.258 - Cable Releasing Terminal Anchorage Sta. 10+34.4, RT Sta. 10+69.5, LT	EA	1	LF	62
Item 606.22 - Guardrail Type 3b - Over 15ft Radius Sta. 10+34.4 to Sta. 10+36.4, RT Sta. 10+62.8 to Sta. 10+83.0, RT	LF	73	EA	50
Item 606.550 - Guardrail Type 3b - Single Rail Sta. 10+69.5 to Sta. 11+43.7, LT Sta. 10+83.0 to Sta. 11+43.7, RT	LF	75	EA	63
Item 609.310 - Curb Type 3, Mold 2 Sta. 10+94.3 to Sta. 11+54.3, LT	EA	1	LF	60
Item 609.11 - Vertical Curb Type 1 Sta. 10+98.3 to Sta. 11+60.3, RT	EA	1	LF	62
Paved Drive Sta. 10+50.0, RT Sta. 10+50.0, LT	EA	1	LF	76
Item 609.237 - Terminal Curb Type 1 - 7 Foot Sta. 10+98.3, RT	EA	1	LF	1

PROJ. MANAGER	J. WENTWORTH	BY	DATE
DESIGN-DETAILED	LSG	DATE	02/27/09
CHECKED-REVIEWED	HMH	DATE	02/27/09
DESIGNS-DETAILED	MAC III	DATE	02/27/09
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			



CURVE DATA #2
 PI = 22+81.24
 D = 12°35'33"
 Δ = 37°28'55"
 R = 3727.85'
 L = 32.9"
 T = 200.35'
 E = 42.16'
 Approximate Clearing Limit (Typ.)

CURVE DATA #1
 PI = 19+10.67
 D = 6°21'58"33"
 Δ = 16°02'30"
 R = 900.00'
 L = 251.98'
 T = 126.82'
 E = 8.89'

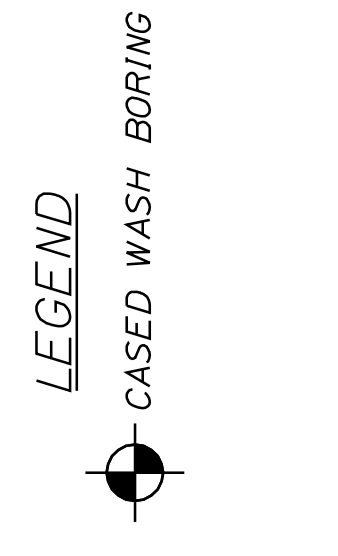
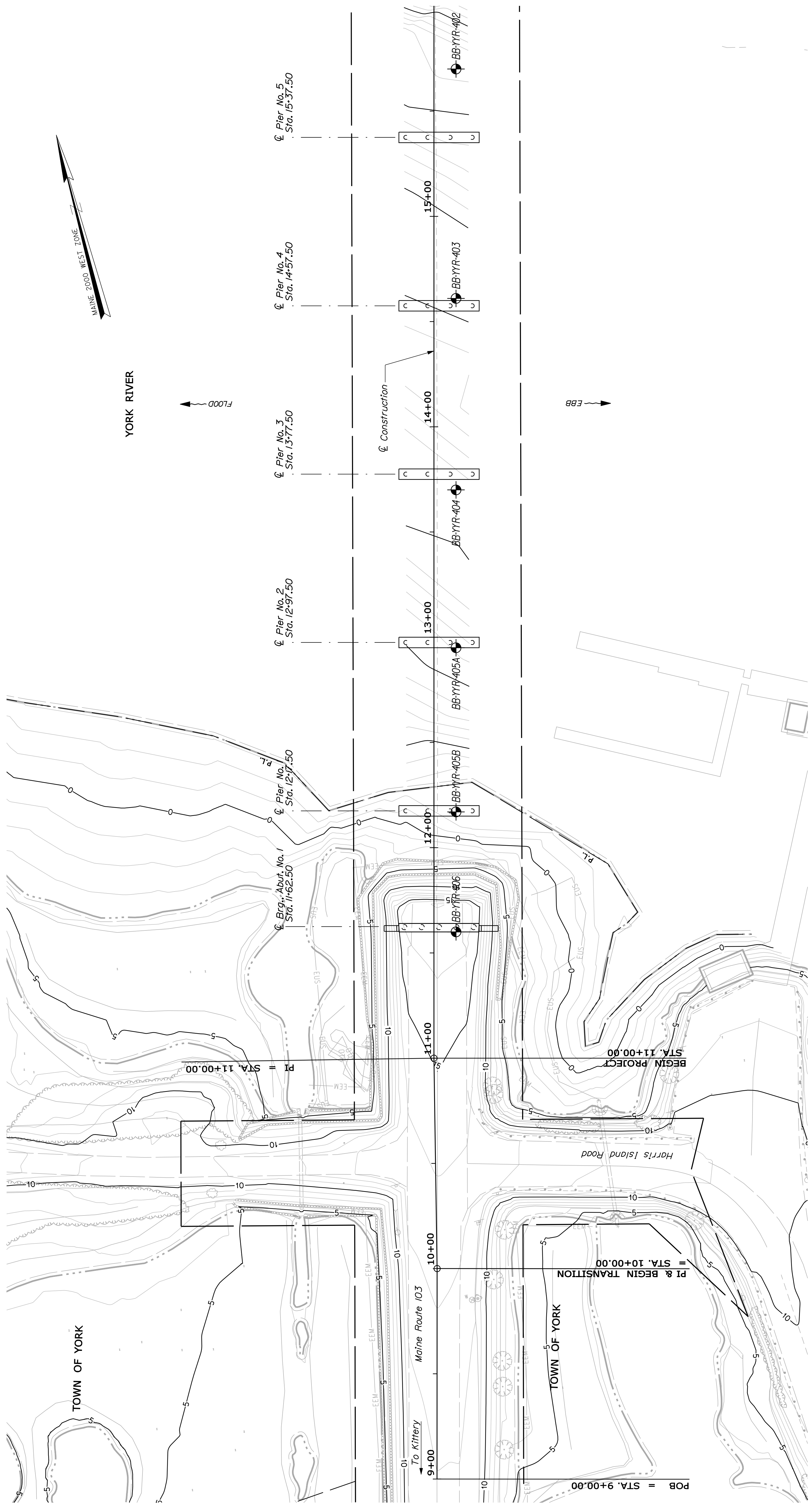


DRAINAGE NOTES:

- C3** Sta. 17+45.0, 13.0' RT to Sta. 17+45.0, 13.0' LT
Const. 20 LF x 18" R.C.P.
Const. CB B5-C @ -45.0, 13.0' RT
Inv. Out = 13.94
Grate Elev. = 19.68
- C4** Sta. 17+45.0, 13.0' LT to Sta. 17+45.0, 24.5' LT
Const. 10 LF x 18" R.C.P.
Const. CB B5-C @ -45.0, 13.0' LT
Inv. In = 13.61
Inv. Out = 13.36
Grate Elev. = 19.35
Pipe Outlet Inv. = 13.32
- C5** Sta. 19+10.0, 13.0' RT to Sta. 19+10.0, 13.0' LT
Const. 20 LF x 18" R.C.P.
Const. CB B5-C @ -10.0, 13.0' RT
Inv. Out = 9.90
Grate Elev. = 15.44
- C6** Sta. 19+10.0, 13.0' LT to Sta. 19+10.0, 25.5' LT
Const. 11 LF x 18" R.C.P.
Const. CB B5-C @ -10.0, 13.0' LT
Inv. In = 9.16
Inv. Out = 8.91
Grate Elev. = 14.70
Pipe Outlet Inv. = 8.87

Item	EA	LF
Item 527.303 - Energy Absorbing Unit (ET-2000)	EA	LF
Sta. 19+08.4, LT	/	294
Sta. 19+78.9, LT	/	
Item 604.262 - Catch Basin Type B5-C	EA	LF
Sta. 17+51.0, 13.0' RT	/	253
Sta. 17+51.0, 13.0' LT	/	147
Sta. 19+10.0, 13.0' RT	/	
Sta. 19+10.0, 13.0' LT	/	
Item 606.550 - Guardrail Type 3b - Single Rail	LF	EA
Sta. 16+91.3 to Sta. 19+62.5, RT	275	EA
Sta. 16+91.3 to Sta. 19+08.4, LT	225	EA
Sta. 19+78.9 to Sta. 21+00.0, LT	125	EA
Item 609.310 - Curb Type 3, Mold 2	EA	LF
Sta. 16+80.8 to Sta. 19+32.8, LT	/	253
Sta. 19+53.9 to Sta. 21+00.0, LT	/	147
Item 609.237 - Terminal Curb Type 1-7 Foot	EA	LF
Sta. 19+68.8, RT	/	1
Item 606.258 - Cable Releasing Terminal Anchorage	EA	LF
Sta. 19+62.5, RT	/	1

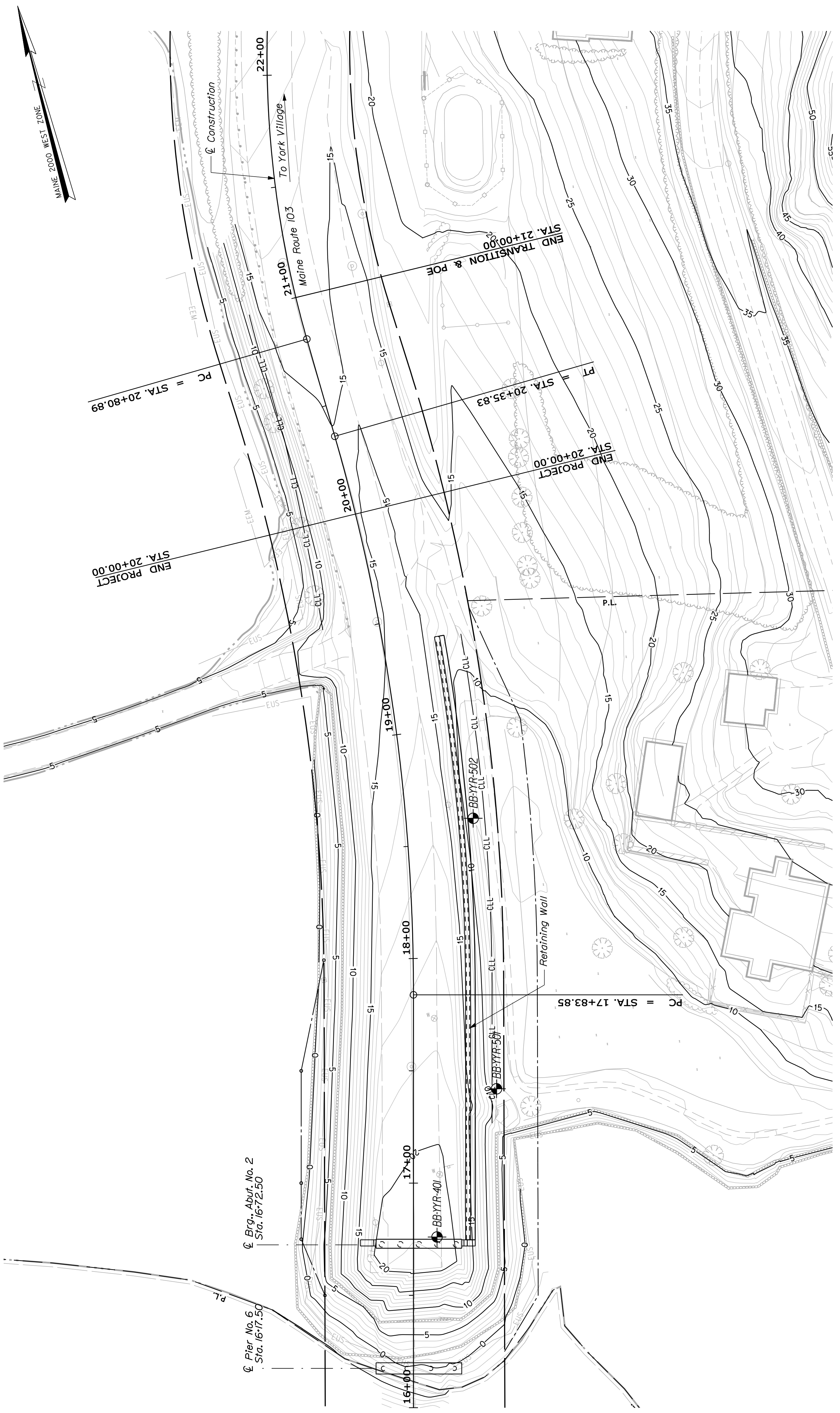
PROJ. MANAGER	J. WENTWORTH	BY	DATE
DESIGN-DETAILED	02/27/09	...	...
CHECKED-REVIEWED	02/27/09	...	...
DESIGN-DETAILED	02/27/09	...	...
DESIGN-DETAILED	02/27/09	...	...
REVISIONS 1	...	...	...
REVISIONS 2	...	...	...
REVISIONS 3	...	...	...
REVISIONS 4	...	...	...
FIELD CHANGES	...	...	...

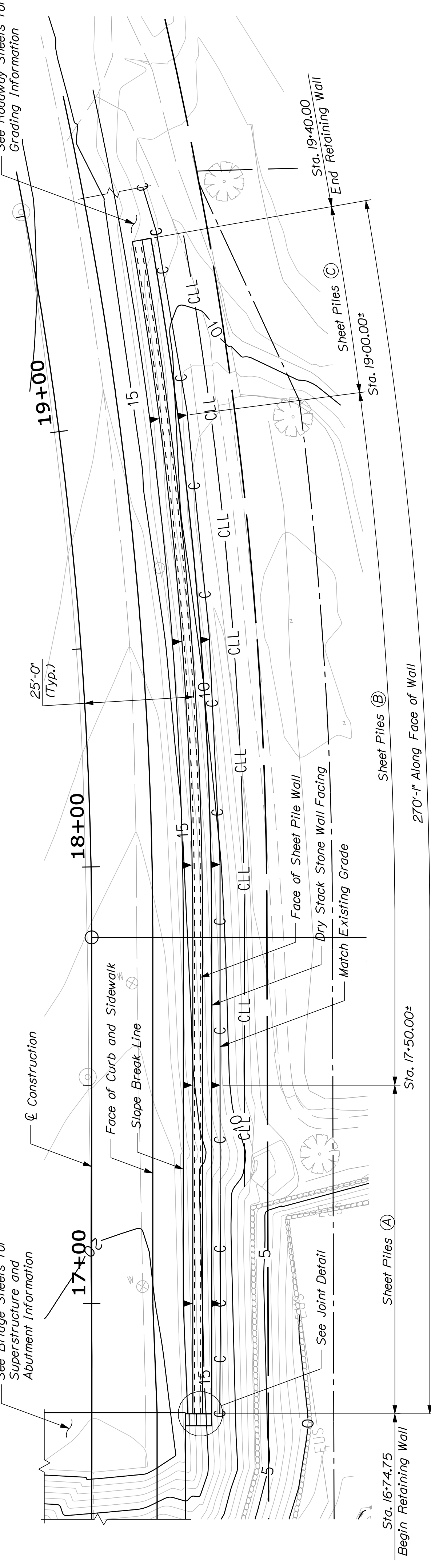
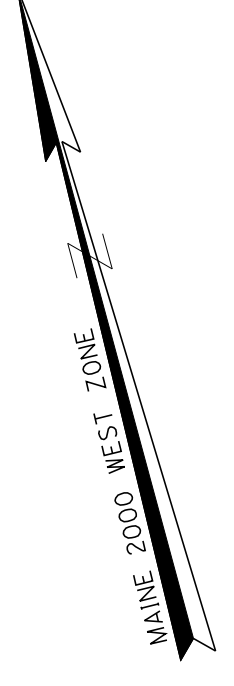


- NOTES**
- 1) BASE MAP DEVELOPED FROM PLAN PROVIDED BY VHB, ENTITLED "BDPLAN," TRANSMITTED ELECTRONICALLY TO GZA AND RECEIVED ON NOVEMBER 24, 2008.
 - 2) THE LOCATION OF THE TEST BORINGS WERE APPROXIMATELY DETERMINED BY TAPE MEASUREMENTS FROM EXISTING TOPOGRAPHIC FEATURES. THESE DATA SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED.
 - 3) TEST BORINGS WERE PERFORMED BY NEW HAMPSHIRE BORING, INC. OF LONDONDERRY, NEW HAMPSHIRE, BETWEEN AUGUST 11, 2008 AND SEPTEMBER 15, 2008 AND OBSERVED BY GZA PERSONNEL.

PROJ. MANAGER	J. WENTWORTH	BY	DATE
DESIGN-DETAILED	02/27/09	DATE	SIGNATURE
CHECKED-REVIEWED	02/27/09	DATE	P. B. NUMBER
DESIGN-DETAILED	02/27/09	DATE	DATE

STATE OF MAINE	DEPARTMENT OF TRANSPORTATION	PROJECT NO. BH-1511(00)X	PIN 15110.00	BRIDGE NO. 3202
----------------	------------------------------	--------------------------	-----------------	-----------------

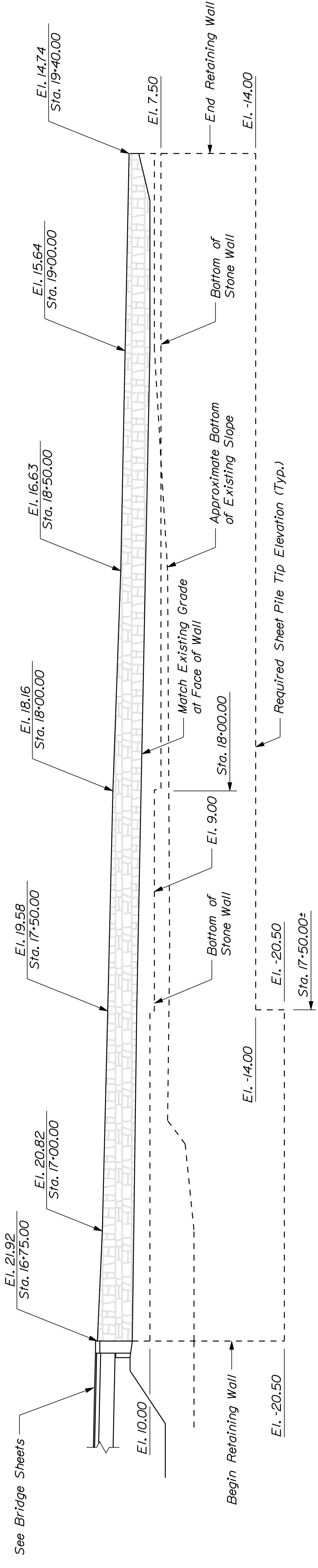




RETAINING WALL PLAN
(Guardrail Not Shown)
Scale: 1/8" = 1'-0"

SHEET PILE TABLE

Location	Moment of Inertia, Min. (in ⁴ /FT)	Section Modulus, Min. (in ³ /FT)
(A)	502	61
(B)	369	48
(C)	187	31



RETAINING WALL ELEVATION
(Guardrail Beyond Not Shown)
Scale: 1/8" = 1'-0"

Retaining Wall Notes:

- Sheet piling material shall be ASTM A328. All cost shall be included in Item 501.301, Steel Sheet Piling.
- The Contractor shall determine the location of all existing utilities prior to sheeting installation. The proposed retaining wall may be penetrated by stopping any one or two single sheet piles over existing or proposed utility and continuing adjacent sheets.
- Place at least 18-inch wide woven geotextile or geogrid strips between the stones of the dry stack stone facing and connect firmly to the sheet piles. The strips shall be placed from center to center every 6 feet 6 inches (max) horizontally and 3 feet vertically, and shall extend from the sheet piles to three inches away from the front face of the dry stack stone wall. Contractor shall prepare and submit working drawings to the Resident for approval showing the proposed geotextile or geogrid, and the connection detail to the sheet pile wall.
- Use whole sheet pile sections in laying out sheet pile wall rather than the intermediate stationing provided to maintain a constant offset to face of wall including transition locations between A and B, and B and C.
- Compact granular borrow base and subgrade at stone wall to 95% of the maximum dry density per ASTM D1557. Cost shall be included in the related wall pay items.

Retaining Wall Notes Continued:

- The dry stack stone wall shall consist of dry rubble stone (without mortared joints) constructed in a random pattern. Cap stones shall be carefully selected to provide a relatively flat top surface and allow for a uniform appearance that is appropriate to the wall and stone proportions. Stone masonry construction shall be performed by or under the direct supervision of an experienced stone mason. Any shaping or dressing of stones required shall be done before it is placed. Stones shall be carefully set without displacing stones that are already in-place. At least 75 percent of the stones (not including cap stones) shall be larger than 6 by 9 by 12 inches. Cap stones shall be of sufficient size and weight (350 lbs minimum) to minimize potential dislodging. The stone wall appearance shall match (as near as practical) the configuration of the stonewall/facing located at Station 17+80, offset 150' RT. Prior to wall construction, the Contractor shall construct a test panel section that is indicative of the stone wall to be constructed. The panel shall measure 42 inches high (min) by 24 inches deep by 6 feet long (min) for approval by the Resident. Stone wall construction shall not begin without written approval of the sample wall panel. All cost shall be included in Item 607.29, Stone Wall.
- Reinforcing steel in the concrete coping shall be AASHTO M31W/M31, Grade 60, uncoated. Reinforcing shall be incidental to the retaining wall pay items.
- Concrete for retaining wall coping shall be Class A and shall be included in Item 502.219, Contraction joints shall be placed at intervals not greater than 30 feet and expansion joints shall be placed at intervals not greater than 90 feet. Stagger joints 12 inches minimum from end joints in masonry cap stones and 6 inches minimum from sheet pile joints.