



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

Paul R. LePage
GOVERNOR

David Bernhardt
COMMISSIONER

July 9, 2013
Subject: **Brownville**
Federal Project No: STP-1841(200)
& STP-1841(210)
State WIN: 018412.00 & 018412.10
Amendment No. 1

Dear Sir/Ms:

Make the following changes to the Bid Documents:

In the Bid Book (page 14) "NOTICE TO CONTRACTORS" in the first sentence **CHANGE** the bid opening date from "July 17, 2013" to read "**July 24, 2013**". Make this change in pen and ink.

In the Bid Book (page 68) **REMOVE** and discard "SPECIAL PROVISION, SECTION 107, SCHEDULING OF WORK" 1 page dated October 25, 2011.

In the Bid Book, after page 95, **ADD** the attached "SPECIAL PROVISION, SECTION 504, CONCRETE PIPR TIES" 1 page dated January 26, 2009.

In the Bid Book (pages 97 thru 102) **REMOVE** "SPECIAL PROVISION, SECTION 647, TIMBER AND BALLASTED TRACK CONSTRUCTION" 6 pages dated June 2013 and **REPLACE** with the attached new "SPECIAL PROVISION, SECTION 647, TIMBER AND BALLASTED TRACK CONSTRUCTION" 6 pages dated July 3, 2013.

In the Bid Book (page 107 and 111) "SPECIAL PROVISION, SECTION 648, RAIL WELDING", make the following **CHANGES** in pen and ink;

1. Under "MATERIALS" (page 107) subsection "648.32 Rail" **CHANGE** "Rail shall be as specified in section ..." to read as follows; "**Rail shall be as specified in section 647 – Timber and Ballast Track Construction of these Specifications.**"
2. Under "648.5 Method of Measurement" (page 111) **CHANGE** all the wording after the word "Section" to read as follows; "**Section 647 – Timber and Ballast Track Construction.**"

In the Bid Book (pages 113 thru 115) **REMOVE** "SPECIAL PROVISION, SECTION 649, INSULATED JOINTS" 3 pages dated June 2013 and **REPLACE** with the attached new "SPECIAL PROVISION, SECTION 649, INSULATED JOINTS" 3 pages dated July 3, 2013.



PRINTED ON RECYCLED PAPER

In the Bid Book (pages 116 thru 118) **REMOVE** “SPECIAL PROVISION, SECTION 650, HIGHWAY GRADE CROSSING SIGNAL SYSTEM” 3 pages dated June 2013 and **REPLACE** with the attached new “SPECIAL PROVISION, SECTION 650, HIGHWAY GRADE CROSSING SIGNAL SYSTEM” 3 pages dated July 3, 2013

In the Bid Book, after page 126, **ADD** the attached “SPECIAL PROVISION, SECTION 703, AGGREGATES, (Stone Ballast)” 1 page dated January 31, 2013.

In the Plans, make the following **CHANGE; REPLACE** the entire plan set with the attached new Plan Set

NOTE: Replacement plan sheets will be FedExed/Mailed to those who purchased plans in the size and quantity ordered.

The following questions have been received:

Question: Where can we obtain a clean copy of the bid bond form that does not say “Sample” on it, or should we just use that form for the bid bond?

Response: Bid Bond forms are provided by the bonding company. The samples in the bid book are provided for example only.

Question: Bid Item 648.5206 – Please confirm that an entire set of flashers and gates and new prewired cabinet are required. Sheet 3 of 14 only alludes to “Replace Signal Box”. No other information is conveyed regarding flasher/gate assemblies. If the entire signal system is to be replaced, where are the remaining signal drawings?

Response: See the revised Special Provision 650, Highway Grade Crossing Signal System for a list of signal equipment provided by the railroad and construction Requirements.

Question: On Sheet 4 of 14, the Railroad Crossing Section shows a 7”x7”x9’ railroad tie in the crossing area. Shouldn’t that be a 7”x9”x9’ switch tie?

Response: Yes, the switch tie should be a 7” x 9” x 9’. See revised plan sheet #4

Question: Please confirm that the new IJ’s shall be 100# and not 115#RE to match the new rail in the crossing. Is the new 115#RE rail in the crossing being tied into 100# rail or something else? Please clarify.

Response: The existing rail is 100# RA; the new rail in the crossing is 115# RE. A compromised joint bar or field weld will be acceptable to match in new and existing rail.

All joints within the Island Circuit will be bonded. This work shall be incidental to Item 647.011 TIMBER AND BALLASTED TRACK CONSTRUCTION

Question: The specs allow for a 36 hour track outage with damages beyond 36 hours. If we allow a train to pass at 36 hours, will we be allowed additional outages to complete the work without paying liquidated damages?

Response: Yes

Question: 647 G. states that Insulated Joints be non-bonded. 649 states that existing IJ's will be removed and replaced with bonded IJ's. 650.02E states that the Railroad is supplying 4 10016 IJ's. Section 649 states that IJ locations are indicated on the signal drawings and there are no signal drawings. Please clarify who supplies, how many, what type and the location of all IJ's.

Response: 4 insulated joints will be supplied by the railroad; the IJ shall be installed by the contractor to create an Island Circuit. Locations to be determined by the railroad. All other joints within the Island Circuit will be bonded. See construction note #10 on the revised page 2 of the plans for an approximate location of the 4 insulated joints supplied by the railroad.

Question: 650.03 implies that the signal work be done at the same time the track work and culvert installation are being done. Are we expected to have the signals replaced and fully operational in the 36 hour track outage?

Response: No, the contractor will not be expected to have the signals fully operational within the 36 hour closure. After the 36 hour closure; flagging will be required by the railroad; See the PRTS for flagging hour details.

Question: Is the crossing an Island Circuit only?

Response: Yes

Question: Is the new case pre-wired with all the equipment installed and complete? (Relays, terminal blocks, surge protection, rectifiers)

Response: Yes, the case is pre-wired with all the equipment installed and complete with the exception of the batteries. The batteries from the existing case will be used if the new batteries are not delivered at the time of installation. The Railroad will be responsible for the temporary and final installation of the batteries.

Question: What make and model of relays are being supplied?

Response: Alstom; A62-276, A62-310 and A62-671

Question: Will the railroad be providing grounding materials?

Response: No, the railroad will not be providing the grounding materials. The contractor will be responsible for providing and installing the grounding materials. Payment will be incidental to Item 648.5206 HIGHWAY GRADE CROSSING SIGNAL SYSTEM.

Question: Will we be reusing existing batteries?

Response: New batteries have been ordered by the railroad but it might be necessary to use existing batteries temporarily; the railroad will be responsible for the battery installation.

Question: Will we be reusing existing lamp cross ties?

Response: Yes, we will be using the existing lamp cross ties.

Question: Is the new signal case being installed in the same position as the existing case or can this be done prior to removal of the existing case?

Response: The new signal case is being installed in the same position as the existing case.

Question: What are the dimensions of the new case?

Response: 24" deep and 60" wide to the edge of the mounting feet.

Question: Is the railroad supplying all materials to replace existing AC feed and will it be overhead drop down or underground?

Response: The contractor is responsible for supplying and installation of all materials to replace existing AC feed. It will be installed underground. This will be incidental to Item 648.5206 HIGHWAY GRADE CROSSING SIGNAL SYSTEM.

Question: The plans call for installation of a new track panel of 160 feet in length. The length of track removal for excavation is 260 feet. Is the existing track material being relayed for 50 feet on each end? If not, what is to be supplied?

Response: Yes. The track material is being relayed for 50 feet on each end.

Question: Is the crossing upgrade at Brownville Rte. 11 a complete upgrade such as new case, poles, lights, insulated joints etc. Do you have the specifics of the upgrade?

Response: See the revised 650 Specification for clarification of the upgrade.

Question: Speaking with a rail supplier I have been told that finding anyone willing to take an 80 foot track to Brownville Maine will be very difficult if not impossible. Can the rail be shipped in 40 foot lengths and welded to form the 160 foot panel.

Response: The 40 foot lengths will be acceptable. The rail seals around the welded joint will require approval from the railroad at completion.

Consider these changes and information prior to submitting your bid on July 24, 2013.

Sincerely,


George M. A. Macdougall P.E.
Contracts & Specifications Engineer

SPECIAL PROVISION
SECTION 504
CONCRETE PIPE TIES

Description This work shall consist of furnishing and installing concrete pipe ties in conformance with the Standard Details and as shown on plans.

Materials All materials shall meet the requirements shown in the Standard Details. Concrete Pipe joints shall be wrapped around full circumference of joint with Item 602.60 Separation Geotextile.

Method of Measurement Concrete pipe ties shall be measured per Group (2 ties per Group).

Basis of Payment The accepted quantity of concrete pipe ties will be paid for at the contract unit price per Group. Such payment will be full compensation for furnishing, installing, and all other necessary incidentals for satisfactory completion of the work. Any grout or mortar necessary to repair chipping shall be incidental to the installation of the pipe ties. Any Separation Geotextile to wrap concrete pipe joints shall be incidental to the installation of the pipe ties.

<u>Pay Item</u>	<u>Pay Unit</u>
504.07 Concrete Pipe Ties	Group

SPECIAL PROVISION
SECTION 647
TIMBER AND BALLASTED TRACK CONSTRUCTION

The work under this item shall conform to the applicable sections of the State of Maine Department of Transportation Standard Specifications and Standard Details (Revision of 2002), American Railway Engineering Maintenance-of-Way Association (AREMA), Manual on Uniform Traffic Control Devices (MUTCD), the Plans, Construction Notes and the following:

DESCRIPTION

The work shall include the complete removal of a section of existing railroad track structure including existing rails, ties, other track materials (OTM) and subgrade preparation as identified within and as described on the plans and or construction notes.

The work also includes furnishing and installing a new at-grade crossing, including new continuously welded rail (CWR), cross-ties, other track material (OTM), ballast, rubber rail seal, bolted joints, and other work as identified within and as described on the plans and or general notes.

MATERIALS

Materials shall meet the requirements specified in this section as follows:

- A. Rail shall be new 115 lbs. RE in accordance with AREMA Chapter 4, Part 2 and shall be supplied in 80 foot lengths.
- B. Crossing panel shall be constructed with new 7" x 9" x 9' crossties in accordance with AREMA Chapter 30, Part 1, Section 1. Anti-splitting gang nail end plates shall be 6 inches by 7 inches, manufactured from 18 gauge galvanized steel plate with teeth extending at least 3/8 inches beyond surface of plate. Plates shall be installed centered on end of tie and fully driven with no evidence of excessive bending or mashing of teeth.
- C. Tie Plates shall be new 7¾" x 13", 6 – hole double shoulder tie plates in accordance with AREMA Chapter 5, Part 1.
- D. Track Spikes shall be new high carbon 5/8" x 6" in accordance with AREMA Chapter 5, Part 2.
- E. Rail anchors shall be new drive on type rail anchors to fit 115 lbs RE rail and 100 lbs RE rail in accordance with AREMA Chapter 5, Part 7.
- F. Stone Ballast shall be new in accordance with Project Special Provision 703.

G. New standard joint bar material and manufacture shall be in accordance with AREMA Manual for Railway Engineering, Chapter 4, Part 3, Sections 2-4. Joint bars for new 115 RE rail shall be 36" long with a six-hole design.

H. Nuts, Bolts and Washers shall be new in accordance with AREMA Chapter 4, Part 3, Sections 5 and 6.

I. Geotextile Fabric shall be in accordance with State of Maine Standard Specification Section 620.60 Separation Geotextile.

J. Rubber Rail Seals shall be an elastomeric type crossing material sized to fit 115 lbs RE gauge and field sections, designed and manufactured of 100% virgin rubber and having the ability to interface with a bituminous surface.

647.1 CONSTRUCTION REQUIREMENTS

647.1 General

The Contractor shall be required to conduct and phase all track construction within existing track in a manner that will allow operation of rail freight and passenger service as required by the Railroad. Contractor shall be responsible for all survey control and layout work.

647.1.1 Track Removal

All rail, railroad track ties, pavement and other track material shall become property of the Contractor and legally disposed of off-site. No track shall be removed without prior permission of the Resident, contingent on conforming that track is out of service and that sufficient time is available to return track to service when required by the Railroad.

Track excavation limits shall be as shown on plans. Suitable excavated material shall be reused within Project limits as determined by the Resident.

Removal and disposal of materials shall be incidental to item 647.011

647.1.2 At Grade Crossing Installation

Excavate to required depth and place separation geotextiles as per plans and notes.

Place ballast uniformly as shown on plans using no greater than a 6" vertical lift and thoroughly compact using a heavy plate whacker or approved equal. Thoroughly compact each ballast lift until stones are firmly interlocked and surface is true and unyielding. Place the next lift in the same manner as the first to within 2" of the bottom of cross-tie design elevation.

Within limit of grade crossing, Contractor may elect to pre-construct the track panel near the crossing location and place in position on the compacted ballast during track and road closures.

Construct a railroad track panel section using new rails, ties and other track materials. The rail shall be installed as noted on the plans and welded together as per manufacturer's recommendations. Excessive slag and or filler weld shall be ground down adequately to properly fit rubber rail seals. Field welded joints are to be centered between ties. All field welds shall be ultrasonically tested and test reports submitted to verify the results prior to paving. Further, these tests shall be performed prior to final inspection and within one week following rail-grinding operations.

Cross ties ends shall be brought to a uniform line, 18-1/2" from the edge of base of rail on the line side and shall be 18" center to center. Cross ties shall be handled in a manner to avoid breaking and bruising. Remove ties damaged as a result of improper handling by the Contractor and rejected by the Resident and replace with undamaged ties at no additional cost to the Department.

Rail anchors shall be placed to achieve full bearing against the ties and fully driven in accordance with AREMA Chapter 5, Part 7, Section 7.2.1.

Tie Plates shall be applied and placed so the shoulder is in contact with the rail base or a joint bar for the full length of the shoulder. The tie plate shall be centered on the tie and the shoulder shall not be under the rail base. Plates shall be placed to cant the rail inward toward centerline of track.

Track spikes shall be started and driven vertically and square with the rail and must not be bent against the rail. Spikes shall have full bearing against the rail base and driven so as to allow 1/8" to 3/16" gap between the underside of the spike head and the top of the rail base. Spikes shall not be over-driven or driven against the end of a joint bar or in a joint bar slot. The removal of spikes, once driven, shall be avoided whenever possible. If spikes are pulled, the holes shall be plugged with new chemical tie plugs. The number of spikes per tie plate shall be indicated by the Resident.

If spikes are pulled holes are to be filled with a two part 1:1 ratio polyurethane chemical tie plugging compound capable of performing in all ranges of temperature from 10 degrees Fahrenheit to 120 degrees Fahrenheit. The compound should have a 25 to 45 pound per cubic foot density after curing, so as not to split the wood tie. It should set up to 80% of that density in 2 minutes after application. Tie compound must be weather resistant and provide long term gage restraint in the wood tie. The maximum allowable spike push force shall be 11,000lb after curing. The minimum pull out force should be 6,000lb. After curing the lateral resistance provided by the cured compound should be a minimum or 10% lower than that of a spike being driven into a cross tie with the same wood compound with no previous spike hole. Material can be applied by the machine or with manual applicators.

Prior to bolted and insulated joint bar application, the Contractor shall clean and coat

July 3, 2013

the rail ends with an approved oil or grease. Rails shall be cut squarely and cleanly by means of a rail saw. Holes for bolting cut rails shall be drilled by an approved type of rail drill and with use of a template. Under no circumstances shall new holes be drilled between two existing holes or that holes be torch cut. Expansion shims shall be used as directed by the Resident. Joint bars shall be positioned on the rail, bolts inserted and washers and nuts applied by hand. The joint bars shall be in a vertical (uncocked) position as one of the center bolts is tightened. All bolts shall be completely tightened when the rail is laid to a tension range of 20,000 to 25,000 lbs/bolt and in the proper sequence to properly seat the rail joint, beginning at the center and working in both directions toward the end. To assure that the joint bars maintain their vertical position, the toes of the bars should be tapped with a maul as the bolts are tightened.

No bolted rail joints are permitted at any time within 30 feet of the grade crossing. These joints shall be thermite welded prior to or during installation of the grade crossing.

Track surface and alignment shall be constructed as per applicable Project cross-sections. Surface and Alignment shall be performed by a machine capable of achieving the following tolerances. Hand tamping within grade crossing is prohibited. The tolerances for completed track work shall be as follows:

TRACK GAGE

4'-8-1/2", measured 5/8" down from top of rail

TOLERANCES

Not less than or more than 1/8"

TRACK ALIGNMENT

The deviation of the mid-ordinate from a 62-foot chord may not be more than --

1/4 INCH

TRACK SURFACE

The runoff in any 31 feet of rail at the end of a raise may not be more than --

1/4 INCH

The deviation from uniform profile on either rail at the mid-ordinate of a 62-foot chord may not be more than --

1/4 +/- INCH

The deviation from zero crosslevel at any point on tangent or curved track may not be more than --

1/4 INCH

The difference in crosslevel between any two points less than 62 feet apart may not be more than --

1/4 +/- INCH

Negative superelevation shall not be allowed.

Place ballast in crib and shoulder sections as required for final surfacing and alignment. All track work constructed and rehabilitated shall be final surfaced and lined with a fully automatic power tamper of the vibratory squeeze type. Cross-ties shall be tamped from a point approximately 15 inches but not less than 13 inches inside each rail on both sides of the tie to the tie end. Tamping is permitted at the center of the ties between these limits. Both ends of the tie shall be tamped simultaneously and tamped inside and outside of the rail shall be done at the same time. All cross ties shall be tamped tightly to provide good bearing against the base of the rail after the track is raised to final surface. All “down” ties shall be brought up “nipped” to the base of the rail and re-tamped to the satisfaction of the Resident and the Railroad. The tamper machine shall be supported by a ballast regulator with a mechanical broom capable of removing all ballast from the surface of the cross-ties and forming a smooth ballast shoulder and slope as shown on the plans. Any exceptions to the above shall be approved by the Resident and the Railroad.

Compromise joint locations shall be staggered between 12 and 16 feet. Contractor shall be responsible for ordering joints required based on rail section furnished and existing rail sections being joined. Compromise welds accepted as per thermite specs. No welds closer than 4 feet from each other or 4 feet from opposite rail weld or rail joint.

Rail anchors shall not be applied within the roadway of the panel grade crossing. All approach ties shall be box anchored for 200 feet beyond the edge of pavement. Place anchors to achieve full bearing against the ties and fully drive or attach anchors following the manufacturer’s instructions.

Rubber rail seal shall be installed in accordance with the manufacturer’s specifications and shall not be applied to the rails until the track work has been completed and accepted by the Resident and the Railroad. The Contractor shall eliminate rail joint locations within the crossing by working out from the crossings when laying rail and making thermite welds during installation of rail within crossing limits. No bolted rail joint will be allowed within or nearer than 30 feet of the crossing surface without approval of the Resident and the Railroad.

Paving shall be in accordance with Project Special Provision 403, and applicable sections of Project plan sheets, and shall be paid for separately under appropriate pavement items. The contractor must submit in writing a detailed detour plan to the Resident and the Railroad for review and approval. All associated costs for temporary crossing surface or detour road shall be incidental to this item.

Vehicle traffic control is to be coordinated with the Contractor’s schedule and shall be in accordance with applicable Project Special Provisions and State of Maine Standard Specification Section 652 – Maintenance of Traffic. All associated costs shall be incidental to these items.

All associated costs for night work and lighting shall be incidental to the 652 items.

Pavement markings shall be installed as shown on the plans.

647.1.3 Method of Measurement

Timber Ballasted Track Constuction will be paid for as lump sum.

No separate payment will be made for track removal/disposal, compaction, ballast, cross ties, other track material (OTM), continuous welded rail (CWR), bolted joints, compromise joints, welding, track lining/surfacing, rubber rail seal, but all costs shall be included in the respective contract unit price bid. Installation of hot mix asphalt, excavation, detour signs and maintenance, and pavement markings are not included in this item.

647.1.4 Basis of Payment

Timber Ballasted Track Constuction will be paid for at the respective Contract Lump Sum unit price, which shall include all labor, materials, equipment and incidental costs to complete this work.

<u>Pay Item</u>	<u>Pay Unit</u>
647.011 Timber and Ballasted Track Construction	Lump Sum

SPECIAL PROVISION
SECTION 649
INSULATED JOINTS

649.1 Description: This Section specifies the installation of island circuit insulated joints to maintain an operating automatic highway crossing warning system. Insulated joints supplied by the Railroad are to be installed by the Contractor to create an island circuit. Locations to be determined by the Railroad. All other joints within island circuit shall be bonded.

Other related work specified in:

1. Item 647.011 – Timber and Ballasted Track Construction

649.11 Applicable Standards:

The following Codes, Regulations, Reference Standards and Specifications apply to work included in this Section:

1. American Railway Engineering and Maintenance Association (AREMA).
2. Manual for Railway Engineering.
3. Communications and Signals Manual.

Quality Control

- A. Each insulated joint shall be inspected after installation to assure that it conforms to the Field Installation Procedure as approved by the Resident and Railroad.

MATERIALS

649.2 Materials

648.021 Bolted Insulated Rail Joints

- A. Each bolted insulated rail joint shall consist of two joint bars of the same general configuration as 6-hole standard joint bars conforming to the dimensional requirements of the 100 RA rail. Each insulated joint bar shall consist of a rolled, heat-treated steel core surrounded by a uniform, single pour, polymeric insulation material.
- B. Bar, end post and bushing insulation material shall be impervious to oil, grease and water, and shall have electrical resistance characteristics equal to or greater than fiber insulation meeting the requirements of the AREMA Signal Manual Part 14.5.1. Insulated joints shall be highly resistant to abrading, cracking, cutting, spalling and fatigue failure under impact loads, and shall exhibit deflection characteristics comparable to standard steel rail joints.

- C. Insulated Joints shall be new non-bonded in accordance with AREMA Chapter 4, Part 3, Section 7 – 9.
- D. All insulated joints shall be furnished complete with bars, end posts, bushings, and washer plates.
- E. Tie plates for insulated joint support shall be polymer, insulated steel plates, or approved equal.
- F. Fasteners shall be per manufacturer's recommendation, or approved equal.
- G. Tie plates for insulated joint support shall be polymer, insulated steel plates

CONSTRUCTION DETAILS

649.3 Construction Details

A. General

- 1. Locations shown are approximate only and final location shall be determined in the field and approved by the Railroad and Resident.

B. Bolted Insulated Rail Joints

- 1. Insulated joints shall be installed in accordance with the approved installation procedure.
- 2. The cutting of rails for Insulated Joints shall be prohibited
- 3. Burning holes in the rail or cutting the rails using a heat dependent device is prohibited.
- 4. Prior to installation of the insulated joint, the parts of the rail to be covered by the insulated joint shall be thoroughly cleaned to remove all rust, scale and dirt, as approved by the Resident.
- 5. After cleaning the rail at the insulated joint location, the Contractor shall apply the end post and joint bars to each side of the rail.
- 6. After installation of the end posts and joint bars, the Contractor shall secure the fastener to the rail using an approved fastening tool.
- 7. After installation of the fasteners, with locking devices in place, the fasteners shall be secured to the rail using a fastening tool of the type recommended by the manufacturer.

8. Tie plates shall be inserted under the insulated joint and fastened to the tie with the proper spike or fastener. Set spike with short side of head to insulated joint to eliminate abrasion and cuts. Use poly plates when joint lands on tie.

METHOD OF MEASUREMENT

649.5 Method of Measurement

- A. Island circuit insulated joints including all hardware and insulated tie plates shall be measured on a per each basis completely installed and accepted. Included in this measurement shall be the removal of the existing joint prior to installing the insulated joint.

BASIS OF PAYMENT

649.6 Basis of Payment

Installation of island circuit insulated joints supplied by the Railroad shall be incidental to Item 648.5206 Highway Grade Crossing Signal System.

END OF SECTION

SPECIAL PROVISION
SECTION 650
HIGHWAY GRADE CROSSING SIGNAL SYSTEM

650.01 Description.

The work shall include the installation of Railroad supplied signal equipment and the removal of the existing signal box, flasher cables, existing conduit underneath roadway and all incandescent lights on signal flashers.

The Railroad shall provide the contractor with all necessary signal materials for installation. All removed signal materials shall become property of the Railroad.

650.02 Materials.

- A. Single Island Circuit Signal Case w/Steel Frame Foundation
- B. 200 feet of Okonite 7/C #9 Cable
- C. 75 feet of Okonite 5/C #9 Cable
- D. 300 feet of #6 Solid Copper Cable
- E. (4) 100 lb insulated joints
- F. 120' of schedule 80 4" conduit
- G. (1) S&C Track Diode
- H. (8) 12" Western Cullen Hayes LED Light Mechanisms

650.03 Construction Requirements.

The contractor shall be required to conduct and phase all signal installation within existing right-of-way in a manner that will allow operation of rail freight traffic as required by the railroad.

1. Excavate and remove existing signal box and cables as needed. The Railroad shall determine signal box material to be salvaged. All other signal box material shall become property of the

Contractor. Install Single Island Circuit Signal Case 10 feet offset of nearest rail. Attach steel frame foundation to Single Island Circuit Signal Case before placing to required elevation. Door latches shall face the track. Signal case shall be horizontally and vertically level prior to backfilling. Bottom elevation of the signal case shall be approximately the same elevation of the top of rail.

2. After completed full depth excavation and compaction of crossing subgrade place 100' of schedule 80 4" conduit across roadway as directed by the Resident and the Railroad. Remove existing flasher cable from West flasher to previous signal box. Ditch as required from signal case to West flasher. Install Okonite 7/C #9 cable through road conduit to new signal case with enough slack to account for frost heaving. Backfill ditches as required by the Resident and Railroad.

3. After completed full depth excavation and compaction of track subgrade place 20' of schedule 80 4" conduit across track as directed by the Resident and the Railroad. Remove existing flasher cable from East flasher to previous signal box. Ditch as required from signal case to East flasher. Install Okonite 5/C #9 cable and A/C feed from meter through conduit to new signal case with enough slack to account for frost heaving and backfill ditches as required by the Resident and Railroad.

4. Install two new 100lb insulated joints on East end approach and two new insulated joints on West end approach. Install S&C track diode on West end approach.

5. Install 300' of 2/C #6 solid copper Okonite to two newly installed 100 lb insulated joints on East approach. Ditch as required from signal case to insulated joints. Leave enough slack in cable to account for frost heaving and backfill as required by the Resident and Railroad.

6. Replace (4) 12" incandescent light mechanisms on each West and East flasher mast with (4) new 12" Western Cullen Hayes L.E.D. light mechanisms. Light position shall be adjusted by the Contractor at the Resident's request.

7. Contractor shall cable Meg, relay test and verify that circuits in crossing are functioning as intended by the Railroad.

8. Contractor shall provide additional hardware if needed.

9. All ditches and excavation for signal system shall be backfilled and accepted by the Resident and the Railroad.

650.1 Method of Measurement.

Highway Grade Crossing Signal System will be paid for as lump sum.

No separate payment will be made for ditching, excavating, compacting, installing insulated joints and cables. Insulated joints are incidental to this item.

650.11 Basis of Payment

Highway Grade Crossing Signal System will be paid for at the respective Contract Lump Sum unit price, which shall include all labor and equipment to install the signal system. No payment will be made by the Contractor for signal materials.

<u>Pay Item</u>	<u>Pay Unit</u>
648.5206 Highway Grade Crossing Signal System	Lump Sum

SPECIAL PROVISION
SECTION 703
AGGREGATES
 (Stone Ballast)

703.33 Stone Ballast Aggregate for stone ballast shall be clean and graded crushed stone aggregate with a hard, dense angular particle structure providing sharp corners and cubicle fragments with prime consideration for drainage efficiency.

The material retained on the $\frac{3}{8}$ inch sieve shall contain not more than 5 percent, by weight of flat and elongated particles when performed in accordance with test method ASTM D 4791, Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate, using a dimensional ratio of 1:5.

The material shall have an absorption no greater than 1.5 percent by weight and a bulk specific gravity of less than 2.60 as determined in accordance with AASHTO T 85 modified for weight of sample.

The material shall not exceed 30 percent loss on AASHTO T 96, Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.

The material shall meet the grading requirements of the following table:

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves	
	Type 4	Type 4A
2 ½ inch		100
2 inch	100	90-100
1 ½ inch	90-100	60-90
1 inch	20-55	10-35
$\frac{3}{4}$ inch	0-15	0-10
$\frac{3}{8}$ inch	0-5	0-3
No. 200	1.0 max.	1.0 max.

STATE OF MAINE DEPARTMENT OF TRANSPORTATION



BROWNVILLE PISCATAQUIS COUNTY

ROUTE II

WIN 18412.00, 18412.10

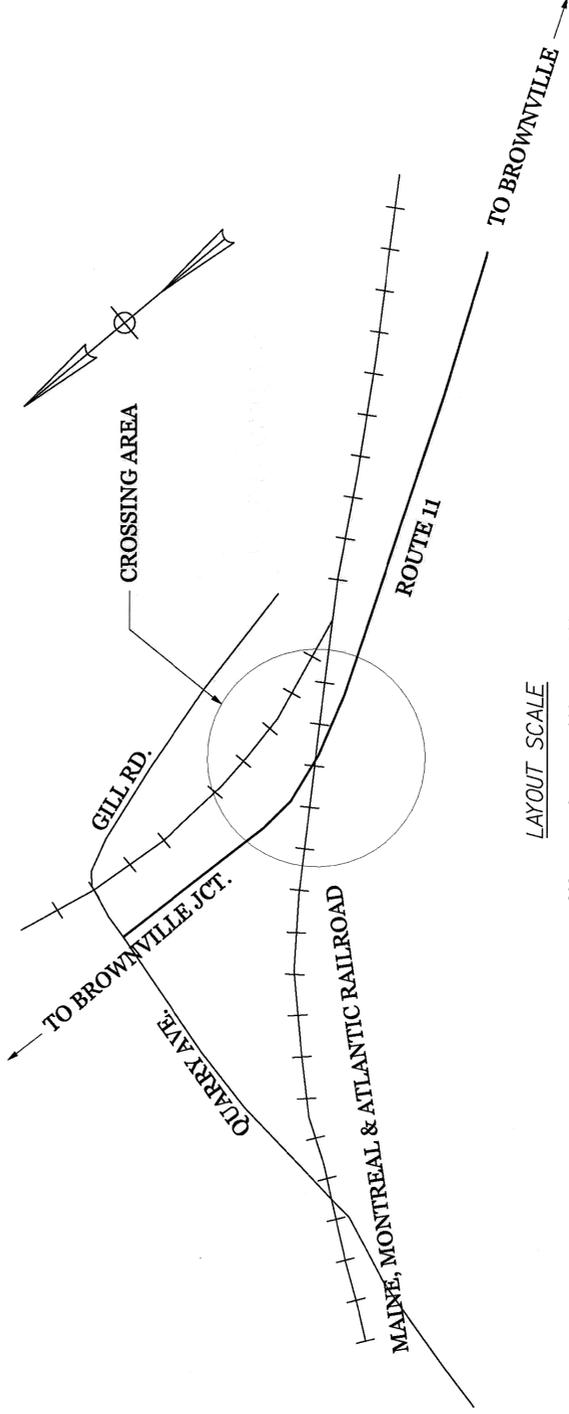
STP - 1841(200)X STP - 18421(210)X
PROJECT LENGTH : 0.01 MILES

PLAN LEGEND

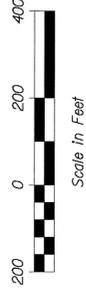
Town, County, State	Centerline-Existing
Property Lines	Centerline-Proposed
R/W Lines-Existing	Travelway-Existing
R/W Lines-Proposed	Travelway-Proposed
Culvert-Existing	Railroad
Culvert-Proposed	Catch Basins
Existing	Manholes
Proposed	Existing
Proposed	Proposed Underdrain
Type 1	Proposed Ditch
Type 3	Existing Ditch
Type 5	Utility Poles
Outline of Bodies of Water	Existing
Ledge	Fire Hydrants
Buildings	Existing
Trees	Existing Water Line
Conifer	Existing San. Sewer
Deciduous	Existing San. Sewer Manhole
Clearing Limit Line	Guardrail-Existing
CLL	Guardrail-Proposed
	Guardrail-Cable, Other

INDEX OF SHEETS

Description	Sheet No.
Title Sheet	1
Estimate/Notes	2
Plan	3
Typical Sections	4
Roadway Profile	5
Rail Profile	6
Drainage Details	7
Roadway Cross Sections	8-13
Detour Plan	14



LAYOUT SCALE



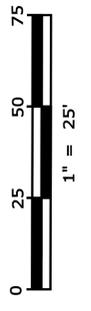
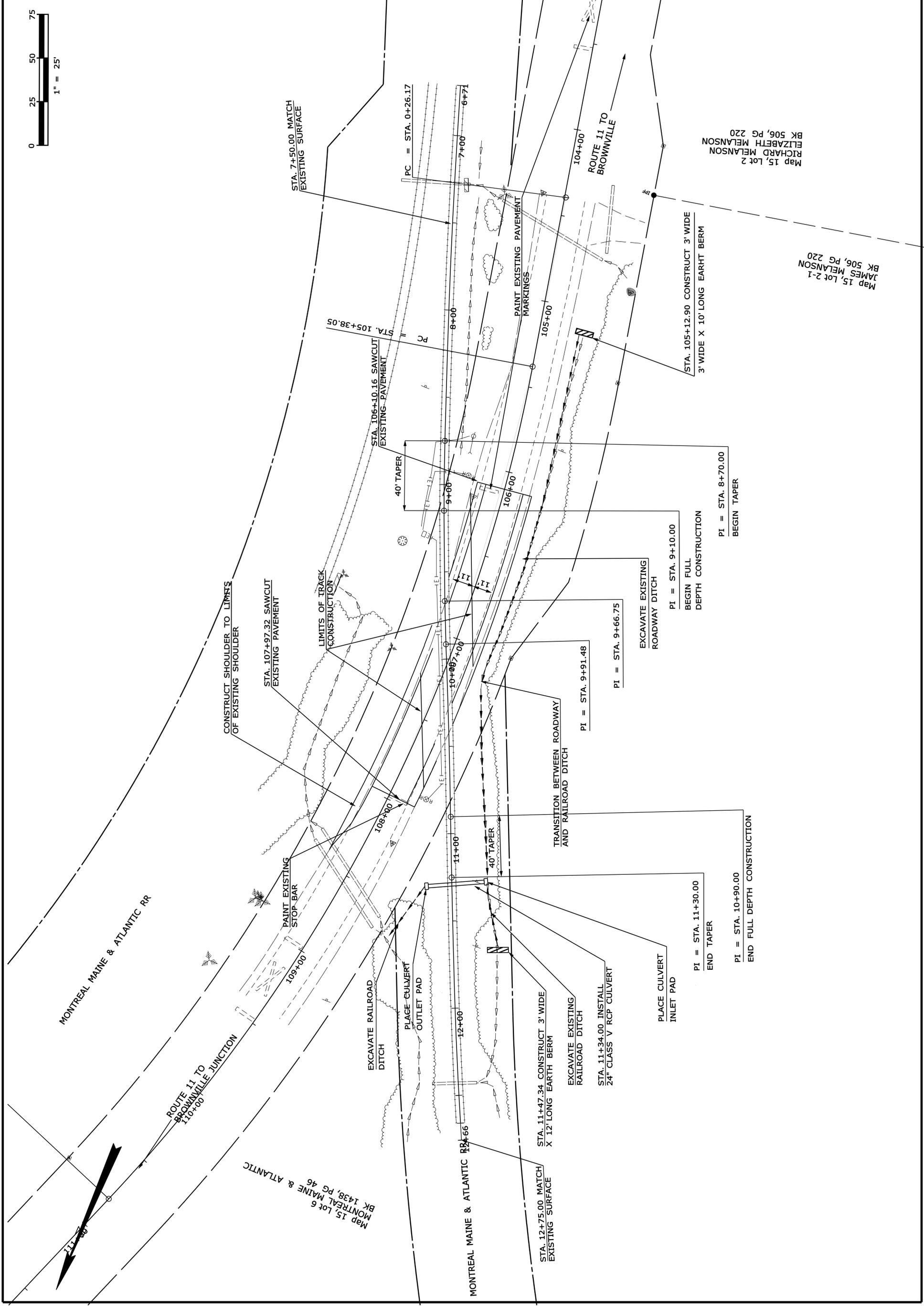
TRAFFIC DATA

Current (2013) AADT	2040
Posted Speed (mph)	40

PROJECT LOCATION:	Approximately 1.00 miles North along Route 11 from Brownville town line
PROGRAM AREA:	Multimodal Program
SCOPE OF WORK:	Railroad Track Crossing Rehabilitation and Signal Rehabilitation

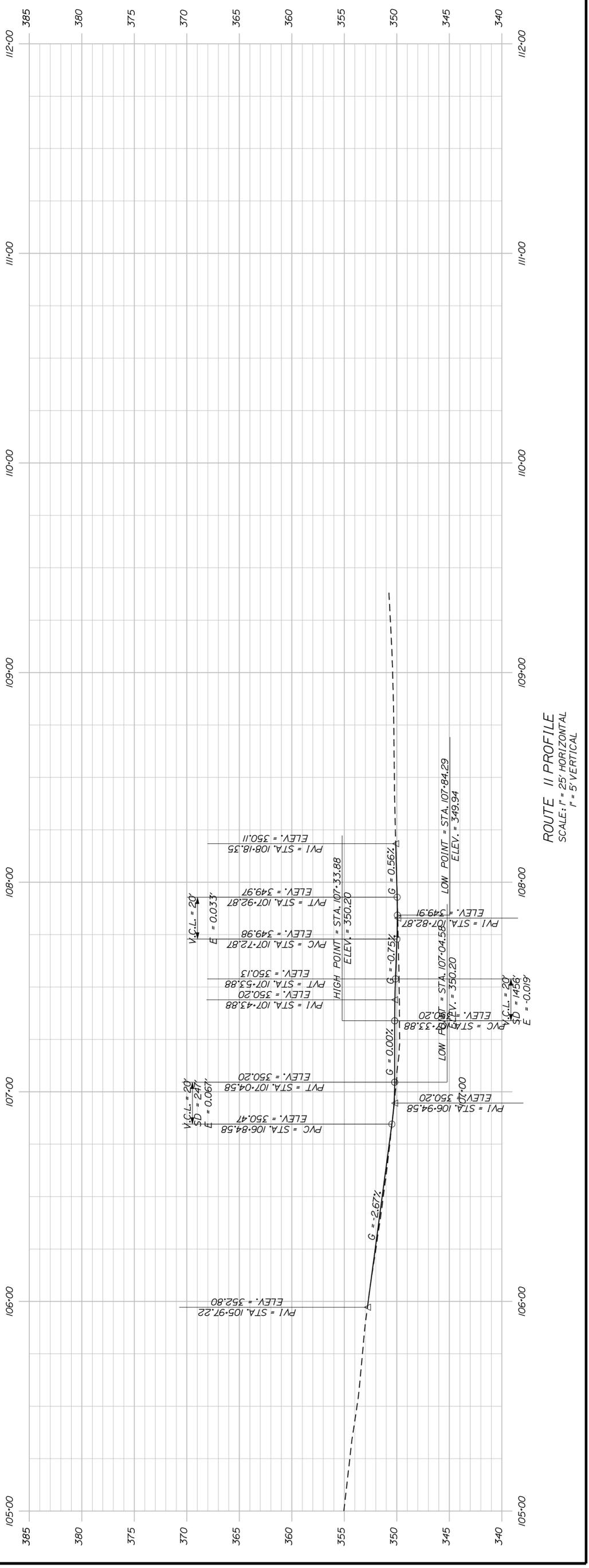
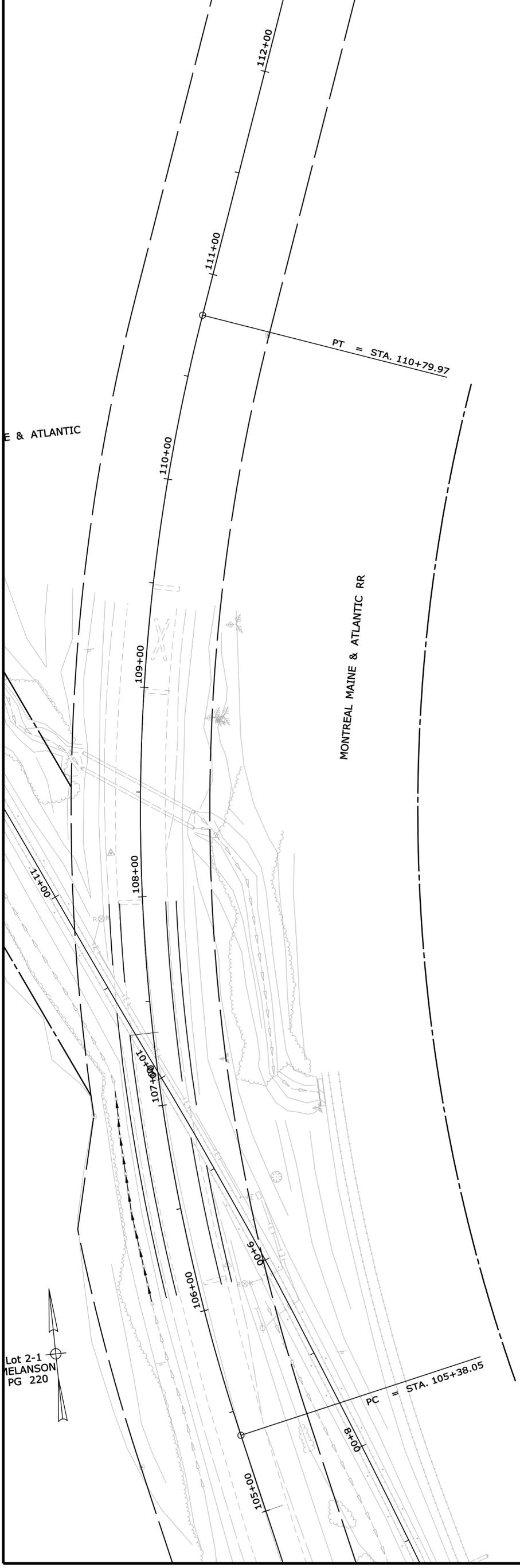
STATE OF MAINE DEPARTMENT OF TRANSPORTATION APPROVED DATE: 6/24/13	COMMISSIONER: [Signature] CHIEF ENGINEER: [Signature]	PROJECT INFORMATION PROGRAM: MULTIMODAL PROJECT MANAGER: CATHERINE RAND ENGINEER: BRENDAN MORAN CONSULTANT: [Blank] CONTRACTOR: [Blank] PROJECT RESIDENT: [Blank] PROJECT COMPLETION DATE: [Blank]	BROWNVILLE ROUTE 11 TITLE SHEET
DATE: June 24, 2013 P.E. NUMBER: 9544 SIGNATURE: [Signature]			SHEET NUMBER 1 OF 14-15

DATE	P. # NUMBER	SIGNATURE
6/18/2013		JT
6/20/2013		BSM



PROJ. MANAGER	CATHERINE RAND	BY		DATE	
DESIGN-DETAILED	BSM			6/18/2013	
CHECKED-REVIEWED	JT			6/20/2013	
DESIGN-DETAILED					
DESIGNS-DETAILED					
REVISIONS 1					
REVISIONS 2					
REVISIONS 3					
REVISIONS 4					
FIELD CHANGES					

BROWNVILLE
ROUTE 11
PLANS



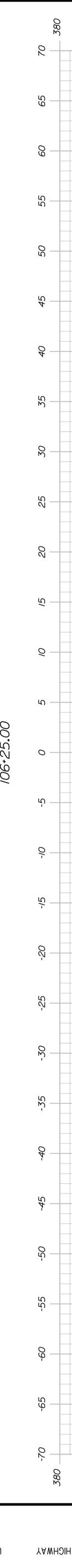
ROUTE 11 PROFILE
SCALE: H = 25' HORIZONTAL
V = 5' VERTICAL

SHEET NUMBER

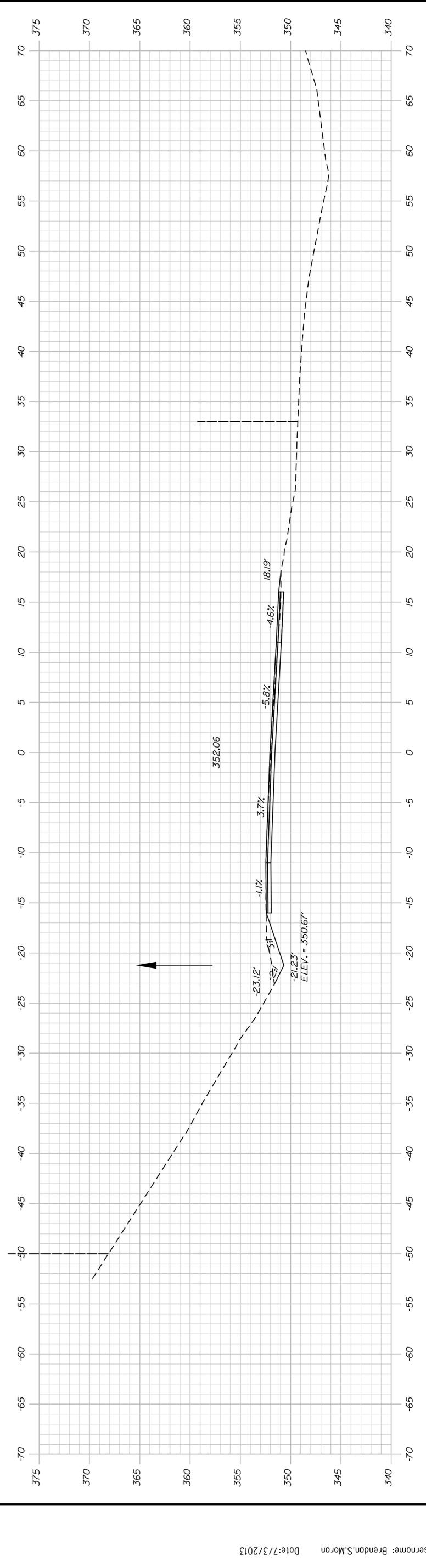
8

BROWNVILLE
ROUTE 11
CROSS SECTIONS

PROJ. MANAGER	CATHERINE RAND
BY	BSM
DATE	6/18/2013
SIGNATURE	JT
P.E. NUMBER	
DATE	



FIELD CHANGES	
REVISIONS 4	
REVISIONS 3	
REVISIONS 2	
REVISIONS 1	
DESIGN-3-DETAILLED	
DESIGN-2-DETAILLED	
CHECKED-REVIEWED	JT
DESIGN-DETAILD	BSM
DATE	6/18/2013
SIGNATURE	
P.E. NUMBER	
DATE	



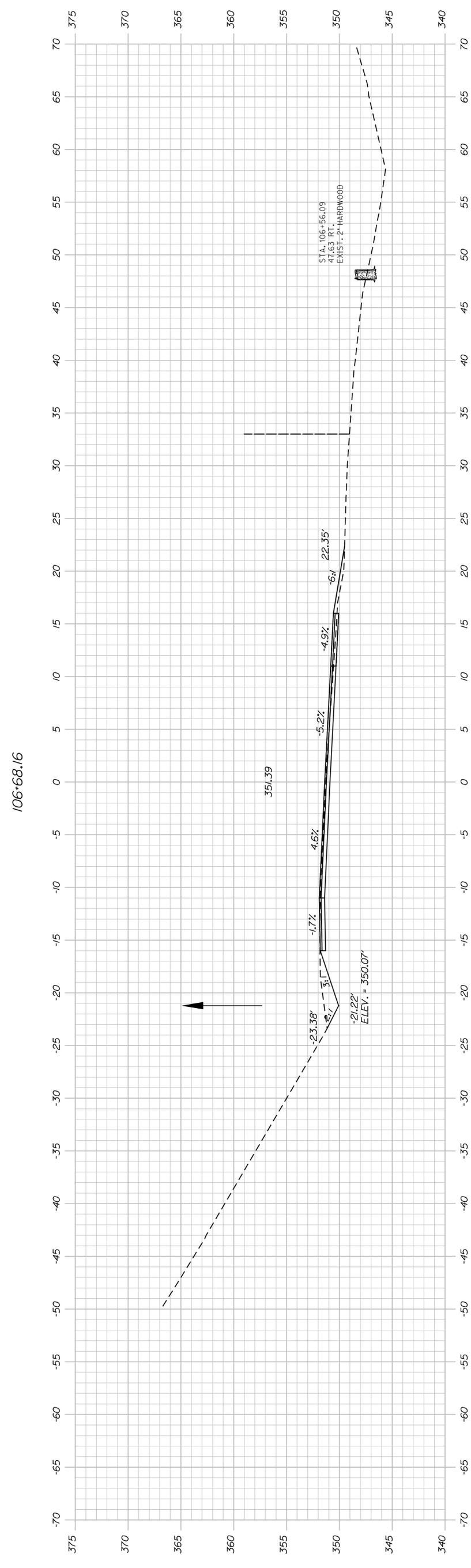
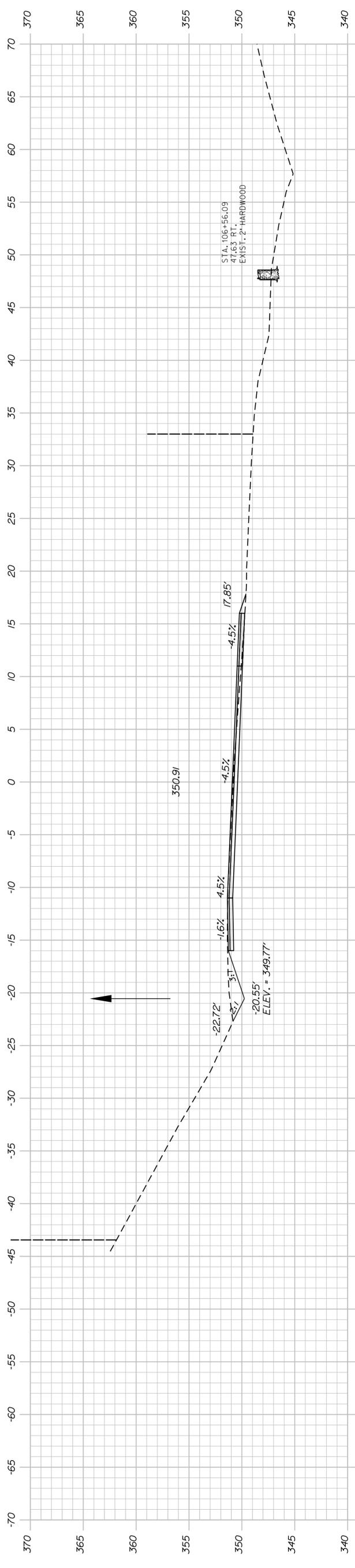
SHEET NUMBER
6

BROWNVILLE
ROUTE 11
CROSS SECTIONS

FIELD CHANGES	
REVISIONS 4	
REVISIONS 3	
REVISIONS 2	
REVISIONS 1	
DESIGN-DETAILED	
DESIGN-DETAILED	
CHECKED-REVIEWED	JT
BSM	JT
DATE	6/18/2013

PROJ. MANAGER	CATHERINE RAND	BY		DATE	
SIGNATURE		P. E. NUMBER		DATE	

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
ROUTE 11 BROWNVILLE, MAINE
WIN
18412.00, 18412.10
HIGHWAY PLANS

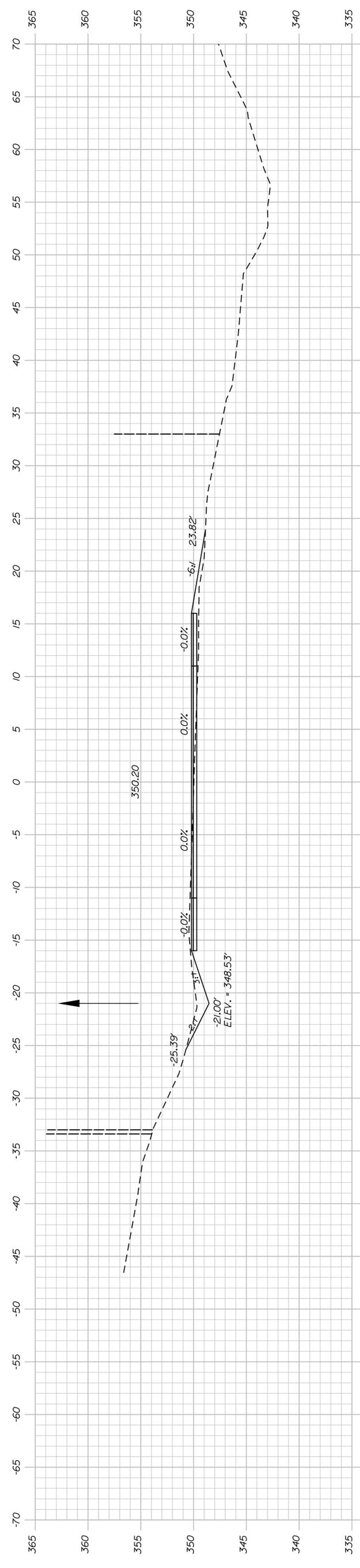
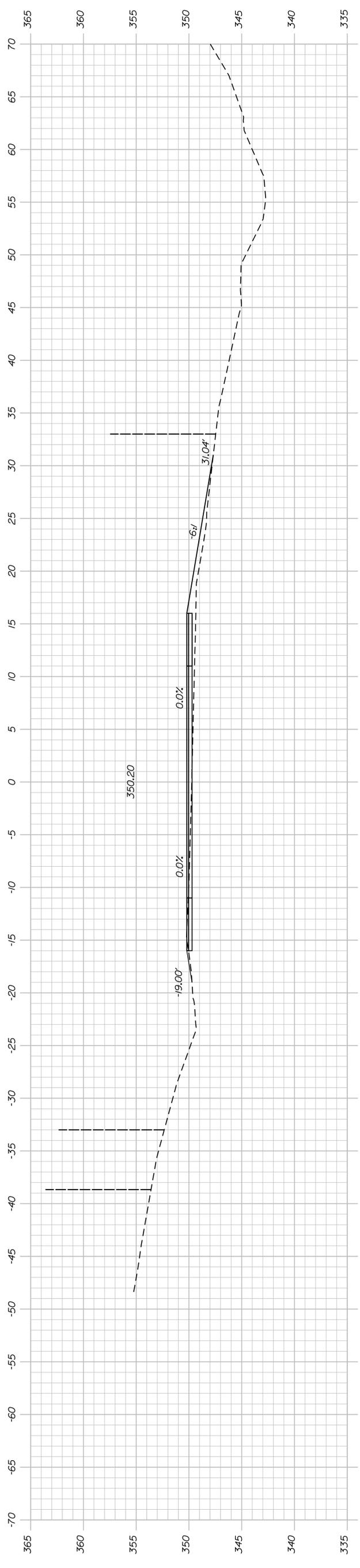


SHEET NUMBER
11
OF 15

**BROWNVILLE
ROUTE 11
CROSS SECTIONS**

PROJ. MANAGER	CATHERINE RAND
BY	BSM
DATE	6/18/2013
SIGNATURE	[Signature]
P. # NUMBER	
DATE	6/20/2013

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
ROUTE 11 BROWNVILLE, MAINE
WIN
18412.00, 18412.10
HIGHWAY PLANS



12

SHEET NUMBER

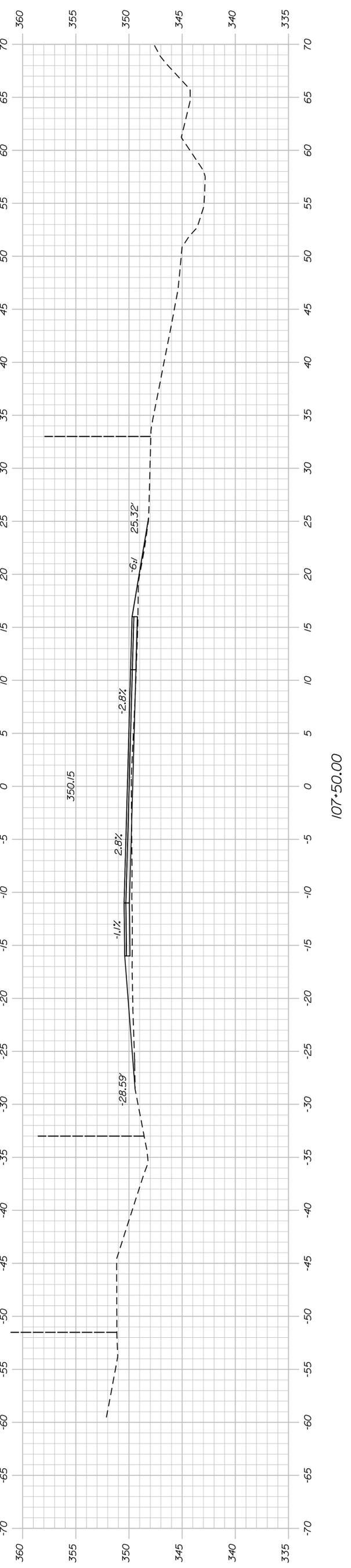
BROWNVILLE
ROUTE 11

CROSS SECTIONS

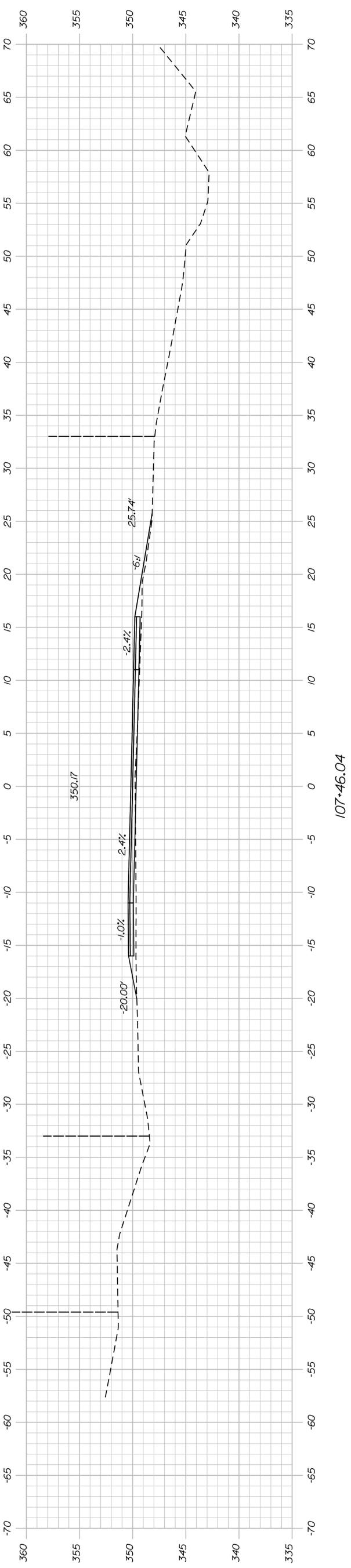
FIELD CHANGES
REVISIONS 4
REVISIONS 3
REVISIONS 2
REVISIONS 1
DESIGN-DETAILED
DESIGN-DETAILED
CHECKED-REVIEWED
DATE

PROJ. MANAGER	CAATHERINE RAND
BY	BSM
DATE	6/18/2013
SIGNATURE	JT
P.E. NUMBER	
DATE	6/20/2013

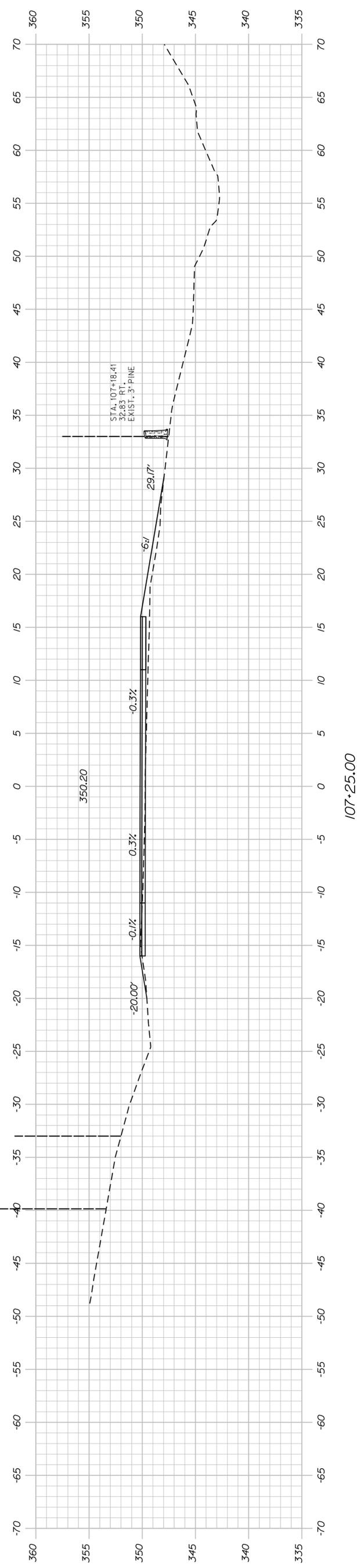
STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
ROUTE 11 BROWNVILLE, MAINE
WIN
18412.00, 18412.10
HIGHWAY PLANS



107+50.00



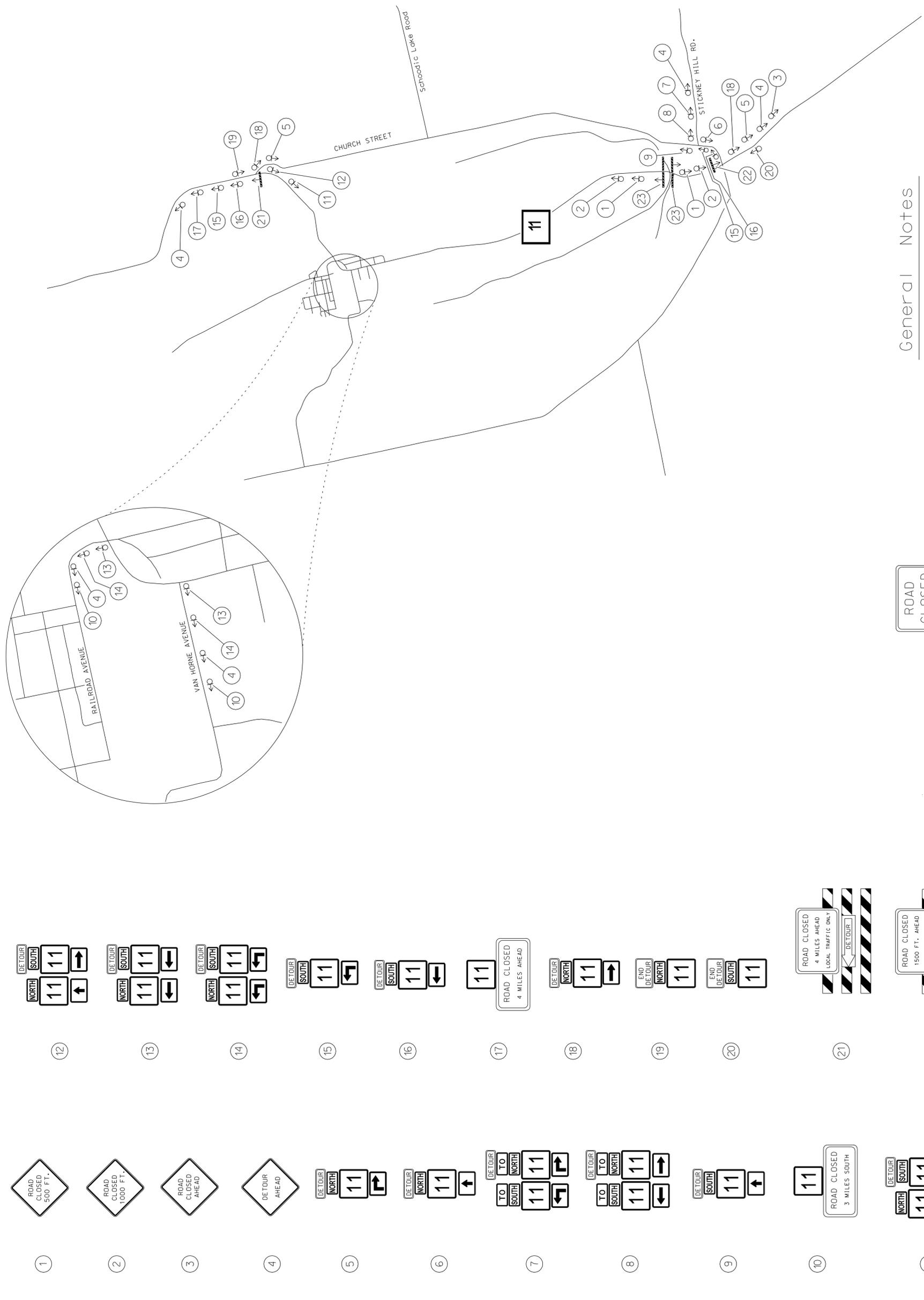
107+46.04



107+25.00

PROJ. MANAGER	CATHERINE RAND	BY		DATE	6/17/2013
DESIGN-DETAILED	DH				
CHECKED-REVIEWED	BSM				
DESIGN-DETAILED	BSM				
DESIGN3-DET. ALLED3					
REVISIONS 1					
REVISIONS 2					
REVISIONS 3					
REVISIONS 4					
FIELD CHANGES					

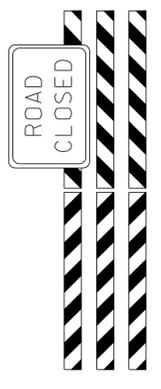
BROWNVILLE ME
ROUTE 11
DETOUR PLAN



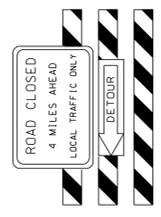
- 1 ROAD CLOSED 500 FT.
- 2 ROAD CLOSED 1000 FT.
- 3 ROAD CLOSED AHEAD
- 4 DETOUR AHEAD
- 5 DETOUR NORTH 11
- 6 DETOUR NORTH 11
- 7 TO SOUTH 11 TO NORTH 11
- 8 TO SOUTH 11 TO NORTH 11
- 9 DETOUR SOUTH 11
- 10 ROAD CLOSED 3 MILES SOUTH
- 11 DETOUR SOUTH 11
- 12 DETOUR SOUTH 11
- 13 DETOUR SOUTH 11
- 14 DETOUR SOUTH 11
- 15 DETOUR SOUTH 11
- 16 DETOUR SOUTH 11
- 17 ROAD CLOSED 4 MILES AHEAD
- 18 DETOUR NORTH 11
- 19 END DETOUR NORTH 11
- 20 END DETOUR SOUTH 11
- 21 ROAD CLOSED 4 MILES AHEAD LOCAL TRAFFIC ONLY
- 22 ROAD CLOSED 1500 FT. AHEAD LOCAL TRAFFIC ONLY

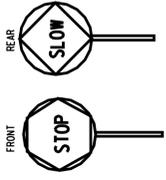
General Notes

- 1) Other signs may be needed as directed by the Resident.
- 2) Cover all conflicting route and directional signs.

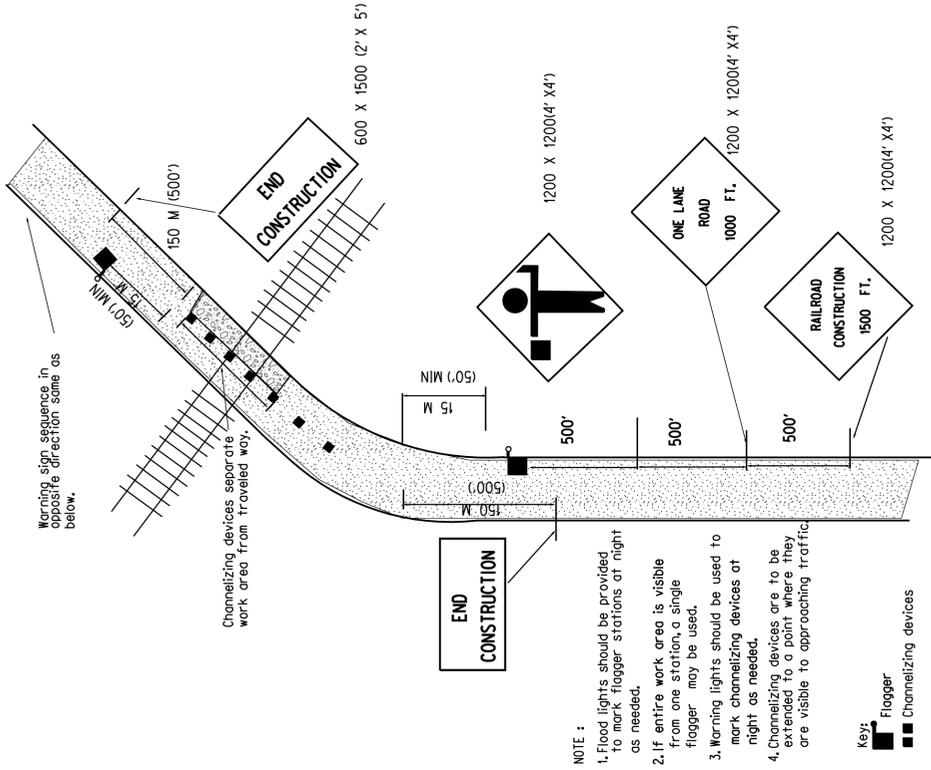


23





STOP / SLOW PADDLES SHALL BE FABRICATED AS DESCRIBED IN PARAGRAPH 6E-2 IN THE CURRENT MANUAL ON UNIFORM TRAFFIC DEVICES HANDLE TO BE PROVIDED.



- NOTE :
1. Flood lights should be provided to mark flagger stations at night as needed.
 2. If entire work area is visible from one station, a single flagger may be used.
 3. Warning lights should be used to mark channelizing devices at night as needed.
 4. Channelizing devices are to be extended to a point where they are visible to approaching traffic.

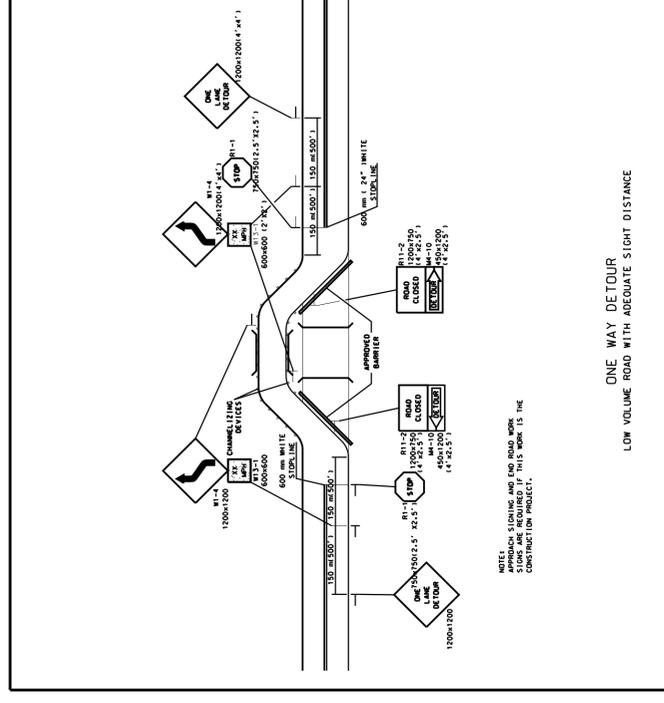
Key:
 ■ Flagger
 ■ Channelizing devices

Figures 6-5. Typical applications of traffic control devices on 2-lane highway where one lane is closed and flagging is provided.

6B - 7

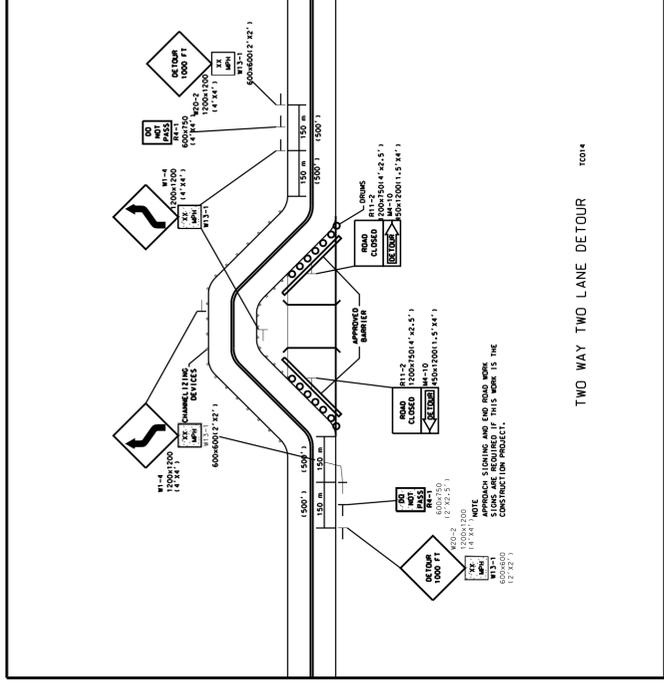
SPECIFICATIONS:

REFERENCE IS HEREBY MADE TO THE LATEST EDITION OF "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."



NOTE:
 APPROACH SLOWING AND END ROAD WORK SIGNS ARE REQUIRED IF THIS WORK IS THE CONSTRUCTION ON PROJECT.

LOW VOLUME ROAD WITH ADEQUATE SIGHT DISTANCE



NOTE:
 APPROACH SLOWING AND END ROAD WORK SIGNS ARE REQUIRED IF THIS WORK IS THE CONSTRUCTION ON PROJECT.

TWO WAY TWO LANE DETOUR

RAILROAD GRADE CROSSING SIGNING DETAIL

Note

Crossing reconstruction area may be temporarily closed to traffic with MDOT and/or town approval in accordance with approved traffic control plan

DATE	6/20/2013
P. E. NUMBER	
SIGNATURE	

PROJ. MANAGER	CATHERINE RAND
BY	BSM
DATE	6/18/2013
CHECKED-REVIEWED	JT
DESIGN-DETAILED	
DESIGN-DETAILED2	
DESIGN-DETAILED3	
REVISIONS 1	
REVISIONS 2	
REVISIONS 3	
REVISIONS 4	
FIELD CHANGES	