



## REQUEST FOR QUOTATION

<p><b>Contact person/Telephone</b>                  Dennis Kopik/212-435-3931</p>	<p><b>Collective# / RFO Number / Bid Due Date</b>                  0000022187 / / 09/09/2010                  Bids must be received no later than 11:00 AM on the above Bid Due Date.</p> <p><b>Deliver Goods/Services To:</b>                  Journal Square Transp. Center                  Port Authority, One Path Plaza                  Jersey City N.J. 07306</p>
---------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Quantity	Description	Unit Price	Total
	<p>TRACK TURNOUTS &amp; CLOSURE RAILS -PATH AS PER ATTACHED SPECIFICATION</p> <p>A price preference of 10 % is available for NY/NJ Minority and Women Business Enterprises (M/WBE) or 5% for NY/NJ Small Business Enterprises (SBE) certified by the Port Authority (PA) by the day before bid opening for awards not exceeding \$1,000,000. My firm was certified as a _____ on _____.</p> <p>****QUOTE ONLY FULLY DELIVERED PRICES****</p> <p>LEADTIME _____</p>		
	<p><b>PLEASE QUOTE FULLY DELIVERED PRICES</b></p>	<p><b>PAYMENT TERMS</b></p>	<p><b>Total Delivered Price</b></p>

This Quotation is subject to the terms and conditions set forth on the back page hereof. Bidder is advised to read these before signing. We have read the instructions and, if favored with an order, we agree to furnish the items enumerated herein at the prices and under the conditions indicated.

Signed \_\_\_\_\_  
 Firm Name \_\_\_\_\_  
 Telephone number \_\_\_\_\_ Date \_\_\_\_\_  
 Fax Number \_\_\_\_\_  
 Federal Taxpayer ID \_\_\_\_\_

Bidder  
 Must  
 Sign  
 In  
 Two  
 Places

**NOTICE TO BIDDERS:** Unless the following term of assurance that the above offer is irrevocable is signed, the offer submitted herein shall not be deemed to be complete.

The foregoing offer shall be irrevocable for 90 days after the date on which The PORT AUTHORITY TRANS-HUDSON CORPORATION opens this proposal.

Signed \_\_\_\_\_ Date \_\_\_\_\_  
 Firm Name \_\_\_\_\_



## REQUEST FOR QUOTATION

RFQ Number / Bid Due Date  
 / 09/09/2010

Quantity	Description	Unit Price	Total
	<p>This is a Formal Bid Invitation                      Mail Sealed Bids to:</p> <p>The Port Authority of NY &amp; NJ                      Attn: Bid Custodian                      Procurement Department                      One Madison Avenue, 7th Floor                      New York, N.Y. 10010</p> <p>by the date and time listed above, where it will be publicly opened and read.</p> <p>Bids are only accepted Monday through Friday, excluding Port Authority holidays, between the hours of 8 A.M. &amp; 5 P.M., via regular mail, express delivery service or hand delivery.</p> <p>If you do not use or have an envelope provided, you must clearly mark the outside envelope/package with 'BID ENCLOSED' and show the company name, address, as well as Bid number and Due date as stated on this bid document.</p> <p>A valid photo id is required to gain access into the building, to attend the bid opening or hand deliver a bid.</p>		
3 EA	Turnout/Right Hand #4		
<b>PLEASE QUOTE FULLY DELIVERED PRICES</b>		<b>PAYMENT TERMS</b>	<b>Total Delivered Price</b>

**This Quotation is subject to the terms and conditions set forth on the back page hereof. Bidder is advised to read these before signing.**

We have read the instructions and, if favored with an order, we agree to furnish the items enumerated herein at the prices and under the conditions indicated.

**NOTICE TO BIDDERS:** Unless the following term of assurance that the above offer is irrevocable is signed, the offer submitted herein shall not be deemed to be complete.

Signed \_\_\_\_\_  
 Firm Name \_\_\_\_\_  
 Telephone number \_\_\_\_\_ Date \_\_\_\_\_  
 Fax Number \_\_\_\_\_  
 Federal Taxpayer ID \_\_\_\_\_

Bidder  
 Must  
 Sign  
 In  
 Two  
 Places

The foregoing offer shall be irrevocable for 90 days after the date on which The PORT AUTHORITY TRANS-HUDSON CORPORATION opens this proposal.

Signed \_\_\_\_\_ Date \_\_\_\_\_  
 Firm Name \_\_\_\_\_



## REQUEST FOR QUOTATION

RFQ Number / Bid Due Date  
 / 09/09/2010

Quantity	Description	Unit Price	Total
	Purchase 3 each Turnout, right hand #4, as per the attached drawings and specifications: <b>DELIVER TO:</b> Harrison Car Maintenance Facility Foot of Cape May Street Harrison, New Jersey 07029 <b>CONTACT:</b> Mr. Robert Reich, 24 hours prior to delivery, at (201) 978-2247 for instructions. Delivery to be made after February/2011. <b>INVOICES FOR PAYMENT MUST BE SENT TO:</b> Port Authority Trans-Hudson Corp. One PATH Plaza - 8th Floor Jersey City, N.J. 07306 Attn: Edward Perarapacifications and drawings.		
1 EA	Turnout/Left Hand #6 Purchase 1 each Turnout, lefthand #6, as per the attached specifications and drawings. <b>DELIVER TO:</b> Harrison Car Maintenance Facility Foot of Cape May Street Harrison, New Jersey 07029 <b>CONTACT:</b> Mr. Robert Reich, 24 hours prior to delivery, at (201) 978-2247 for instructions. Delivery to be made after February/2011. <b>INVOICES FOR PAYMENT MUST BE SENT TO:</b> Port		
<b>PLEASE QUOTE FULLY DELIVERED PRICES</b>		<b>PAYMENT TERMS</b>	<b>Total Delivered Price</b>

**This Quotation is subject to the terms and conditions set forth on the back page hereof. Bidder is advised to read these before signing.** We have read the instructions and, if favored with an order, we agree to furnish the items enumerated herein at the prices and under the conditions indicated.

Signed \_\_\_\_\_  
 Firm Name \_\_\_\_\_  
 Telephone number \_\_\_\_\_ Date \_\_\_\_\_  
 Fax Number \_\_\_\_\_  
 Federal Taxpayer ID \_\_\_\_\_

Bidder  
 Must  
 Sign  
 in  
 Two  
 Places

**NOTICE TO BIDDERS:** Unless the following term of assurance that the above offer is irrevocable is signed, the offer submitted herein shall not be deemed to be complete.  
 The foregoing offer shall be irrevocable for 90 days after the date on which The PORT AUTHORITY TRANS-HUDSON CORPORATION opens this proposal.  
 Signed \_\_\_\_\_ Date \_\_\_\_\_  
 Firm Name \_\_\_\_\_



## REQUEST FOR QUOTATION

RFQ Number / Bid Due Date  
 / 09/09/2010

Quantity	Description	Unit Price	Total
	Authority Trans-Hudson Corp. One PATH Plaza - 8th Floor Jersey City, N.J. 07306 Attn: Edward Perara		
1 EA	Closure Rails Lump Sum Lump Sum for Closure Rails, as per the attached specifications and drawings. DELIVER TO: Harrison Car Maintenance Facility Foot of Cape May Street Harrison, New Jersey 07029 CONTACT: Mr. Robert Reich, 24 hours prior to delivery, at (201) 978-2247 for instructions. Delivery to be made after February/2011. INVOICES FOR PAYMENT MUST BE SENT TO: Port Authority Trans-Hudson Corp. One PATH Plaza - 8th Floor Jersey City, N.J. 07306 Attn: Edward Perara		
6 EA	Forged Transition Rails/ Left Hand Purchase 6 each forged transition rails, left hand, as per attached specifications. DELIVER TO: Harrison Car Maintenance Facility		
<b>PLEASE QUOTE FULLY DELIVERED PRICES</b>		<b>PAYMENT TERMS</b>	<b>Total Delivered Price</b>

**This Quotation is subject to the terms and conditions set forth on the back page hereof. Bidder is advised to read these before signing.**

We have read the instructions and, if favored with an order, we agree to furnish the items enumerated herein at the prices and under the conditions indicated.

Signed \_\_\_\_\_  
 Firm Name \_\_\_\_\_  
 Telephone number \_\_\_\_\_ Date \_\_\_\_\_  
 Fax Number \_\_\_\_\_  
 Federal Taxpayer ID \_\_\_\_\_

Bidder  
 Must  
 Sign  
 In  
 Two  
 Places

**NOTICE TO BIDDERS:** Unless the following term of assurance that the above offer is irrevocable is signed, the offer submitted herein shall not be deemed to be complete.

The foregoing offer shall be irrevocable for 90 days after the date on which The PORT AUTHORITY TRANS-HUDSON CORPORATION opens this proposal.

Signed \_\_\_\_\_ Date \_\_\_\_\_  
 Firm Name \_\_\_\_\_



## REQUEST FOR QUOTATION

RFQ Number / Bid Due Date  
 / 09/09/2010

Quantity	Description	Unit Price	Total
	Foot of Cape May Street Harrison, New Jersey 07029 CONTACT: Mr. Robert Reich, 24 hours prior to delivery, at (201) 978-2247 for instructions. Delivery to be made after February/2011. INVOICES FOR PAYMENT MUST BE SENT TO: Port Authority Trans-Hudson Corp. One PATH Plaza - 8th Floor Jersey City, N.J. 07306 Attn: Edward Perara		
6 EA	Forged Transition Rails/Right Hand Purchase 6 each forged transition rails, right hand, as per attached specifications. DELIVER TO: Harrison Car Maintenance Facility Foot of Cape May Street Harrison, New Jersey 07029 CONTACT: Mr. Robert Reich, 24 hours prior to delivery, at (201) 978-2247 for instructions. Delivery to be made after February/2011. INVOICES FOR PAYMENT MUST BE SENT TO: Port Authority Trans-Hudson Corp. One PATH Plaza - 8th Floor Jersey City, N.J. 07306 Attn: Edward Perara		
<b>PLEASE QUOTE FULLY DELIVERED PRICES</b>		<b>PAYMENT TERMS</b>	<b>Total Delivered Price</b>

**This Quotation is subject to the terms and conditions set forth on the back page hereof. Bidder is advised to read these before signing.**

We have read the instructions and, if favored with an order, we agree to furnish the items enumerated herein at the prices and under the conditions indicated.

**NOTICE TO BIDDERS:** Unless the following term of assurance that the above offer is irrevocable is signed, the offer submitted herein shall not be deemed to be complete.

Signed \_\_\_\_\_  
 Firm Name \_\_\_\_\_  
 Telephone number \_\_\_\_\_ Date \_\_\_\_\_  
 Fax Number \_\_\_\_\_  
 Federal Taxpayer ID \_\_\_\_\_

Bidder  
 Must  
 Sign  
 In  
 Two  
 Places

The foregoing offer shall be irrevocable for 90 days after the date on which The PORT AUTHORITY TRANS-HUDSON CORPORATION opens this proposal.  
 Signed \_\_\_\_\_ Date \_\_\_\_\_  
 Firm Name \_\_\_\_\_



## REQUEST FOR QUOTATION

RFQ Number / Bid Due Date  
 / 09/09/2010

Quantity	Description	Unit Price	Total
1 EA	Spare Parts, Switch Point, Stock Rails Purchase 1 Lump Sum Spare Parts, Switch Points and Stock Rails as per attached specifications. DELIVER TO: Harrison Car Maintenance Facility Foot of Cape May Street Harrison, New Jersey 07029 CONTACT: Mr. Robert Reich, 24 hours prior to delivery, at (201) 978-2247 for instructions. Delivery to be made after February/2011. INVOICES FOR PAYMENT MUST BE SENT TO: Port Authority Trans-Hudson Corp. One PATH Plaza - 8th Floor Jersey City, N.J. 07306 Attn: Edward Perara		
1 EA	Spare Parts, Frog Purchase 1 Lump Sum Spare Parts, Frog, as per the attached specifications. DELIVER TO: Harrison Car Maintenance Facility Foot of Cape May Street Harrison, New Jersey 07029 CONTACT: Mr. Robert Reich, 24 hours prior to delivery, at (201) 978-2247 for instructions. Delivery to be made after		
<b>PLEASE QUOTE FULLY DELIVERED PRICES</b>		<b>PAYMENT TERMS</b>	<b>Total Delivered Price</b>

**This Quotation is subject to the terms and conditions set forth on the back page hereof. Bidder is advised to read these before signing.** We have read the instructions and, if favored with an order, we agree to furnish the items enumerated herein at the prices and under the conditions indicated.

Signed \_\_\_\_\_  
 Firm Name \_\_\_\_\_  
 Telephone number \_\_\_\_\_ Date \_\_\_\_\_  
 Fax Number \_\_\_\_\_  
 Federal Taxpayer ID \_\_\_\_\_

Bidder  
 Must  
 Sign  
 In  
 Two  
 Places

**NOTICE TO BIDDERS:** Unless the following term of assurance that the above offer is irrevocable is signed, the offer submitted herein shall not be deemed to be complete.  
 The foregoing offer shall be irrevocable for 90 days after the date on which The PORT AUTHORITY TRANS-HUDSON CORPORATION opens this proposal.  
 Signed \_\_\_\_\_ Date \_\_\_\_\_  
 Firm Name \_\_\_\_\_



## REQUEST FOR QUOTATION

RFO Number: \_\_\_\_\_ Bid Due Date  
 \_\_\_\_\_ / 09/09/2010

Quantity	Description	Unit Price	Total
	February/2011. INVOICES FOR PAYMENT MUST BE SENT TO: Port Authority Trans-Hudson Corp. One PATH Plaza - 8th Floor Jersey City, N.J. 07306 Attn: Edward Perara		
1 EA	Spare Parts, Rods Purchase 1 Lump Sum Spare Parts, Rods, as per attached specifications. DELIVER TO: Harrison Car Maintenance Facility Foot of Cape May Street Harrison, New Jersey 07029 CONTACT: Mr. Robert Reich, 24 hours prior to delivery, at (201) 978-2247 for instructions. Delivery to be made after February/2011. INVOICES FOR PAYMENT MUST BE SENT TO: Port Authority Trans-Hudson Corp. One PATH Plaza - 8th Floor Jersey City, N.J. 07306 Attn: Edward Perara		
<b>PLEASE QUOTE FULLY DELIVERED PRICES</b>		<b>PAYMENT TERMS</b>	<b>Total Delivered Price</b>

This Quotation is subject to the terms and conditions set forth on the back page hereof. Bidder is advised to read these before signing. We have read the instructions and, if favored with an order, we agree to furnish the items enumerated herein at the prices and under the conditions indicated.

Signed \_\_\_\_\_  
 Firm Name \_\_\_\_\_  
 Telephone number \_\_\_\_\_ Date \_\_\_\_\_  
 Fax Number \_\_\_\_\_  
 Federal Taxpayer ID \_\_\_\_\_

Bidder  
 Must  
 Sign  
 in  
 Two  
 Places

**NOTICE TO BIDDERS:** Unless the following term of assurance that the above offer is irrevocable is signed, the offer submitted herein shall not be deemed to be complete.  
 The foregoing offer shall be irrevocable for 90 days after the date on which The PORT AUTHORITY TRANS-HUDSON CORPORATION opens this proposal.  
 Signed \_\_\_\_\_ Date \_\_\_\_\_  
 Firm Name \_\_\_\_\_

## TERMS AND CONDITIONS

1. The Port Authority (PA) reserves the right to request information relating to seller's responsibility, experience and capability to perform the work.
2. Unless otherwise provided, complete shipment of all items must be in one delivery FOB delivery point. Payment will not be made on partial deliveries unless authorized in advance by the party to be charged and the discount, if any, will be taken on the total order.
3. PA payment terms are net 30 days. Cash discounts for prompt payment of invoices may be taken but will not be considered in determining award, except in the case of tie bids.
4. Separate unit and total FOB delivered prices must be shown.
5. Sales to the PA and to PATH are currently exempt from New York and New Jersey State and local taxes and generally from federal taxation. The seller certifies that there are no federal, state, municipal or any other taxes included in the prices shown hereon.
6. The PA shall have the absolute right to reject any or all proposals or to accept any proposal in whole or part and to waive defects in proposals.
7. Unless the phrase "no substitute" is indicated, bidder may offer alternate manufacturer / brands, which shall be subject to Port Authority approval. Please indicate details of product being offered with bid.
8. Acceptance of seller's offer will be only by Purchase Order Form signed by the PA. No change shall be made in the agreement except in writing.
9. If the seller fails to perform in accordance with the terms of this purchase order, the PA may obtain the goods or services from another contractor and charge the seller the difference in price, if any, a reletting cost of \$100, plus any other damages to the PA.
10. Upon request, sellers are encouraged to extend the terms and conditions of any terms agreement with the PA to other government and quasi-government entities by separate agreement.
11. By signing this quotation or bid, the seller certifies to all statements on Form PA 3764 regarding non-collusive bidding; compliance with the PA Code of Ethics; and the existence of investigations, indictments, convictions, suspensions, terminations, debarments and other stated occurrences to assist the PA in determining whether there are integrity issues which would prevent award of the contract to the seller. The PA has adopted a policy set forth in full on PA 3764, that it will honor a determination by an agency of the State of New York or New Jersey that a bidder is not eligible to bid on or be awarded public contracts because the bidder has been determined to have engaged in illegal or dishonest conduct or to have violated prevailing wage legislation. The Terms and Conditions of PA 3764 apply to this order. A copy can be obtained by calling (212) 435-3902 or at <http://www.panynj.gov/pdf/PA3764.pdf>.
12. The vendor may subcontract the services or use a supplier for the furnishing of materials required hereunder to such persons or entities as the Manager, Purchasing Services may from time to time expressly approve in writing. All further subcontracting shall also be subject to such approval.
13. The successful bidder (vendor) shall not issue nor permit to be issued any press release, advertisement, or literature of any kind, which refers to the Port Authority or that goods will be, are being or have been provided to it and/or that services will be, are being or have been performed for it in connection with this Agreement, unless the vendor first obtains the written approval of the Port Authority. Such approval may be withheld if for any reason the Port Authority believes that the publication of such information would be harmful to the public interest or is in any way undesirable.

## SPECIFICATIONS FOR TURNOUTS

### 1. Item(s) Required by the Specifications

These Specifications relate generally to the supplying and delivery of all turnout and Closure rail panels per the specifications and drawings.

### 2. GENERAL

- A. Turnouts and Track closure panels and transition rails shall be new, furnished with all parts necessary to properly install the panels together and as further specified herein.

Turnouts, and Closure Panels shall be designed for installation using 115# RE running rail sections and a standard track gauge of 4' - 8 1/2".

### 3. MATERIAL AND DESIGN

- A. Rails for use as running rail shall be 115# RE section, newly rolled and meeting all of the requirements of the latest AREMA Manual and as further specified herein.
- B. Standard Rail Drilling for 115# RE rail section shall be per drawing C218, but omit the first hole for "Drilled for Welding".
- C. Ties shall be per Specification for Tropical Hardwood-Switch Ties, Cross Ties and Tie Blocks-Section 80.
- D. Turnouts and track panels shall be as per Section 05659, Special trackwork.
- E. Rail fasteners shall be Pandrol 'e' clips.
- F. Turnout and closure rails shall be per attached drawings.
- G. The manufacturer shall supply all track material as described in Section 05659 including turnout 235, 237, 239 and 191 and all closure rails found on drawings C215, C216 and C217.
- H. Forged Transition rails shall be per the attached specifications FORGED COMPROMISE RAILS REQUIREMENTS Revised June 12, 2009 for 115# RE to 100# ARA-B either left hand or right hand.

### 4. SUBMITTALS

- A. Submit catalog -cuts or shop drawings of the proposed rail panels to PATH for approval prior to fabrication. If revisions/corrections to shop drawings are required by PATH, the Vendor shall make the changes and resubmit corrected drawings for approval.

### 5. FABRICATION AND DELIVERY

- A. Fabricate the turnouts and track panels using current best practices for fabricating. Ensure all parts fit accurately as designed for proper installation of the track panels.
- B. Delivery location shall be as stated on the bid documents. The Vendor shall notify the PATH representative of impending deliveries as stated in the bid documents.

C. All deliveries shall be by truck to PATH's Harrison Yard

GLENN HINDALE  
 N.Y. Professional Engineer # 2462255100  
 Certificate of Authorization / 24028000100

HARRISON  
 SOUTH YARD  
 DATA

Approved by: \_\_\_\_\_  
 Checked by: \_\_\_\_\_  
 Date: 9/2/2010  
 Contract Number: \_\_\_\_\_  
 Drawing Number: **C203**  
 Revision: \_\_\_\_\_

**TRACK NO. 37**

CURVE NO.	PT.	STATION	BEARING	COORDINATES		DATA
				NORTH	EAST	
37-1	PVI	96+15.83		96+07.0761	96+24.6029	POINT ON TANGENT $\Delta_s = 11^\circ-10'-11.85''$ $L_s = 198.96$ $V = 10$ MPH $E_s = 0.07$ M $E_c = 0.00$ M $E_e = 0.00$ M $R = 5702.2790$ $CC = 300714.7072$ $CS = 30071$
	PC	96+28.23		96+21.5208	96+36.6221	
	PT	96+48.27		96+41.5208	96+56.2081	
235	PVI	96+42.76		96+44.9444	96+40.5833	NO. 4 RH TURNOUT $\Delta_s = 11^\circ-10'-11.85''$ $L_s = 198.96$ $V = 10$ MPH $E_s = 0.07$ M $E_c = 0.00$ M $E_e = 0.00$ M $R = 5702.2790$ $CC = 300714.7072$ $CS = 30071$
	PC	96+28.23		96+21.5208	96+36.6221	
	PT	96+48.27		96+41.5208	96+56.2081	

**TRACK NO. 38**

CURVE NO.	PT.	STATION	BEARING	COORDINATES		DATA
				NORTH	EAST	
38-1	PVI	98+18.06		98+10.3778	98+14.4828	POINT ON TANGENT $\Delta_s = 14^\circ-15'-0.00''$ $L_s = 37.2064$ $V = 10$ MPH $E_s = 2.87$ M $E_c = 0.00$ M $E_e = 2.87$ M $R = 150.00$ $CC = 974566.5283$ $CS = 98032.7410$
	PC	98+43.49		98+40.7582	98+38.9128	
	PT	98+80.80		98+82.6448	98+80.5740	
235	PVI	98+27.05		98+42.3389	98+48.8433	NO. 4 RH TURNOUT $\Delta_s = 14^\circ-15'-0.00''$ $L_s = 37.2064$ $V = 10$ MPH $E_s = 2.87$ M $E_c = 0.00$ M $E_e = 2.87$ M $R = 150.00$ $CC = 974566.5283$ $CS = 98032.7410$
	PC	98+43.49		98+40.7582	98+38.9128	
	PT	98+80.80		98+82.6448	98+80.5740	
205	PVI	99+45.61		99+48.5544	99+50.8978	EXISTING NO. 4 RH TURNOUT TO ROMAN $\Delta_s = 14^\circ-15'-0.00''$ $L_s = 37.2064$ $V = 10$ MPH $E_s = 2.87$ M $E_c = 0.00$ M $E_e = 2.87$ M $R = 150.00$ $CC = 974566.5283$ $CS = 98032.7410$
	PC	99+20.08		99+17.2705	99+19.5138	
	PT	99+81.14		99+84.0544	99+86.2978	

**TRACK NO. 39**

CURVE NO.	PT.	STATION	BEARING	COORDINATES		DATA
				NORTH	EAST	
239	PVI	98+21.07		98+20.6880	98+20.3034	POINT ON TANGENT $\Delta_s = 11^\circ-10'-11.85''$ $L_s = 198.96$ $V = 10$ MPH $E_s = 0.07$ M $E_c = 0.00$ M $E_e = 0.00$ M $R = 5702.2790$ $CC = 300714.7072$ $CS = 30071$
	PC	98+21.07		98+20.6880	98+20.3034	
	PT	98+21.07		98+20.6880	98+20.3034	
239	PVI	98+21.07		98+20.6880	98+20.3034	NO. 4 RH TURNOUT $\Delta_s = 11^\circ-10'-11.85''$ $L_s = 198.96$ $V = 10$ MPH $E_s = 0.07$ M $E_c = 0.00$ M $E_e = 0.00$ M $R = 5702.2790$ $CC = 300714.7072$ $CS = 30071$
	PC	98+21.07		98+20.6880	98+20.3034	
	PT	98+21.07		98+20.6880	98+20.3034	

**LOOP TRACK**

CURVE NO.	PT.	STATION	BEARING	COORDINATES		DATA
				NORTH	EAST	
237	PVI	96+87.89		96+80.5200	96+82.8730	POINT ON TANGENT $\Delta_s = 11^\circ-10'-11.85''$ $L_s = 198.96$ $V = 10$ MPH $E_s = 0.07$ M $E_c = 0.00$ M $E_e = 0.00$ M $R = 5702.2790$ $CC = 300714.7072$ $CS = 30071$
	PC	96+74.74		96+67.5792	96+69.9283	
	PT	96+93.04		96+85.8283	96+88.1774	
L-1	PVI	97+82.61		97+84.7171	97+80.5878	NO. 4 RH TURNOUT $\Delta_s = 11^\circ-10'-11.85''$ $L_s = 198.96$ $V = 10$ MPH $E_s = 0.07$ M $E_c = 0.00$ M $E_e = 0.00$ M $R = 5702.2790$ $CC = 300714.7072$ $CS = 30071$
	PC	97+48.44		97+51.5467	97+53.8938	
	PT	97+98.79		98+01.8910	98+04.2381	
191	PVI	102+15.59		102+18.7848	102+15.5900	NO. 6 LH TURNOUT $\Delta_s = 11^\circ-10'-11.85''$ $L_s = 198.96$ $V = 10$ MPH $E_s = 0.07$ M $E_c = 0.00$ M $E_e = 0.00$ M $R = 5702.2790$ $CC = 300714.7072$ $CS = 30071$
	PC	102+15.59		102+18.7848	102+15.5900	
	PT	102+15.59		102+18.7848	102+15.5900	

**TRACK NO. 30**

CURVE NO.	PT.	STATION	BEARING	COORDINATES		DATA
				NORTH	EAST	
30-1	PVI	98+80.05		98+81.4273	98+85.2919	POINT ON TANGENT $\Delta_s = 18^\circ-09'-50.07''$ $L_s = 45.2346$ $V = 10$ MPH $E_s = 2.87$ M $E_c = 0.00$ M $E_e = 2.87$ M $R = 150.00$ $CC = 974566.5283$ $CS = 98032.7410$
	PC	101+18.86		101+20.2028	101+21.5374	
	PT	102+38.86		102+40.2028	102+41.5374	
191	PVI	102+15.59		102+18.7848	102+15.5900	NO. 6 LH TURNOUT $\Delta_s = 18^\circ-09'-50.07''$ $L_s = 45.2346$ $V = 10$ MPH $E_s = 2.87$ M $E_c = 0.00$ M $E_e = 2.87$ M $R = 150.00$ $CC = 974566.5283$ $CS = 98032.7410$
	PC	101+18.86		101+20.2028	101+21.5374	
	PT	102+38.86		102+40.2028	102+41.5374	

**TRACK NO. 40**

CURVE NO.	PT.	STATION	BEARING	COORDINATES		DATA
				NORTH	EAST	
40-1	PVI	96+23.60		96+22.4641	96+22.8024	POINT ON TANGENT $\Delta_s = 14^\circ-15'-0.00''$ $L_s = 37.2064$ $V = 10$ MPH $E_s = 2.87$ M $E_c = 0.00$ M $E_e = 2.87$ M $R = 150.00$ $CC = 974566.5283$ $CS = 98032.7410$
	PC	97+26.43		97+27.9964	97+28.7585	
	PT	98+33.74		98+35.1555	98+36.3176	
239	PVI	96+49.09		96+49.1337	96+48.1904	NO. 4 RH TURNOUT $\Delta_s = 14^\circ-15'-0.00''$ $L_s = 37.2064$ $V = 10$ MPH $E_s = 2.87$ M $E_c = 0.00$ M $E_e = 2.87$ M $R = 150.00$ $CC = 974566.5283$ $CS = 98032.7410$
	PC	96+49.09		96+49.1337	96+48.1904	
	PT	96+49.09		96+49.1337	96+48.1904	
237	PVI	96+15.74		96+14.5782	96+14.7285	NO. 4 RH TURNOUT $\Delta_s = 14^\circ-15'-0.00''$ $L_s = 37.2064$ $V = 10$ MPH $E_s = 2.87$ M $E_c = 0.00$ M $E_e = 2.87$ M $R = 150.00$ $CC = 974566.5283$ $CS = 98032.7410$
	PC	96+15.74		96+14.5782	96+14.7285	
	PT	96+15.74		96+14.5782	96+14.7285	

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

PATH

CIVIL

ALIGNMENT & CURVE DATA

HARRISON SOUTH YARD DATA

Approved by: \_\_\_\_\_  
 Checked by: \_\_\_\_\_  
 Date: 9/2/2010  
 Contract Number: \_\_\_\_\_  
 Drawing Number: **C203**  
 Revision: \_\_\_\_\_

**PORT AUTHORITY TRANS HUDSON CORPORATION  
SPECIFICATION FOR  
TROPICAL HARDWOOD SWITCH TIES, CROSS TIES AND TIE BLOCKS**

**80.1.0 General**

**80.1.1 Scope**

This specification covers PATH 's requirements for furnishing tropical hardwood switch ties, cross ties and tie blocks for use in rail transit track, originating from timber sources such as Africa and Asia where tropical climates exist.

**80.1.2 Material**

- A. Tropical hardwood switch ties, cross ties and tie blocks shall be manufactured to conform to the Drawings, the Bid Documents, as specified herein.
- B. Unless otherwise indicated, tropical hardwood switch ties, cross ties and tie blocks shall conform to all relevant requirements of current AREA practice and recognized standards existing in countries where the timber is harvested and/or where the products are produced.
- C. Tropical hardwood switch ties, cross ties and tie blocks wood species shall be:
  - 1. Lophira Alata wood of the Ochnaceae family (common names Azobe, Ekki or Bongossi).
  - 2. Bangkirai wood of the Dipterocarpaceae family (common names Yellow Balau, Membatu).

**80.2.0 Technical Requirements**

**80.2.1 Definitions**

Definitions for tropical hardwood switch ties, cross ties and tie blocks shall be in accordance with the current AREMA Manual for Railway Engineering, unless otherwise indicated:

- A. A switch tie or cross tie is any tie of nominal maximum length greater than 50 inches.
- B. A tie block is any tie of nominal maximum length less than or equal to 50 inches.
- C. A bark seam is a pocket or patch of bark partially or wholly enclosed in the wood.
- D. Slanting grain is a deviation of the fiber from a line parallel to the sides of the piece.
- E. A large knot is a knot greater than one-quarter of the width of the surface on

which it appears.

- F. Numerous knots shall be any number of knots equaling a large knot in damaging effect.
- G. A large hole is either:
  - 1. A cavity within the rail bearing section of the tie or tie block which is more than 1/2 inch in diameter and more than 1-1/2 inches deep or a hole of any diameter less than 1/2 inch and 3 inches deep.
  - 2. A cavity outside the rail bearing section of the tie or tie block which is greater in diameter than one-quarter the width of the surface on which it appears and more than 1 1/2 inches deep.
- H. Numerous holes shall be any number of holes equaling a large hole in damaging effect.
- I. End check is a separation of the wood along any surface and the end surface of a tie or tie block.
- J. A check is a separation of the wood along one face of the tie or tie block only.
- K. A shake is a ring separation along the grain.
- L. An edge is the intersection of surfaces.
- M. A split (through check) is a separation of the wood extending from one surface through to an opposite surface or adjacent surface.
- N. Ends are considered as a surface and a face.
- O. Twist means any point of a face is not on the plane defined by three of the adjacent corners of that face.
- P. A corner is the intersection of two or more edges.
- Q. Top is the horizontal face farthest from the heartwood or the narrowest horizontal face if the heartwood is centered.

### **80.2.2 Quality**

- A. The timber from which tropical hardwood switch ties, cross ties and tie blocks are produced shall be cut from straight sound trees.
- B. Tropical hardwood switch ties, cross ties and tie blocks shall be free from any defects that could impair their durability or strength as ties or tie blocks) as follows:

1. Decay and Pith Ties and tie blocks having decay and/or pith will be rejected. Blue stain will not be considered as decay.
2. Sap Wood Ties and tie blocks with sap wood exceeding a maximum thickness of -1 1/2 inches on any face will be rejected.
3. Bark Seams Ties and tie blocks with bark seams more than 2 inches below the surface and/or 10 inches long will be rejected. Bark seams showing on the end only will be acceptable.
4. Slanting Grain Ties and tie blocks with slanting grain, in excess of 1 inch in any 15 inches of length, will be rejected.
5. Twist Ties and tie blocks with twist will be rejected.
6. Large Knots and Numerous Knots Ties and tie blocks with large knots inside the rail bearing section or numerous knots will be rejected. Firm and fixed large knots outside the rail bearing section are acceptable.
7. Large Holes and Numerous Holes Ties and tie blocks with large hole(s) or numerous holes will be rejected.

C. Tropical hardwood switch ties, cross ties and tie blocks shall be straight on all surfaces with the opposite sides parallel. Ties and tie blocks will be considered straight when the center lines of their top and either side do not deviate from a straight line from the middle of one end to the middle of the other end at any point more than the following:

1. Switch Ties and Cross Ties:

<u>Overall Length</u>	<u>Top</u>	<u>Side</u>
4' 2" - 12'	1"	1/2"
12' - 15'	1-1/2"	3/4"
15' - 18'	2"	1"
18' - 25'	2-1/4"	1-1/4"
25' - up	2-1/2"	1-1/2"

2. Tie Blocks:

<u>Overall Length</u>	<u>Top</u>	<u>Side</u>
4'2" or less	3/4"	1/2"

D. Tropical hardwood switch ties, cross ties and tie blocks may be supplied with or without wood anti-splitting devices as specified in the bid documents. The following quality requirements apply:

1. Ties and tie blocks with any split (through check) prior to seasoning shall be rejected.

2. Ties and tie blocks with at least two of the following three defects for each category below, will be rejected:
  - E. Any wood separation greater than 18 inches in length for ties and 12 inches for tie blocks shall be cause for rejection.
    1. Checks over 1-1/2 inches deep or 1/2 inch wide on any face and longer in aggregate than one-third of the tie or tie block shall be cause for rejection.
    2. Shake greater than one-third of the width of the tie or tie block, or, any shake less than 1 inch from any edge shall be cause for rejection.

### **80.2.3 Dimensions**

- A. Tropical hardwood switch tie, cross tie and block dimensions shall be as indicated on the Drawings and in the Invitation to Bid.
- B. Unless otherwise indicated on the Drawings or in the Invitation to Bid, tropical hardwood switch tie, cross tie and tie block dimensions shall be subject to the following:
  1. A tolerance of plus 1/2 inch and minus 1/4 inch in width.
  2. A tolerance of plus or minus 1/8 inch in thickness.
  3. A tolerance of plus 3 inches and minus none in length.
- C. Tropical hardwood switch tie, cross tie and tie block mechanical anti-splitting measures employed, if any, shall be located to cover the greatest area of wood separation on end surface including checks and end check.

### **80.2.4 Fabrication**

- A. Tropical hardwood switch ties, cross ties and tie blocks shall be well sawn and cut square at both ends. A tie or timber is not well sawn when its surfaces are cut into with scoremarks more than 1/2 inch deep, or when its surfaces are not even.
- B. Tropical hardwood switch ties, cross ties and tie blocks, prior to seasoning, shall be examined for selective application of anti-splitting devices as follows:
  1. First quality ties and tie blocks (without defects) are acceptable without the application of anti-splitting devices.
  2. Ties, tie blocks and timbers with defects, as defined in Article 80.2.2.D of this Section, are unacceptable without the application of anti-splitting devices. The use of anti-splitting devices is permitted only if the length of a check is less than 12 inches, otherwise the tie or timber shall be rejected.
- C. Tropical hardwood switch ties, cross ties and tie blocks shall be seasoned in

accordance with the current American Wood Preservers Association (AWPA) Standard C6, Crossties and Switch Ties-Preservative Treatment by Pressure Processes, except as indicated:

1. Ties and tie blocks shall be seasoned to achieve an average moisture content of 40 percent or less.
2. After seasoning, ties and timbers shall be dressed on the top and bottom surfaces to the required dimensions.
3. No preservative treatment shall be required for the ties, tie blocks and timber.

#### **80.2.5 Physical and Performance Properties**

- A. Tropical hardwood switch ties, cross ties and tie blocks shall exhibit the following physical properties when tested as specified in this Section:

<u>Wood Species</u>	<u>Average Brinell Hardness</u>
Lophira Alata wood	54 n/mm <sup>2</sup>
Bangkirai wood	38 n/mm <sup>2</sup>

- B. Tropical hardwood switch tie, cross tie and tie block fire resistance shall be rated Class 1 when tested as specified in Article 80.3.2 of this Section.

#### **80.2.6 Marking**

- A. Tropical hardwood switch ties, cross ties and tie blocks shall be marked prior to seasoning in accordance with the AREA Chapter 3, Specifications for Timber Cross Ties, Marking Ties to Indicate Size Acceptance, except as specified:
1. Marking shall indicate the manufacturer's name or trademark and the manufacturer's plant identification in figures at least 1/2 inch high.
  2. Marking shall be by branding or tagging on the tie and/or timber surface. When anti-splitting devices are applied, brands or tags shall appear in the middle of the top surface of the tie or timber. Tags shall be of stainless steel conforming to ASTM Designation A176.
- B. Tropical hardwood switch ties, cross ties and tie blocks accepted by PATH Inspector after seasoning will be branded or tagged in 3/4 inch high figures with the following mark:  
PATH -XX". The figures "XX" shall be the last two digits of the year in which the marking occurs.

#### **80.2.7 Submittals**

- A. At the time of Bid, the prospective supplier shall submit the proposed seasoning and handling process for PATH approval.
- B. At the time of Bid and with each shipment, the prospective supplier shall submit the producer's recommended storage and handling requirements so that tropical hardwood switch ties, cross ties and tie blocks may be suitably stored, handled or fabricated.
- C. At the time of Bid and with each shipment, the supplier shall submit four (4) copies of certified test reports from a recognized independent testing laboratory approved by PATH stating that the tropical hardwood switch ties, cross ties and tie blocks are in accordance with the specifications.
- D. Tropical hardwood switch tie, cross tie and tie block shipments shall be accompanied by a certificate issued by the government of the country of origin attesting to the fact that the round logs, from which the ties and/or timber is sawn, were obtained under government controlled conditions. Certification shall state any existence of national forestry laws and regulations governing administration of the forests and inspection of the felling areas and any limitations on the felling of tropical hardwood trees.

### **80.3.0 Quality Assurance**

#### **80.3.1 Inspection**

- A. Tropical hardwood switch ties, cross ties and tie blocks and all materials and processes will be subject to inspection. The manufacturer shall afford PATH Inspector, at no additional cost to PATH all reasonable facilities at the manufacturer's plant for proper inspections during normal working hours.
- B. PATH's Inspector will make reasonably close inspection of the top, bottom, sides and ends of each tropical hardwood switch tie, cross tie and tie block prior to seasoning and subsequent to seasoning. Each tie or tie block shall be judged independently without regard for decisions on other ties or tie blocks in the same lot.
- C. PATH's Inspector will inspect materials and processes relative to seasoning tropical hardwood switch ties, cross ties and tie blocks in accordance with the provisions of the current AWP Standard M2, Inspection of Treated Timber Products.
- D. PATH reserves the right to make any additional inspections of the tropical hardwood switch ties, cross ties and tie blocks prior to seasoning and subsequent to seasoning during fabrication and after delivery to determine conformity to the specifications. However, the manufacturer's plant inspection will be considered

final with respect to process.

### **80.3.2 Testing**

- A. The manufacturer shall, at no additional cost to PATH, have performed all tests necessary to assure that all tropical hardwood switch ties, cross ties and tie blocks are in accordance with the specifications:
  - 1. Brinell hardness tests shall be performed in accordance with the current ASTM Standard Specification E6, Methods of Mechanical Testing.
  - 2. Fire resistance tests shall be performed in accordance with the current ANSI/NFPA Standard 130, Fixed Guideway Transit Systems.
- B. If the results of any test do not conform to the specifications, an additional test shall be made on a further group of tropical hardwood switch tie) cross tie and tie block specimens from the same lot. Failure of any of these additional tests will be cause for rejection of the entire lot.

### **80.4.0 Shipment and Acceptance**

#### **80.4.1 Shipment**

- A. All tropical hardwood switch ties, cross ties and tie blocks shall be shipped to the locations indicated in the Bid Documents.
- B. Tropical hardwood switch ties, cross ties and tie blocks shall be banded in bundles of the same size and type. Unless otherwise indicated, the ties and timber shall be packaged as follows:
  - 1. Ties and tie blocks less than 18 feet in length shall be banded in bundles of 25 or less.
  - 2. Ties equal to or greater than 18 feet in overall length shall be banded in bundles of 16 or less.
- C. Tropical hardwood switch tie, cross tie and tie block bundles shall be banded with metallic straps. The banded bundles shall be further banded together in units weighing less than 3,000 pounds each. Breathing strips shall be used in all bundles to allow air circulation.
- D. Tropical hardwood switch tie, cross tie and tie block bundles shall be identified with the PATH purchase order number, the name of the manufacturer, the description and the quantity of ties or timber contained therein.
- E. Tropical hardwood switch ties, cross ties and tie blocks shall be stored at all times prior to shipment in accordance with the current AWPA Standard M4, Standard for the Care of Preservative-Treated Wood Products, General Requirements,

Storage.

- F. Bundles of tropical hardwood switch ties, cross ties and tie blocks shall be stacked and secured in an open bed trailer truck, suitable for removal with overhead cranes or high lifts.

#### **80.4.2 Acceptance**

- A. Tropical hardwood switch ties, cross ties and tie blocks which do not comply with PATH's requirements or which, notwithstanding tests, inspection or acceptance at any previous time or location are found to contain deficiencies, will be rejected.
- B. Final acceptance of tropical hardwood switch ties, cross ties and tie blocks will be subject to verification of count and inspection after delivery to the locations indicated in the Bid Documents and receipt of required shipping documents and inspection reports.
- C. The manufacturer shall assume the expense of handling and transporting rejected material.

PORT AUTHORITY TRANS HUDSON CORPORATION  
FORGED COMPROMISE RAILS REQUIREMENTS  
Revised June 12, 2009

GENERAL

- A. The following specify PATH requirements for the furnishing of compromise transition rail forgings on the PATH system. Forged compromise rails shall be used to transition from rails of different section without the use of bars or bolts.
- B. Reference to AREMA shall include the American Railway Engineering and Maintenance-of-Way Association "MANUAL FOR RAIL WAY ENGINEERING," and/or the "PORTFOLIO OF TRACKWORK PLANS" as specified, in effect at the time of the order.

MATERIAL

- A. Rails to be used for the manufacture of forged, compromise sections shall be new, standard steel rail conforming to the AREMA Manual for Railway Engineering, Volume 1, Part 2, Section 2.1 "SPECIFICATIONS FOR STEEL RAILS" and as further specified herein.
- B. Rail sections to be forged and joined into compromise transition rails shall be as stated in the purchase order. Additionally, the purchase order shall state the number of right-hand and left-hand compromise transition rails to be furnished and any planing/milling required allowing for installation in worn track.
- C. Rails shall be manufactured in accordance with Section 2.1.2 "MANUFACTURE (2001)" of the Manual and, having a chemical composition conforming to Section 2.1.3.a. "CHEMICAL COMPOSITION." Testing for chemical composition and hydrogen content shall be performed and recorded by the producer and the results shall be made available to PATH.
- D. Rails shall be free from shatter cracks in accordance with Section 2.1.7 "HYDROGEN ELIMINATION (2001)" of the AREMA Manual and shall be ultrasonically tested for internal imperfections in accordance with Section 2.1.8 "ULTRASONIC TESTING (2001)" of the Manual.
- E. Rails shall be furnished drilled with the anticipation for field welding. Only the two innermost holes on each rail end shall be drilled. Drilling shall conform to AREMA standards for size and spacing for the rail sections specified (or as specified in the order), and in accordance with Section 2.1.12 "DRILLING (1995)" of the Manual.
- F. Rails shall be manufactured in conformance with Section 2.1.13 "WORKMANSHIP (2002)" of the Manual.

## FORGING

- A. Forgings shall be manufactured in accordance with Section M6.2 of the Portfolio of Trackwork Plans as specified for Grade C forgings and as further specified herein.
- B. Forgings shall meet the mechanical requirements specified under Section M6.5.2 of the Portfolio. Forgings shall be free of injurious imperfections.

## LENGTH AND MACHINING

- A. Forged rail ends shall be joined to standard rail section to provide the required length of compromise transition rails by welding.
- B. Welding of forged rail end to compromised, standard rail section to produce finished length transition rail shall be performed in accordance with Section 2.3 "SPECIFICATION FOR THE QUALITY ASSURANCE OF ELECTRIC-FLASH BUTT WELDING OF RAIL - 1993" of the Manual for Railway Engineering.
- C. A minimum length of 15' -0" of standard rail of the sections specified in the order shall be provided at each end of the forging in the makeup of the finished length of transition compromise rails. When longer rails are used, the location of the joint must be centered on the completed transition rail. In any event, the completed transition rail shall be 39'-0".
- D. Finished rails shall be planed/milled, when specified in the order, to allow for headwear of existing trackwork. Machining shall be performed in accordance with applicable AREMA standards and in conformance with the best manufacturing processes in effect at the time of the order.

## MARKING AND DELIVERY

- A. Compromise rails shall be marked (gage) in accordance with AREMA standards.
- B. Delivery shall be made in open body truck for unloading by over-head crane.

## MEASUREMENT AND PAYMENT

- A. Measurement of acceptable material shall be the actual number of each forged compromise transition rail manufactured and delivered in accordance with the specifications.
- B. Payment shall be made for each rail furnished and accepted in accordance with the specifications, in the amount bid for each rail.
- C. Material not meeting the requirements of the specifications will be rejected. The rejected material shall be returned to the vendor at his expense.

END OF SECTION

