

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

JUDGE SWAIN

METRO-NORTH COMMUTER RAILROAD COMPANY
and THE LONG ISLAND RAIL ROAD COMPANY,

Plaintiffs,

-against-

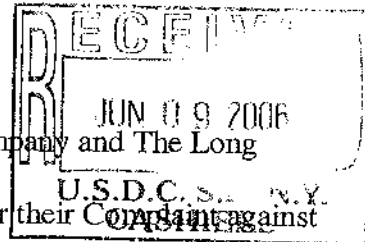
ROCLA CONCRETE TIE, INC.,

Defendant.

06 CV 4369
Civil Action No. 4369

COMPLAINT

**PLAINTIFFS DEMAND
TRIAL BY JURY**



Plaintiffs, Metro-North Commuter Railroad Company and The Long
Island Railroad Company, by their attorneys, aver as follows for their Complaint against
defendant Rocla Concrete Tie, Inc.:

PARTIES

1. At all times relevant hereto, plaintiff Metro-North Commuter
Railroad Company ("Metro-North") was and is a public benefit corporation organized
and existing under and by virtue of the laws of the State of New York, and a subsidiary of
the Metropolitan Transportation Authority ("MTA").

2. At all times relevant hereto, plaintiff The Long Island Rail Road
Company ("LIRR") was and is a public benefit corporation organized and existing under
and by virtue of the laws of the State of New York, and a subsidiary of the MTA.
(Metro-North and LIRR are referred to collectively herein as the "Railroads.")

3. Collectively, the Railroads operate commuter railroad lines in
eleven counties in New York State, as well as in the State of Connecticut, and are

responsible for carrying hundreds of thousands of passengers a day as a vital part of the mass transportation system of the New York metropolitan area.

4. Upon information and belief, at all times relevant hereto, defendant Rocla Concrete Tie, Inc. ("Rocla"), was a foreign corporation organized and existing under and by virtue of the laws of the State of Texas, with its principal place of business in Denver, Colorado. Rocla is a manufacturer of concrete railroad ties and related products for railroads.

JURISDICTION AND VENUE

5. This Court has jurisdiction of the subject matter of this action pursuant to 28 U.S.C. § 1332(a)(1), in that this is a civil action between citizens of different States, and the matter in controversy exceeds the sum or value of \$ 75,000, exclusive of interest and costs.

6. Venue is proper in the District pursuant to 28 U.S.C. § 1391(a) in that a substantial part of the events or omissions giving rise to the claim occurred in this District, and a substantial part of property that is the subject of the action is situated in this District. Venue is also proper in this District pursuant to the agreement of the parties.

THE 1997 CONTRACT

7. In or about February, 1997, based on Metro-North Bid Inquiry #5830A, the Railroads awarded Purchase Orders for the purchase of certain concrete railroad ties and ancillary hardware (the "1997 Concrete Ties"), to Rocla. (The Bid Inquiry, including the technical Specifications included therewith, Addenda Nos. 1 and 2 thereto and the subsequent Purchase Orders and Change Orders thereto are hereinafter referred to as the "1997 Contract," and copies thereof are annexed hereto as Exhibit A.)

8. The 1997 Contract includes various covenants, warranties and guarantees in favor of plaintiffs, including but not limited to the following:

(a) Rocla warranted, in Section 1.4 of the Specifications included in the 1997 Contract, that the 1997 Concrete Ties would provide a service life of 50 years, as follows:

The concrete cross ties and shoulder inserts must provide a service life of fifty (50) years when exposed to the service conditions of Metro-North Commuter Railroad. The ties must be capable of withstanding the variations in track conditions allowed by the Federal Railroad Administration Track Safety Standards, and the track maintenance operations needed to keep track conditions within these standards. The ties will be exposed to a high-density mix of passenger and freight trains, and the extremes of weather common to the New York Metropolitan area. The Manufacturer will be responsible for assuring that the manufacturing process will yield a product able to meet the service life requirements.

(b) Similarly, Section 1.1 of the Specifications included in the 1997 Contract provides, in pertinent part:

It is the contractor's responsibility to address all design considerations and perform all testing as required to assure that the intended tie performance be attained with particular regard to minimum concrete tie service life (50 years) under service requirements delineated below.

(c) Section 2.2.9 of the Specifications included in the 1997 Contract provides, in pertinent part:

It shall be the contractor's responsibility to select materials and design a mixture which will be able to withstand freezing and thawing cycles and not be susceptible to alkali-aggregate reactivity.

(d) Addendum No. 2 to the Bid Inquiry, which is part of the 1997 Contract, provides, in pertinent part:

The contractor warrants that the concrete ties furnished under this contract will comply with the specifications in all respects and will be free of defects in materials or workmanship. The contractor's liability under this Warranty shall be limited to the repair or replacement of the concrete ties,

at the discretion of Metro-North, plus the cost of freight, for up to 25 years after delivery to Metro-North. The contractors liability for the cost of freight under this Warranty shall be limited to \$12.00 per tie.

The contractor warrants the Hardware system for a period of five years after installation of the tie and will replace defective material excluding labor.

9. The 1997 Contract also contains the following provision with regard to choice of law, jurisdiction and choice of forum:

This order shall be interpreted in accordance with the Laws of the State of New York. The Seller agrees to submit any controversies arising out of this order to the New York City Courts except as may otherwise be provided by applicable statutes.

(Addendum No. 1, Section 28.)

10. Pursuant to the terms of the 1997 Contract, Rocla was obligated to deliver concrete ties to the Railroads. In 1997 and 1998, Rocla delivered approximately 270,000 concrete ties to Metro-North and 64,000 concrete ties to LIRR, all pursuant to the 1997 Contract. The 1997 Concrete Ties were installed on the commuter railroad systems operated by Metro-North and LIRR, including on vital main line tracks such as LIRR's Main Line Track 1 and on various segments of Metro-North's Hudson Line.

ROCLA'S BREACH

11. Subsequent to delivery and installation of the ties, Railroad personnel observed cracking in the 1997 Concrete Ties received from Rocla. Testing performed on behalf of the Railroads confirmed latent deficiencies in the 1997 Concrete Ties in violation of the 1997 Contract; specifically, testing confirmed that the ties were evidencing alkali-silicate reaction ("ASR") and delayed ettringite formation ("DEF"), or a combination of both.

12. The defects in the 1997 Concrete Ties could not have been discovered at the time of delivery. Testing sufficient to reveal the defects would not ordinarily be performed by a buyer at the time of delivery. It was reasonable for the Railroads not to perform such tests at the time of delivery.

13. Upon information and belief, there are defects in the 1997 Concrete Ties other than, or in addition to, the defects revealed by the Railroads' tests. Upon information and belief, the defects in the 1997 Concrete Ties render it impossible to bring the ties into compliance with the contractual specifications by means of repair.

14. On or about October 4, 2004, Metro-North, on behalf of itself and LIRR, wrote to Rocla demanding performance under the applicable contractual warranties. The letter stated, in pertinent part, that:

Recently, the Railroads have observed that a significant number of the Rocla ties are undergoing varying rates of failure, ranging from hairline cracks to extensive "mapped" cracking to severe deterioration, where the tie is actually falling to pieces. In increasing numbers of the ties the prestressed strands are pulled in and the rail seats are broken, resulting in loss of structural strength, and the inability to bear loads. The condition of the ties in general has been found to be progressive, in that apparently normal ties are seen to develop cracking, and ties already evidencing cracking have subsequently failed. The defective ties are creating major safety and operational concerns for the Railroads.

(A copy of the October 4, 2004, letter is annexed hereto as Exhibit B.)

15. Subsequent to the October 4, 2004 letter, the 1997 Concrete Ties continued to deteriorate, such that soon thereafter Metro-North was forced to issue "slow orders" on certain segments of its Hudson Line tracks between Tarrytown and Croton. Further, the Railroads were performing, and are continuing to perform, "spot" replacement of failed 1997 Concrete Ties. Such "spot" replacement is extremely costly as it is performed without full mechanization.

16. Rocla failed to make a conforming tender under the 1997 Contract, rectifying the breach of warranty. Accordingly, by letter dated April 26, 2005, Metro-North informed Rocla of its decision to replace Rocla ties on its Hudson Line, from approximately Tarrytown to Croton. (A copy of the April 26, 2005, letter is annexed hereto as Exhibit C.) Shortly thereafter, Rocla was informed that LIRR, for the same reasons, would be replacing approximately 6 miles of Rocla ties on its Main Line, also in 2005. At that time, over 50 percent of the ties in those segments of track were evidencing some degree of cracking.

17. Thereafter, as no conforming tender had been made, Metro-North North wrote to Rocla on May 25, 2005, on behalf of itself and LIRR, confirming its intention to commence replacement of the ties on the referenced section of track, using replacement materials obtained from other vendors, and informing Rocla that Metro-North and LIRR would pursue all remedies under the warranty and the applicable law. Metro-North and LIRR also reserved their right to revoke acceptance of the 1997 Concrete Ties under the contract. (A copy of the May 25, 2005, letter is annexed hereto as Exhibit D.)

18. The Railroads have commenced replacing the defective 1997 Concrete Ties, and approximately 50,000 ties have been replaced to date. The replacements are being performed using mechanized equipment, specifically a Tie-Laying Machine ("TLM"), which on a per-tie basis is less costly than "spot" replacement. Nevertheless, to date the Railroads have incurred approximately \$20 million in expenses to replace the defective ties. Although Rocla has provided replacement ties to the

Railroads, it has refused to make the Railroads whole for the installation costs incurred as a result of the defects in the original 1997 Concrete Ties.

19. The Railroads continue to monitor the ongoing deterioration of Rocla 1997 Concrete Ties on other sections of the Railroads, and have informed Rocla that replacement of some or all of the remaining ties purchased under the 1997 Contract will be necessary. Such future replacement projects will be scheduled and performed by the Railroads subject to safety requirements and ongoing operational constraints.

20. Rocla is contractually obligated under the terms of its warranty to provide the Railroads with replacement ties for all of the 1997 Concrete Ties and to reimburse the Railroads for all costs incurred by them in installing replacement ties. Alternatively, if Rocla's warranty obligations are construed as being limited to anything less than all of the foregoing, then the warranty fails of its essential purpose, and such limitation does not apply.

COUNT I

BREACH OF EXPRESS WARRANTIES

21. Plaintiffs repeat, reiterate, and reallege each and every allegation contained in paragraphs 1 through 20 with the same force and effect as if set forth here in full.

22. Rocla made express warranties to plaintiffs, including but not limited to the warranties as set forth in paragraphs 23 to 27 below.

23. Rocla warranted that the 1997 Concrete Ties would provide a service life of 50 years when exposed to the service conditions of Metro-North Commuter Railroad; would be capable of withstanding the variations in track conditions

allowed by the Federal Railroad Administration Track Safety Standards, and the track maintenance operations needed to keep track conditions within these standards; and would be able to meet the service life requirements, which would include exposure to a high-density mix of passenger and freight trains, and the extremes of weather common to the New York Metropolitan area.

24. Rocla warranted that it would select materials and design a mixture that would be able to withstand freezing and thawing cycles and not be susceptible to alkali-aggregate reactivity.

25. Rocla warranted that the 1997 Concrete Ties would comply with the specification in all respects and would be free of all defects in materials or workmanship.

26. Rocla warranted that it would institute Quality Control programs under which it would perform sufficient inspections and tests to assure conformance to applicable standards, specifications and drawings with respect to materials, workmanship and fabrication.

27. Rocla warranted that, for up to 25 years after delivery of the 1997 Concrete Ties, it would repair or replace the 1997 Concrete Ties, at the Railroads' option, if they do not comply with the specifications in all respects or are not free of defects in materials or workmanship.

28. Rocla breached its express promises, guarantees and warranties.

29. Plaintiffs gave defendant timely and reasonable notice of each and all of defendant's breaches of express warranty. Defendant failed to cure such breaches.

30. As a direct, proximate and foreseeable result of defendant's breach of express warranties, plaintiffs have sustained and will sustain damages in the sum of at least \$ 137 million.

COUNT II

BREACH OF IMPLIED WARRANTY OF MERCHANTABILITY

31. Plaintiffs repeat, reiterate, and reallege each and every allegation contained in paragraphs 1 through 30 with the same force and effect as if set forth here in full.

32. The specifications for the 1997 Concrete Ties contained in the 1997 Contract include without limitation the requirements that they be designed and tested to assure that they would obtain uniform quality, durability, and performance throughout their minimum service life of fifty (50) years under the service conditions present on the Railroads; that materials and a design mixture would be selected such that the 1997 Concrete Ties would be able to withstand freezing and thawing cycles and not be susceptible to alkali-aggregate reactivity; that they would be designed and manufactured pursuant to a sufficient Quality Control program to assure conformance with the specifications; and that the 1997 Concrete Ties would comply with the specifications in all respects and would be free of all defects in materials or workmanship.

33. Contrary to the contractual requirements, the 1997 Concrete Ties were not designed and manufactured to obtain a minimum service life of fifty (50) years; are not suitable for the service conditions present on the Railroads; are not able to withstand freezing and thawing cycles and are be susceptible to alkali-aggregate

reactivity; were not designed and manufactured pursuant to a sufficient Quality Control program; and are not free of defects in material and workmanship; as well as evidencing other flaws, defects and nonconformities.

34. The 1997 Concrete Ties were and are of unmerchantable, defective and inferior quality, and are unsuitable for commuter rail service.

35. As a direct, proximate and foreseeable result of defendant's breach of their warranty of merchantability, plaintiffs have sustained and will sustain damages in the sum of at least \$ 137 million.

COUNT III

BREACH OF IMPLIED WARRANTY OF FITNESS FOR PARTICULAR PURPOSE

36. Plaintiffs repeat, reiterate, and reallege each and every allegation contained in paragraphs 1 through 35 with the same force and effect as if set forth here in full.

37. At the time of contracting, defendant knew, or had reason to know, *inter alia*, that plaintiffs had at least two particular purposes for requiring the 1997 Concrete Ties as specified: (i) to provide reliable, safe and comfortable commuter rail service to the people of the States of New York and Connecticut; and (ii) to save costs of track maintenance and repair and service disruptions through the use of ties designed and manufactured for a long service life.

38. Also at the time of contracting, defendant knew or had reason to know, *inter alia*, that plaintiffs were relying on defendant's skill and judgment as manufacturers of ties for the railroad industry suitable to accomplish plaintiffs' said particular purposes, and plaintiffs so relied.

39. By reason of the foregoing there exists an implied warranty by defendant in favor of plaintiffs that the 1997 Concrete Ties are fit for the particular purposes set forth in paragraph 37 above.

40. The 1997 Concrete Ties are not and were not fit for the said particular purposes.

41. As a direct, proximate and foreseeable result of defendant's breach of its warranty of fitness for particular purpose, plaintiffs have sustained and will sustain damages in the sum of at least \$ 137 million.

COUNT IV

TENDER OF NON-CONFORMING GOODS

42. Plaintiffs repeat, reiterate, and reallege each and every allegation contained in paragraphs 1 through 41 with the same force and effect as if set forth here in full.

43. Upon information and belief, all of the 1997 Concrete Ties are non-conforming goods, in that they do not conform to the Technical Specifications incorporated in the 1997 Contract. That non-conformity substantially impairs the value of the ties to the Railroads.

44. The 1997 Concrete Ties were initially accepted without discovery of such non-conformity, and the Railroads acted reasonably in accepting the ties based both on the difficulty of discovering the nonconformity before acceptance and on Rocla's express assurances that the ties would conform to the Technical Specification.

45. Upon information and belief, there is no repair possible or available to provide an adequate remedy for defects of the nature of defects discovered in the 1997 Concrete Ties.

46. The Railroads hereby tender to Rocla the 1997 Concrete Ties.

47. The Railroads are entitled to recover from Rocla the full amount paid for the 1997 Concrete Ties.

JURY DEMAND

48. Plaintiffs hereby demand a trial by jury.

WHEREFORE, plaintiffs Metro-North and LIRR demand judgment against Rocla:

(a) awarding plaintiffs damages in an amount to be determined by the Court, together with interest thereon, comprising, *inter alia*, the following:

(i) cost of replacement ties for the 1997 Concrete Ties and ancillary materials;

(ii) cost of use and rental of equipment necessary for the tie replacement of the 1997 Concrete Ties, including but not limited to the TLM;

(iii) labor costs for replacement of the 1997 Concrete Ties;

(iv) cost of testing and inspection related to the defective 1997 Concrete Ties;

(v) cost of removal, storage and disposal of the 1997 Concrete Ties;

(vi) costs and loss of revenue relating to service disruptions and the provision of alternate service during replacement of ties; and

(vii) other related incidental and consequential costs associated with the nonconforming 1997 Concrete Ties; and

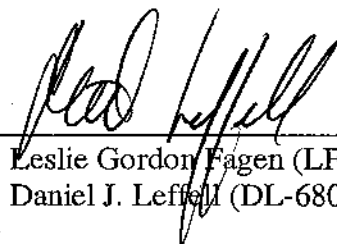
(b) awarding to plaintiffs return of the full amount paid for the 1997 Concrete Ties; and

(c) awarding plaintiffs such further and other relief as this Court deems appropriate.

Dated: New York, New York
June 9, 2006

PAUL, WEISS, RIFKIND, WHARTON &
GARRISON LLP

By: _____


Leslie Gordon Fagen (LF-1285)
Daniel J. Leffell (DL-6803)

1285 Avenue of the Americas
New York, New York 10019
212-373-3000

Attorneys for Plaintiffs

Exhibit A

**METRO-NORTH COMMUTER RAILROAD
SPECIFICATIONS FOR CONCRETE TIES
FOR USE WITH 119 LB RE RAIL, 132 LB RE RAIL OR 136 LB RE RAIL
REVISION #8**

NOVEMBER 12, 1996

SECTION I

GENERAL REQUIREMENTS

1.0 GENERAL

1.1 These technical provisions represent the requirements to be met by the contractor in testing and furnishing of a monoblock concrete cross tie and rail fastening system for use on the Metro-North Commuter Railroad territory. It is the contractor's responsibility to address all design considerations and perform all testing as required to assure that the intended tie performance be attained with particular regard to minimum concrete tie service life (50 years) under service requirements delineated below.

1.2 Definitions. Wherever in these specifications the following terms, or pronouns in place of them, are used the intent and meaning shall be interpreted as specified herein:

1.2.1 Contractor officer's Technical Representative The COTR is the individual responsible for the technical aspects of the contract for Metro-North.

1.2.1 Cross Tie A transverse component of a track system whose functions are the control of track gauge and the transmitting of rail loads to ballast.

1.2.3 Fastening Assembly Components consisting of rail clips, tie pads, and insulators which come captive to the concrete tie ready for rail installation. The design of the system must provide positive security of the components to the concrete tie to prevent loss, loosening or misalignment of components during shipping.

1.2.4 Flexure strength. Resistance to bending.

1.2.5 Insert A device for securing an assembly to the tie, cast in the tie at the time of manufacture.

1.2.6 Insulator A component of the rail fastening assembly that provides electrical insulation between the rail and the clip and a wear piece between the rail and the shoulder insert.

1.2.7 Lateral Load A load applied at the gauge line of the rail parallel to the longitudinal axis of the tie, and perpendicular to the rail.

1.2.8 Longitudinal Load A load along the longitudinal axis of a rail.

1.2.9 Negative Moment Bending of a concrete tie by application of a load that produces tension in the top surface of the tie.

1.2.10 Positive Moment, Bending of a concrete tie by application of a load that produces tension in the bottom surface of the tie.

1.2.11 Prestressed Concrete Tie, A tie utilizing precompressed concrete and prestressing tendons to resist flexure.

1.2.12 Pretension Tendon (Strand or Wire), A reinforcing member which adds structural strength to a prestressed concrete tie by placing it in compression. This member is tensioned prior to the placement of concrete.

1.2.13 Rail Clip, The component of the fastening assembly that clamps the base of the running rail to the tie pad.

1.2.14 Rail Seat, The area of the canted plane of a tie that lies within the confines of the rail base on which the rail rests.

1.2.15 Shoulder- Insert, The component of the fastening assembly which provides lateral restraint to the rail and aligns and rail clip to the tie.

1.2.16 Structural Crack, A crack originating in the tensile face of the tie, extending to the outermost level of reinforcement or prestressing tendons.

1.2.17. Tie Pad, A component of the rail fastening assembly that provides impact attenuation, a barrier to abrasion, and electrical resistance between the bottom of the rail and the concrete tie surface.

1.2.18. Vertical Load A load applied at right angles to a line joining the two rail seats of the tie and normal to the longitudinal axis of the rail.

1.2.19. Cracking (Concrete), Reference to cracking shall mean a structural crack which is a crack originating in the tensile face of the tie, extending to the outermost level of reinforcement or prestressing tendons and which increases in size under application of increasing load.

1.3 SCOPE

1.3.1 These specifications include the strength, configuration, and performance requirements for the concrete cross ties and rail fastenings. Additionally, Monoblock Concrete ties and rail fastenings shall be in conformance to AREA Chapter 10 (current revision) except as specified herein.

1.4 GENERAL CONSIDERATIONS

1.4.1 Service Requirements, The concrete cross ties and shoulder inserts must provide a service life of fifty (50) years when exposed to the service conditions of Metro-North Commuter Railroad. The ties must be capable of withstanding the variations in track conditions allowed by the Federal Railroad Administration Track Safety Standards, and the track maintenance operations needed to keep track conditions within these standards. The ties will be exposed to a high density mix of passenger and freight trains, and the extremes of weather common to the New York Metropolitan area. The Manufacturer will be responsible for assuring that the manufacturing process will yield a product able to meet the service life requirements. The Manufacturer's designer must have at least ten (10) years of experience in the production of concrete cross ties.

1.4.2 Track Description, Rail will be either 119 LB. RE ; 132 LB. RE OR 136 LB. RE as specified in the bid inquiry. Track gauge is four feet, eight and one-half inches.

1.4.3 Cross Tie Components, The components of the concrete cross tie shall be:

1.4.3.1 A pretensioned concrete cross tie, provided with steel prestressing tendons, hreadless shoulder inserts and contact rail support plate inserts.

NOTE: The contact rail support plate inserts shall be included unless the bid inquiry specifies that they be deleted.

1.4.3.2 A captive rail fastening system to support and transmit loads from the running rails into the cross tie. The rail fastening system shall include tie pads, rail clips, and insulators. This system, with modifications of components, must be capable of fastening at the proper gauge 119# RE rail (5 1/2") base rail to the six (6") base tie.

1.4.3.3 The concrete tie shall be designed to permit installation of embedded inserts by core drilling the completed tie within one inch of the longitudinal center line at a point 12 inches to 18 inches from the center line of the rail toward the transverse center line of the tie, as shown in Figure V. Core drill depth will not exceed four inches.

1.4.4 General Design Parameters.

1.4.4.1 Concrete cross ties shall be of prestressed monoblock design, eight feet six inches in length. The minimum flexural performance requirements for the concrete ties are as follows:

- a. Positive rail seat moments of 250 inch kips static
- b. Negative rail seat moments of 118 kips static
- c. Static center positive moments of 111 inch kips
- d. Static center negative moments of 208 inch kips

1.4.4.2 Rail Fastening. The general design parameters for rail fastenings follow:

a. The fastening assembly shall be composed of rail clips, insulators, and tie pads. All fastener components shall come "captive to the tie" when shipped from the concrete tie manufacturer. The design of the system must provide positive security of the components to the concrete tie to prevent loss, loosening or misalignment of components during shipping. This system, with modifications of components, must be capable of fastening at the proper gauge 119# RE rail (5 1/2") base rail to the six (6") base tie.

b. The fastener shall be composed of as few components as is possible within the specifications herein for ease of assembly, disassembly, installation and maintenance.

c. Rail clips shall be elastic, threadless, and detachable.

d. The lateral rail loads shall be transmitted to the tie through the insulator to the shoulder insert, and not through a concrete shoulder.

e. A resilient tie pad shall be provided between the rail and the cross tie to reduce abrasion, vibration, and impact, and to provide electrical insulation.

f. An insulator shall be used between the rail clip, the shoulder insert, and the rail to provide electrical insulation, reduce abrasion, and transfer the rail loading to the rail clip and shoulder insert. The insulator shall be held in correct position by the shoulder insert and shall be easily removed upon removal of the rail clip.

g. Longitudinal restraint properties of the fastener shall be the same in both directions. The lateral restraint properties of the fastener shall be the same in both directions.

h. Point contact by any component of the fastening assembly to the rail, tie, or other parts of the fastening assembly shall not be permitted. The minimum contact area shall be not less than one inch in length nor less than 0.5 square inch in area.

i. No portion of the fastener assembly except the shoulder inserts shall extend below the top of the concrete tie rail seat.

j. No portion of the fastener assembly shall project higher than 2.5 inches below top of rail.

k. No portion of the fastener assembly shall project more than four (4) inches perpendicular to the rail base when fully engaged.

l. Use of dissimilar metals of divergent electrical potential in contact or close proximity to one another will not be permitted.

m. The rail clips shall be designed for manual installation and removal in track with the demonstrated capability of mechanical installation and removal.

- n. Rail change out must be capable without removing clips from the shoulder housing or any other fastening component from their captive position.
- o. The components of modified fastening system to facilitate the 119# RE rail must be colored to insure proper installation. The field and gauge components must be a different colors and clearly marked to indicate "F" field or "G" gauge side. Rail pads must be a different color from the standard 6" rail base tie pad.

1.5 SUBMISSION - Concrete Tie

1.5.1 Design Analysis. A complete design analysis of the proposed tie and associated hardware, verifying the ties capability to pass the test requirements contained in the specifications and verifying the adequacy of the materials for their intended use. Design submission shall include:

a. Structural detail drawing(s) of the proposed tie and fastening assembly. The drawing shall include tie configuration, prestressed strand size and location, and details of the shoulder and third rail support inserts with their fabrication tolerances.

b. All structural calculations shall be based upon current state of the art for prestressed concrete design and the ACI standard requirements applied as follows:

Calculations shall include shear and moment analysis for the tie under no-cracking conditions and shall consider all long term permanent prestress losses.

c. Concrete batch compositions. Submission shall include physical and chemical composition of the batch, including type and source of cement admixtures used, source and gradation of aggregates, source and quality assurance of water, curing procedure, including concrete strength at prestress transfer, and separation of the tie from the form. It is the Contractor's responsibility to provide complete documentation regarding the concrete mix and to assure that the concrete composition and quality is suitable for its intended purpose.

d. Specifications for pretensioning tendons and shoulder inserts. Documentation confirming the quality of material used in these elements.

e. Justification that the proposed concrete tie and shoulder inserts will satisfy all test requirements as specified herein. Justification may include qualified laboratory test results, calculations and performance reports from a proven fastener design with ten (10) years of operational service.

f. Cure time. The length of cure time necessary for the tie to reach design strength prior to delivery to Metro-North for placement in track.

1.5.2 Quality Control Program. A quality control program under which the Contractor will perform sufficient inspections and tests of all items of work, including those by subcontractors in order to assure conformance to applicable standards, specifications and drawings with respect to materials, workmanship, fabrication, and identification. The control plan shall specifically provide for;

- a. Vendor surveillance (e.g., shoulder inserts, contact rail bracket support plate inserts, wire, etc.)
- b. Drawing control (changes)
- c. Mold Certification
- d. Document control
- e. Inspection Procedures - In Process and Final

- f. Production test requirements
- g. Segregation and disposition of defective material and products
- h. Material and process control in plant identifying critical control points
- i. Production equipment and instrumentation calibration, maintenance, and data recording
- j. Work procedures and instruction
- k. Failure reporting analysis and corrective action
- l. Sample plans and quality levels shall conform to Military Standard 105D, AQL 2.5 Level -II unless otherwise stated or approved
- m. Raw materials standards and controls
- n. Records of test and inspection
- o. Time and temperature control
- p. Strength testing
- q. Storage handling and shipment controls
- r. Procedures and/or tests for determining within 24 hours that the condition necessary to achieve the 28-day strength have been met, with a margin of safety
- s. Quality budget in percentage of contract price
- t. Assurance that the plant will meet and continue to meet PCI certification
- u. Quality Control organization chart showing all QC personnel and their level of authority. QC organization must report independently from Production to Project Manager level or above.

The Contractor shall provide weekly written report to Metro-North Commuter Railroad documenting a strict adherence to the Quality Control Program.

1.5.3 Production Program. A complete production program to include:

- a. Plant layout.
- b. Form design with tolerances
- c. Raw material requirements
- d. Primary and alternate sources for materials
- e. Material handling
- f. Material placement with tolerances
- g. Curing method
- h. Bond release method
- i. Method of vibration
- j. Pretensioning and detensioning method for strand or wire
- k. Daily production capability
- l. Finished tie inventory plan
- m. Plan for handling ties from finished product to Metro-North rail cars
- n. Flow chart for production process indicating points of control for all significant operations

The Contractor shall provide weekly written reports to Metro-North Commuter Railroad documenting conformance to the Production Program.

1.5.4 Organization and Management. The contractor shall submit an organization and management system sufficiently comprehensive to meet and maintain the requirements and objectives of the contract. This program shall employ the systems and techniques necessary to identify the product configuration; control changes to the product during development, production, testing and delivery; and monitor the contractual effort to determine the degree to which the objectives of the contract are being achieved.

The Contractor shall delineate all primary suppliers and their location as well as the intended alternate suppliers. Metro-North shall be notified immediately of any change in material sources from primary to alternate suppliers. The Contractor shall provide written documentation that any materials from alternate suppliers meet all specifications required and will yield a final product capable of performing as intended.

1.6 SUBMISSIONS Fastening System

1.6.1 The supplier of the rail fastening shall submit shop drawings for all components of the fastening system showing all dimensions and the manufacturing tolerances. Also, Quality Control and Production Plans must be submitted for each individual component of the system following the provisions of Section -I, Paragraphs 1.5.2 and 1.5.3. The supplier shall use any of the statistical process control techniques for inspection and acceptance of the products during production. If inspection by sampling is utilized, use ANSI/ASQC Z1.4, "Sampling Procedures and Tables for Inspection by Attributes" at 2.5 AQL, Level II.

1.6.2 Certificates of Compliance shall be mailed directly to Metro-North for each shipment. If the supplier is not certified to one of the ISO9000 Series of Quality System Standards, NAPM-RIG QSSS(AAR M1003) or equivalent quality system standard, then Production and Quality Control Plans shall be submitted to Metro-North. The method of packaging for shipment must be approved by Metro-North prior to production.

1.6.3 The Contractor shall design, manufacture and supply two (2) toe load testers prior to qualification testing to measure the toe load of one clip within an accuracy of fifty pounds. This tool shall be lightweight, easily handled, and capable of being placed and operated by one man in three minutes or less. The instrument shall be designed such that calibration techniques can be used to verify the accuracy and repeatability of the instrument.

SECTION 2

2.0 PRODUCTS

2.1 GENERAL AND MATERIAL REQUIREMENTS

This section describes the performance and material requirements for the cross tie and rail fastening system furnished under this contract. The intent of this specification is to obtain uniform quality, durability, and performance throughout the design service life of 50 years for concrete tie and shoulder inserts and 15 years for other components with minimum maintenance.

2.2 CONCRETE

2.2.1 The concrete used for concrete ties shall have a maximum water-cementitious materials ratio of 0.40, air content of 5.0%, and a minimum 28-day compressive strength of 7,000 pounds per square inch as determined by ASTM Designation C39 Test Method. The test cylinders shall be made and stored in accordance with ASTM Designation C31 except that initial curing temperatures shall be the same as that of the ties they represent.

2.2.2 Cement. All cement shall be low alkali (less than 0.60% maximum) and shall comply with ASTM C150. Air entraining cement shall not be used.

2.2.3 Fine Aggregate. Fine aggregate for concrete shall conform to the requirements of ASTM C33 and shall be rated as innocuous when tested in accordance with ASTM C1260. Gradation other than as specified in ASTM C33 will be permitted provided that mortar making properties and concrete strengths are not adversely affected. Fine aggregate shall come from one source and variations in fineness modulus (ASTM C125) shall not exceed plus/minus 0.20 from that assumed for the mix design.

2.2.4 Coarse-Aggregate. Coarse aggregate for concrete shall conform to the requirements of ASTM C33 and shall be rated as innocuous when tested in accordance with ASTM C1260. In general, maximum size of coarse aggregate should not exceed three-quarters of the minimum clear spacing of tendons in the end pattern or three quarters of the clear depth of cover over tendons or bars.

2.2.5 Water. Water in mixing concrete and washing aggregate shall be potable and free of injurious amounts of oil, acid, alkali, inorganic matter, or other deleterious substances, that may be harmful to concrete or steel as specified in AASHTO-26.

2.2.6 Admixtures. Admixtures containing chlorides, fluorides, sulfides, nitrates, or aluminum powder shall not be used. Admixtures to increase workability and reduce water may be used subject to approval by COTR. Admixtures shall conform to ASTM Designation C494. Air-entraining agents shall conform to ASTM C260.

2.2.7 Accelerated Curing. Concrete cross ties may be exposed to heat or steam curing to accelerate strength gain. Curing regimen shall be in accordance with industry practice with respect to rates of heating and cooling, maximum temperatures, etc. and shall be subject to approval of COTR.

2.2.8 Transfer of Pretensioning. Transfer of pretensioning transfer of forces from bulkheads of the casting bed to the concrete shall be accomplished at a time and in a manner which prevents damage to the concrete ties.

2.2.9 Durability. It shall be the contractor's responsibility to select materials and design a mixture which will be able to withstand freezing and thawing cycles and not be susceptible to alkali-aggregate reactivity. Test specimens from the approved mix shall be tested in accordance with ASTM C666 Procedure A and ASTM C227 respectively.

If air entrapment is used for this purpose, air entrapment shall be measured in accordance with ASTM C231. Test beams made from the approved mix design shall be tested in accordance with ASTM C666, Procedure B. Petrographic examinations of concrete ties in accordance with ASTM C295 must confirm the presence of the percentage of dry air required by the concrete mix design.

2.2.10 Alkali - Silica Reactivity The concrete produced from the composition of cement, fine aggregate and coarse aggregate shall be analyzed and tested in accordance with ASTM Standard C227 and the Canadian National "Duggan" test so as to insure that the resulting combination does not produce a concrete subject to deleterious expansion resulting from an alkali-silica reaction. The expansion limit of the concrete cores shall not exceed 0.15%. In addition to meeting the aforementioned test requirements, the Contractor shall take all necessary measures to protect concrete from alkali-reactivity degradation.

2.3 METAL REINFORCEMENT

2.3.1 Prestressing Material. Prestressing shall be indented wire strand conforming to ASTM Designation A416 or uncoated stress-relieved wire conforming to ASTM A421.

2.4 CONCRETE CROSS TIE

Cross Tie Configuration, Dimensions, and Tolerances. The basic configuration dimensions, and tolerances of the concrete cross tie shall be as indicated below:

- 2.4.1 8 feet 6 inches; tolerance plus 1/2 inch, minus 1/8 inch.
- 2.4.2 Width of bottom: 12 inches maximum, 10 inches minimum plus or minus 1/8 inch.
- 2.4.3 Width of top: 9 inches minimum, 10 inches maximum, plus or minus 1.8 inch.
- 2.4.4 Minimum depth: 6 1/2 inches of concrete depth at any section; tolerance plus 1/4 inch, minus 1/8 inch.
- 2.4.5 Maximum depth: Any section of tie depth shall not be more than 10 inches; tolerance plus 1/4, minus 1/8 inch.
- 2.4.6 Track gauge: Ties shall be manufactured for 4 feet 8 and 1/2 inches track gauge. The rail fastening system shall hold track gauge to plus 1/32, minus 1/16 inch. The centerline of the tie shall be within 1/8 inch of the centerline of track gauge.
- 2.4.7 Rail cant: The rail seat shall provide for a cant of 1 in 40 plus/minus 5 toward centerline of tie.
- 2.4.8 Rail seat plane: The rail seat shall be a flat smooth surface, plus/minus 1/32 inch across the rail seat.
- 2.4.9 Differential tilt of rail seats: A differential tilt in the direction of the rail of one rail seat to the other shall (on a width of 6 inches) not exceed 1/16 inch.
- 2.4.10 Concrete cover: The minimum concrete cover for prestressed strands shall be as specified in ACI Standard.
- 2.4.11 Weight: Weight of concrete tie shall not exceed 700 pounds.
- 2.4.12 Surface finish: The top and side surface of the ties shall present a smooth, uniform appearance. Heavy concentration of surface voids or evidence of improper mixing, vibration, or curing shall be cause of rejection. The top and side edges of the tie shall be beveled.

- 2.4.13 The bottom surface shall present a rough finish, as struck with a broom.
- 2.4.14 There shall be no evidence of tearing of the concrete where the prestressing strands or wires emerge or of any void in contact with a strand or wires.
- 2.4.15 identification marking: Ties shall be permanently labeled by indented or raised numerals or letters on the top surface, to identify the following:
 - a. Manufacturer's identification
 - b. Line number
 - c. Form number
 - d. Tie number
 - e. Year of manufacture
 - f. Date code traceable to day of manufacture

The identification system shall be submitted to the COTR for approval. Markings must be such that they will remain legible for the design life of the tie.

2.5 RAIL CLIPS

2.5.1 Rail clips shall be of material which will provide the required properties to satisfy the performance testing and environmental conditions specified. The material shall be capable of withstanding degradation from temperature (-20 to +150 degrees F), heat aging, compression set, resilience, oxidation, water, acids, alkali, petroleum oils, synthetic lubricants, and sunlight without having detrimental effect on the ability of the material to pass the performance testing specified. ASTM test results used by the product manufacturer to show the ability of the material to resist the modes of degradation listed above shall be submitted by the Contractor for approval by the COTR.

2.5.2 The rail to rail fastener body connection shall be by an elastic spring steel rail hold-down clip of proven design with a minimum of 10 years of documented successful in-track performance.

2.5.3 The clip toe shall not have a point contact to rail base. The clip toe shall provide a flat surface, with a minimum contact area of 1/2 square inch. Rail clips used on rail joint bars may be of varied design to those used on ordinary rail, but shall have similar performance characteristics and be made by the same manufacturer.

2.6 INSULATORS

2.6.1 Insulators shall be any material which will provide the required properties to satisfy the performance testing specified.

2.6.2 The material shall be capable of withstanding degradation from temperatures (-10 to +150 degrees F).

2.6.3 The insulators shall be designed to withstand the rigors of application and reapplication of rail clips and other components.

2.6.4 Results of the following ASTM tests shall be submitted by the supplier:

- Tensile and Elongation - ASTM D638
- Compressive Strength - ASTM D695
- Hardness - ASTM D785
- Flexural Strength - ASTM D790
- Izod Impact - ASTM D256A

2.6.5 Insulators shall be shipped in heavy duty burlap bags with 200 insulators per bag.

2.7 TIE PADS

Physical Requirements

2.7.1 The tie pad must be compatible with the rail fastening system and shall be 7 plus/minus 1/16 inches long, and shall be the same width as the distance between the shoulders +0 and -1/16 inches, and shall have a shape factor for orientation during installation.

2.7.2 The thickness shall not be less than 6.5 mm.

2.7.3 All pads shall be marked in a permanent manner to indicate manufacturer and pad identification.

Material Properties - Testing

The following tests will be conducted by the Contractor from the batch of material used to manufacture the tie pad specimens for qualification testing. Test specimens must be cured in the same manner as the final product. Each specified test will be conducted and reported on for three samples. All testing shall be conducted by an independent testing laboratory approved by Metro-North. The following tests shall be conducted:

2.7.4 Compression Set Test ASTM D395 (Method B) Type II

- a. This test shall be conducted for 22 hours
- b. The compression set shall not to exceed 40 percent

2.7.5 Tensile Strength, Heat Aging, Tensile Strength Tests

- a. Tensile Strength Test (before aging) ASTM D412. Tensile Strength will be 1,500 psi/min. Elongation will be 250% min.
- b. Heat Aging Resistance Test (2 days at 212 degrees F) ASTM D573
- c. Tensile Strength Test (after aging) ASTM D412. Elongation will be 200% min. and 60% of results of (a) (before aging). The tensile strength resulting from this test series shall not exceed 15 percent of test (a) (before aging).

2.7.6 Compression Set at Low Temperature ASTM D1229. The specimen thickness shall be 6.0 + 0.2 mm. The test shall be conducted for 22 hours at 0 degrees F. The compression set shall not exceed 50 percent at time 30 minutes.

2.7.7 The Contractor shall submit results of industry standard tests with acceptance criteria by the minimum/maximum range. The tests will include but are not limited to the following:

- a. Hardness (ASTM D2240)
- b. Abrasion resistance (ASTM D2228)
- c. Resistance to fluids such as water, acids, alkali, petroleum oils, and synthetic lubricants (ASTM D471)
- d. Resistance to ozone (ASTM D518)

2.8 SHOULDER INSERTS AND CONTACT RAIL SUPPORT PLATE INSERTS

2.8.1 Shoulder inserts shall be threadless and must be designed to provide and maintain proper position and alignment of the rail clip, insulator clip, tie pad, and rail base.

2.8.2 The shoulder inserts shall be malleable or ductile cast iron material which will provide the required properties to satisfy the performance testing specified.

2.8.3 The material shall be capable of withstanding degradation from temperature (-10 to +150 degrees F),

2.8.4 The shoulder insert shall not be directly anchored to the pre-tensioned steel.

2.8.5 Values for the following ASTM tests shall be submitted by the supplier:

a. Tensile, Yield, Elongation (ASTM A536)

2.8.6 The shoulder insert shall be designed to meet the surface and pull out resistance specified in 3.5.6.

2.8.7 The shoulder insert shall be constructed in such a manner as to provide positive seating of the clip.

2.8.8 Shoulder placement in the tie must be symmetrical.

2.8.9 Unless otherwise specified in the inquiry, concrete ties shall contain stainless steel threaded inserts on both ends to accept bolts to affix contact rail bracket support plates as shown on Drawing M-1002, Revision 1, dated 1/4/90. Inserts shall be covered with a water tight protective cap.

2.9 PRODUCTION QUALITY CONTROL TESTS

During production, quality control tests and inspection shall be performed to ensure a uniform, high-quality product. These shall include as a minimum the following:

2.9.1 Daily Production Quality Control Tests. The following daily production quality control tests shall be performed, prior to delivery, on one or two ties as noted below. Ties are to be selected at random by the COTR from every production line (not greater than 560 ties) of prestressed concrete ties:

a. On two ties the distance from the center of the tie to the center of the rail seats shall be verified and, by use of template, the rail seat configuration and insert location shall be verified. The ties shall exhibit no visible cracking of any kind.

b. On two ties the rail seat positive moment test and center negative moment test shall be performed as specified.

c. One tie shall be subjected to the bond development and tendon anchorage test specified.

d. If any tie does not meet the requirements, three additional randomly selected ties shall be tested. If any of any three additional ties fails to meet the requirements, the entire lot may be rejected at the option of the COTR.

2.9.2 Location for Inspection and Quality Control Testing. Quality control testing of production ties shall be performed at the manufacturer's plant with the facilities and test equipment approved by COTR prior to production of ties. Two copies of the results of all inspection and quality control tests shall be submitted to the COTR within 48 hours of the performance of the tests. Facilities shall be provided for the COTR to witness all testing.

2.10 HANDLING, SHIPPING AND STORAGE

2.10.1 Handling. The location of pickup points for handling of ties and details of pickup devices shall be shown on COTR approved shop drawings. Ties shall be handled only by means of approved devices at designated locations.

2.10.2 Storing. Concrete ties in storage shall be placed in a horizontal position and in such a manner as to prevent damage to cast-in place hardware, the tie, or to adjacent ties. The ties shall be stockpiled in such a manner as to facilitate their loading onto rail cars in modules of 21 ties across stacked 4 ties high. The method of storage, including size and type of dunnage, shall be submitted to the COTR for approval.

Concrete ties shall be stored at the Contractor's facilities until Metro-North calls for their shipment. Concrete tie shipment shall commence within one week of the Contractor's receipt of request for shipment.

SECTION 3

3.0 QUALIFICATION TESTING - CONCRETE TIES

3.1 SCOPE

This section specifies all qualification testing requirements for the concrete ties procured under this contract. If the Contractor proposes any change in component or source of material, the Contractor shall first request Metro-North's consent to re-qualify the new tie through the qualification testing specified herein. If prior consent is granted and the new tie passes the qualification testing, in the judgment of the COTR, the new tie may begin production.

3.2 Production Requirements After ties have met all qualification test requirements, and after approval of the COTR, further production of such products may proceed.

3.3 The cost of qualification testing and production quality control testing as specified shall be paid by the Contractor. The Contractor shall bear costs of all parts and tests that fail to meet any requirement of this contract.

3.4 Qualification Testing of Concrete Ties The qualification tests specified shall be performed at an independent testing laboratory(s) approved by the COTR. Prior to the COTR's approval of concrete tie designs, concrete cross ties shall be subjected to qualification testing set forth below. All tests which require the use of a short section of rail shall use 119 RE or 132 RE rail as specified.

3.4.1 Failure to Pass Qualification Testing. Failure of proposed design ties to pass any qualification tests will require redesign and complete qualification re-testing.

3.4.2 Lot Size. From a lot of not less than 10 ties produced in accordance with these specifications and the production procedure approved by the COTR and to be used during full production, four ties will be selected at random by the COTR for laboratory testing. Tie "1" shall be subjected to design tests specified herein, and Tie "2" shall be subjected to fastening tests specified in Section 4.0. Tie "3" and "4" shall be retained by the COTR for further test use and as control for dimensional tolerances and surface appearance of ties subsequently manufactured.

3.4.3 Dimensions. The concrete ties shall be measured for critical tolerance before and after testing. Dimensions must be included in the test report.

3.4.4 Sequence of Qualification Tests. The sequence of qualification tests using Tie "1" shall be as defined below. During the sequence of tests no component of the fastening assembly shall be replaced.

- a. Rail seat positive moment test shall be performed on one rail seat, hereinafter designated Rail Seat A
- b. Rail seat negative moment test shall be performed on Rail Seat A
- c. Tie center negative moment test
- d. Tie center positive moment test
- e. Rail seat negative moment test shall be performed on Rail Seat B
- f. Rail seat positive moment test shall be performed on Rail Seat B
- g. Rail seat repeated load test shall be performed on Rail Seat B
- h. Fastening insert tests shall be performed on Rail Seat B
- i. Bond development, tendon anchorage, and ultimate load tests shall be performed on Rail Seat A

3.5 CONCRETE TIE TEST PROCEDURE

3.5.1 Rail Seat Positive Moment Test. With the tie supported and loaded as shown in Figure 1, a load increasing at a rate not greater than 10 kips per minute shall be applied until a load of 42.5 kips is obtained. This load shall be held for not less than 3 minutes, during which time an inspection shall be made to determine if cracking occurs.

If cracking does not occur, the requirements of this test will have been met.

3.5.2 Rail Seat Negative Moment Test. With the tie supported and loaded as shown in Figure VI, a rate not greater than 5 kips per minute shall be applied until a load of 20 kips is obtained. This load shall be held for not less than 3 minutes, during which time an inspection shall be made to determine if any cracking occurs.

If cracking does not occur, the requirements of this test will have been met.

3.5.3 Tie Center Negative Moment Test. With the tie supported and Loaded as shown in Figure II, a load increasing at a rate not greater than 5 kips per minute shall be applied until a load of 15 kips is obtained. The load shall be held for not less than 3 minutes, during which time an inspection shall be made to determine if cracking occurs.

If cracking does not occur, the requirements of this test will have been met.

3.5.4 Tie Center Positive Moment Test. With the tie supported and loaded as shown in Figure III, a load increasing at a rate not greater than 5 kips per minute shall be applied until a load of 8 kips is obtained. The load shall be held for not less than 3 minutes, during which time an inspection shall be made to determine if cracking occurs.

If cracking does not occur, the requirements of this test will have been met.

3.5.5 Rail Seat Repeated Load Test. Following the vertical load test on rail seat B, the load shall be increased at a rate of at least 5 kips per minute until the tie is cracked from its bottom surface up to the level of the lower layer of reinforcement.

After removal of the static railseat load necessary to produce cracking, and substitution of 1/4 inch thick plywood strips for those shown in Figure 1, the tie shall be subjected to 3 million cycles of repeated loading with each cycle varying uniformly from 4 kips to the value of 46.75 kips. The repeated loading shall not exceed 600 cycles per minute. If, after application of 3 million cycles, the tie can support the railseat load (46.75 kips), the requirements of this test will have been met.

3.5.6 Fastener Insert Tests. Fastening inserts shall be subjected to a pull-out test and a torque test as follows:

a. The pull-out test shall be performed on each insert as shown on Figure IV. An axial load of 12 kips shall be applied to each insert separately and held for not less than 3 minutes, during which time an inspection shall be made to determine if there is any cracking of the concrete, or permanent deformation of the insert. The load shall then be increased to 18 kips, held for 3 minutes and again inspected for cracking of the concrete and deformation of the insert. The load shall then be released. If the insert returns to within 0.0005 of its original position within 5 seconds after a return to a no-load state and no cracking of the concrete or deformation of the insert is observed, then the requirements of this test will have been met.

b. Following successful completion of the insert pull-out test, the torque test shall be performed on each insert. A torque of 500 foot-pound shall be applied about the vertical axis of the insert by means of a calibrated torque wrench and suitable attachment to the insert. The torque shall be held for not less than 3 minutes. Ability of the insert to resist this torque without rotation, cracking of the concrete, or permanent deformation shall be necessary to meet the requirements of this test.

Bond breakage due to separation of mortar laitance from the body of the shoulder insert shall not be grounds for rejection.

3.5.7 Bond Development, Tendon Anchorage, and Ultimate Load Test. The tie shall be supported and loaded at Rail Seat A as shown in Figure T, the load shall be increased at a rate not greater than 10 kips

per minute. An extensometer reading to .0001 inch shall be suitably attached to two of any bottom strands or wires at the end of the tie.

- a. The load required to cause bond loss shall exceed 63.75 kips. Bond loss is defined as strand slippage of more than .001 inches.

SECTION 4

QUALIFICATION TESTING - FASTENING ASSEMBLY

4.0 SCOPE

This section specifies all qualification testing requirements for the fastening assembly procured under this contract. If the Contractor proposes any change in component or source of material, the Contractor shall first request Metro-North's consent to re-qualify the new fastening assembly through the qualification testing specified herein. If prior consent is granted and the new fastening assembly passes the qualification testing in the judgment of the COTR, the new fastener assembly may begin production.

4.1 Production Requirement. After the fastening assembly has met all qualification test requirements, and after approval by the COTR, further production of such products may proceed.

4.2 The cost of qualification testing and production quality control testing as specified shall be paid by the Contractor. The Contractor shall bear costs of all parts and tests that fail to meet any requirement of this contract.

4.3 Qualification Testing of Fastener Assembly.

The qualification tests specified shall be performed at a testing laboratory approved by the COTR. Prior to the COTR's approval, the fastening assembly shall be subjected to qualification testing as set forth below. All tests which require the use of a short section of rail shall use 119 RE rail. Test tie may be cut in half for simultaneous testing of both rail seats.

4.3.1 Failure to Pass Qualification Testing. Failure of proposed design to pass any qualification tests will require design and complete qualification re-testing.

4.3.2 Lot Size. From a lot of not less than 50 insulators, 50 clips, 50 tie pads produced in accordance with these specifications and the production procedure approved by the COTR and to be used during full production, two sets of fastening assembly components will be selected at random by the COTR and to be used during full production testing. The remaining components will be retained by Metro-North for further test use and as a control for dimensional tolerances and surface appearance of components subsequently manufactured.

4.3.3 Sequence of Fastener Tests. The sequence of fastener performance tests using both rail seats of Tie "3" shall be as described below with the toe load test applied on all rail clips before and after each test. During the sequence of tests no component of the fastening assembly shall be replaced.

- a. Dimensions
- b. Impact attenuation test
- c. Fastening assembly and break-in procedure
- d. Dimensions
- e. Rail Clip load/deflection test
- f. Tie pad load/deflection test
- g. Electrical impedance test
- h. Fastening longitudinal restraint test
- i. Fastening repeated load test
- j. Fastening longitudinal restraint test
- k. Electrical impedance test
- l. Rail clip load/deflection test
- m. Tie pad load/deflection test
- n. Dynamic stiffness at room temperature
- o. Dimensions

4.4 FASTENER TESTS

4.4.1 Dimensions, Fastener components shall be measured for critical dimensions as identified by the manufacturer. These critical dimensions shall include as a minimum: clip toe height (to a reference point), pad thickness (an average of 5 values) and insulator thickness (at the clip bearing point and at three locations on the post separating the rail from the insert).

4.4.2 Impact Attenuation Test, The procedure for this test shall be as described herein. The standard pad against which all candidate pads will be compared is EVA pad (DuPont Elvax 660 supplied by Metro-North). Each candidate pad shall be preconditioned by five (5) single blows of the 115 pound impact fixture drop hammer from a height of twelve (12) inches. The pad being tested shall be placed on a concrete rail seat and the impact shall be directed through a rail section.

Begin with the EVA pad - 3 drops at 12 inches. Test all succeeding pads at 12 inches.

Acceptance Criteria, Candidate pads shall demonstrate the ability to attenuate 25 percent of the strain produced with the EVA pad. This will be measured as the ratio

$$\frac{\text{EVA STRAIN} - \text{CANDIDATE PAD STRAIN}}{\text{EVA STRAIN}}$$

for corresponding drop height at 12 inches. The strain shall be measured vertically, in the same direction as the blow of the impact hammer.

4.4.3 Dynamic Stiffness at Room Temperature. The dynamic stiffness of the pad shall be measured as follows:

Place the pad on a flat milled steel plate, surfaced to a #32 RMS finish free of rust and oil, and place a flat plate of comparable finish of 6-inch width and at least 8-inch length over the pad. This plate will be called hereinafter the "loading plate".

Mount a displacement measurement device so that it measures the vertical displacement of the loading plate along an axis which lies within a radius of 2 inches of the loading axis. Apply a cyclic vertical load to the loading axis over the center of the pad. The load should vary from 0 to 30,000 pounds and should be continuously applied at a rate of 10 full load/unload cycles per second.

Apply the cyclic load for at least one minute for several load cycles, record load and deflection simultaneously using a recording device which permits no filtering of cycles responses over the frequency range between 0 and 30 Hertz.

Plot the recorded cycles of load vs. deflection on an x-y plotter. The dynamic spring rate of the pad shall be determined as the slope of the line connecting points on the compressive load portion of the cycle at 4,000 and 20,000 pounds. The temperature at which these tests are conducted shall be 70 plus/minus 5 degrees F.

Acceptance Criteria, The stiffness value resulting from this test shall be between 1.0 million lbs. in. and 1.25 million lbs. in..

4. 4. 4 Dynamic Stiffness at Low Temperatures. Dynamic stiffness value at low temperature shall be measured as follows: A thermocouple shall be attached to an exposed area of the pad. With the loading plate and tie pad positioned in the loading machine as described in 4.4.2, a suitable arrangement shall be used to lower the temperature of the pad to -10 degrees F. The temperature of the pad shall be held at -10 degrees F for at least one hour.

A plot of dynamic load vs. deflection shall be obtained as described in 4.4.3. The pad temperature shall be -10 degrees F plus/minus 5 degrees F during testing.

Acceptance Criteria, The stiffness value resulting from this test shall be between 1.0 million and 2.0 million lbs./in.

4.4.5 Dynamic Stiffness at High Temperature- A thermocouple shall be attached to an exposed area of the pad. With the loading plate and tie pad positioned in the loading machine as described in 4.4.3, a suitable arrangement shall be used to raise the temperature of the pad to 140 degrees F for at least one hour. A plot of dynamic load vs. deflection shall be obtained as described in 4.4.3. The pad temperature shall 140 degrees F plus/minus 5 degrees F during testing.

Acceptance Criteria, The stiffness value resulting from this test shall be between 1.0 million lbs.in. and 1.25 million lbs.in..

4.4.6 Fastening Assembly Test and Break-in Procedure, A short piece of rail shall be placed on one rail seat and secured to the tie using insulators, pads and rail clips as recommended by the manufacturers of the rail fastener. The toe load of the rail clips and the installed clip deflection shall be measured and recorded. A vertical load of 16 kips downward and 1.8 kips upward shall then be applied to the center of the rail at the transverse centerline of the tie at the rate of 10 plus/minus 1 cycles/sec. for 5000 cycles. The vertical deflection of the rail shall be measured and recorded. All deflection shall be measured and recorded to the nearest .0001 inch. After the 1000 cycles, clip toe load and installed deflection shall be measured and recorded.

4.4.7 Rail Clip Load Deflection Test All rail clips from the fastening assemblies used during the qualification testing shall be loaded in a manner similar to their use in the fastening system. The method of loading will require as a minimum the use of a section of 119 lb./yd. RE rail at the point of contact with the rail base. The test will be performed in the following sequence:

- a. Measure the critical clip dimensions
- b. Apply an initial load of 1,000 lbs. to the clip and release the load
- c. Repeat step (a)
- d. Apply load in increments of 200 lbs. until the clip deflection is .1 inch greater than the installed deflection or the clip load is 1,000 lbs. greater than the installed load, whichever is less. Then release the load

Acceptance Criteria, Plot the recorded load versus deflection and clip critical dimension versus load. Clearly identify the installed load point on each plot. The clip critical dimension or deflection shall have changed no more than .010 inches from the original value in test (g) "dimensions".

4.4.8 Tie Pad Load/Reflection Test, The tie pad from the fastening assembly used for qualification testing shall be loaded vertically in a manner similar to their use in the fastening system. From a no-load state, the vertical load shall increase in increments of 500 lbs. until 10,000 lbs. has been reached. Thereafter, the load shall increase in increments not greater than 1,000 lbs. until a maximum load of 44 kips plus the combined toe load of the clips has been reached. For each increment of load, the vertical deflection of the pad shall be measured to the nearest 0.0001 inch and recorded. The recorded values for vertical loads vs. deflection shall be plotted on a graph. The point representing the installed load and deflection shall be delineated.

Acceptance Criteria- The pad shall return to within 0.005 inches of its original position within 30 seconds after return to a no load state.

The slope of a line, Sp, for any subsequent tie pad load deflection test shall be between 500,000 and 2.0 million lbs./in.

$$SP = \frac{20,000}{(a - b)}$$

Where a = Original Clamp Force of Two Clips - 5 kips and
b = maximum wheel load

3. Answer: Appendix III has been changed. The contractor is required to provide all dungaree special or not. The contractor is responsible for the having all shipments meet all FAR/AAA interchange rules.

4. Question: Please provide a legible copy of Metro-North's terms and conditions.

4. Answer: See the attached copy. (Attachment 1)

5. Paragraph 4 entitled Warranties include in the terms and condition is herein deleted, and the following language is incorporated, " The contractor warrants that the concrete ties and hardware furnished under this contract will comply with the specifications in all respect and will be free of defects in materials or workmanship. The contractor's liability under this Warranty shall be limited to the repair or replacement of the concrete ties and hardware, at the discretion of Metro-North, plus the cost of freight, for up to 25 years after delivery to Metro-North. The contractors liability for the cost of freight under this Warranty shall be limited to \$ 12.00 per tie."

6. Question: Have there been any DBE goals established for this procurement ?

6. Answer : Goals have not been established for this procurement.

II. The following Technical questions have been presented by perspective vendors concerning the Concrete Tie Specification:

7. Question : Page 8, Durability refers to ASTM C666 Procedure A. Page 9 first paragraph refers to ASTM C666 Procedure B.

7. Answer: See revised Specifications.

8. Question : Page 9, Metal Reinforcing refers to ASTM A416 strand does not include "indented" strand as per ASTM A886.

8. Answer: See revised Specification.

9. Question : Page 8 Durability refers to ASTM C227 for C227 for Alkali reactivity but omits ASTM C1105 carbonate reactivity test for carbonate aggregates.

9. Answer : See Revised Specification.

10. Question: Ten years operational service or experience is required in 1.5.1 of the fastening system. No fastening as described in the requirements has existed this long.

10. Answer: The Designer and manufacturer should have products with ten years of operational service experience.

11. Question: The Specification requires adherence to AREA Chapter 10 and Metro-North service conditions with mixed traffic. Service conditions i.e. axle loads, wheel flats etc. may vary over 50 years. This should be more specific.

11. Answer :- The service requirements should cover mixed traffic; commuter, high speed Amtrak service and Conrail freight traffic. Line tonnage will not exceed 20 million gross ton per year.

The following attachments should be included in the bid document.

1. Delete the Appendix III date November 25, 1996 and insert the attached dated December 23, 1996. (Attachment 2)
2. Included in this Addendum are the LIRR drawings for the concrete ties Third Rail Channel plates. (Attachment 3)
3. New Concrete Tie Specifications (Attachment 4)
4. List of documents to be included in the bid submission (Attachment 5)

Acknowledged: _____
signature

ATTACHMENT 1

TERMS & CONDITIONS

Attachments

All attachments incorporated herein by reference are hereby made a part of this order.

2. **Acceptance**

Unless otherwise agreed in writing signed by the Buyer, acceptance is expressly limited to the items and conditions herein, and the Seller, by accepting this order shall be deemed to have agreed to each and all of said terms and conditions, notwithstanding any terms or conditions contained in any document submitted by the Seller.

3. **Assignment**

Any assignment of this order, in whole or in part or of any other interest herein under without the written consent of Buyer, except an assignment confined solely to moneys due or to become due, shall be void. It is expressly agreed that any such assignment of monies shall be void to the extent that it attempts to impose upon the Buyer obligations to the assignee additional to the payment of such monies, or to preclude the Buyer's obligations to the assignee additional to the payment of such monies, or to preclude the Buyer from dealing solely and directly, with the Seller in all matters pertaining hereto, including the negotiation of amendments or settlements of amounts due.

4. **Warranties**

The warranties, express and implied, created or recognized by the Uniform Commercial Code of the State of New York shall apply to all articles furnished hereunder, and may not be excluded or modified. The Seller agrees to take back and replace any and all articles which violate such warranty and agrees to pay transportation charges both ways in such event. Such articles while held by the Buyer pending Seller's disposition, will be at Seller's risk and expense.

Use of Information

Any specifications, drawings, sketches, models, corporate logo, samples, technical information or data (all hereinafter designated "information") furnished to the Seller hereunder or in contemplation hereof shall remain the Buyer's property. All such information written, graphic or other tangible form shall be returned at the Buyer's request. Unless such information was previously known to the Seller free of any obligation to keep it confidential, or has been or is subsequently made public by the Buyer or a third party, it shall be kept confidential by the Seller, shall be used only in the filling of orders hereunder, and may be used for other purposes only upon such terms as may be agreed upon between Buyer and Seller in writing.

6. **Tax**

The Seller will accept valid sales and compensating use tax exemption certificates or direct payment permits in lieu of charging such state and/or local taxes. Any privilege license or gross receipts tax for the account of the Seller will not be charged to the Buyer.

7. **Default**

(A) Buyer may, subject to the provisions of paragraph (C) below, by written notice of default to the Seller, terminate the whole or any part of this Order in any one of the following circumstances: (1) if Seller fails to make delivery of the supplies within the time specified herein as "delivery date" or any extension thereof; or (2) if Seller fails to perform any of the other provisions of this Order and in either of these two circumstances does not cure such failure within a period of ten (10) days (or such longer period as the Buyer may authorize in writing) after receipt of notice from Buyer specifying such failure, (B) In the event the Buyer terminates this Order in whole or in part as provided in paragraph (A) above, Buyer may procure, upon such terms and in such manner as Buyer may deem appropriate, supplies similar to those terminated and Seller shall be liable to Buyer for any excess costs for such

similar supplies: Provided, that Seller shall continue the performance of this Order to the extent not terminated. (C) Except with respect to defaults of Seller's subcontractors, Seller shall not be liable for any excess costs if the failure to perform the Order arises out of causes beyond the control and without the fault or negligence of Seller. Such causes may include, but are not restricted to, acts of God or of the public enemy, acts of the Government in either its sovereign or contractual capacity, fire, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and unusually severe weather; but in every case the failure to perform must be beyond the control and without the fault or negligence of the Seller. If the failure to perform is caused by the default of Seller's subcontractors, and if such default arises out of causes beyond the control of both the Seller and Seller's subcontractors, and without the fault or negligence of either of them, the Seller shall not be liable for any excess costs for failure to perform, unless the supplies or services to be furnished by the subcontractor were obtainable from other sources in sufficient time to permit the Seller to meet the "delivery date" schedule. (D) If this Order is terminated as provided in paragraph (A) above, the Buyer, in addition to any other rights provided herein, may require the Seller to transfer title and deliver to Buyer in the manner and to the extent directed by Buyer (1) any completed supplies and (2) such partially completed supplies and materials, parts, tools, dies, jigs, fixtures, plans, drawings information, and contract rights (hereinafter called "manufacturing materials") as Seller has specifically produced or specifically acquired by the performance of such part of this Order, as has been terminated and the Seller shall, upon direction of Buyer, protect and preserve properly in possession of the Seller in which Buyer has an interest. Payment for completed supplies delivered to and accepted by buyer, shall be at the contract price. Payment for manufacturing materials delivered to and accepted by Buyer and for the protection and preservation of property shall be in an amount agreed upon by Seller and Buyer (E) Buyer may terminate this Order at any time upon written notice to Seller if a petition is filed by or against Seller under the bankruptcy laws of the United States or Seller makes a general assignment for the benefit of its creditors or a receiver is appointed for any property of the Seller, (F) The rights and remedies of the Buyer provided herein shall not be exclusive and are in addition to any other rights and remedies provided by law or under this Order.

8. **Favored Nations**

If the Seller shall sell any product of the kind and specifications covered by this order to any other customer at a price which is lower for the same or a less quantity than the purchase price then in effect hereunder, the purchase price hereunder shall be reduced to such lower price for all comparable quantities under unshipped orders of the Buyer and under orders hereafter placed by the Buyer so long as each lower price remains in effect.

9. **Termination**

This order may be terminated in whole or from time to time and at any time for the convenience of Buyer. Upon notice of termination, Seller will stop work as directed by Buyer. An equitable adjustment will be mutually agreed between Seller and Buyer to compensate Seller for work performed up to the date of termination and the total of all payments under this order shall in no event exceed the price stated. In no event, however, will Seller be paid anticipatory profits. To facilitate the determination of the appropriate compensation, Seller agrees to provide supporting cost data as requested by Buyer and to permit Buyer's auditors access to records to verify such cost data. All completed or partially completed items and all material for which compensation was paid to Seller upon termination shall become the property of the Buyer. The article does not apply to recession or termination for Seller's default.

10. **Changes**

Buyer reserves the right to change, by order supplement any part of this order. Upon the receipt of such supplement or notice thereof, Seller shall promptly take all practicable action to prevent such change from causing any unnecessary or unreasonable cost to Buyer-Buyer shall have no

obligation to pay Seller for any standard articles normally stocked by Seller and ordered herein, unless Seller shall have shipped such articles to Buyer prior to receipt by Seller of such supplement or notice hereof. Buyer shall pay reasonable compensation to Seller for supplement or notice thereof where this agreement covers articles to be manufactured, processed or fabricated to Buyer specifications or specifications specially prepared by Seller for Buyer, and Seller shall credit Buyer for all savings caused by such change.

11. **Claims**

All goods furnished hereunder will be subject to final inspection and approval of Buyer even though previously inspected at place of manufacture, within a reasonable time after delivery (irrespective of date of payment thereof) and Buyer may reject nonconforming goods. Rejected goods may be returned by Buyer to Seller at Seller's expense and Buyer shall have no further obligation with respect to such goods. In no event shall Buyer incur any liability for payment of rejected goods.

- A. Buyer shall have a reasonable time to submit claims of count, weight, quality, loss or damage to goods delivered hereunder provided that in no event shall a reasonable time be deemed to be less than 10 days from the date of acceptance of goods. Damages with respect to such claims will be calculated by Buyer and the amount thereof deducted from Seller's invoice or if previously paid will be reimbursed by Seller to Buyer.
- B. The Seller agrees to save the Buyer harmless from and indemnify it against any and all claims, losses and expense of any kind including attorneys fees arising from injury or damage resulting from material or design defects in the articles named on this order or any part thereof.

12. **Seller Addressed to Furnish Material**

Material must be furnished and invoices rendered only by the Seller to which the order is addressed, unless otherwise authorized in writing by the Buyer.

13. **Waiver**

Failure of Buyer to insist on strict performance by Seller of the terms and conditions of this order at any time shall not be construed as a waiver by Buyer of such performance in the future.

14. **Invoices**

A. **Invoices (U.S. Shipments)**

Unless otherwise instructed by Buyer in writing, the Seller will submit all invoices only after making shipment in triplicate to Metro-North Commuter Railroad Company, Manager, Accounts Payable to 347 Madison Avenue, New York, NY 10017. When Buyer is responsible for any prepaid shipping charges receipted freight bill must accompany the invoices. If a consolidated shipment is made, indicate on each invoice where bill of lading or other receipts are attached. The Seller will include the contract number, purchase order number, item number and description of material on all correspondence, invoices, shipping documents & packages. In addition, all invoices must reflect unit of measure shown on Metro-North purchase order.

15. **Prices**

All prices for materials, equipment or supplies incorporated herein shall apply as stated unless changes are agreed upon in writing by both Buyer and Seller. All prices charged must be in compliance with governmental price control regulations in effect at time of shipment.

16. **Audit**

In the event that payment for any material or labor under this order is based on other than unit or lump sum pricing, Buyer shall have the right to audit the books and records of the seller for a period of six years after acceptance by Buyer.

17. **Inspection and Rejection**

All material received is subject to inspection and to rejection by the Buyer if the material is defective or does not meet Buyer specifications. The Buyer specifically reserves the right (1) to have rejected material replaced by the Seller at the purchase price stipulated in the contract or (2) to return the rejected material freight collect for full credit at the price charged plus transportation charges. The Buyer reserves the right to accept a part of any shipment and reject the balance, considering the contract breached material. The Buyer's rights with respect to the rejection of material are not waived by failure of the Buyer to notify the Seller promptly upon receipt of deliver.

18. **Packing and Cartage**

The Buyer will not pay charges for packing or cartage unless agreed upon in writing.

19. **Patents and Copyrights**

The right is hereby granted to Buyer, Buyer's parent and parent's subsidiaries and affiliates to use whether the same is patented or copyrighted before, during or after acceptance by buyer. The seller shall indemnify and hold harmless Buyer, Buyer's parent and parent's subsidiaries and affiliates against all loss and expense incurred in the defense, settlement or satisfaction of any claim, and shall pay all awards or damages assessed that are in the nature of patent or copyright infringement arising out of or in connection with the use of any product or material provided under this order including reasonable attorney fees. If Buyer be enjoined from using any other right it may have hereunder, or at law, or in equity, may require the Seller to supply at its own expense, temporarily or permanently products or materials not subject to such injunction.

20. **Working on Buyer's Premises**

In the event that installation or any other work in connection with the goods or services purchased hereunder is to be performed on Buyer's premises, by Seller, his employees or agent, the following terms and conditions shall apply:

- A. Seller, his employees or agents shall take, use, provide and make all necessary and proper precaution against the occurrence of any accident or injury to any person or property during the progress of the installation or other work herein covered and shall be responsible for and shall indemnify and save harmless Buyer from the payment of all sums of money and costs and expenses incurred by reason of all, or any such accident or injury that may happen or occur upon or about such work, howsoever caused, and all fines, penalties and loss incurred for or by reason of the violation of any state, county, municipal or local ordinance or regulation or the law of any state or the United States while the said work is in progress.
- B. Upon request of Buyer, Seller agrees to furnish evidence of adequate insurance coverage of public liability, automobile liability, property damage liability and workmen's compensation.
- C. Seller agrees that all persons who are compensated by Seller shall be deemed to be its employees for the purpose of any tax or contribution levied by the federal, state and local governments and accepts exclusive liability for any payroll tax or contribution imposed by federal, state and local laws covering such persons.

21. **Clayton Act**

This order is placed subject to all of the provisions of the Clayton Anti-Trust, 15 U.S.C. §§ 12-27, and if Buyer be advised by its counsel that this agreement offends against or is contrary to the provisions of Section 10 of said Act of Congress, then Buyer shall inform Seller and thereupon this agreement shall be terminated.

22. **Title and Risk of Loss**

Unless specifically agreed otherwise, title to and risk of loss of all goods furnished hereunder shall remain with Seller until receipt and acceptance of the goods at Buyer's location. Notwithstanding

restrictive legends to the contrary, title to plans, drawings and specifications with respect to the goods shall be vested in and remain with Buyer and may be used by Buyer for any purpose. (A) Passage of title to the materials or supplies (or any part thereof) shall not in any way relieve Seller of its obligations under this Order, not be treated as a waiver by Buyer of the right later to reject any part of the supplies which fail to meet any warranty expressed or implied. Seller shall assume and pay for any loss of or damage to the supplies covered hereby until delivery or until title otherwise passes from Seller to Buyer, whichever occurs later. If any lien or encumbrance is asserted against the materials or supplies or any part thereof, Buyer shall have the right to discharge the same by: (1) filing a bond or other security, or (2) in its discretion, to pay the full amount thereof, whereupon Buyer shall have the right to deduct from the order price the amount thus paid, or (3) if the purchase price has been paid, Seller shall repay to Buyer the amount thus paid by Buyer to discharge such lien or encumbrance. (B) Seller agrees: (1) that all dies, tools, jigs, fixtures, designs, drawings, patterns and other special items, the prices of which are itemized separately hereunder or which are furnished by Buyer without charge, shall be the property of Buyer, that Seller shall be responsible for all loss or damage thereto, reasonable wear excepted until they are delivered to Buyer, and that same shall be (a) appropriately segregated, marked as the property of Buyer and in the absence of specific instructions from Buyer to the contrary, numbered with the part made, in order to accurately identify same at all times (b) kept in good working condition and (c) used exclusively for the production of goods for Buyer and subjected to other use except with the written permission of Buyer, (2) that all material furnished by Buyer without charge hereunder shall likewise be the property of Buyer that Seller shall be responsible for all loss or damage including manufacturing errors, thereto responsible wear excepted until such material is delivered to Buyer, and that such material received from Buyer for the performance of this Order shall be property segregated and marked, and (3) upon completion, cancellation or termination of this Order, all such material tools etc. shall be held free of charge by Seller pending instructions from Buyer and in the absence of such instructions within six (6) months. Seller shall be entitled, after ten (10) days notice in writing to Buyer, to store same at Buyer's expense. (C) Unless expressly provided to the contrary on the face of this Order, the fact that title to supplies may be in Buyer because of partial or progress payments to the Seller, or because the supplies called for by this Order involve the performances of service or material furnished by Buyer shall not relieve Seller of responsibility for all loss or damage thereto until such supplies are delivered at the point specified by this order.

23. **Notice of Shipment**

Notice of each shipment, giving purchase order number and kind and quantity of articles, must be sent to Buyer by mail on date of shipment. The notice should be clearly marked "Notice of Shipment."

24. **Quantities**

Overshipments are subject to Buyer's acceptance only, but Seller's suggestions as to standard packages or capacity loading of cars are invited.

25. **F.O.B. Terms**

The Seller is responsible for prepayment of all transportation charges to the F.O.B point.

26. **Noncollusion in Bidding**

- (a) By submission of this bid, the Seller and each person signing on behalf of the Seller certifies, under penalty of perjury, that to the best of his knowledge and belief: (1) The prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor; (2) Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the Seller and will not knowingly be

disclosed by the Seller prior to opening directly or indirectly, to any other bidder or to any competitor (3) No attempt has been or will be made by the Seller to induce any other person, partnership or corporation to submit a bid for the purpose of restricting competition. (b) A bid shall not be considered for award nor shall any award be made where (a) (1) (2) and (3) above have not been complied with, provided, however, that if in any case the Seller cannot make the foregoing certification the Seller shall so state and shall furnish with the bid a signed statement which sets forth in detail the reasons therefore Where (a) (1) (2) and (3) above have not been complied with, the bid shall not be considered for award not shall any award be made unless the Buyer or its designee determines that such disclosure was not made for the purpose of restricting competition. The fact that the Seller (1) has published price lists, rates or tariffs covering items being procured, (2) has informed prospective customers of proposed or pending publication of new or revised price lists for such items, or (3) has sold the same items to other customers the same prices being bid, does not constitute, without more a disclosure within the meaning of paragraph (a) above.

27. **Labor Law**

If any part of the Work falls within the purview of the Labor Law of the State of New York, the Seller agrees as to such part of the Work to comply therewith, including Sections 200, 220-a, 220-b, 220-d, 220-f, 222-a, and 223 thereof, as amended and supplemented in conformity with such sections of the Labor Law the Seller agrees and stipulates that no laborer, workman or mechanic in the employ of the Seller, subcontractor or other person doing or contracting to do the whole or a part of the Work shall be permitted or required to work more than eight hours in any one calendar day, not more than five days in any one week except in cases of extraordinary emergency as defined in Section 220 of the Labor Law, and further that the wages to be paid for a legal day's work as hereinbefore defined to all classes of such laborers, workmen or mechanics upon the Work or upon any material to be used upon or in connection therewith shall be not less than the prevailing rate (at the time the work is performed) of a day's work in the trade of occupation in the town, city, village or other civil division of the state wherein the physical work is being performed and shall be paid in cash, and that each such laborer, workman or mechanic employed by the Seller or by any subcontractor or other person on, about or upon the Work shall receive the wages and supplements provided for in said Section 220 of the Labor Law. In obedience to the requirements of Section 222-a of the Labor Law, the Seller further agrees that if the provisions of the said Section are not complied with the Contract shall be void.

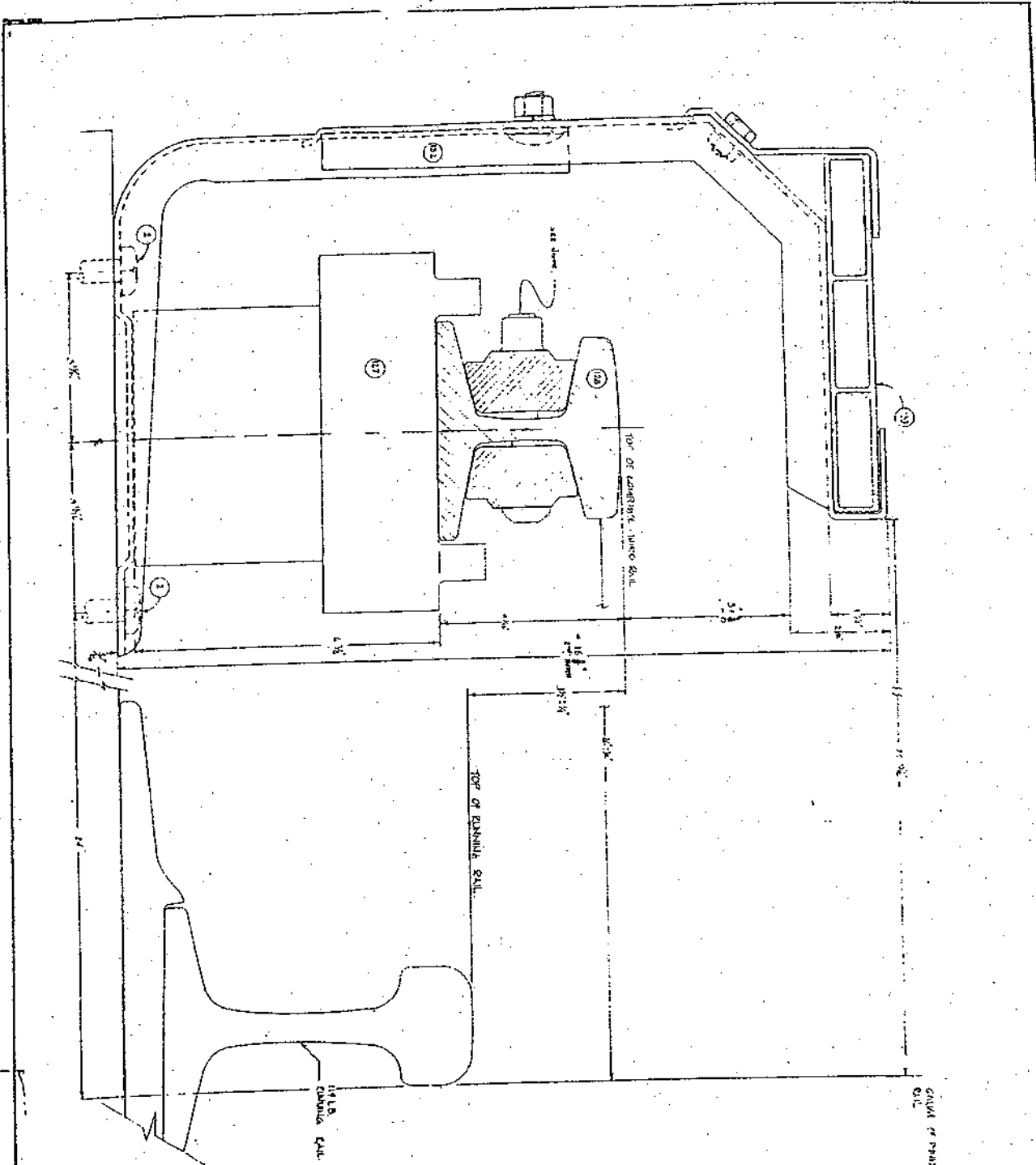
28. **New York Laws and Courts**

This order shall be interpreted in accordance with the Laws of the State of New York. the Seller agrees to submit any controversies arising out of this order to the New York City Courts except as may otherwise be provided by applicable statutes.

29. **Compliance with Laws**

The Seller shall comply with the provisions of the Fair Labor Standards Act of 1938 as amended, and all other applicable federal, state, country and local laws, ordinances, regulations and codes (including procurement of required permits or certificates) in the Seller's performance hereunder irrespective of whether a specification is furnished if materials, services or containers are required to be constructed, packaged labeled or registered in a prescribed manner the Seller agrees to indemnify the Buyer and the customers of the Buyer for any loss of damage sustained because of the Seller's non-compliance with any federal, state or local law.

Exhibit B



check of planing
etc.

ATTACHMENT 3

ARTICLE #	DESCRIPTION
1	WOOD WAS LAYED OUT IN 2" x 4" x 8" STUDS AND JOISTS. THE JOISTS ON THIS FLOOR WAS LAYED OUT WITH 16" ON CENTER AND THE STUDS WERE LAYED OUT WITH 16" ON CENTER. THE JOISTS WERE LAPPED AND THE STUDS WERE LAPPED. THE JOISTS WERE LAPPED WITH 16" ON CENTER AND THE STUDS WERE LAPPED WITH 16" ON CENTER.
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20	CONCRETE WARE SILL.
21	CONCRETE WARE SILL.
22	CONCRETE WARE SILL.

Notes:
1. Check all work done by contractor
in the field.
2. Check all work done by contractor
in the field.

THE LONG ISLAND RAIL ROAD MEMORANDUM FOR THE RECORD DATE: 11/1/05 TO: [Name] FROM: [Name] SUBJECT: [Subject]	
1. [Text] 2. [Text] 3. [Text]	4. [Text] 5. [Text] 6. [Text]

Metro-North Commuter Railroad Company

Bid No. 5830-A

**for the Purchase of
Concrete Railroad Ties**

Addendum No. 2

Dated: January 6, 1997

The following constitutes addendum No. 2 to the Inquiry document dated November 27, 1996. Each bidder shall acknowledge receipt of this addendum by signing the acknowledgment and returning it with your proposal.

All Persons shall take note of these changes to the subject documents. The bid due date has not been changed it remains, January 10, 1997.

The Warranties section amended in Addendum No. has been changed to read:

Paragraph 4 entitled Warranties include in the terms and condition is herein deleted, and the following language is incorporated, " The contractor warrants that the concrete ties furnished under this contract will comply with the specifications in all respect and will be free of defects in materials or workmanship. The contractor's liability under this Warranty shall be limited to the repair or replacement of the concrete ties, at the discretion of Metro-North, plus the cost of freight, for up to 25 years after delivery to Metro-North. The contractors liability for the cost of freight under this Warranty shall be limited to \$ 12.00 per tie.

The contractor warrants the Hardware system for a period of five years after installation of the tie and will replace defective material excluding labor.

Acknowledged: [Signature] 1/6/97
Signature



Subject to terms & conditions on reverse side of this order. Only the terms and conditions set forth herein shall constitute an agreement between the parties.

PURCHASE ORDER
2222022673

REPRINT NUMBER
1

CHANGE NUMBER

CORRECT PURCHASE ORDER, LINE AND ITEM NUMBERS MUST APPEAR ON ALL PACKAGES, INVOICES, SHIPPING PAPERS AND CORRESPONDENCE. PACKING SLIPS MUST ACCOMPANY ALL SHIPMENTS. INVOICES MUST BE SUBMITTED IN TRIPLICATE.

INVOICE TO
METRO-NORTH COMMUTER RAILROAD
P.O. BOX 550
GRAND CENTRAL STATION
NEW YORK, NY

TO

ROCLA CONCRETE TIE, INC.
268 EAST SCOTLAND DRIVE
PEARL,

NY 19701

FROM

METRO-NORTH COMMUTER RAILROAD
CONCRETE TIE PROJECT- S/R 169
ATTN: A. AUGELLO, SUPV. TRACK
HIGHBRIDGE YARD

BRONX,

10452

NY

914-685-8478

760208519

DATE PRINTED	TERMS OF SALE	TAX IDENTIFICATION NUMBER			
02/11/97	NET 30 DAYS		C.00		
RAIL CAR		DESTINATION	FRT INCLUDED	75,000.00	
LINE	QUANTITY	UOP	VENDOR ITEM NO.	UNIT PRICE	AMOUNT
	DATE DUE	CAT. NO.	ITEM NUMBER		
THIS PURCHASE ORDER IS ISSUED IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF THE FINAL OFFER DATED 01/21/97.					
FOLLOWING ADDITIONAL COST WILL APPLY.					
\$1.75 PER TIE FOR CARS HOLDING 220 TIES					
\$0.51 PER TIE FOR CARS HOLDING 220 TIES					
0001	24,270	EA	05500150	77.73000	1,886,507.10
CONCRETE TIE 6 IN. BASE WITH 3RD RAIL INSERTS WITH					
MM#3 901941 CONCRETE TIE PROGRAM 1997/1998					
0002	24,099	EA	05500150	77.73000	1,873,213.27
CONCRETE TIE 6 IN. BASE WITH 3RD RAIL INSERTS WITH					
MM#3 901941 CONCRETE TIE PROGRAM 1997/1998					
0003	28,970	EA	05500000	69.00000	1,998,930.00
CONCRETE TIE 6 IN. BASE WITHOUT 3RD RAIL INSERTS					
MM#3 901941 CONCRETE TIE PROGRAM 1997/1998					

TOTAL

107131

01 BY *[Signature]* 2/11/97
AUTHORIZED SIGNATURE

ACCOUNTING DEPARTMENT



Subject to terms & conditions on reverse side of this order. Only the terms and conditions set forth herein shall constitute an agreement between the parties.

PURCHASE ORDER
222202873

PAGE
12

METRO-NORTH COMMUTER RAILROAD
P.O. BOX 1581
GRAND CENTRAL STATION
NEW YORK, NY

CHANGE RELEASE

CORRECT PURCHASE ORDER, LINE AND ITEM NUMBERS MUST APPEAR ON ALL PACKAGES, INVOICES, SHIPPING PAPERS AND CORRESPONDENCE. PACKING SLIPS MUST ACCOMPANY ALL SHIPMENTS. INVOICES MUST BE SUBMITTED IN TRIPLICATE.

CHANGE ORDER

REPRINT NUMBER
1

TO
ROCLA CONCRETE TIE, INC.
268 EAST SCOTLAND DRIVE
BEAR,
DE 19701
760208515

FROM
METRO-NORTH COMMUTER RAILROAD
CONCRETE TIE PROJECT- SVR 169
ATTN: A. AUGELLO, SUPV. TRACK
HIGHBRIDGE YARD
BRONX, NY
10452 914-686-8478

DATE PRINTED	TERMS OF SALE	CERTIFICATION NUMBER	AMOUNT		
02/11/97	NET 30 DAYS		0.00		
RAIL CAR	DESTINATION	FRT INCLUDED	AMOUNT		
			75,000.00		
LINE	QUANTITY	UOP	VENDOR ITEM NO.	UNIT PRICE	AMOUNT
	DATE DUE	CAT. NO.	ITEM NUMBER		
0004	34,551	EA	05500000	69.00000	2,384,019.00
	02/10/97				
	CONCRETE TIE & IN. BASE WITHOUT 3RD RAIL INSERTS				
	MM#3 901941		CONCRETE TIE PROGRAM 1997/1998		
0005	53,716	EA	05500000	69.00000	3,706,404.00
	CONCRETE TIE & IN. BASE WITHOUT 3RD RAIL INSERTS				
	MM#3 901941		CONCRETE TIE PROGRAM 1997/1998		
PLEASE NOTIFY L. SCHIEFERSTEIN 48 HOURS PRIOR TO SHIPMENT OF LADING TO L. SCHIEFERSTEIN AT 914-271-1699.					
REFLECT THE CONCRETE INSTALLATION SCHEDULE FOR METRO-NORTH					
PREVIOUS PO TOTAL=>					11,924,075.37
					11,924,075.37
					TOTAL

01
BY *[Signature]* 2/11/97
ACCOUNTING DEPARTMENT

[Signature]
AUTHORIZED SIGNATURE



Subject to terms & conditions on reverse side of this order.
 Only the terms and conditions set forth herein shall constitute
 an agreement between the parties.

PURCHASE ORDER
 2222022873

PAGE
 1

BLANKET RELEASE

CHANGE NOTICE
 3

CORRECT PURCHASE ORDER, LINE
 AND ITEM NUMBERS MUST APPEAR
 ON ALL PACKAGES, INVOICES, SHIP-
 PING PAPERS AND CORRESPON-
 DENCE. PACKING SLIPS MUST AC-
 COMPANY ALL SHIPMENTS. INVOICES
 MUST BE SUBMITTED IN TRIPPLICATE.
 REPRINT NUMBER
 2

METRO-NORTH COMMUTER RAILROAD
 P.O. BOX 350
 GRAND CENTRAL STATION
 NEW YORK, NY

TO

ROCLA CONCRETE TIE, INC.
 268 EAST SCOTLAND DRIVE
 DEAR,
 DE 19701
 760208515

FROM

METRO-NORTH COMMUTER RAILROAD
 CONCRETE TIE PROJECT - S/R 169
 ATTN: A. AUGELLO, SUPV, TRACK
 HIGHBRIDGE YARD
 BRONX, NY
 10452 914-686-8478

DATE PRINTED		TERMS OF SALE		MAX. CERTIFICATION NUMBER	
10/22/97		NET 30 DAYS		3.00	
SHIPMENT		FREIGHT TERMS		ADDITIONAL COST	
RAIL CAR		DESTINATION		FRT INCLUDED 75,000.00	
LINE	QUANTITY	UOP	VENDOR ITEM NO.	UNIT PRICE	AMOUNT
	DATE DUE	CAT. NO.	ITEM NUMBER		
THIS PURCHASE ORDER IS ISSUED IN ACCORDANCE WITH THE FINAL OFFER DATED 01/21/97. FOLLOWING ADDITIONAL COST WILL APPLY. \$0.75 PER TIE FOR CARS HOLDING 176 TIES \$0.51 PER TIE FOR CARS HOLDING 220 TIES THIS RATE APPLIES TO THE FOLLOWING CAR NO. ONLY 664541, 664548, 664558, 664565, 664568, 664576, 664584, CANX61808, CANX61810, CANX61804, CANX61811, CANX61809, CANX61807					
	00/14/97	SS05	05500150		
	08/16/98	SS05	05500150		
					TOTAL

[Redacted Signature Area]

BY _____ AUTHORIZED SIGNATURE



Subject to terms & conditions on reverse side of this order. Only the terms and conditions set forth herein shall constitute an agreement between the parties.

2223-22579 2

BLANKET DELIVER

CORRECT PURCHASE ORDER, LINE AND ITEM NUMBERS MUST APPEAR ON ALL PACKAGES, INVOICES, SHIPPING PAPERS AND CORRESPONDENCE. PACKING SLIPS MUST ACCOMPANY ALL SHIPMENTS. INVOICES MUST BE SUBMITTED IN TRIPLICATE.

3

REPRINT NUMBER 2

INVOICE TO
 METRO-NORTH COMMUTER RAILROAD
 200 WEST 31ST STREET
 GRAND CENTRAL STATION
 NEW YORK, NY

ROCLA CONCRETE TIE, INC.

260 EAST SCOTLAND DRIVE
 BEAR, NY 19701

760208515

SHIP TO

METRO-NORTH COMMUTER RAILROAD
 CONCRETE TIE PROJECT - S/R 169
 ATTN: A. AUGELLO, SUPV. TRACK
 HIGHBRIDGE YARD

BRONX, NY

10452

NY

914-686-8478

DATE PRINTED	TERMS OF SALE	TAX CERTIFICATION NUMBER			
10/22/97	NET 30 DAYS		0.00		
RAIL CAR	DESTINATION	FRT INCLUDED	75,000.00		
LINE	QUANTITY	UOP	VENDOR ITEM NO.	UNIT PRICE	AMOUNT
	DATE DUE	CAT. NO.	ITEM NUMBER		
G003	28,970	EA	05500000	69.00000	1,998,930.00
	02/28/97				
	CONCRETE TIE	5 IN. BASE WITHOUT 3RD RAIL INSERTS			
	MM#3 901941	CONCRETE TIE PROGRAM	1997/1998		
0004	34,551	EA	05500000	69.00000	2,384,019.00
	CONCRETE TIE	6 IN. BASE WITHOUT 3RD RAIL INSERTS			
	MM#3 901941	CONCRETE TIE PROGRAM	1997/1998		
G005	53,716	EA	05500000	69.00000	3,706,409.00
	03/31/98				
	CONCRETE TIE	6 IN. BASE WITHOUT 3RD RAIL INSERTS			
	MM#3 901941	CONCRETE TIE PROGRAM	1997/1998		
PLEASE NOTIFY L. SCHIEFERSTEIN 48 HOURS PRIOR TO					
OF LADING TO L. SCHIEFERSTEIN AT 914-271-1699.					
REFLECT THE CONCRETE INSTALLATION SCHEDULE FOR METRO-					
	03/31/97	SSG5	05500000		

TOTAL

01

BY

AUTHORIZED SIGNATURE

BUYER'S COPY



Subject to terms & conditions on reverse side of this order.
Only the terms and conditions set forth herein shall constitute an agreement between the parties.

PURCHASE ORDER
2222022073

3

BLANKET RELEASE

CHANGE NOTICE
3
3

CORRECT PURCHASE ORDER, LINE AND ITEM NUMBERS MUST APPEAR ON ALL PACKAGES, INVOICES, SHIPPING PAPERS AND CORRESPONDENCE. PACKING SLIPS MUST ACCOMPANY ALL SHIPMENTS. INVOICES MUST BE SUBMITTED IN TRIPLICATE.
REPRINT NUMBER 2

METRO-NORTH COMMUTER RAILROAD
100 W. 42ND ST
65 AND CENTRAL STATION
NEW YORK, NY
10036

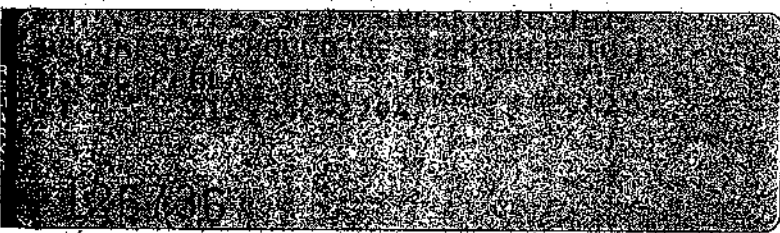
101

ROCLA CONCRETE TIE, INC.
262 EAST SCOTLAND DRIVE
BEAR, NY 19701
760208515

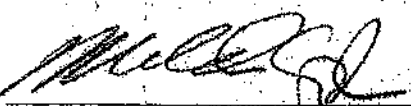
101

METRO-NORTH COMMUTER RAILROAD
CONCRETE TIE PROJECT - S/R 169
ATTN: A. AUGELLO, SUPV. TRACK
HIGHBRIDGE YARD
BRONX, NY 10462
914-686-2478

DATE PRINTED		TERMS OF SALE		TAX IDENTIFICATION NUMBER	
10/22/97		NET 30 DAYS		0.00	
RAIL CAR		DESTINATION		FRT. INCLUDED	
				75,000.00	
LINE	QUANTITY DATE DUE	UOP CAT. NO.	VENDOR ITEM NO. ITEM NUMBER	UNIT PRICE	AMOUNT
	WITH FAST CLIP FASTENING SYSTEM PER MNCR SPECIFICATION				
	CLIPS, AND INSULATORS AS PER SECTION 1.4.3.2 OF SPEC				
	MNCR 901975, AMENDMENT TO MNCR 901941, NOV 1290				
0007	3,765	EA	05500100	70.39000	264,078.35
	CONCRETE TIE 8 IN. BASE WITHOUT 3RD RAIL INSERTS				
	WITH MODIFIED FASTENING SYSTEM (FAST CLIP) FOR 5-1/2				
	VENDOR TO PROVIDE TIE PADS, RAIL CLIPS, AND INSULATORS				
	TRACK				
0008	8,710	EA	05500050	76.41000	665,231.10
	CONCRETE TIE 8 IN. BASE WITH 3RD RAIL INSERTS WITH				
	FAST CLIP FASTENING SYSTEM PER MNCR SPECIFICATIONS FOR				
	AND INSULATORS AS PER SECTION 1.4.3.2 OF SPEC				
	THIS CHANGE ORDER HAS BEEN ISSUED TO DECREASE THE QU				
	PREVIOUS PU TOTAL=>				12,013,924.05
					12,013,924.05
					TOTAL



01

BY 
AUTHORIZED SIGNATURE



Subject to terms & conditions on reverse side of this order. Only the terms and conditions set forth herein shall constitute an agreement between the parties.

PURCHASE ORDER
2222022873

PAGE
1

Post-it® Fax Note 7671

Date	7/31	# of pages	3
To	M. Gettler	From	M. Coppola
Co./Dept	CAPITAL	Co.	MNRPUR
Phone #	4473	Phone #	2294
Fax #	4494	Fax #	3290

SHIPPING RELEASE

CORRECT PURCHASE ORDER, LI AND ITEM NUMBERS MUST APPEAR ON ALL PACKAGES, INVOICES, SHIPPING PAPERS AND CORRESPONDENCE. PACKING SLIPS MUST BE COMPANY ALL SHIPMENTS. INVOICE MUST BE SUBMITTED IN TRIPLICATE

PRICE CHANGE NOTICE

ROCLA CONCRETE TIE, INC.
268 EAST SCOTLAND DRIVE
BEAR DE 19701

METRO-NORTH COMMUTER RAILROAD
CONCRETE TIE PROJECT- S/R 169
ATTNS: AUGELLO, SUPV. TRACK
HIGHBRIDGE YARD

BRONX, NY
10452 914-686-6478

760208515

DATE PRINTED	TERMS OF SALE	TAX IDENTIFICATION NUMBER	DATE		
03/26/1998	NET 30 DAYS		9-00		
RAIL CAR	DESTINATION	FRT INCLUDED	ADDITIONAL COST		
			75,000.00		
LINE	QUANTITY	UOP	VENDOR ITEM NO.	UNIT PRICE	AMOUNT
	DATE DUE	CAT. NO.	ITEM NUMBER		
THIS PURCHASE ORDER IS ISSUED IN ACCORDANCE WITH THE FINAL OFFER DATED 01/21/97.					
FOLLOWING ADDITIONAL COST WILL APPLY.					
\$0.51 PER TIE FOR CARS HOLDING 220 TIES					
THIS RATE APPLIES TO THE FOLLOWING CAR NO. ONLY					
664541, 664546, 664548, 664566, 664568, 664576, 664584,					
CANX61808, CANX61810, CANX61804, CANX61817, CANX61809,					
03/31/1997 SS05 05500100					
CONCRETE TIE IN IN-BASE HIGH BRIDGE RAIL INSERT					
FOR MOUNTAIN EAST MINCR SYSTEM (EA 1 GLTR) FOR 3-1/2					
IN-BASE RAIL PER MINCR SPECIFICATION FOR CONCRETE TIES					
VENDOR TO PROVIDE TIE PADS, RAIL TIES, AND INSULATORS					
AS PER SECTION 1.4.3.2 OF SPEC					
MM3# 901977					
THE QUANTITY HAS BEEN REDUCED BY 465 TIES					

TOTAL

01 BY AUTHORIZED SIGNATURE

EQUIPMENT

66-North
railroad

Subject to terms & conditions on reverse side of this order. Only the terms and conditions set forth herein shall constitute an agreement between the parties.

2222022873

3

1 BANK RELEASE

2 CHANGE NUMBER

CORRECT PURCHASE ORDER LINE AND ITEM NUMBERS MUST APPEAR ON ALL PACKAGES, INVOICES, SHIPPING PAPERS AND CORRESPONDENCE. PACKING SLIPS MUST ACCOMPANY ALL SHIPMENTS. INVOICES MUST BE SUBMITTED IN TRIPPLICATE.

METRO-NORTH COMMUTER RAILROAD
66-NORTH STATION
AND CENTRAL STATION
NEW YORK, NY

ROCLA CONCRETE TIE, INC.
268 EAST SCOTLAND DRIVE
BEAR DE 19701

METRO-NORTH COMMUTER RAILROAD
CONCRETE TIE PROJECT - S/R 169
ATTN: A. AUGELLO, SUPV. TRACK
HIGHBRIDGE YARD
BRONX, NY
10452 914-686-8478

760208515

10452

NY

914-686-8478

RAIL CAR		DESTINATION		FRT. INCLUDED		AMOUNT	
LINE	QUANTITY	UOP	VENDOR ITEM NO.	UNIT PRICE	AMOUNT		
	DATE DUE	CAT. NO.	ITEM NUMBER				
03/26/1998		NET 30 DAYS		0.00			
				75,000.00			
0009	1,818	EA	05500000	69.00000	125,442.00		
CONCRETE TIE 6 IN. BASE WITHOUT 3RD RAIL INSERTS							
WITH FAST CLIP FASTENING SYSTEM PER MNCR SPECIFICATION							
FOR CONCRETE TIES. VENDOR TO PROVIDE BUSHES, RAILS, RAIL CLIPS, AND INSULATORS AS PER SECTION 1.4.3.2. OF SPEC							
LINES 9, 10, 11, 12 HAVE BEEN ADDED BY CHANGE ORDER NO4							
0010	1,290	EA	05500050	76.41000	98,568.90		
CONCRETE TIE 6 IN. BASE WITH 3RD RAIL INSERTS WITH							
FAST CLIP FASTENING SYSTEM PER MNCR SPECIFICATIONS FOR							
AND INSULATORS AS PER SECTION 1.4.3.2 OF SPEC							
05/01/1998		EA	05500150	77.70000	116,395.00		
CONCRETE TIE 6 IN. BASE WITH 3RD RAIL INSERTS WITH							

TOTAL

01

BY

M. J. [Signature]
AUTHORIZED SIGNATURE

**Metro-North
Railroad**

Subject to terms & conditions on reverse side of this order.
Only the terms and conditions set forth herein shall constitute
an agreement between the parties.

PURCHASE ORDER
2222022813

DATE
9/11/99

BLANKET RELEASE

CORRECT PURCHASE ORDER LINE AND ITEM NUMBERS MUST APPEAR ON ALL PACKAGES, INVOICES, SHIPPING PAPERS AND CORRESPONDENCE. PACKING SLIPS MUST ACCOMPANY ALL SHIPMENTS. INVOICES MUST BE SUBMITTED IN TRIPLICATE.

CHANGE NOTICE

4

INVOICE TO
METRO-NORTH COMMUTER RAILROAD
100 W 42ND ST
GRAND CENTRAL STATION
NEW YORK, NY
10163

ROCLA CONCRETE TIE, INC.
268 EAST SCOTLAND DRIVE
BEAR DE 19701

METRO-NORTH COMMUTER RAILROAD
CONCRETE TIE PROJECT - SYR 169
ATTN: A. AUGELLO, SUPV. TRACK
HIGHBRIDGE YARD

BRONX,

NY

10452

914-686-8478

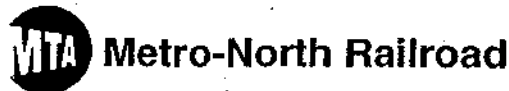
760208515

DATE DUE		TERMS OF SALE		TAX CERTIFICATION NUMBER	
03/26/1998		NET 30 DAYS		0-00	
RAIL CAR		DESTINATION		FRT INCLUDED	
				75,000.00	
LINE	QUANTITY	UOP	VENDOR ITEM NO.	UNIT PRICE	AMOUNT
	DATE DUE	CAT. NO.	ITEM NUMBER		
	MODIFIED FASTENING SYSTEM (FAST CLIP) FOR 5-1/2 IN. BASE PER MNCR SPECIFICATION OR CONCRETE TIES				
	VENDOR TO PROVIDE TIE PADS, RAIL CLIPS, AND INSULATORS AS PER SECTION 1.4.2.2 OF SPEC				
	TRACK				
0012	38,000	EA	05500000	69.00000	2,622,000.00
	07/20/1998	0005	05500000		
	CONCRETE TIE 6 IN. BASE WITHOUT 3RD RAIL INSERTS				
	WITH FAST CLIP FASTENING SYSTEM PER MNCR SPECIFICATION OR CONCRETE TIES				
	VENDOR TO PROVIDE TIE PADS, RAIL CLIPS, AND INSULATORS AS PER SECTION 1.4.2.2 OF SPEC				
	RATE ORDER... 2X...				
	DDT 300 - 1094; ACTION FORM 97-1203; PROJECT C23 CON				
	ANY ????S-> L. SCHIERFERSTEIN... X 1687.....				
	PREVIOUS PO TOTAL=>				
	12,013,924.05				
	PO NET CHANGE (+/-)				
	2,929,677.05				
	14,943,566.10				
	TOTAL				

REMARKS
AND COMMENTS TO BE RECORDED TO THIS INVOICE SHOULD BE REFERRED TO BY DATE

01

EXHIBIT C



October 4, 2004

Rocla Concrete Ties, Inc.
701 West 48th Avenue
Denver, CO 80216-1817
Attn: Peter Urquhart, President

Re: Metro-North Purchase Order Number 2222022873
Warranty Claim – Concrete Ties

Dear Sir:

This letter is to inform you that Metro-North Railroad (“Metro-North”), on behalf of itself and the Long Island Rail Road (the “LIRR”)(collectively, the “Railroads”), has a warranty claim against Rocla Concrete Ties, Inc. (“Rocla”) due to the defective nature of the ties purchased under the above-referenced Purchase Order. As will be detailed below, significant numbers of the ties are exhibiting cracking and further deterioration, resulting in failure of the ties. This condition is worsening over time. As a result, the ties will have to be replaced to ensure safe and efficient operation of the Railroad.

Accordingly, the Railroads will require Rocla to perform under the applicable 25-year warranty established in the Purchase Order, and provide a complete remedy for this situation.

The Contract

Following a competitive solicitation (Bid No. 5830-A), Metro-North awarded Purchase Order No. 2222022873 to Rocla for over 150,000 concrete ties and associated hardware. The ties were delivered to and installed on both Railroads in or about 1997 and 1998.

The Technical Specification, which was made part of the Purchase Order, provided that “[i]t is the contractor’s responsibility to address all design considerations and perform all testing as required to assure that the intended tie performance be attained with particular regard to minimum concrete tie service life (50 years) under service requirements” as set forth in the bid document (Section 1.0).

Rocla Letter
Page 2
October 4, 2004

The Specification also required that:

[t]he concrete cross ties and shoulder inserts must provide a service life of fifty (50) years when exposed to the service conditions of Metro-North Commuter Railroad. The ties must be capable of withstanding the variations in track conditions within these standards. The ties will be exposed to a high-density mix of passenger and freight trains, and the extreme weather common to the New York Metropolitan area. The Manufacturer will be responsible for assuring that the manufacturing process will yield a product able to meet the service life requirements. (Section 1.4)

In addition, the Specification provided that “[i]t shall be the contractor’s responsibility to select materials and design a mixture which will be able to withstand freezing and thawing cycles and not be susceptible to alkali-aggregate reactivity” (Section 2.29).

Consistent with these Specification requirements, Rocla warranted “that the concrete ties furnished under the contract will comply with the specification in all respects and be free of defects in materials or workmanship.” The warranty requires repair or replacement of defective ties at Metro-North’s discretion, and is for a period of 25 years from delivery. Under this warranty, the cost of freight to Rocla is limited to \$12.00 per tie.

The Defective Concrete Ties

Recently, the Railroads have observed that a significant number of the Rocla ties are undergoing varying rates of failure, ranging from hairline cracks to extensive “mapped” cracking to severe deterioration, where the tie is actually falling to pieces. In increasing numbers of the ties the prestressed strands are pulled in and the rail seats are broken, resulting in loss of structural strength, and the inability to bear loads. The condition of the ties in general has been found to be progressive, in that apparently normal ties are seen to develop cracking, and ties already evidencing cracking have subsequently failed. The defective ties are creating major safety and operational concerns for the Railroads.

Preliminary investigations undertaken on behalf of Metro-North attribute the failure of the ties to alkali-silicate reaction (“ASR”) and delayed ettringite formation (“DEF”), or a combination of both. Improper air entrainment also appears to be a factor. These conditions are known factors in the failure of concrete ties; in fact, the specification affirmatively required that the ties “not be susceptible to alkali-aggregate reactivity” (Section 2.29, quoted above). It is clear that these conditions result from defective manufacture by Rocla. Our investigation indicates that impurities in the concrete mix and improperly high curing temperatures are among the factors which have caused the problem.

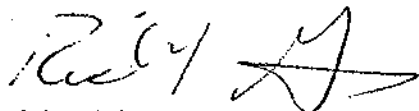
Rocla Letter
Page 3
October 4, 2004

It should be noted that concrete ties purchased by the Railroads from another manufacturer, at about the same time as the defective Rocla ties, are performing satisfactorily. These non-Rocla ties have experienced similar environmental conditions, and were installed using the same methods as the Rocla ties. Further, we have learned that Amtrak has experienced major problems with many of its Rocla ties, and that Amtrak has made claims against Rocla as a result. All of this demonstrates that the cause and responsibility for the tie failures lies with Rocla.

Accordingly, while reserving all of its contractual and common law rights, Metro-North Railroad, on behalf of itself and the LIRR, demands that Rocla accept its warranty obligations and provide a complete remedy for this situation. The Railroads are still evaluating the extent of the problem, but at this time it is not unreasonable to assume that most or all of the Rocla ties will have to be replaced. In such event, as per the terms of the warranty, it is Rocla's contractual responsibility to pay for replacement ties and all labor and other incidental costs incurred by the Railroad.

Given the magnitude of this situation, we believe that it would benefit all parties to meet and discuss a resolution of this matter. Please call the undersigned at 212-340-3043 to arrange such a meeting.

Very truly yours,



Richard Gans
Special Counsel

cc: Rocla Concrete Ties, Inc.
268 East Scotland Drive
Bear, DE 19701
Attn: Robert Andrews, VP Sales and Marketing

Exhibit D

April 26, 2005

Peter Urquhart, President
Rocla Concrete Ties, Inc.
701 West 48th Avenue
Denver, CO 80216-1817

Re: Metro-North Purchase Order Number 2222022873
Warranty Claim – Concrete Ties

Dear Mr. Urquhart:

In furtherance of my letter of April 15, 2005, this letter is to advise you that Metro-North will be replacing all Rocla ties on the Hudson Line, track 3, from approximately CP 25 to CP 33. The severe deterioration of numerous ties, as well as the advanced rate of deterioration of the ties in general, which has necessitated the imposition of “slow orders” on sections of this track segment, requires the Railroad to take this action.

In addition, pending operational considerations, the Railroad may replace Rocla ties on Track 1 later this year, from approximately CP 48 to 58.

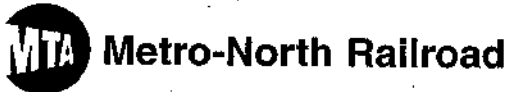
Pursuant to the operative warranty, Metro-North will seek all of its costs in this regard from Rocla, including but not limited to labor, material and equipment costs. Metro-North reserves all of its rights in this regard.

Very truly yours,



Richard Gans
Special Counsel

cc: R.K. Bernard
R. Lieblong
J. Wagner
R. Krasnow
A. Bombace
S. Hubscher
B. Koch
J. Curcio (LIRR)



BY FAX (212-888-0919) AND EXPRESS MAIL

May 25, 2005

Stephen Lazare, Esq.
Lazare Potter Giacovas & Kranjac, LLP
950 3rd Avenue
New York, NY

Re: Metro-North Purchase Order Number 2222022873
Warranty Claim – Concrete Ties

Dear Mr. Lazare:

By letter dated October 4, 2005, Metro-North Railroad (“Metro-North”), on behalf of itself and the Long Island Rail Road (the “LIRR”)(collectively, the “Railroads”), presented a warranty claim against Rocla Concrete Ties, Inc. (“Rocla”) due to the defective nature of the ties purchased under the above-referenced 1997 Purchase Order. As detailed in that letter, significant numbers of the ties were exhibiting cracking and further deterioration, resulting in failure of the ties. The condition was, and is, worsening over time. The Railroads indicated that the ties would have to be replaced to ensure safe and efficient operation of the Railroad.

Accordingly, the Railroads required Rocla to perform under the applicable 25-year warranty established in the Purchase Order, and provide a complete remedy for this situation.

In the October 4th letter, and subsequent thereto, although not required by the contract to do so, the Railroads provided information concerning the reasons for the failure of ties. Despite ample opportunity to do so, Rocla has failed to provide any evidence refuting this information, and also has failed to provide any evidence even purporting to show that the ties are in accordance with the specification. Rocla has also failed to provide any evidence that the ties will not continue to deteriorate, as has been happening.

While certain off-the-record discussions concerning settlement were held subsequent to the October 4, 2004 letter, Rocla failed to make a conforming tender under the contract, rectifying the breach of warranty. Accordingly, by letter dated April 26, 2005, Metro-North informed Rocla of its decision to replace Rocla ties on its Hudson Line, from approximately CP 25 to CP 33. The letter again referenced the severe deterioration of ties, as well as the advanced rate of deterioration of the ties in general. Shortly thereafter,

Lazare Letter
Page 2
May 25, 2005

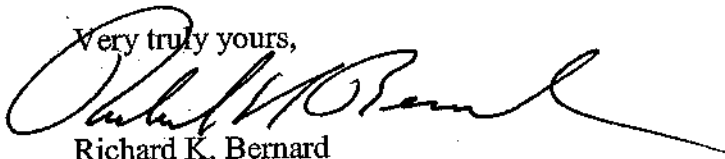
Rocla was informed that LIRR, for the very same reasons, will be replacing approximately 6 miles of Rocla ties on its Main Line, also in 2005.

Again, while certain off-the-record settlement discussions have taken place subsequent to the April 26, 2005 letter, Rocla has failed to make a conforming tender, or indeed, any tender at all outside of settlement discussions, with respect to its warranty obligations. Specifically, Rocla has not committed to performing its contractual warranty obligations, nor has it actually performed such obligations. Additionally, Rocla has failed to provide any adequate assurance that it can perform under the warranty, particularly with respect to the obligation to provide replacement ties that would meet specification requirements. In fact, the Railroads have informed Rocla that another group of ties, purchased by LIRR in 2001, is also evidencing cracking.

Accordingly, Rocla is in breach of its warranty obligations. Because no conforming tender has been made, the Railroads will move forward and replace the defective Rocla ties on the Metro-North Hudson Line and the LIRR Main Line, as specified above, using its own resources and alternate vendor(s) for ties. This action is required given the operational and safety-related requirements of the Railroads, which can no longer be deferred. In accordance with the warranty and our rights under law, the Railroads will hold Rocla responsible for all damages arising from its breach, including but not limited to the cost of materials and all other costs related to the re-installation of ties.

As the defects clearly are not limited to the ties that are to be replaced this year, the Railroads continue to reserve all of their contractual and other rights with respect to the remaining ties. Moreover, pending further evaluation of the failure as a whole, the Railroads specifically reserve their right to revoke acceptance of all of the ties obtained under the referenced Purchase Order.

Very truly yours,



Richard K. Bernard
Vice President & General Counsel

cc: Albert C. Cosenza, Executive Vice President, LIRR
Leslie G. Fagen, Esq.
✓ Daniel J. Leffell, Esq.