

**RB 6**  
REV. 2/9/2011

**SPECIFIC REQUIREMENTS**

**FOR WORKING ON THE**

**READING BLUE MOUNTAIN**

**&**

**NORTHERN RAILROAD**

**RIGHT OF WAY**

## **SCOPE**

It must be clearly understood that RBMN owns and uses its right of way for the primary purpose of operating a railroad. All work shall therefore be done in a manner such that the rail operations and facilities are not interfered with, interrupted or endangered. In addition, any facilities that are a result of the proposed work shall be located to minimize encumbrance to the right of way so that RBMN will have unrestricted use of its property for current and future operations.

The sponsor of the project shall be ultimately responsible for assuring that its agents, consultants, contractors and sub-contractors fully comply with the specifications contained herein. The term "sponsor" used throughout these specifications shall mean the sponsor, its employees, its agents, consultants, contractors, sub-contractors, etc.

The following terms and conditions shall apply to any project which requires performance of work on the right of way or other property of RBMN.

## **RIGHT OF ENTRY ON RBMN PROPERTY**

No entry upon RBMN property shall be permitted without the proper authorization by RBMN to the sponsor in the form of an agreement or a proper permit to enter prepared by RBMN. The applicant shall pay the associated fees and execute the permit to enter prior to entering RBMN property. The location and design of that portion of the access route to the project site that is on RBMN property shall be shown clearly on any plans for the project and approved by RBMN. It is to be clearly understood that the issuance of a permit to enter does not constitute authority to proceed with any construction work. Construction cannot begin until a formal agreement between RBMN and the sponsor is executed, and the sponsor receives permission from RBMN Real Estate Department to proceed with the work.

## **INSURANCE**

In addition to any other forms of insurance or bonds required under the terms of any contract or specifications and except to the extent that any of the requirements of this section are expressly waived or revised in writing by RBMN, prior to the commencement of any work, contractor, at his own cost and expense, shall maintain insurance of the following kinds and amounts and deliver to RBMN satisfactory evidence of such insurance as indicated herein:

### **1. Public Liability Insurance**

Public Liability Insurance, including contractual liability insurance of not less than \$5,000,000 combined single limit for bodily injury and/or property damage for damages arising out of bodily injuries to or death of all persons in any one occurrence and for damage to or destruction of property, including the loss of use thereof, in any one occurrence. RBMN shall be named as an additional insured under this insurance.

### **2. Automobile Liability Insurance**

Automobile Liability Insurance with a limit of not less than \$5,000,000 combined single limit for bodily injury and/or property damage per

occurrence. RBMN shall be named as an additional insured under this insurance.

**3. Worker's Compensation/Employers' Liability Insurance**

Employers' Liability and Occupational Disease Insurance with limits of \$1,000,000 each accident, \$1,000,000 policy limit and \$1,000,000 each employee. Such policy shall include a waiver of subrogation in favor of RBMN.

**4. General Contractors Pollution Legal Liability Insurance.**

General Contractor's Pollution Liability Insurance with limits of not less than \$5,000,000 per occurrence/\$5,000,000 aggregate bodily injury, property damage and cleanup expenses resulting from pollution conditions, RBMN shall be named as an additional insured under this insurance.

**5. Railroad Protective Liability Insurance**

With respect to the operations performed by it or any of its' subcontractors, contractor shall provide Railroad Protective Liability Insurance (ISO-RIMA FORM) in the name of Reading Blue Mountain & Northern Railroad \*, with a limit of not less than \$2,000,000 per occurrence, combined single limit for bodily injury and/or property damage, for damages arising out of bodily injuries to or death of all persons and for damage to or destruction of property, including the loss of use thereof. Such insurance shall also contain an aggregate of not less than \$6,000,000 for damages arising out of more than one occurrence. \* RBMN shall be the "Named Insured" on this policy.

The insurance specified above shall be carried until the project is satisfactorily completed and formally accepted by RBMN. The above indicated insurance coverages shall be effected under standard form policies issued by insurers of financial responsibility that are rated "A" or better by Best's Insurance Report, "AA" or better by Standard & Poor's Insurance Rating Service, and "Aa" or better by Moody's Investors Service. RBMN reserves the right to reject as inadequate any insurance coverage provided by an insurance company that is rated less than the ratings above by any of the aforementioned rating services. The above indicated insurance coverages shall be enforceable by any legitimate claimant after the termination or cancellation of the project, whether by expiration of time, by operation of law or otherwise, so long as the basis of the claim against the insurance company occurred during the project and when the insurance was in force.

Contractor shall furnish RBMN with certificates of insurance evidencing the insurance coverages required in sections 1,2,3, & 4 and shall also furnish the original Railroad Protective Liability Insurance policy referred to in Section 5 at least thirty (30) days prior to commencement of the project. All insurance policies shall be endorsed to provide that the insurance company shall give thirty (30) days prior written notice to RBMN if the policies are to be terminated or if any changes are to be made which shall in anyway affect the insurance requirements of the project. Certificates, policies or notices should be sent to: Reading Blue Mountain & Northern Railroad Real Estate Department, P.O. Box 188, Port Clinton, PA 19549.

## **CHANGES IN RAILROAD FACILITIES**

Temporary and permanent changes of signal, communication, power transmission lines, trailers, drainage and other railroad facilities required in connection with the project to clear temporary and/or permanent work of the sponsor as shown on the approved construction plans, shall be made or caused to be made by RBMN at the sole cost and expense of the sponsor in accordance with RBMN's force account estimate. Any other changes made or services furnished by RBMN at the request of the sponsor shall be the sole cost and expense of the sponsor.

## **ATTACHMENTS TO RAILROAD BRIDGES AND STRUCTURES**

At **NO** time shall attachments of any type be applied to railroad bridges or structures.

## **PROTECTION OF RAILROAD OPERATIONS**

The sponsor shall conduct the work in such a manner as to safeguard the operations, facilities, right of way and property of RBMN. All work affecting the above items shall be subject to the approval of RBMN. The sponsor's operations adjacent to, over or under RBMN's tracks, facilities, right of way, and property shall be governed by RBMN's standards and by such other requirements as specified by RBMN's representative so as to insure the safe operation of trains, prevent delay to trains and insure the safety of all concerned, including the sponsor's forces.

An operating track shall be considered obstructed or fouled when any object is brought closer than fifteen (15) feet (4.6m) horizontally from the centerline of track and projects above the top of the tie or as determined by RBMN's representative. A power line shall be considered fouled when any object is brought to a point less than eight (8) feet (2.5m) therefrom. A signal line shall be considered fouled when any object is brought nearer than six (6) feet (1.8m) to any wire or cable. Cranes, trucks and other equipment shall be considered as fouling the track, power line or signal line when failure of equipment, whether working or idle, with or without load, will obstruct the track or other RBMN facilities.

Equipment used by the sponsor shall be in first-class condition to preclude any failure that would cause interference with the operation of RBMN trains or damage to its facilities. The sponsor's equipment shall not be placed or put in operation adjacent to the tracks or facilities of RBMN without obtaining clearance from RBMN's representative. All such equipment shall be operated by the sponsor in a manner satisfactory to RBMN. No equipment or material shall be stored on RBMN property.

In general, a hazard occurs and a flagman is necessary on any RBMN property in the following circumstances:

1. The driving of sheeting or piles within twenty five (25) feet (7.6m) of the tracks.
2. The removal or demolition of all or part of an overhead or adjacent structure.
3. The erection of any structural material.
4. The performance of any other operation that could obstruct or foul ( as described above) the tracks or other facilities of RBMN as determined by RBMN's representative.

Minimum overhead and lateral clearances as specified by RBMN, shall be maintained during the performance of all work. Existing overhead and lateral clearances shall be

maintained during construction unless a temporary reduction in clearance for construction purposes is approved, in writing, by RBMN. The sponsor shall erect a highly visible construction fence no closer than fifteen(15) feet (4.6m) from the centerline of the track through the work area to insure that the lateral clearance requirement is being met.

All wire and attachments shall be treated as live unless notified by RBMN's representative that same have been grounded and de-energized. Particular attention shall be given to the use of hand lines containing metal strands which cannot be used when working near or above exposed live wires. When working over wires, tools and materials not in use shall be stored in a manner to prevent them from falling. Tools and materials shall not be thrown to or by men working over wires. The sponsor shall be responsible for locating and protecting all underground facilities.

Painting and paint removal procedures shall be approved by RBMN and inspected by RBMN's representative prior to beginning the work over railroad right of way. The sponsor shall protect the track structure and railroad property from any material used in conjunction with performing the work. A flagman shall be required whenever the above described work fouls or is likely to foul the track, as previously defined.

The sponsor shall give notice to RBMN's Real Estate Department at least fourteen (14) days in advance of the time work is to be commenced. RBMN shall assign, at the sole cost and expense of the sponsor, conductors and/or flagmen, or other similar qualified employees to protect RBMN's trains and facilities when in the opinion of its representative, the construction work will cause or may cause a hazard to RBMN facilities and the safe operation of trains. No operations of the sponsor shall be carried out without all the necessary protection to properly safeguard the work.

The minimum hours per day for railroad employees engaged in flagging service shall be eight (8) hours. The overtime rate will be charged for all time in excess of eight (8) hours. Flagmen are paid from the time they leave the Port Clinton headquarters until they arrive back at headquarters. No conductor or flagman may remain on duty longer than ten (10) hours in any twenty-four (24) hour period.

The providing of flagmen or inspectors or the taking of other precautionary measures, shall not, however, relieve the sponsor from liability for payment of damages caused by their operations. The sponsor must obtain permission from the flagman before fouling or obstructing any track.

The sponsor shall be responsible for damage to RBMN facilities or property arising out of the execution of its work. RBMN shall undertake any necessary repair work at the sole cost and expense of the sponsor. Billing for the work shall be in accordance with RBMN's standard billing procedures.

## **RAILROAD ENGINEERING AND INSPECTION**

RBMN, at its sole discretion, may assign an engineer or inspector for the general protection of railroad property and operations during the construction of the project. This inspection service shall be supplied at the sole cost and expense of the sponsor.

## **PAYMENT OF RAILROAD SERVICES**

It is a requirement that the sponsor shall reimburse RBMN in full for work undertaken by RBMN in accordance with any provision of these special requirements. Final contract payment shall not be made by the sponsor to its contractor, sub-contractor, consultant or agent, until RBMN certifies that all railroad bills against them, if any, have been paid in full.

## **TEMPORARY GRADE CROSSING**

Under most circumstances, a grade crossing of our track will not be permitted. Should the sponsor demonstrate a necessity for a temporary grade crossing of RBMN's tracks, the sponsor shall be required to apply for and execute the standard private grade crossing agreement for each crossing required. Application for the crossing shall be made to RBMN at least twelve (12) weeks before the crossing is required and addressed to: Reading Blue Mountain & Northern Railroad Real Estate Department, P.O. Box 188, Port Clinton, PA 19549.

A letter size plan showing the location, size, construction details, and access to the requested crossing should accompany the letter of application. The plan shall be fully detailed and dimensioned with all RBMN facilities shown and referenced. The sponsor shall state the purpose for which the crossing is needed and the expected life of the crossing. All application fees, construction, maintenance, protection and removal costs shall be at the sole cost and expense of the sponsor. The roadbed and all other RBMN facilities will be restored to the original condition subject to the approval of RBMN's designated representative.

## **SHEETING AND SHORING REQUIREMENTS**

The following items are to be included in the design and construction procedures for all permanent and temporary facilities adjacent to RBMN tracks:

1. Footings for all piers, columns, walls or other facilities shall be located and designed so that any temporary sheeting and shoring for support of adjacent track or tracks during construction shall not be closer than fifteen (15) feet (4.6m) from the centerline of the nearest track.
2. When excavation for construction of the above mentioned facilities is within the theoretical railroad embankment line as shown on PLATE I, attached, interlocking steel sheet piling, driven prior to excavation, must be used to protect track stability. The use of trench boxes or similar devices is not acceptable. Soldier piling and lagging will be considered for supporting adjacent track(s) only when its use is approved by RBMN. Consideration for the use of soldier piling and lagging shall be made if the required penetration of steel sheet piling cannot be obtained and when dry, non-running, stable material will be encountered.
3. The sheeting shall be designed to support all lateral forces caused by the earth, railroad and other surcharge loads. The railroad loading to be applied is an E-80 loading. This loading consists of 80 Kip (356 KN) axles spaced five (5) feet (1.5m) on centers. The lateral forces acting on the sheeting shall be computed as follows:
  - a. The Rankine Theory shall be used to compute the active earth pressure due to the weight of the soil.

- b. The Boussinesq analysis shall be used to determine the lateral pressure caused by the railroad loading. The load on the track shall be taken as a strip load with a width equal to the length of the ties (8'6" or 2.6m). The vertical surcharge,  $q$ (psf), caused by each axle, shall be uniform and equal to the axle weight divided by the tie length and the axle spacing (5'-0"0 or (1.5m). For an E-80 loading, this results in:  $q = 80,000 / (8.5 \times 5) = 1882$  psf (90.1 KPa). The horizontal pressure due to the live load surcharge at any point on the sheet piling wall is  $P_h$  and can be calculated by the following:  

$$P_h = (2q/\pi)(\beta - \sin \beta \cos 2\alpha)$$
 see PLATE II attached.
4. Deflection design criteria is as follows:
- 1/2" (1.27cm) maximum deflection for sheet piling fifteen (15) feet (4.6m) from the centerline of the nearest track .
  - 1" (2.54cm) maximum deflection for sheet piling greater than fifteen (15) feet (4.6m) from the centerline of the nearest track .
  - Use  $K$  (at-rest earth pressure) for design of all braced and tie-back excavations.
5. The allowable stresses for the sheet piling and other steel members (wales, struts, etc.) shall be in accordance with AREA Chapter 15, Part 1. These allowable stresses may be increased 10% due to the temporary nature of the installations. A factor of safety of at least 1.5 must be used on temporary sheeting for the embedment length (ie. multiply calculated embedment depth by 1.5).
6. Where soil or rock anchors are used, all anchors must be tested. Testing shall be in accordance with industry standards with 10% of the anchors "Performance Tested" and all others "Proof Tested". All tie-back anchor stresses are to be in accordance with AREA Chapter 8, Part 20.5.7.
7. Exploratory trenches, three (3) feet (0.9m) deep and fifteen (15) inches (0.4m) wide in the form of an "H" with outside dimensions matching the outside of sheeting dimensions are to be hand dug, prior to placing and driving steel sheeting, in areas where railroad underground installations are known to exist. These trenches are for exploratory purposes only and are to be backfilled with the backfill compacted immediately. This work must be done in the presence of RBMN's representative.
8. Absolute use of track is required while driving sheeting within fifteen (15) feet (4.6m) from centerline of a live track. The procedure for arranging the use of track shall be as outlined on page 3 & 4.
9. Cavities adjacent to the sheet piling, created by the driving of sheet piling, shall be filled with sand and any disturbed ballast must be restored and tamped immediately.
10. Sheet piling shall be cut off at the top of tie during construction. After construction and backfilling has been completed, piling within fifteen (15) feet (4.6m) from the centerline of the nearest track , or when bottom of excavation is below a line extending a 1:1 slope from end of tie to point of intersection with sheeting, shall be cut off eighteen (18) inches (0.5m) below existing ground line and left in place.
11. Any excavation adjacent to track shall be covered and ramped and provided with barricades as required by RBMN. A lighted walkway with a handrail must be provided adjacent to the track for any excavation within fifteen (15) feet (4.6m) from the centerline of the nearest track .
12. Final backfilling of excavation shall be as required by project specifications.

13. The sponsor shall advise RBMN of the time schedule of each operation and obtain approval of RBMN for all work to be performed adjacent to RBMN tracks so that it may be properly supervised by railroad personnel.
14. All drawings for temporary sheeting and shoring shall be prepared and stamped by a Registered Professional Engineer and shall be accompanied by complete design computations when submitted for approval.
15. Where physical conditions of design impose insurmountable restrictions requiring the placing of sheeting closer than specified above, the matter must be submitted to RBMN for approval of any modifications.
16. Five (5) copies of the submission are to be sent to RBMN's Real Estate Department. The sponsor is advised to expect a minimum thirty (30) day review period from the day the submission is received by RBMN.
17. RBMN's representative must be present at the site during the entire sheeting and shoring procedure period. The sponsor must notify RBMN at least seventy-two (72) hours in advance of the work. No changes will be accepted after that time.

### **ERECTION, HOISTING AND DEMOLITION REQUIREMENTS**

1. A plan showing the locations of cranes, horizontally and vertically, operating radii, with delivery or disposal locations shown. The location of all tracks and other railroad facilities should also be shown.
2. Crane rating sheets showing cranes to be adequate for 150% of the actual weight of the pick. A complete set of crane charts, including crane, counterweight, and boom nomenclature is to be submitted.
3. Plans and computations showing weight of picks must be submitted. Where beams are being removed over RBMN facilities, the weight shall include the weight of concrete or other material that will be included in each pick. Calculations shall be made from plans of existing and/or proposed structure showing complete and sufficient details with supporting data for the demolition or erection of the structure.
4. If the sponsor can prove to RBMN that plans do not exist and weights must be calculated from field measurements, the field measurements are to be made under the supervision of the Registered Professional Engineer submitting the procedure and he shall include sketches and estimated weight calculations with his procedure. If possible, field measurements shall be taken with an RBMN representative present. Weights shall include the weight of concrete, or other material, that will be included in the lifts.
5. If the procedure involves either the cutting of steel or the bolting of joints which would affect RBMN operations, a detailed staging plan with estimated durations will be required.
6. A location plan showing all obstructions such as wires, poles, adjacent structures, etc. must be provided to show that the proposed lifts are clear of these obstructions.
7. A data sheet shall be prepared listing the type, size and arrangements of slings, shackles, or other connecting equipment. Include copies of a catalog or information sheets for specialized equipment.
8. A complete procedure is to be included, indicating the order of lifts and any repositioning or re hitching of the crane or cranes.
9. Demolition shield submittals must include a plan showing the details of the shield, a written installation and removal procedure and design calculations verifying the capacity of the shield. The shield should be designed for a



- minimum load of fifty (50) pounds/sq. ft (245kgs./sq.m.) plus the weight of the equipment, debris and any other load to be carried.
10. Temporary support of any components (overhead or undergrade) or intermediate stages is to be shown and detailed. A guardrail (railroad) will be required to be installed in a track where a temporary bent is located within fifteen (15) feet (4.6m) from the centerline of the nearest track .
  11. A time schedule of the various stages must be shown as well as a schedule for the entire lifting procedure.
  12. Three (3) copies of the lifting procedures are to be sent to RBMN's Real Estate Department. The sponsor is to expect a minimum thirty (30) day review period from the day the submission is received by RBMN.
  13. All bridge erection or demolition procedures submitted will be prepared, signed and sealed by a Registered Professional Engineer.
  14. All loose, spalled or fractured concrete shall be removed daily and disposed at the expense of the Contractor.
  15. Railroad must be protected from falling debris with plastic sheeting covered by ½" or thicker plywood placed directly under bridge structure and extending 30' beyond overhead bridge structure on both sides of bridge being demolished.
  16. Construction easement entitles the contractor to work within the 15' clearance from the centerline of the track but does not give way to disturbance of ballast in anyway. Every effort must be made to protect ballast from dirt, debris and disturbance. Failure to properly protect the ballast will result in the Contractor being invoiced for replacement of ballast and realignment of the railroad right of way in the construction area.
  17. RBMN's representative must be present at the site during the entire demolition and erection procedure period. The sponsor must notify the RBMN Real Estate Department at least seventy-two (72) hours in advance of the work. No changes will be accepted after that time.
  18. The name and experience of the employee supervising the operation must be supplied to RBMN.

## **OVERGRADE BRIDGE REQUIREMENTS**

### **CLEARANCES**

1. The minimum vertical clearance above the top of the higher rail shall be twenty three (23) feet (7m) at all times. In areas where the railroad has been electrified with a catenary wire, and areas which are likely to be electrified, the minimum vertical clearance must be twenty four (24) feet, six (6) inches (7.5 m) above the top of the higher rail.
2. The minimum horizontal clearance measured from the centerline of track to the near face of the obstruction must be twenty (20) feet (6.1m) for tangent track and twenty one (21) feet (6.4m) for curves. See PLATE III attached.
3. Whenever practicable, bridge structures must have the piers and abutments located outside of the railroad right of way. All piers located less than twenty five (25) feet (7.6m) from the centerline of track require a crashwall designed in accordance with specifications outlined in the current AREA manual.
4. All piers should be located so that they do not interfere with ditches. Where special conditions make this impossible, an explanation of these conditions must be submitted with the drainage plans for review by RBMN.
5. The permanent clearances should be correlated with the methods of construction so that temporary construction clearances will not be less than the minimum allowed.

6. Bridge structures shall provide sufficient lateral and vertical clearance for anticipated future tracks, changes in track centers and raising of tracks for maintenance purposes. The locations of these tracks shall be determined by inquiry to RBMN.
7. The profile of the top of rail should be examined to determine if the track is in a sag at the location of the bridge. If the track is in a sag, the vertical clearance from the track to the bridge should be increased sufficiently to allow raising the track to remove the sag.
8. Plans for bridges must show dimensioned locations of all utilities which might be located on the railroad right of way.
9. Vertical and horizontal clearances must be adjusted so that the sight distance to railroad signals is not reduced from what is existing.
10. All proposed temporary clearances which are less than those listed above must be submitted to RBMN for review and must be approved by RBMN prior to construction.
11. Clearances are subject to the requirements of the state in which the construction takes place and must be approved by the State and RBMN if less than those prescribed by law.

#### DRAINAGE

1. Maintaining the existing drainage and providing for future drainage improvements is of the utmost importance. RBMN will give special attention to reviewing drainage details.
2. Drainage plans must be included with the general plans submitted to RBMN for approval. These plans must include hydrologic and hydraulic studies and computations showing the frequency and duration of the design storm used, as well as the method of analysis such as Soil Conservation Service or the Rational method. RBMN uses storms with a 100-year recurrence interval as the minimum design storm.
3. Lateral clearances must provide sufficient space for construction of the required track ditch parallel to the standard roadbed section. If the ditch cannot be provided, or the pier will interfere with the ditch, then a culvert of sufficient size must be provided. See PLATE III and PLATE IV, attached.
4. Ditches and culverts must be sized to accommodate all increased run-off due to the construction and the increased size must continue to the natural outlet of the ditch. Ditches must be designed in accordance with good drainage engineering practices and must meet all local codes and ordinances.
5. No scuppers or other deck drains, roadway drainage, catch basins, inlets or outlets are permitted to drain onto RBMN property. Any variation of this policy must have the prior approval of RBMN. If an exception is ultimately granted, maintenance of such should not be RBMN's. Drainage from scuppers and deck drains must be conveyed through pipes, preferably to a point of which is off RBMN property. If the drainage must be conveyed into a railroad ditch, calculations must be provided to RBMN which indicate the ability of the ditch to carry the additional run-off.
6. Additional drainage may require the installation of a pipe or pipes, new ditch or reprofiling the existing ditch.

#### EROSION CONTROL

1. Embankment slopes on RBMN property adjacent to the track must have a slope of 2:1 or less and be paved for a minimum of two (2) feet (0.6m) beyond

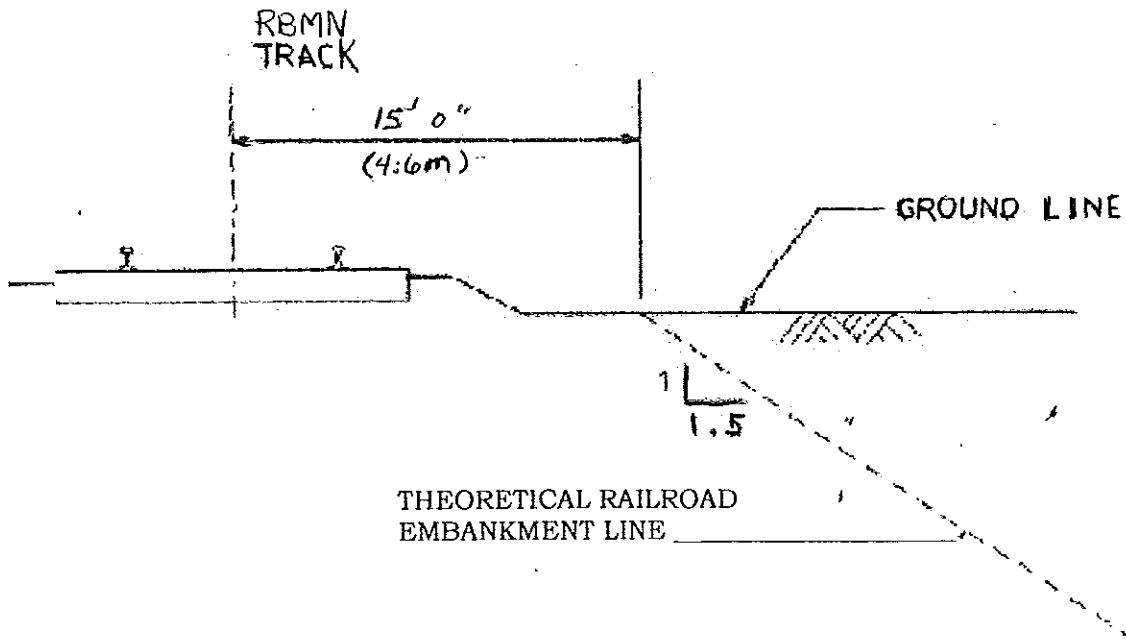
the outside edge of the bridge foundation structure. The purpose of the pavement is to minimize erosion of the embankment material and to reduce deterioration of the sub-grade material by drainage water. The pavement shall consist of a prepared sub-base and/or filter fabric with grouted rip-rap on the surface.

2. The general plans for the bridge should indicate the proposed methods of erosion control during construction and must specifically address means to prevent silt accumulation in ditches and culverts and to prevent fouling the track ballast and sub-ballast. If the plans do not show erosion control, the contractor must submit a proposed method of erosion control and must have this method approved by RBMN prior to beginning any grading on the site.
3. Existing track ditches must be maintained at all times throughout the construction period. After the construction has been completed, all erosion and siltation must be removed and the ditches must be restored.
4. RBMN's approval of drainage and erosion control plans will not relieve the sponsor submitting these plans from ultimate responsibility for a satisfactory plan.

## **REFERENCES**

1. In areas where underground utilities may be affected, RBMN's RB8 "Specifications for Pipeline Occupancy" will govern.
2. In areas where power or communication lines will be affected, RBMN's RB4, "Specifications for Wire, Conduit, and Cable Occupations" will govern.

## PLATE I

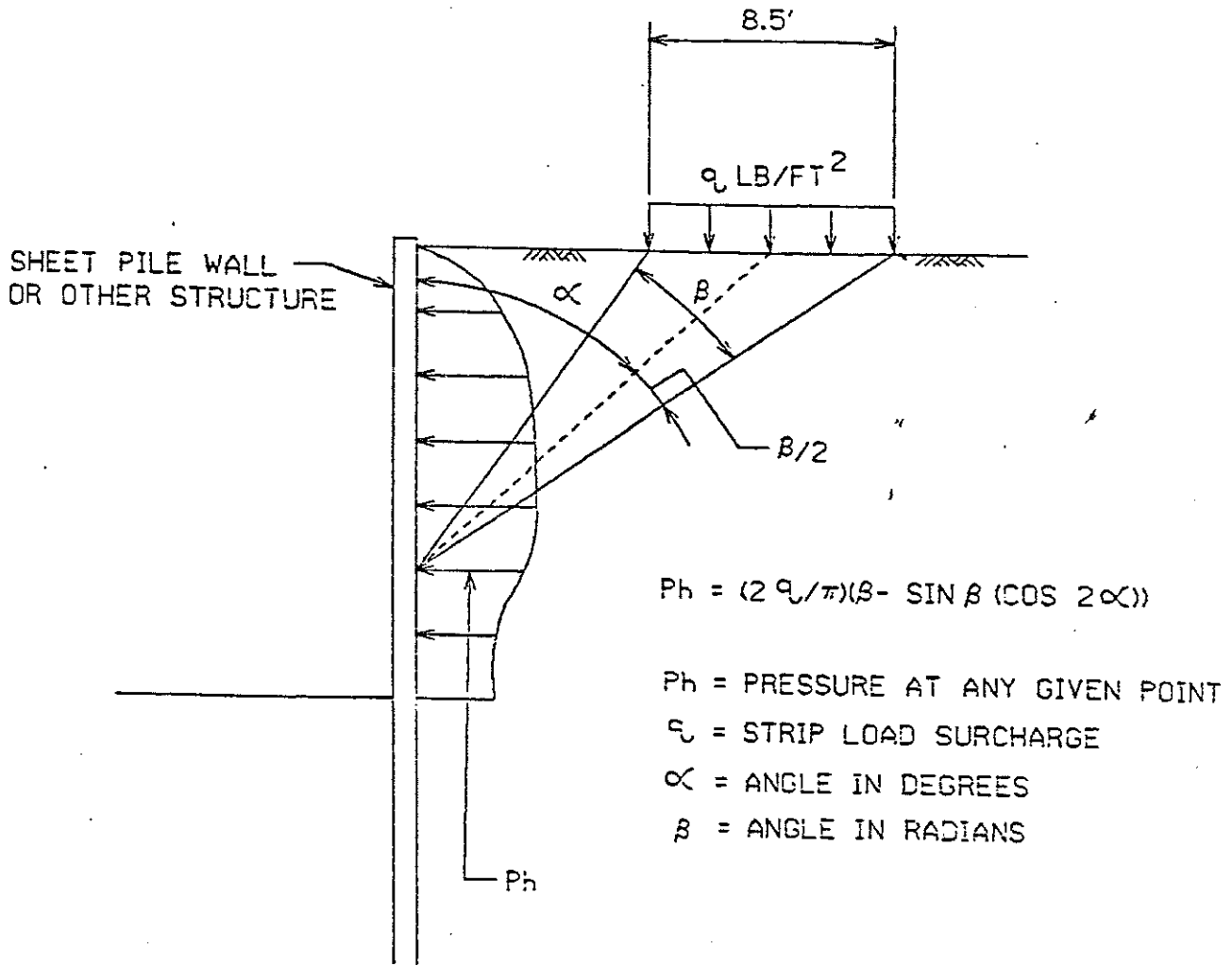


### REQUIREMENTS FOR TEMPORARY SHEET PILING ADJACENT TO TRACK

1. Steel sheet piling for track support is not required for excavation outside the theoretical railroad embankment line. Shoring in accordance with OSHA requirements shall be used in this area.
2. Steel sheet piling, driven prior to excavation, is required when excavation is within the theoretical railroad embankment line.
3. All sheet piling is to be designed for an E-80 loading. The Boussinesq Analysis is to be used to determine the lateral pressure caused by the railroad loading.

PLATE II

LATERAL PRESSURE DIAGRAM



ELEVATION

LATERAL PRESSURE DUE TO STRIP LOAD

# GENERAL INSTRUCTIONS

Clearance requirements shown on this plan apply only to new construction or reconstruction. Existing structures and tracks may be maintained and extended at present clearances, unless otherwise required by Local or State Authorities.

Structures must not be located nearer to the track than the minimum clearance limits shown on this plan and these distances should be exceeded where possible. Consideration should be given to the probability of increased distance between track center lines, widening roadbed shoulders and widening and deepening ditches, and the structures located accordingly.

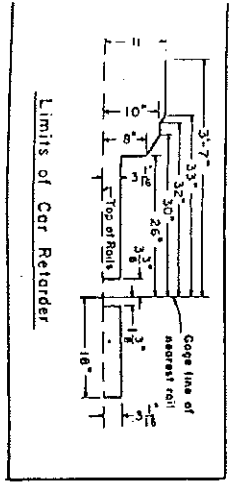
For standard distances between track center lines and the location of tracks where intersecting clearance limiting objects are located, see M.W. 4, Paragraphs 62.0 to 62.3 inclusive.

Where physical conditions impose insurmountable restrictions, necessitating clearances closer than those specified, the matter must be submitted to the Chief Engineer - Maintenance of Way for engineering instructions, and also to the Local or State Authorities, if necessary, under the signature of the General Manager.

Minimum clearances shown on this plan are from level tangent track. For curved track the following provisions apply:

1. - **Vertical** - Same as for tangent track measured vertically above top of high rail, except above top of low rail for passenger and freight platforms.

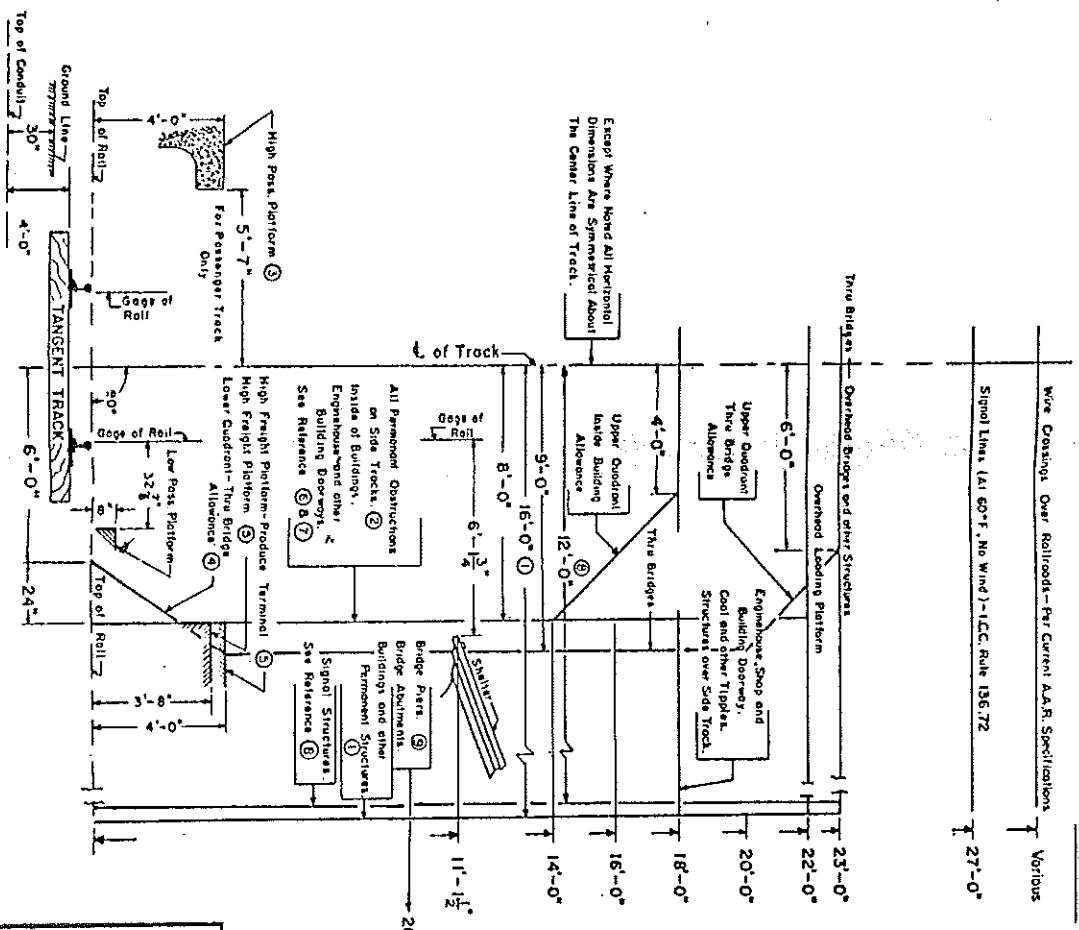
2. - **Horizontal** - Curves and inside clearances shall be measured radially and horizontally and increased by 1 inch per degree of curvature over that shown for tangent track. In addition, the inside clearance for super-elevated track shall be further increased by 1 inch per inch of super-elevation for each 5 feet of height above the top of low rail.



## REFERENCES

- ① - Signal masts will be 12'-0" from centerline of track.
- ② - Bridge piers and abutments to be min. of 20'-0" from centerline of track on tangents and inside of curves, and 21'-0" on outside of curves where 10' roadway is provided.

PLATE IV  
READING BLUE MOUNTAIN  
& NORTHERN RAILROAD  
MINIMUM ROADWAY  
CLEARANCES  
Plan adopted 3/19/99



## REFERENCES

- ① - On main turning tracks, where practicable, a lateral clearance of 18'-0" instead of 8'-0" is desired.
- ② - On private side tracks the standard clearance to platforms of 8'-0" to be observed if possible where the industry demand a less than standard clearance for platforms, a minimum of 6'-6" from center line of track to any land adjacent to State approved, where required on one side of each track only, provide a full 8'-6" clearance in addition on the opposite side of track, or track ends, to adjacent tracks or a foot less than 14'-0" if the State of Illinois prohibits freight platform clearance between 6'-6" and 8'-0" unless P.L.C. approved for other clearance is obtained. Reduced clearances on private sidings are permissible only where industry signs the Central Standard Side Track Agreement and will refer and mention Clear Clearance signs illuminated at night.
- ③ - Unless authorized by the Chief Engineer - Maintenance of Way, high passenger platform must not be constructed on track having curvature in excess of 1'-40" where speed requires elevation of outer rail in excess of 1".
- ④ - High-level platforms will not be constructed adjacent to any freight-only tracks, or freight/passenger joint tracks without approval from the Senior Vice President - Operations.
- ⑤ - Request must be made for encroachment of upper and lower quadrants from 8'-0" lateral clearance of thru bridges in the States of Indiana, Massachusetts and Ohio.
- ⑥ - Safety lines, yellow or white, 8'-6" from center line of track are required on weight platforms in the District of Columbia. These lines are recommended in Delaware, Maryland and Pennsylvania.
- ⑦ - For side clearance to handrails on bridges, vestibles and umbrellas see appropriate Standard Plan.

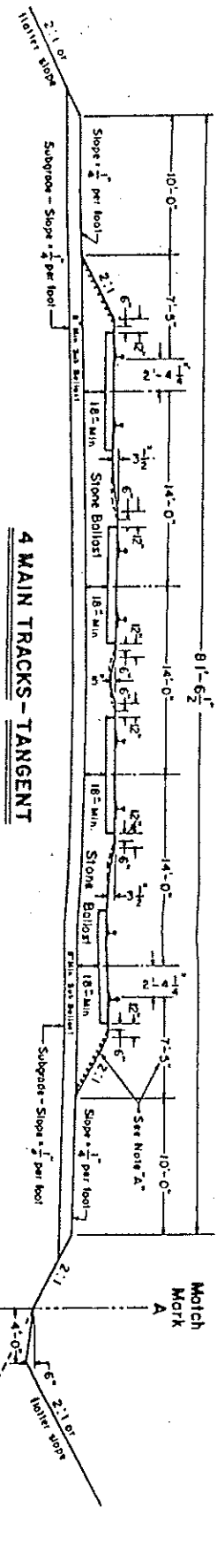
State Clearance Requirements at Variances with Dimensions Shown on This Plan

Location	General	Clearances	Inside Bridges & Doorways	
	Vertical	Horizontal	Vertical	
Condo	8'-4"	22'-0"	8'-4"	22'-0"
Connecticut	8'-6"	22'-6"	8'-0"	22'-6"
Delaware; Maryland; D.C.	8'-6"	22'-0"	8'-0"	18'-0"
Illinois	8'-0"	21'-6"	8'-0"	H
Indiana; West Virginia	8'-0"	22'-0"	8'-0"	22'-0"
Massachusetts; Michigan	8'-6"	22'-6"	8'-6"	22'-6"
New Jersey; Virginia	8'-0"	21'-0"	8'-0"	21'-0"
Ohio	12'-0"	22'-0"	8'-0"	16'-0"
Pennsylvania	8'-6"	18'-0"	8'-0"	16'-0"
Rhode Island	8'-6"	22'-0"	8'-0"	22'-0"
New York	8'-6"	22'-0"	8'-0"	22'-0"
Kentucky	—	22'-0"	—	—

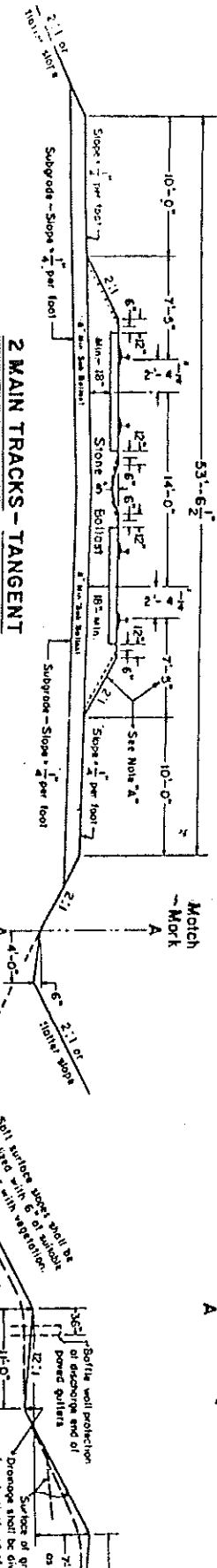
H = Height of cars governs.  
\* = West Virginia, 22'-0" building doors and 18'-0" inside of buildings.  
Clearances tabulated from AREA "Legal Clearance Requirements," page 28-3-25 dated 1986.

RBMN  
MINIMUM  
ROADWAY CLEARANCES

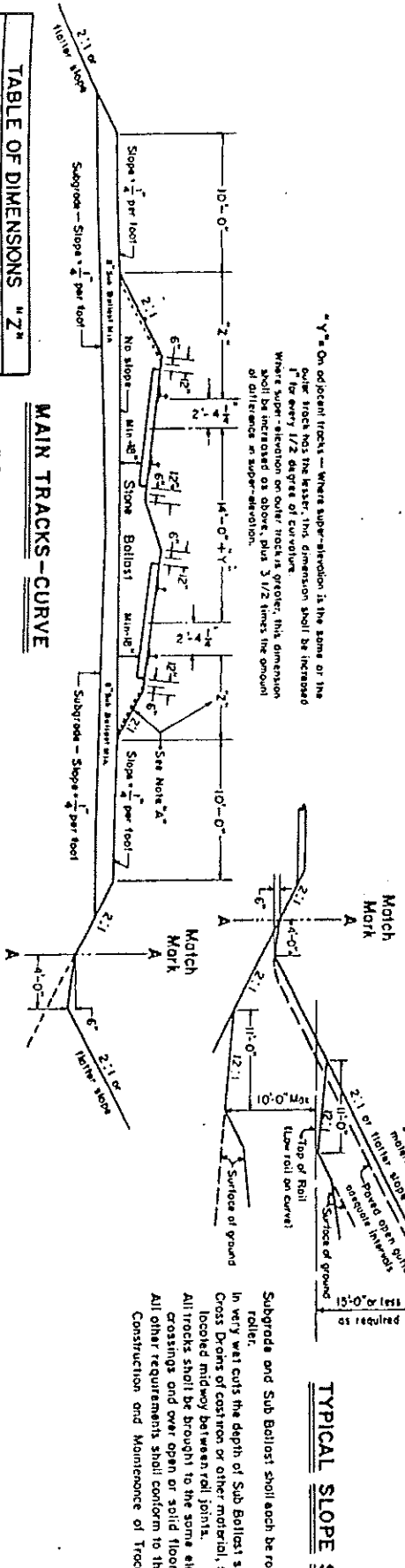
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**4 MAIN TRACKS - TANGENT**



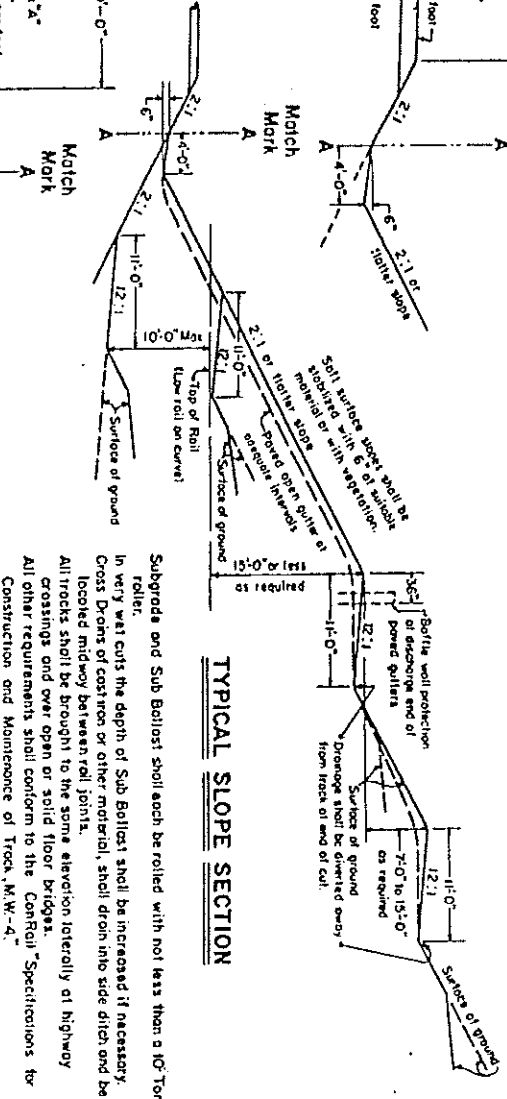
**2 MAIN TRACKS - TANGENT**



**MAIN TRACKS - CURVE**

TABLE OF DIMENSIONS		
OUTSIDE EDGE OF BALLAST FROM GAGE OF NEAR RAIL FOR CURVED TRACK		
SUPER-ELEVATION	INSIDE OF CURVE	OUTSIDE OF CURVE
1"	7'-0"	7'-5"
2"	6'-10"	7'-7"
3"	6'-9"	7'-10"
4"	6'-8"	8'-1"
5"	6'-7"	8'-4"
6"	6'-6"	8'-7"

**NOTE "A"** Ballast section shown in solid lines is for track in Continuous Welded Rail Territory; in Bolted Rail Territory ballast section with shoulders indicated by short dashed lines may be used, and dimensions designated "Z" shall be reduced by 6".



**TYPICAL SLOPE SECTION**

Subgrade and Sub Ballast shall each be rolled with not less than a 10' Ton roller. In very wet cuts the depth of Sub Ballast shall be increased if necessary. Cross Drains of cost iron or other material, shall drain into side ditch and be located midway between rail joints. All tracks shall be brought to the same elevation laterally at highway crossings and over open or solid floor bridges. All other requirements shall conform to the ConRail Specifications for Construction and Maintenance of Track, M.W.-4.

**PLATE III**  
 READING BLUE MOUNTAIN  
 & NORTHERN RAILROAD  
 STANDARD ROADWAY  
 STONE BALLAST  
 Plan adopted 3/19/99

**RBMN**  
 ROADWAY  
 STONE BALLAST

RB 6 rev. 8/11/03