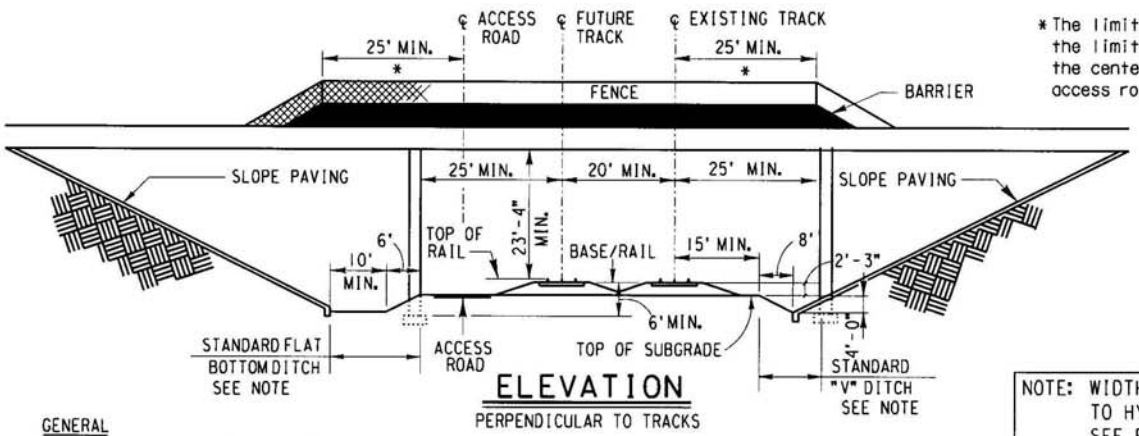
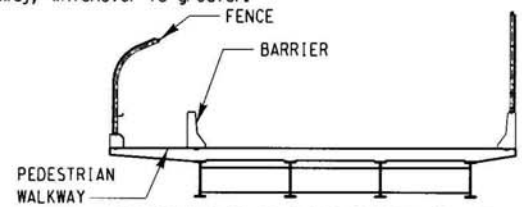



## ELEVATION

PERPENDICULAR TO TRACKS

* The limits of the fence with barrier rail shall extend to the limits of Railroad Right-of-Way or a minimum of 25 ft. beyond the centerline of the outermost existing track, future track or access roadway, whichever is greater.




OVERHEAD STRUCTURE CROSS SECTION WITH FENCE

NOTE: WIDTH AND HEIGHT SUBJECT TO HYDRAULIC REQUIREMENTS. SEE PLAN NO. 711100, SHEET 5.

### GENERAL

Fence shall be provided as indicated on the cross sections and elevation view on both sides of the Overhead Structure in ALL new or modified structures.

Barrier rail for Overhead Structures, without walkways, that may be subject to snow removal shall be a minimum of 42 inches in height with a 4 foot wide shoulder or 30 inches in height with a 6 foot wide shoulder. See Plan No. 711100, Sheet 4.

Lights are to be installed on the underside of the Overhead Structure where shadows cast by the structure would interfere with Railroad operations.

Slope paving shall be provided where end slopes are equal to or exceed 2 horizontal to 1 vertical.

Falsework for construction of overhead structures shall comply with Railroad Requirements.

Demolition of existing Overhead Structures shall comply with Railroad Demolition Requirements. Temporary shoring shall be designed in accordance with Railroad Guidelines for Temporary Shoring.

Applicant shall be responsible for identification, location and protection of existing utilities.

Call the following numbers at least 48 hours prior to commencing work to determine location of fiber optics:
UPRR "Call Before You Dig", 1-800-336-9193
BNSF "Call Before You Dig", 1-800-533-2891.

### CLEARANCES

Minimum vertical clearance shall be 23'-4" above the top of high rail within 25' of centerline of track. Additional clearance may be required for construction purposes or if sag of vertical curve must be adjusted or if future track raise for flood considerations or maintenance is probable.

Minimum horizontal clearances, measured at right angle from centerline of track, shall be as shown in elevation view.

For minimum construction clearances, see Plan No. 711100, Sheet 3.

### PIERS

Piers shall be located outside Railroad Right-of-Way.

Pier protection walls shall be provided in accordance with AREMA Chapter 8, Part 2.1.5 for piers within 25 feet of the centerline of track.

Top of footings located within 25 feet from centerline of track shall be a minimum of 6 feet below base of rail and a minimum of 1 foot below flowline of ditch.

### DRAINAGE

Drainage from the Overhead Structure shall be diverted away from and not discharged onto the tracks, roadbed and Railroad Right-of-Way.

At minimum, a standard "V"-shaped or flat-bottom ditch shall be provided on each side of the tracks as necessary.

Culverts may be installed in lieu of standard Railroad ditches when approved by Railroad Central Engineering. Maintenance of culverts will be at Applicant's expense.

### FUTURE TRACKS AND ACCESS ROAD

Space is to be provided for one or more future tracks as required for long range planning or other operating requirements. Where provision is made for more than two tracks, space is to be provided for an access road on both sides of tracks.

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DESIGN BY: RAF | DRAWN BY: KDM | CHECKED BY: KHJ

APPROVED:

K.H. Jennison

BNSF - ASSISTANT DIRECTOR STRUCTURES DESIGN

George J. Meyer

UPRR - MGR SPECIAL PROJECTS STRUCTURES DESIGN

BNSF RAILWAY | UNION PACIFIC

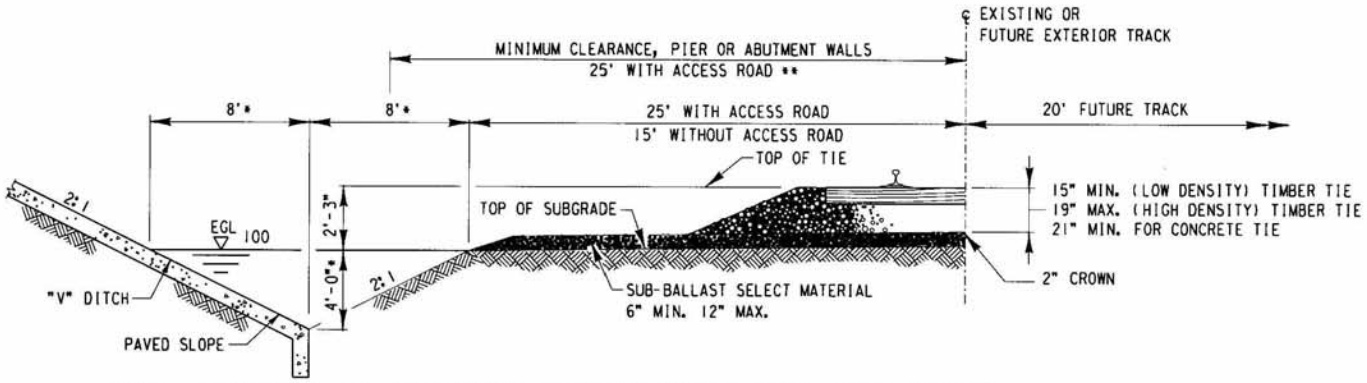
**BRIDGE STANDARDS**

GRADE SEPARATION GUIDELINES (OVERHEADS)

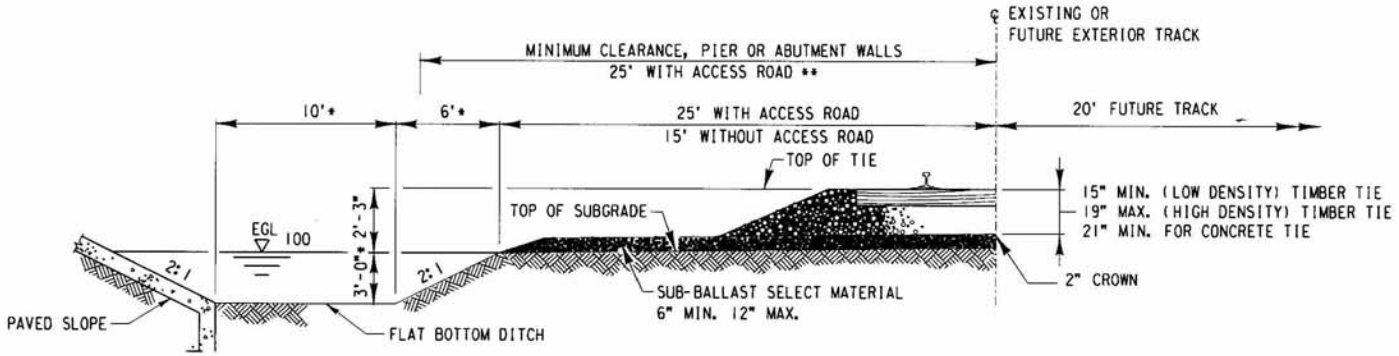
**GENERAL OVERHEAD STRUCTURE DRAWING**

FILE OWNER: UPRR | DATE: 1/24/07

PLAN NO.: 711100 | SHEET: 1




TYP. SECTION AT ABUTMENT SLOPES WITH STD. "V" DITCH




TYP. SECTION AT ABUTMENT SLOPES WITH STD. FLAT BOTTOM DITCH

NOTE:

MINIMUM DITCH SIZES ARE SHOWN. DITCH SIZE TO BE INCREASED AS REQUIRED BASED ON RR HYDRAULIC CRITERIA.

* WIDTH AND HEIGHT SUBJECT TO HYDRAULIC REQUIREMENTS.

** LOCATION OF PIER, BENT COLUMNS OR ABUTMENT WALLS SHOULD NOT INTERFERE WITH THE DRAINAGE IN THE AREA. IF MINIMUM STANDARD DITCHES ARE NOT PROVIDED IN THE LAYOUT, LONGITUDINAL CULVERTS SHALL BE PROVIDED THAT WILL HANDLE THE DRAINAGE AS REQUIRED BY THE HYDRAULIC STUDIES.

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DESIGN BY: RAF | DRAWN BY: FJS | CHECKED BY: KHJ

APPROVED:

K.H. Jennison

BNSF - ASSISTANT DIRECTOR STRUCTURES DESIGN

George J. Meyn

UPRR - MGR SPECIAL PROJECTS STRUCTURES DESIGN

BNSF RAILWAY | UNION PACIFIC

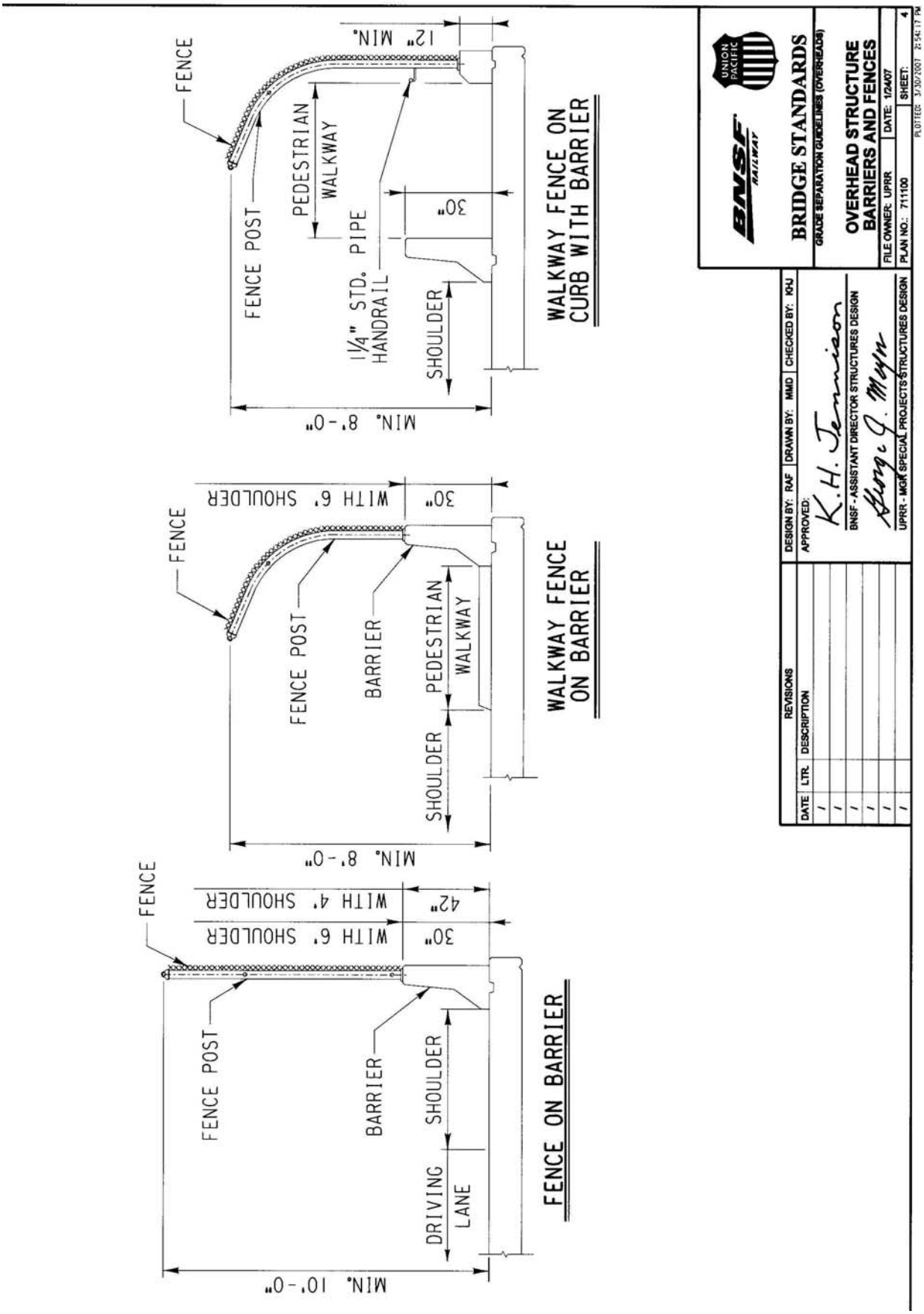
**BRIDGE STANDARDS**

GRADE SEPARATION GUIDELINES (OVERHEADS)

**TYPICAL SECTIONS AT ABUTMENT SLOPES**

FILE OWNER: UPRR | DATE: 1/24/07

PLAN NO.: 711100 | SHEET: 5


FENCE
FENCE POST
PEDESTRIAN WALKWAY
1¼" STD. PIPE HANDRAIL
SHOULDER
12" MIN.
30"
MIN. 8'-0"
WALKWAY FENCE ON CURB WITH BARRIER
FENCE
FENCE POST
BARRIER
PEDESTRIAN WALKWAY
SHOULDER
WITH 6' SHOULDER
30"
MIN. 8'-0"
WALKWAY FENCE ON BARRIER
FENCE
FENCE POST
BARRIER
SHOULDER
DRIVING LANE
WITH 4' SHOULDER
WITH 6' SHOULDER
42"
30"
MIN. 10'-0"
FENCE ON BARRIER
BNSF RAILWAY
UNION PACIFIC
BRIDGE STANDARDS
GRADE SEPARATION GUIDELINES (OVERHEADS)
OVERHEAD STRUCTURE BARRIERS AND FENCES
FILE OWNER: UPRR
DATE: 1/24/07
PLAN NO.: 711100
SHEET: 4
PLOTTED: 3/30/2007 2:54:17 PM
DESIGN BY: RAF
DRAWN BY: MMD
CHECKED BY: KHJ
APPROVED:
K.H. Jennison
BNSF - ASSISTANT DIRECTOR STRUCTURES DESIGN
George J. Meyer
UPRR - MGR SPECIAL PROJECTS STRUCTURES DESIGN
REVISIONS
DATE
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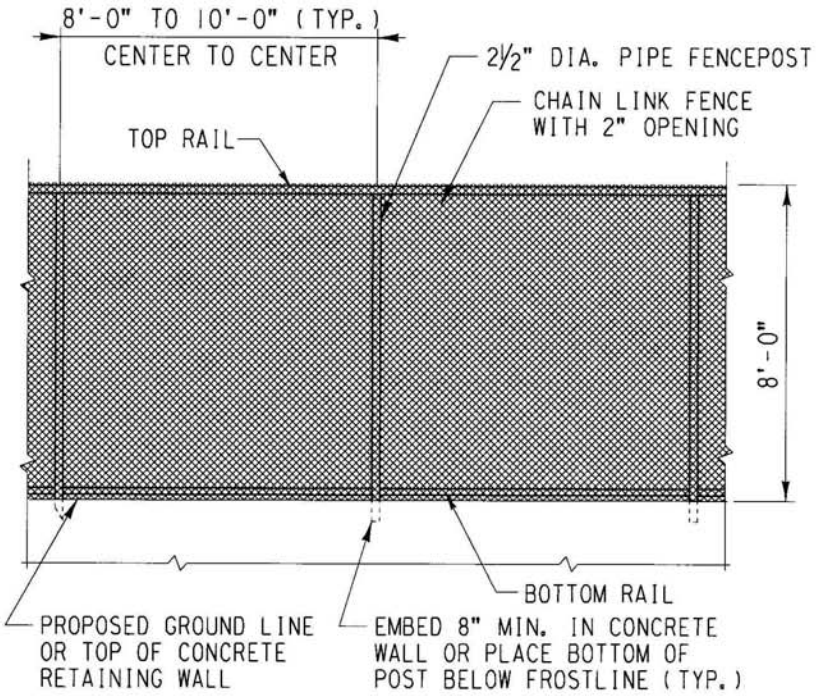
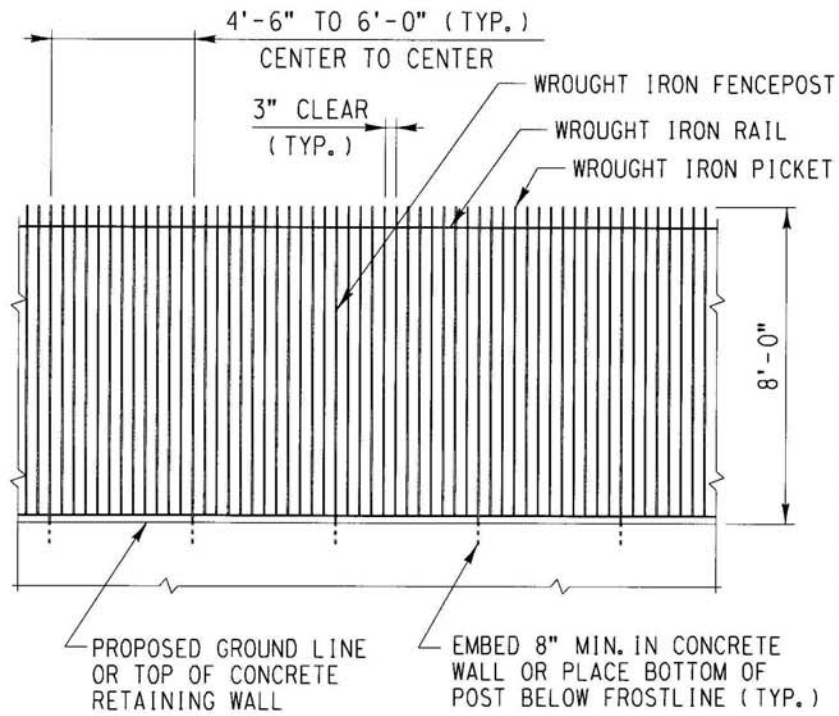



**CHAIN LINK FENCE**




**WROUGHT IRON PICKET FENCE**

# FENCE ELEVATION

SCALE: 3/16" = 1'-0"

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DESIGN BY: RAF | DRAWN BY: FJS | CHECKED BY: KHJ

APPROVED:

K.H. Jennison
BNSF - ASSISTANT DIRECTOR STRUCTURES DESIGN

George J. Meyer
UPRR - MGR SPECIAL PROJECTS STRUCTURES DESIGN

BNSF RAILWAY | UNION PACIFIC

**BRIDGE STANDARDS**

RIGHT-OF-WAY FENCING

**FENCE DETAILS**

FILE OWNER: UPRR | DATE: 1/24/07

PLAN NO.: 711000 | SHEET: 1

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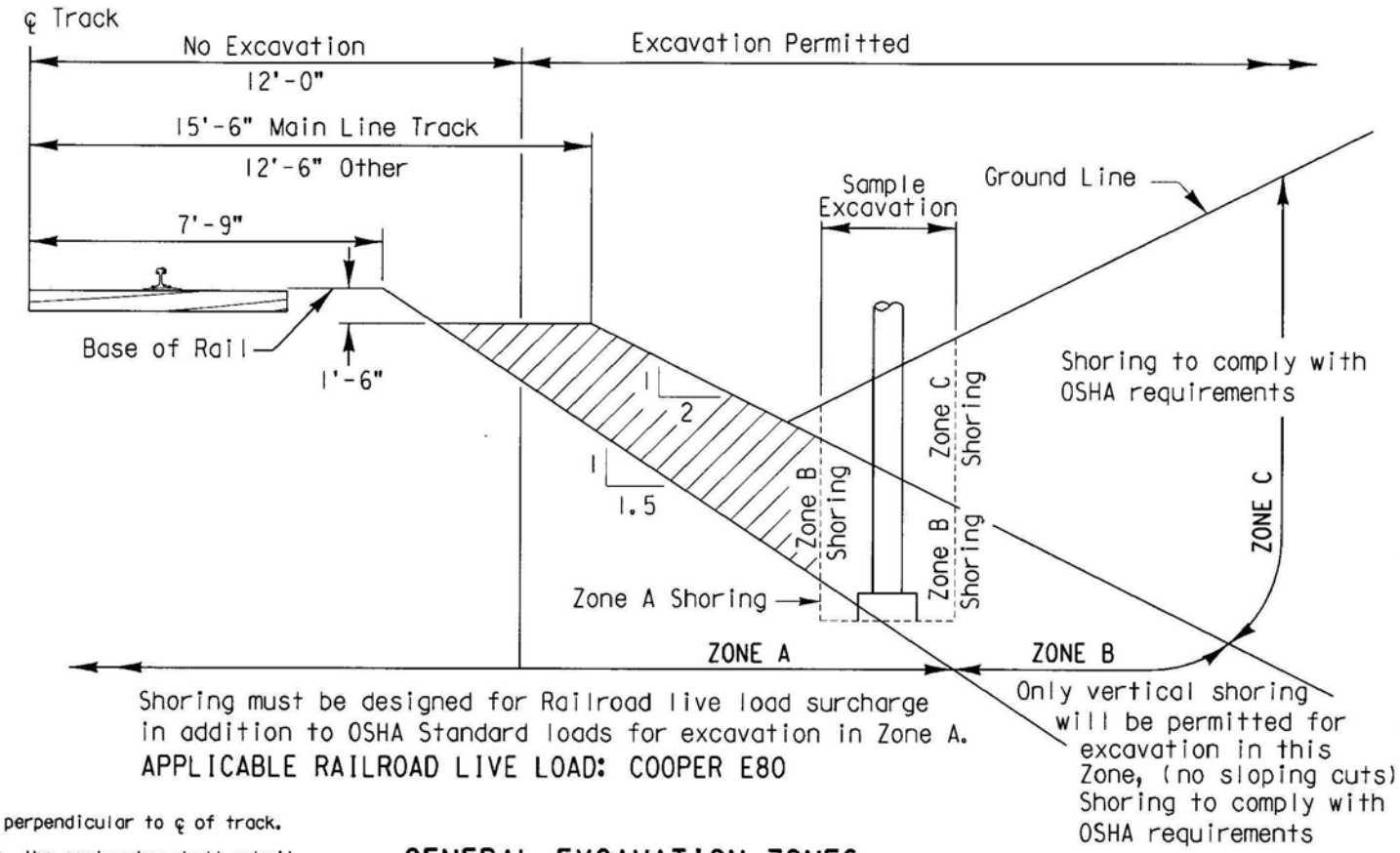


**GENERAL NOTES:**

All dimensions are measured perpendicular to ℄ of track.

Prior to commencing any work, the contractor shall submit for approval by the Railroad detailed plans indicating the nature and extent of the track protection shoring proposed. The contractor shall install the temporary shoring system per the approved plans. Design of the temporary shoring system to comply with **GUIDELINES FOR TEMPORARY SHORING.**

For excavations which encroach into zone A or B, shoring plans shall be accompanied by design calculations. Plans and calculations must be signed and stamped by a Professional Engineer registered in the state where the work will be performed.

## GENERAL EXCAVATION ZONES

SCALE: (NOT TO SCALE)

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DESIGN BY: PGP | DRAWN BY: JFS | CHECKED BY: AA

APPROVED:

K.H. Jennison

BNSF - ASSISTANT DIRECTOR STRUCTURES DESIGN

George J. Mayer 9-1-04

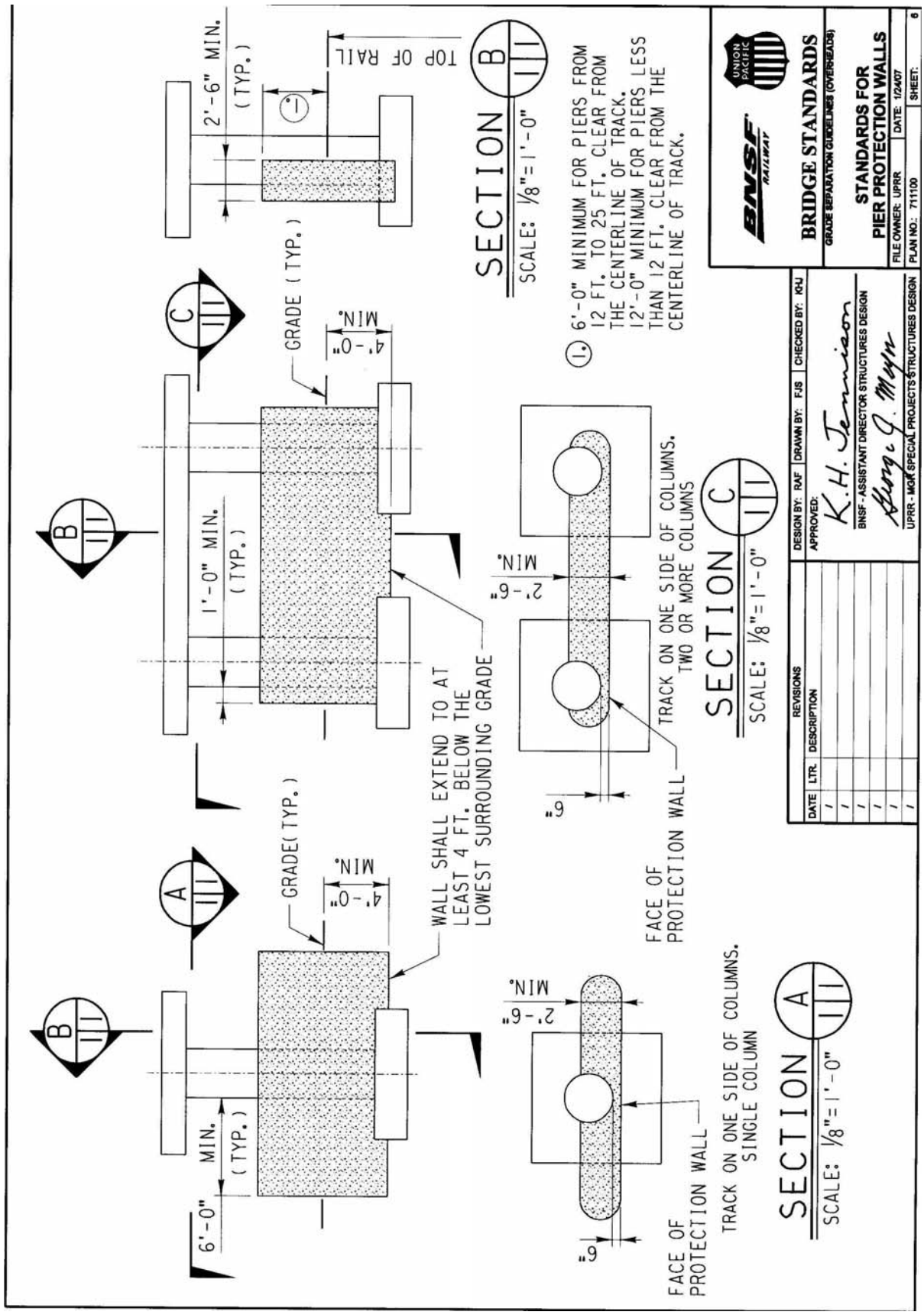
UPRR - MGR SPECIAL PROJECTS STRUCTURES DESIGN

BRIDGE STANDARDS

GENERAL SHORING REQUIREMENTS

FILE OWNER: UPRR | DATE: 5-6-03

PLAN NO.: 710000 | SHEET: 1 OF 1


SECTION B
SCALE: 1/8"=1'-0"
2'-6" MIN. (TYP.)
TOP OF RAIL
1. 6'-0" MINIMUM FOR PIERS FROM 12 FT. TO 25 FT. CLEAR FROM THE CENTERLINE OF TRACK. 12'-0" MINIMUM FOR PIERS LESS THAN 12 FT. CLEAR FROM THE CENTERLINE OF TRACK.
SECTION C
SCALE: 1/8"=1'-0"
GRADE (TYP.)
4'-0" MIN.
1'-0" MIN. (TYP.)
WALL SHALL EXTEND TO AT LEAST 4 FT. BELOW THE LOWEST SURROUNDING GRADE
2'-6" MIN.
6"
TRACK ON ONE SIDE OF COLUMNS. TWO OR MORE COLUMNS
FACE OF PROTECTION WALL
SECTION A
SCALE: 1/8"=1'-0"
GRADE (TYP.)
4'-0" MIN.
6'-0" MIN. (TYP.)
2'-6" MIN.
6"
TRACK ON ONE SIDE OF COLUMNS. SINGLE COLUMN
FACE OF PROTECTION WALL
BNSF RAILWAY
UNION PACIFIC
BRIDGE STANDARDS
GRADE SEPARATION GUIDELINES (OVERHEADS)
STANDARDS FOR PIER PROTECTION WALLS
FILE OWNER: UPRR
DATE: 1/24/07
PLAN NO.: 711100
SHEET: 6
DESIGN BY: RAF
DRAWN BY: FJS
CHECKED BY: KHJ
APPROVED:
K.H. Jennison
BNSF - ASSISTANT DIRECTOR STRUCTURES DESIGN
UPRR - MGR SPECIAL PROJECTS STRUCTURES DESIGN
REVISIONS
DATE
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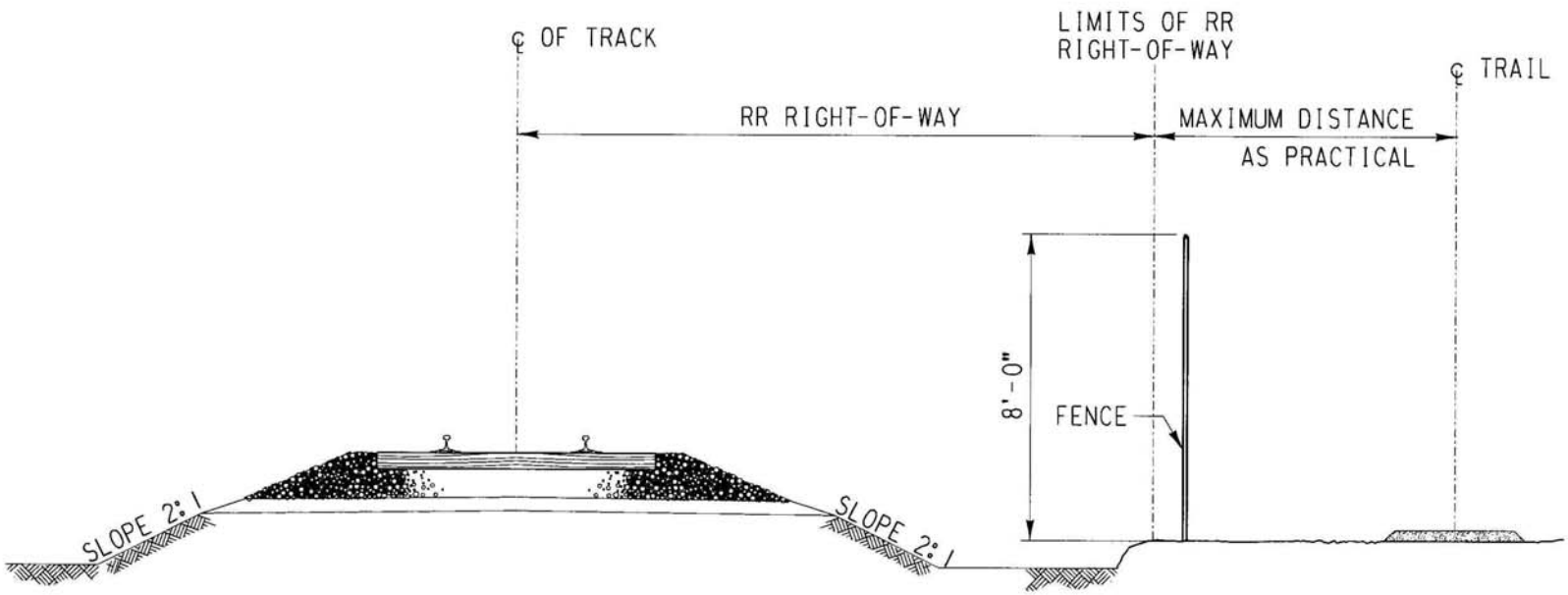
DESCRIPTION




TYPICAL SECTION WITH STANDARD FLAT BOTTOM DITCH

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DESIGN BY: RAF | DRAWN BY: FJS | CHECKED BY: KHJ

APPROVED:

K.H. Jennison

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George J. Meyer

UPRR - MGR SPECIAL PROJECTS STRUCTURES DESIGN

UNION PACIFIC

**BRIDGE STANDARDS**

RIGHT-OF-WAY FENCING

**FENCE REQUIREMENTS FOR ADJACENT TRAIL OUTSIDE RAILROAD RIGHT-OF-WAY**

FILE OWNER: UPRR | DATE: 1/24/07

PLAN NO.: 711000 | SHEET: 2

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