

Approval of the drainage plan does not relieve the submitting agency and/or designer of ultimate responsibility and liability for the adequacy of the drainage design.

XV LIGHTS

Designer to provide lighting for ALL new overhead or modified structures exceeding eighty (80) ft. of superstructure width, except if such structure are located in rural area. Lighting shall be provided also for structures of less than eighty (80) ft. widths in areas that switching is performed, high vandalism or trespassing has been experienced.

Designer to provide temporary lighting for ALL falsework designs irrespective of the superstructure width in areas that switching is performed, trespassing or vandalism has been experienced in the past.

The minimum design criteria shall be that designer maintain an average of one (1) foot-candle for area under the structure at the Union Pacific Railroad tracks. Use Holophane module 600 underdecking type luminaries or equal as required. Fixtures shall be installed on the column walls or caps of the overhead structure without reducing the minimum clearances.

Maintenance of lights shall be the responsibility of the agency. Access to perform any maintenance for lights shall be coordinated with the local Service Unit Superintendent or his representative.

Structures with separation over ten (10) ft. from each other shall be considered as independent structures for the purposes of lighting.

XVI REVIEW SUBMITTALS

Submittals for design and construction of Grade Separation projects shall be coordinated and submitted through the Manager of Industry and Public Projects of the region in which the project is located. To expedite reviews, submittals must be complete, clearly explained and orderly. The Manager of Structures Design shall review overhead structures in the office of the Chief Engineer Design and/or through an outside consultant at the expense of the owner.

Prior to any review, Manager of Industry and Public Projects shall receive authorization from the agency agreeing to pay all review costs for the design and construction phases of the project. Once such an agreement is established, Manager of Industry and Public Projects shall request and secure an internal Work

Order to cover review expenses. Review expenses shall include all costs for in house personnel and/or consultants retained by the Railroad for the purpose of review of that particular project. All reasonable costs incurred by the Railroad during the plan review process and construction phase of the project will be fully recoverable from the agency.

XVII PRELIMINARY SUBMITTAL

Plans for preliminary overpass bridge submittal shall include the following:

For each overhead structure the milepost and direction shall be shown on the plans. Items shown as left or right in the checklist are referenced facing the increasing milepost. Milepost and direction shall be shown on the General Layout Sheet. Designer to consult with Manager of Public Projects for the correct milepost and increasing direction.

Plan:

Plan view shall indicate at least the following items:

- a) Union Pacific Railroad Company right-of-way.
- b) Footprint of proposed structure including existing structure if applicable.
- c) Indicate the position of all railroad tracks and identify each track as mainline, siding, spur, etc.
- d) Indicate minimum horizontal clearances and track spacing of all existing and/or future tracks.
- e) Indicate location of ALL access roadways.
- f) Footprint of footings with the minimum clearance from centerline of adjacent or future track shall be shown on the plans.
- g) Indicate the minimum clearance requirement for shoring.
- h) Locate and show all existing facilities and utilities and their proposed relocation if required.
- i) Indicate location of access roadways.
- k) Show drainage ditches and direction of flow.

- l) Indicate minimum structure separation for parallel structures.
- m) Indicate milepost and increasing direction.
- n) Indicate point of minimum vertical clearance, and location from the nearest track.

Elevation:

Elevation view shall indicate at least the following items:

- a) Minimum vertical track clearances taken from top of rail.
- b) Track elevation for all tracks.
- c) Pier footing within 25' of the nearest existing or future track location shall be six (6) ft. below base of rail.
- d) Indicate top of pier protection wall elevation relative to top of rail elevation.
- e) Show elevation of existing or relocated utilities.
- f) Show slopes and specify type of paving. Toe of slope shall be shown relative to drainage ditch and top of subgrade.
- g) Show ditches for drainage. Provide enlarged scaled detail showing the correlation of slope pavement, ditch, and track or roadway subgrade.
- h) Limits of fencing and protective railing or splasboards.

Typical Section:

Typical section shall indicate at least the following items:

- a) Structural components of superstructure shall be shown on the plans.
- b) Type of railing and fencing and their heights.
- c) Indicate pier outline and pier protection wall. Additional cross section may be required to show crash wall design.

Track Profiles:

The profile of the existing top of rail (1000 ft. each side of proposed structure) shall be shown on the plans.

Variance to this requirement shall be granted only if local Director of Track Maintenance concurs that the existing track grades and proposed 23' vertical clearance is satisfactory for any future ordinary track maintenance raises. Manager of Industry and Public Projects will consult with the Director of Track Maintenance and submit recommendations to the Manager of Structure Design with the plan submittal or variance request for track grade requirement.

General Notes:

General notes specifying material requirements, design data, temporary clearance requirements, stages of construction etc.

Fill out and furnish the attached "Overhead Submittal Checklist" (see Appendix A) with your preliminary plan submission. For any exception to the minimum requirements on the attached checklist, a detailed explanation/reason why the minimum requirements cannot be met must be provided.

Four (4) sets half size preliminary plans shall be submitted to the Manager of Industry and Public Projects. Manager of Industry and Public Projects shall submit two (2) sets of plans to the Manager of Structures Design. Allow four (4) weeks for in-house review by Manager of Structures Design or outside consultant, from the time plans are received. All replies will be returned to the Manager of Industry and Public Projects for handling with the agency.

Revised submittals of plans or documents shall follow the same procedure as the initial submittal until all issues are resolved.

XVIII FINAL SUBMITTAL

Three (3) sets half size 100% plans, two (2) sets of special provisions and two (2) sets of hydraulic calculations if needed are required. All final documents submitted for approval to the Manager of Industry and Public Projects must be **"signed and stamped by a Registered Engineer"**. Material to be reviewed by the Manager of Industry and Public Projects who will forward one (1) set of each to the Manager of Structures Design. Four (4) weeks shall be allowed for review. When review is complete the Railroad or its representative (consultant) shall advise the agency or their representative that all issues have been addressed satisfactorily and recommending the release of structure for construction. Copy of reply shall be mailed to the Manager of Structures Design as well as the Manager of Industry and Public Projects.

Final Plans:

Final plans for overhead structures submitted to Union Pacific Railroad should include only pertinent drawings that impact the Railroad. Complete sets are not required. The following drawings should be submitted:

- a) General plan and elevation view.
- b) Typical roadbed section and drainage ditches
- c) Track profiles
- d) Drainage plans and deck drains
- e) Railing and fencing details.
- f) Crash wall plans

Drainage Calculations:

In addition to drainage plans calculations shall be submitted for review for modified drainage conditions. Two sets of design calculations shall be submitted.

Drainage design criteria for right-of-way drainage ditches, drainage structures parallel to or under the track shall comply with the following:

- a) The 50-year flood water surface elevation should not come into contact with the crown of a culvert or the low chord of the drainage structure whichever is applicable.

- b) The 100-year flood water surface elevation should not exceed the track subgrade elevation.
 If existing drainage facilities do not meet the design criteria above, an enlarged opening must be considered.

Special Provisions:

Two sets of *signed* project special provisions shall be submitted for review by Railroad.

XIV CONSTRUCTION SUBMITTALS

During construction of the overpass structure the Railroad requires the review of temporary structures such as Falsework, Shoring, Demolition of existing structures if required, etc. prior to any construction. It is required that all designs be submitted by the agency or their representative to the Union Pacific Railroad Company for review following their own review and approval of the design. All submittal designs shall be "signed by Registered Engineer" shall be forwarded to Manager of Industry and Public Projects who in turn will send them to the Manager of Structures Design. Manager of Structures Design shall perform or have an outside consultant review said submittals. If consultant performs said review the consultant may reply directly to the agency or their representative after consultation with the Manager of Structures Design. Copy of reply will be mailed to Manager of Structures Design as well as the Manager of Industry and Public Projects. During the review process, the consultant and design engineer will be free to communicate and resolve issues. Review of design submittals will require minimum of four (4) weeks.

It is preferable to receive construction submittal plans in half size.

Following is a list of construction design submittals:

SUBMITTAL	PLANS REQ'D	CALCS REQ'D	MINIMUM REVIEW TIME
Shoring	3	2	4 weeks
Falsework	3	2	3 weeks
Drainage	3	2	4 weeks
Demolition	3	2	4 weeks
Special Provisions	2	N/A	4 weeks

XX APPENDIX A

- Overhead Grade Separation Data Sheet
- Overhead Submittal Checklist

8. List piers where crash walls are provided:

Pier:

Distance from centerline of track:

9. Describe how drainage from approach roadway is handled: _____

10. Describe how drainage from bridge is handled: _____

11. List piers where shoring is required to protect track: _____

12. Scheduled Letting Date: _____

**ALL INFORMATION ON THIS DATA SHEET TO BE FURNISHED BY THE SUBMITTING
AGENCY TO THE MANAGER OF INDUSTRY AND PUBLIC PROJECTS**