

**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
RAILWAY BOARD**

No. 2017/CE-IV/RUB/88

New Delhi, dated 04.10.2017

**General Manager
All Zonal Railways**

Sub: Important issues related to construction of RUB/Subways including drainage.

Ref: (i) Board's Office letter No. 2006/CE-IV/MISC-2(RUBs) dated 18.04.2012.
(ii) Board's Office letter No. 2017/CE-IV/Misc (RUBs) dated 21.03.2017.
(iii) Report on RUB/Subway circulated vide letter no. 2017/CE-IV/RUB/88 dated 03.07.2017.
(iv) CRS/NE Circle letter No. 1675/Policy/Pt-I dated 16.08.2017.

Railway Board vide letter dt. 18.04.2012, referred above, issued guideline that level crossing which do not qualify for sanction of RUB on cost sharing basis in terms of Para 925 of IRPWM, can be planned for elimination by Subways if found "technically feasible".

Many representations have been received on water-logging at newly constructed RUB/LHS/Subways. These RUB/LHS/Subways remains flooded most of the time due to inadequate drainage system. This situation indicates that drainage issues might not have been addressed properly by Railway during planning and execution stage and also by state govt. during service.

Keeping in view of large no. of representations, Railway Board vide letter No. 2016/CE-IV/LX-ROB/RUB (Innovations), dated 20-09-2016 has nominated a committee consisting of EDCE/B&S/Railway Board, CBE/NR, CBE/WCR & ED/Structure/RDSO, to study the various issues related to construction of RUB/LHS/Subways and frame guideline for uniform adoption by the Zonal Railways.

Committee recommended that;

- i. Construction of RUB/Subway should normally be done where sufficient embankment height is available so that there is no drainage problem.
- ii. Construction of RUB/Subway may have to be done where there is less embankment height but proper natural drainage leading to nearby bridge/low lying area can be provided, however, in such cases the invert level of drain should be above the normally observed flood level in nearby bridge/low lying area.
- iii. Normally, construction of RUB/Subway need not be carried out where general ground level is above the bed level of proposed subway. However, in exceptional circumstances, Construction of RUB/Subway may have to be done where there is problem of water logging i.e. the general ground level is above the bed level of proposed RUB/Subway. In such cases the joints of RCC boxes should be properly sealed, U-type RCC lining should be made and cover shed of economical design on approaches may be provided as per site condition. The sumps should also be provided with pumping arrangement for pumping out of water.

Instruction have further been issued by Board vide letter dt. 21.03.2017 (reference (ii) above) that due to serious drainage problem at large no of RUB/LHS/Subways locations, should be constructed only at those locations, where it is technically feasible from drainage point of view.

CRS/NE Circle vide his letter no.1675/Policy/Pt-I/564 dated 16.08.2017 addressed to GM/NER & GM/NCR, informed that "For Limited height subways, the drainage is a serious concern. Most of the plans received with application are either not having any drainage arrangement or arrangement indicated in very casual way. For each and every site, specific drainage arrangement shall be integral part of Plan which should show details of collection of water and its disposal till final outfall with levels. A specific note as to how all weather availability of subway will be ensured shall invariably be enclosed with application".

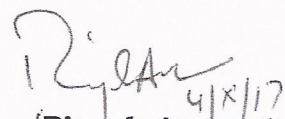
As such, Zonal Railway should plan drainage arrangement as per site situation & following options of drainage can also be considered in addition to earlier issued guideline on drainage:

- a) Joints of box segments should be sealed properly.
- b) Rain water harvesting.
- c) Hump on road side or provision of reverse slope of road before start of downward ramp to RUB/LHS/Subways to avoid ingress of water through ramp and side. Retaining wall should continue along the approach slope upto the hump or from where reverse slope starts.
- d) Sump-pump arrangement at critical locations for providing water-pumping system.
- e) Elaborate drainage arrangement to divert surrounding water

From the above, it is clear that drainage issue can be tackled with proper planning and execution even at locations having inadequate bank height. UMLC planned for elimination by construction of RUB/LHS/Subways must be eliminated on priority by sorting out the issue of drainage. The provision of drainage arrangement should be made the integral part of construction of RUB/LHS/Subways at planning stage itself for its proper functioning. The planning & execution should include detailing for collection of water and its disposal till final outfall.

CRS/NE Circle further informed that in majority of cases, the subway is planned 10-20m away from existing level crossing location and subway is subsequently connected with very sharp curve at approach. This severely restricts the actual capacity of subway to handle road traffic and is permanent bottleneck.

In view of the above, the approach of RUB/LHS/Subways should be planned in such a way to avoid sharp curve in the approach road. To ensure this, as far as possible, RUB/LHS/Subways should be constructed either on the same alignment of level crossing by temporary diversion/closure of level crossing or at suitable location so as to avoid bend in the approach road to the maximum extent.


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Copy to: PCEs/All Zonal Railway for information and necessary action.