

No.: NCR/S&T/1063/JPO/Pt.-2

Date: 24/01/2024

**JOINT PROCEDURE ORDER No. 05/2023**

Sub: Undertaking the work of laying underground Signalling & Telecom cables and Engineering digging work.

Ref :

1. JPO no. 1/2014 dtd 28/01/2014 with amd dtd 18/01/2016
2. Railway Board letter no. 2022/GS/IR/Cable laying policy dtd. 29/03/2023 (copy enclosed with this JPO).
3. Telecom circular no. 09/2023 dtd 12/6/23 issued vide Board's Letter no. 2021/Tele /5(2)/3 / Pt(1) (3425647) dtd. 12/06/2023 issued by Railway Board. (Copy enclosed with this JPO).
4. Board's letter no. 2023/CE-1/EDCE(G)/ Misc. dtd. 18/04/2023.
5. INSTRUCTION No. TI/IN/0042 of RDSO.

1.0	<b><u>General:</u></b>
1.1	<p><b>JPO no. 1 /2014 with amendment on date 8/1/2016</b> has already been issued on NCR for Undertaking the work of laying underground Signalling, Electrical &amp; Telecom cables and Engineering digging work. This JPO modifies certain stipulations of the same JPO and is issued afresh.</p> <p>This should be read in conjunction with letters issued by Railway Board vide reference under 2, 3 and 4 above.</p>
1.2	<p>It is reiterated that while laying all new underground cables like Signalling, Electrical, OFC and Telecommunication cables (where cable laying plan has not been approved as on date of issue of this JPO), instructions contained in extant procedures shall be scrupulously followed. Further, unless space is not available, all new cables shall be laid on one side of track where some cable is already laid so that other side is free of danger to cable cutting menace on account of track and other maintenance activities. However in case cables are laid to have physical diversity i.e. on both sides of track, then similar procedures as laid below shall be followed.</p> <p>Mechanised excavation, filling of earth or other earthwork activities, on the side having cables, shall be undertaken only after following due procedures as per this JPO in addition to the letter issued by Railway Board under ref 3 and 4 above.</p>
1.3	<p>S&amp;T department (and Railtel, where they have laid the cables) and Electrical department shall provide a detailed cable route plan showing exact location of cable at an interval of 200m or wherever there is change in alignment so that the same is located easily by the Engineering Officials/Contractor. In additional, S&amp;T department and Electrical department shall also provide cable markers along the alignment of the cable. These cable route plans shall be made available to the Sr.DEN/DEN or Dy. CE/C, as the case may be, by Sr. DSTE or Sr. DEE/DEE of the division or Dy. CSTE/C or Dy.CEE/C within 15 days in duplicate, after completion of work. Sr.DEN/DEN or Dy. CE/C will send copies to their field units i.e. AEN/SSE/P.Way &amp; Works.</p>
1.4	<p>No new OFC or quad cable shall be laid close to the existing track. It shall be laid 2 meter away or mutually agreed as per site condition from the Railway Boundary on one side of the Railway Track to the extent possible to avoid any interference with</p>

*refer* *Adm* *Aganad*



	<p>the future works (doubling etc.). Where cables have to be laid on both sides for redundancy purpose, similar gap from Boundary shall be followed. It shall be ensured in the new works of cable laying that the cable route is properly identified with electronic or concrete markers.</p> <p>All cables in <b>new projects</b> shall be laid in pre-fabricated/pre-cast ducts close to tracks on both sides in the station limits. However in block section, duct shall be laid beyond embankment unless unavoidable. Dimensions of the duct and laying procedure is also defined in the Board's letter no. 2022/GS/IR/Cable laying policy dtd. 29/03/2023.</p> <p>At suitable intervals, not more than 500 meters along the duct and at each location of track crossing, a chamber of dimensions 1200mm X 1200mm X 1500 (depth) shall be made. Measures to avoid waterlogging inside the chamber shall be done.</p> <p>Chamber cover shall be kept 100mm below the surface of soil. If cables are more in a yard, multiple ducts may be planned. Wherever multiple cables are laid in a duct/trench, RFID markers or GPS tapes shall be provided for easy identification of the cable. Suitable markers should be provided for identification.</p> <p>If trenching is required due to any reason, the depth of the cables shall be as defined in the relevant clauses of IRSEM and IR Telecommunication Manual. For Signaling and Telecom cables, standard depth is defined as 1.0 meter below the top surface of soil. For Optic Fibre cables, the standard depth should be 1.2 meter below the top surface of soil. Tail cables may be laid not less than 0.5 meter below surface of soil.</p> <p>Henceforth, wherever cable laying is planned, before undertaking the cable laying work, the cable route plan of the same shall be prepared by the Dy. CSTE/C or Dy. CEE/C and shall be got approved from the concerned Sr. DSTE/DSTE or Sr. DEE/DEE and also from the concerned Dy. CE/E for new lines and from the concerned Sr. DEN for all other projects including doubling, GC etc., to avoid possible damage in future. Such approval shall be generated within 15 days of the submission of the request. Similar action shall be taken by Sr.DSTE/Sr.DEE for the works being executed by open line and GSU.</p> <p>The permission shall be communicated to SSE/PWay/Works, SSE/Sig./Tele, or SSE/Electrical (TRD or G) about the works being taken up by the contractors in their sections at least 3 days in advance from start day of the work. If any work is cancelled or rescheduled, the same must be informed on priority to avoid wastage of manpower. A reminder one day prior in case of a last-minute change in plan must be enforced.</p> <p>Sr.DSTE/Sr.DEE/Sr.DEN shall also keep one copy of permission in S&amp;T control, Engineering Control &amp; Electrical control.</p>
1.5	Provision of cable duct shall invariably be made in the GAD for all Platforms, stations, culverts and Bridges. No drawing for stations or Bridges shall be approved without the provision of cable duct.
1.6	In places where laying of cable duct is not possible due to site conditions, cable shall be preferably be laid by HDD method or as feasible.
1.7	GIS mapping of entire cable duct shall be made available to all concerned stakeholders.
1.8	Cable markers wherever provided above the ground, shall be of concrete type.

~f      *Am*      *Am*



2.0	<b>Telecom Cable:</b>
2.1	The Telecom cables shall be laid 2 meter away from the Railway boundary, so as to avoid interference with the future boundary works. However proper planning should be done taking into account future doubling/third line/ fourth line works etc. The telecom cables may also be laid in the yard (station limits) in the ducts as mentioned above.
2.2	Junction/location boxes shall be erected on track side at an adequate level above flood level to avoid damage.
2.3	The concerned SSE/P.Way or SSE/Works or SSE/Sig or SSE/Tele or SSE/Electrical (TRD or G) or RailTel supervisors supervising the work of the contractor shall ensure that the existing emergency sockets are not damaged due to their importance in providing communication during accident/emergency. The location wise list of emergency sockets in section shall be provided to the contractor supervisor to protect the EC socket.
2.4	In the block sections, the cable shall be laid in duct unless unavoidable. The cable route shall be properly demarcated with concrete markers. If Duct is provided, it should be provided such that atleast 300mm of soil is filled back on top of concrete cover and proper markers are provided.
2.5	As per actual cables laid, cables route diagram to be prepared and to be circulated to Open Line and Construction Officers and Field Officers of Engg., S&T and Electrical (General Services & TRD). Wide circulation of cable route diagram is to be done. Pls refer points 5.6 and 5.7 also.
2.6	A copy of diagram to be made available at all stations and office of Electrical Traction Power Controller and Sectional P.Way supervisor.
3.0	<b>Signalling Cable:</b> For laying Signalling cables, following guidelines shall be adopted:
3.1	In the yard, cable laying shall be permitted, in between the tracks as per standard drawings. It is preferred to lay cables in concrete troughs between the tracks to have protection.
3.2	If the track centers on a double line section is more than 5.3 meters, signalling cable can be permitted in between the tracks provided there is no possibility of laying of cable on either side of track. In such cases, the excavation shall be undertaken manually in presence of Engineering supervisor, duly ensuring safety of trains. Pre-fabricated/pre-cast ducts to be provided such that minimum 300mm soil is put on top.
3.3	For making connections of track circuit, point machine, signals etc., tail cables shall run along the track at adequate depth as per IRSEM.
3.4	Junction boxes provided for such purposes shall be located at a minimum lateral distance of 2.575 meter from the center line of track so as to avoid infringement to BCM working but at minimum 1 feet above rail level. If Junction boxes are provided on Platforms, then they have to be installed at minimum 5.33 m from center line of track for new work as per IRSOD.
3.5	Crossing of track shall be permitted anywhere in the yard through pre-fabricated/pre-cast ducts / Concrete duct/ HDPE pipe. The trench shall be at least 1 meter below the formation for laying pipes.



4.0	<b>RE Section &amp; OHE Mast:</b> In electrified sections, if the OHE masts are provided on both the sides of track in a block section, they will be in need for relocation at the time of doubling/tripling etc. Therefore, in the electrified sections, the following procedure is to be followed:
4.1	Double line section (Existing as well as new): The masts to be located on Country side (other than track side) only. As per ACTM 18.0 (Vol.II, Part-II, Page-24), normally no masts should be located between any two main running tracks. In case mast need to be located in between tracks for certain locations which are not feasible on country side, joint inspection to be done by Engg., S&T, Electrical maintenance and TRD Organization to decide the exact location of such masts.
4.2	If new cables are to be laid, provisions of para 2.0 and 3.0 in this JPO will be followed.
4.3	Single Line section (Existing): If future double line proposal and alignment is known, masts will be located on Country side (other than the double line track side). For this Engg. Department has to provide tentative layout of double line for the entire section as alignment may change at various points in the section due to Bridges, Curves etc.
4.4	Single Line section: If future double line proposal and alignment is not known, masts will be located based on joint inspection by Engg., S&T, Electrical maintenance and TRD organizations on the cable side preferably. However it would be ensured on curves that OHE masts are located on outside of the curve irrespective of the side where cables are laid.
4.5	<p>BEC of 20 mm dia.(cross section 238.64 mm<sup>2</sup>), galvanized steel conductor should be laid underground along the UP and DN track separately, 300mm below ground surface and approximately one meter away (or as per site conditions) from the OHE foundation towards opposite direction of track. The BEC will be connected to each OHE mast/Portal and Feeder mast by same conductor having Tee Connector &amp; Lug Connector as per Drawing No. TI/DRG/OHE/TC/RDSO/00001/20/0 &amp; TI/DRG/OHE/SC /RDSO/00001/20/0.</p> <p>The cross bonding of the UP BEC –UP Mast/Portal-UP Traction Rail-DN Traction Rail-DN mast/Portal –DN BEC should be done by 50X6 mm MS/GS flat at every 450 mtr. The details of the AEC/BEC and cross bonding scheme are given in drawing no TI/DRG/OHE/EARTHING/RDSO/00001/20/0.</p> <p>At stations, BEC conductor should be laid underground for Loop lines &amp; platform also. BEC can be run on the side wall of Platform (platform coping) with suitable clamp &amp; bolt grouted in the coping. BEC should be connected to Earth Pit as per Drawing No. ETI/OHE/P/7020 Rev. B at every 450m wherever it is exposed above the ground. At Bridges/Platform coping laying arrangement of BEC should be as given in Annexure-45 of document - INSTRUCTION No. TI/IN/0042 of RDSO.</p> <p>For Three line and four line section separate BEC should be provided for each line.</p>
5.0	<b>Cable Route Plan, Scheme &amp; Approval:</b>
5.1	As already specified the scheme of work for laying new cable (Power, Signal and Telecom) shall be submitted to sectional Sr.DEN, Sr.DEE/G, Sr.DEE/TRD and Sr.DSTE for approval before execution.

*[Signature]*

*[Signature]*

*[Signature]*



5.2	The scheme shall be approved within 7 days of its being received in respective offices.
5.2.1	<p>In the case of works being taken up by the State Government, National Highway Authority, etc., after their request, the Electrical/Engineering department shall process for permission and deposit funds for shifting or protecting cables before granting permission to work.</p> <p>The details of the permission given, i.e., the nature of work, kilometer, etc., should be given to the Engineering control, including the contact person's number of the state government and the National Highway Authority, so that the work can be done in a planned manner. The permission letter shall also indicate the contact numbers of the test room and network operating center of RailTel, TPC, and Electrical General Control.</p> <p>The supervisor of the contractor or execution agency must have the permission copy to execute the work.</p>
5.3	After execution of work, the cable route plan shall be updated so that the same is available for future reference in Divisional and Sub-divisional offices of Engineering/ Electrical/S&T departments.
5.4	The cable routes shall be clearly demarcated by suitable concrete/stone markers for identification in future.
5.5	In no case, cable laying & digging shall be started unless cable route plan is approved, except for minor work of cable replacement owing to emergency arises due to failures etc.
5.6	Digital integrated Signal and Telecom cable route plan shall be prepared and made available online over Railnet.
5.7	After availability of integrated S&T cable route plans, the same shall be uploaded as utility layer on PM Gati Shakti BISAG portal.
6.0	<b>Engineering work &amp; Excavation:</b>
6.1	For all new works, provision of cable shifting should be a mandatory part of DPR and estimate. For ongoing works, divisions may sanction works for cable shifting if necessary, through contingency/supplementary/revised estimate where provision does not exist.
6.2	Adequate notice (atleast 3 days) shall be given by Engineering Department before executing Civil works in the vicinity of existing cables, to S&T/Electrical Departments.
6.3	Work shall be undertaken only after the existing cables are identified, by S&T/Electrical department as the case may be, duly following the instructions contained in letter under reference 3 and 4 above issued by Railway Board.
6.4	The cable identification work shall be completed within 7 days of receipt of such requests, by the concerned Sr.DSTE/Dy.CSTE/ Sr.DEE.
7.0	<b>Cable Laying &amp; Digging:</b> Field staff shall give information atleast 3 days in advance to Engineering control, Test room, Electrical Control/Electrical Traction Power Control before undertaking any work of laying of cable close to the track or for undertaking mechanized earthwork in section, in addition to advising the concerned Supervisors.

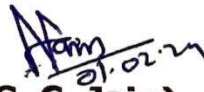
ref

Am

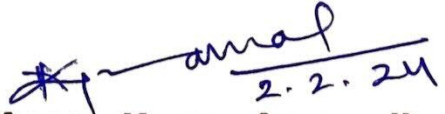
\* and



7.1	The Engineering Control shall keep all the information regarding any digging work being done near the track. The name & contact no. of executing department Supervisor (or his nominated staff) shall be notified in Engineering/CNL room. S&T and Electrical control shall obtain this information from Engineering control. These controls shall coordinate among themselves to ensure that no work is done in the vicinity of the track without proper permission.										
8.0	These instructions will come into force with immediate effect and shall be applicable wherever cable laying plan is yet to be approved. However, where cable laying plan is already approved, the work may be executed as per old approved plan.										
9.0	<p>It should be ensured that above instructions and instructions issued by Board are made part of future Tender documents for such works within one month of issue of this JPO. Penalty clause as specified in Board's letter no. 2021/Tele/5(2)/3-Part (1) (3425647) dtd. 12/06/2023 and reiterated as below must be part of Tender document also:</p> <table border="1"> <thead> <tr> <th>Cable Damaged</th><th>Penalty per location</th></tr> </thead> <tbody> <tr> <td>Only quad cable or Signalling cable</td><td>Rs. 1.0 Lacs</td></tr> <tr> <td>Only OFC</td><td>Rs. 1.25 Lacs</td></tr> <tr> <td>Both OFC and Quad</td><td>Rs. 1.5 Lacs</td></tr> <tr> <td>Electrical Cable</td><td>Rs. 1.0 Lacs</td></tr> </tbody> </table> <p>Non-inclusion of above instructions and penalty clause in tender document may attract suitable action against erring Officials.</p>	Cable Damaged	Penalty per location	Only quad cable or Signalling cable	Rs. 1.0 Lacs	Only OFC	Rs. 1.25 Lacs	Both OFC and Quad	Rs. 1.5 Lacs	Electrical Cable	Rs. 1.0 Lacs
Cable Damaged	Penalty per location										
Only quad cable or Signalling cable	Rs. 1.0 Lacs										
Only OFC	Rs. 1.25 Lacs										
Both OFC and Quad	Rs. 1.5 Lacs										
Electrical Cable	Rs. 1.0 Lacs										
9.1	<p>Penalty should be levied on the contractor when they work without permission or resort to careless working without making arrangements for protecting cables and other utilities. For each cable cut, a joint report should be prepared on the same day at the level of supervisors and it should become the basis for levying penalty and fixing responsibility.</p> <p>Joint note should be forwarded by SrDSTE/SrDEE to the executive in-charge of the work. The executive in-charge of the work should act and decide on the cable cut case within 15 days under information to SrDSTE/ SrDEE as the case may be.</p> <p>There should be provision of appeal by contractors within one month of notice for levying penalty at ADRM level. Decision of ADRM shall be final and binding upon both parties.</p>										
9.2	Railways will not lodge FIR with RPF in cases of works being executed by authorized contractors of Railways who have been duly permitted to execute the works.										

  
(S. C. Jain)  
PCE

  
(Satendra Kumar)  
PCSTE

  
(Anoop Kumar Agrawal)  
PCEE