दक्षिण मध्य रेलवे
South Central Railway

प्रमुख मुख्य सिगनल एवं दूरसंचार इंजीनियर का कार्यालय
Office of the Principal Chief Signal & Telecom Engineer
7 वां तल, रेल निलयम / 7th Floor, Rail Nilayam
सिकंदराबाद / Secunderabad - 500025

No.SCR-HQ0SNT(PLG)/6/2021 Date: 18.01.2022

Technical Circular No. 01/2022

Sub: Scheme for Automatic Block Signaling (ABS) .

Ref: 1) Railway Board letter No.2020/Sig/G/2/RDSO, dtd. 18.12.2020.

2) RDSO Letter No. 36773-File No. RDSO- SIG0MISC(DDSV)/1/2020-O/o ED/Signal/RDSO Dt 19.11.2020 & 25.11.2020

1. In order to standardize the scheme of Auto Signalling, RDSO has issued broad guidelines vide letter under reference (2) and the same has been subsequently circulated by Railway Board vide Letter under reference (1) for comments/ adoption. After taking a considered view on the subject with respect to initial cost, reliability and maintainability, broad guidelines for implementation of above scheme over SCR are as under:

   (i) Dual detection arrangement with MSDACs to MSDACs will be used.

   (ii) For exchanging Signaling information, RDSO approved SIL-4 I/O Multiplexer/ UFSBI shall be used.

   (iii) Auto reset between MSDAC will be implemented. When both main & redundant axle counter sections are failed, they have to be cleared by manual reset after due precautions to be included in SWR. To enable this resetting following arrangement shall be made:

      a) A common reset box kept at dispatch station and a co-operative button kept in reception station shall enable this operation.

      b) The manual reset command from common rest box shall reset only failed track section.

      c) Manual reset as well as auto reset of axle counter section shall only be preparatory reset.

   (iv) Separate evaluators shall be provided for UP & DN lines. However, UP main DP and DN redundant DP may be combined in one evaluator and vice versa to improve the redundancy.

   (v) Mounting of wheel detector for main DP shall be on outer rail and for redundant DP shall be on inner rail parallel to each other. So that the track sections clear time delay should be similar for main and redundant to avoid unnecessary Auto reset being initiated.

   (vi) Wheel detector mounting shall be minimum 2 meter away from glued joints.

(vii) Interface between Evaluator to each DP will require 1/2 quad, /one quad/OFC connectivity approved by RDSO, as per specific requirement of OEM.

(viii) Separate cables for UP & DN direction detection points in separate trenches shall be provided. However, UP main DP and DN redundant DP and vice-versa can be combined in one quad cable.

(ix) Status of all the systems including redundant shall be monitored through Data logger and exception reports/ alarms shall be sent to maintenance team & Signal control for taking necessary action well in time before complete system failure.

(x) Dual OFC (24F) shall be laid for UP and DN line in separate trenches on both side of the track.

(xi) RCC duct shall be used while laying OFC/ Quad cable/ Signalling/ Power cables on one side of the trench as per IRSEM Para 15.2.3(d) and drawing number 15-D3 of Appendix – II for protection of vital cables.

2. A typical diagram explaining the scheme to be followed over SCR is enclosed herewith for compliance. Any deviation shall require specific approval of PCSTE.

This is issued with the approval of PCSTE.

Digitally Signed by Rajeev Kumar Gangele
Date: 30-01-2022 12:16:50
Reason: Approved

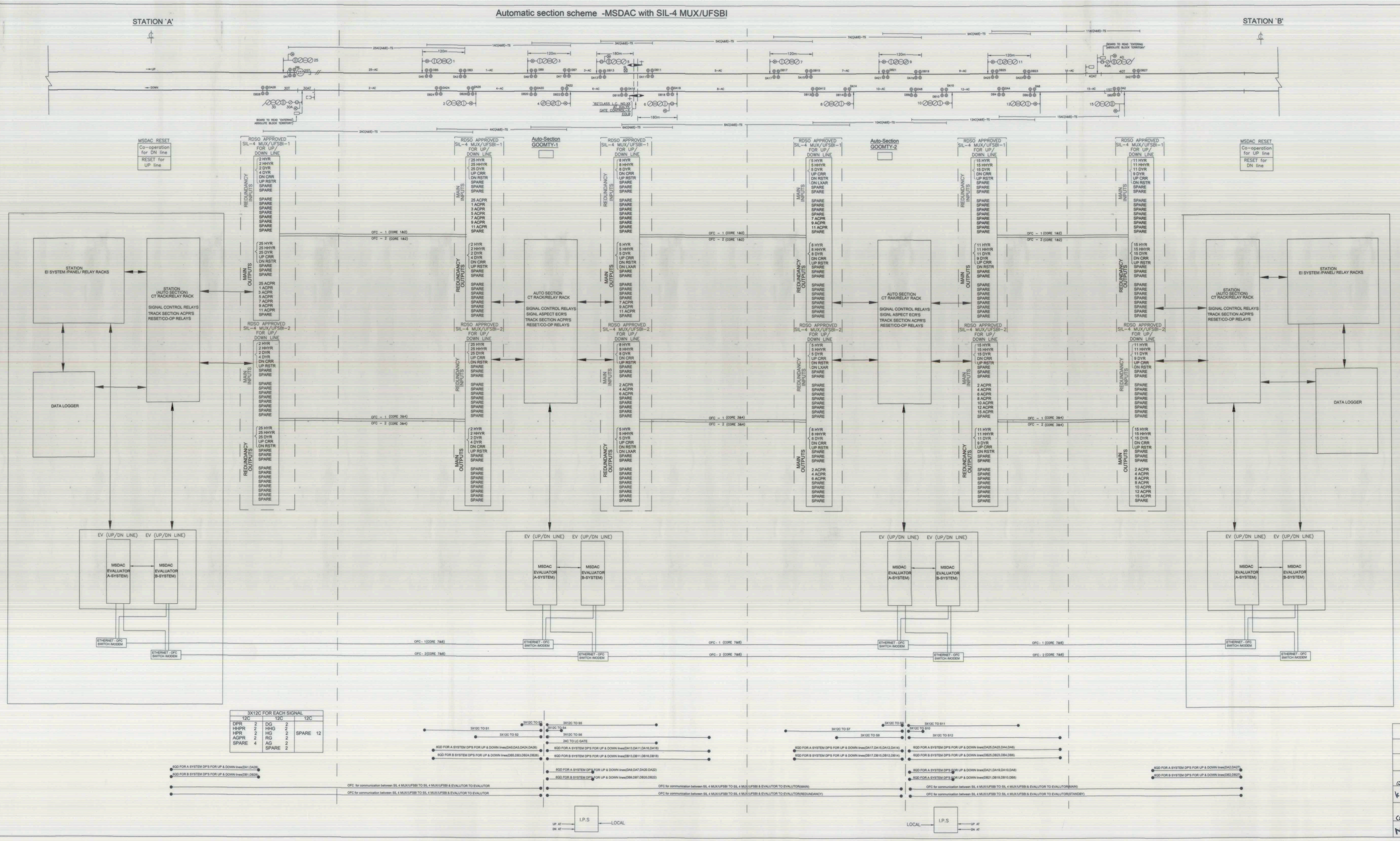
Encl: Typical Scheme

(Rajeev Kumar Gangele)
Chief Signal Engineer-I
for PCSTE/ SCR

Copy for information and necessary action to:

1. CSTE/Project, CCE, CSTE/P/I & II, CSTE/Construction
2. GM/S&T/RVNL/SC,
3. GGM/RITES/Gurgaon
4. CPD/RE/SC
5. Sr.DSTE/ BZA, GNT, GTL, HYB, NED & SC

Automatic section scheme -MSDAC with SIL-4 MUX/UFSBI



3X12C FOR EACH SIGNAL		
12C	12C	12C
DPR 2 HHPR 2 HPR 2 AGPR 2 SPARE 4	DG 2 HHG 2 HG 2 RG 2 AG 2 SPARE 2	SPARE 12

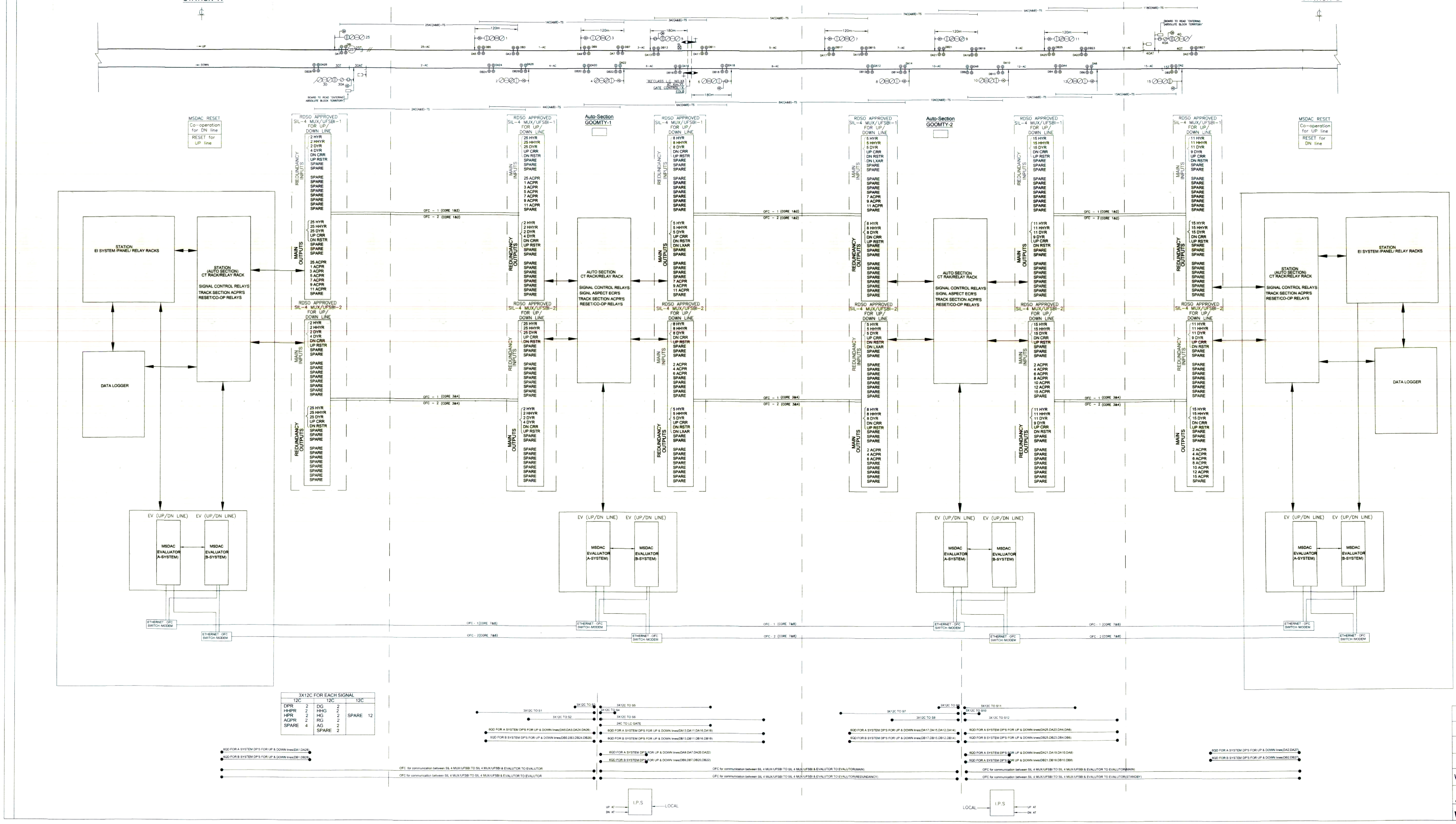
Note:-

1. Typically one Auto goomty shall cater 3 Up & 3 Down Automatic signals including Track sections.
2. Automatic signal control relays are to be wired at Auto Goomties.
3. Signal Lamp circuits are fed from concerned Auto Goomties.
4. Mid section DP`s shall be fed from concerned Auto goomty MSDAC Evaluators, only Entry DP of LSS and Exit DP of Home signal shall be fed from station MSDAC Evaluators.
5. Track section ACPR`s are picked up from concerned Auto Goomty MSDAC Evaluators to prove in signal control circuits at Goomties .
6. Signal Input/output controls from Goomty to Goomty, and Goomty to station are transmitted through SIL-4 MUX/UFSBI`s with redundancy.
7. Track sections ACPR`s of entire automatic block section of each line shall be made available at train sending station for track sections indications/ resetting purpose.
8. Automatic signal aspect indications will be shown at Auto Goomties for maintenance purpose.
9. Existing 6 quad cable can also be utilised for SIL 4 MUX/UFSBI - SIL 4 MUX/UFSBI and EVALUATOR-EVALUATOR communication.
10. 3x12 C cable is proposed to each signal for carrying of both AC & DC supply.
11. Dual OFC (24F) shall be laid in separate trenches on both side of Up & Down tracks.
12. RCC duct shall be used while laying OFC/6 Quad/Signalling/Power cables on one side of the trench as per IRSEM para 15.2.3(d) and drawing number 15-D3 of Appendix - II for protection.
13. Goomty locations shall have road access to the extent feasible.
14. Supervisory Resets shall be configured.
15. Hard Resetting facility shall be provided at stations only.
16. UP & DN AT supplies shall be given for Auto goomties IPS systems.
17. AT capacity shall not be less than 10KVA.
18. RTU shall be provided at Auto Goomties and all functions shall be wired.
19. Auto change over CLS power Panel shall be provided at Auto Goomties.
20. A-Class earth protection shall be provided at Auto Goomties.
21. Surveillance camera shall be provided at all Auto Goomties, centrally monitored at station.

—	REVISION		सिगनल एंव दूरसंचार SIGNAL & TELECOMMUNICATIONS
—	आरेखकार DRAWN		
—	क. इं. JE	जाँचकर्ता CHECKED	SCHEME FOR AUTOMATIC SECTION MSDAC–SIL–4 MUX/UFSBI
(J.R.KRISHNA)	व. अ. इं. SSE		
13.01.22 (K.N.REDDY)	स. सि. दू. सं. इं. ASTE		
13.1.22 (S.K.RAI)	व. सि. दू. इं. SSTE		
13.1.22 (S.R.MURTHY)	उ. मु. सि. दू. इं. fCSTE		द. म. रेलवे आरेख सं S.C.RLY.DRG.NO. C.5748

PRODUCED BY AN AUTODESK STUDENT VERSION

Automatic section scheme -MSDAC with SIL-4 MUX/UFSBI



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