



Adoption of FDR in PMGSY

Technology provider & Implementer's perspective for capacity building

Exhibition Booth no. 18, Base-Seal Liquid Soil Stabilizer

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- ❖ **Base-Seal liquid soil stabilizer from the USA is serving road construction Industry since 1986**
- ❖ **Treated soils & sand**
- ❖ **Implemented FDR in the USA, Europe, South America, Asia, Africa, Australia**
- ❖ **Also into stabilised rammed earth housing**
- ❖ **Now serving PMGSY**





India: FDR of more than 200 Kms NH SH & MDRs in India including work in monsoons

BEFORE



AFTER



**Ghoti Shirdi NH 160A FDR in Aug 2019 during monsoons
14kms x 2 Lanes, wearing course PQC Traffic 70 MSA**



India: FDR of more than 200 Kms NH SH & MDRs in India including work in monsoons

BEFORE



AFTER



**Ahmednagar Bypass FDR in Jan 2020 5 kms x 2 Lanes,
wearing course DBM+BC Traffic 250 MSA**



India: FDR of more than 200 Kms NH SH & MDRs in India including work in monsoons

BEFORE



AFTER



Mumbai Agra National Highway FDR in Oct 2021 5 kms x 2 Lanes, wearing course DBM+BC Traffic 120 MSA



BASE-SEAL

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Thank You NRIDA for adoption of FDR in PMGSY & this Event

**Thank You IRC for
IRC 37 2018 (IRC 37 2012)
IRC SP 89 Part II 2018
IRC SP 72 2015**

Dec 18, 2020 4:34:29 PM
20°8'36"N 74°0'45"E
Unnamed Road
Nashik
Maharashtra
VVASPL BASE-SEAL





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- 1. Soil Stabilisation, FDR, CTB, CTSB: No longer a new technology, its Adoption is New, (IRC 37 2012 ANNEX-XI Properties of Cementitious Bases and Sub-bases), Therefore, should be treated at par with conventional**
- 2. DPR consultant, PMUs, PWD, RED, RRDA,As many readers those many interpretations of IRC codes**
- 3. For PMGSY, request NRIDA, for a 4-page checklist SOP for 4 stages of FDR work for unified understanding & implementation**
 - (a) DPR for FDR**
 - (b) Site preparation for FDR**
 - (b) FDR process**
 - (c) Quality checks**



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(a) DPR / SBD for FDR

- Water bodies Canal / Ponds, Drainage arrangements
- Equipment: Must is Recycler & spreader truck
20 Tons Vibratory compactor for 250mm?
Flexibility in SBD for methodology by Technology provider & Implementer & Pre-bid alliance
- Crack Relief Layer required for PMGSY ?
 - Clause 3.4 IRC SP 89 Part II 2018 says crack relief layer for traffic $\geq 2\text{MSA}$
 - SAMI v/s AIL v/s emulsion stabilised/foam bitumen layer





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(a) DPR / SBD for FDR...continued

- **CTB gradation requirement? : In FDR its in-situ reclaimed material**
- **UCS**
 - **3MPa v/s 4.5 to 7MPa, for less than 2MSA PMGSY roads?**
 - **3MPa v/s 4.5 to 7 MPa, in 7 days or 28 days ?**
 - **Clause 8.2 IRC 37 2018 says 7 days for conventional cement stabilised material**
- **Wearing Course**
 - **BC v/s Two-layered surface dressing aggregate size 13.2mm & 9.5mm ?**
- **Escalation clause for Fuel, Cement, Bitumen**



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(b) Site preparation for FDR

Dismantling of existing crust & spreading by Recycler v/s Poclain & grader



MUST : Compacted shoulders and proper drainage arrangement



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(c) FDR process

- **When 5 years DLP, IRC accredited product, can add 3 years performance in India**
Still required ?
 - **Soil sample witnessing**
 - **Design mix approval**
 - **Trial section, core cutting, core testing before work can start**
(12 months including monsoons time SBD period to complete works)
- **Curing of stabilised base, delay in application of wearing course (2-3 months ?), cracking and wearing off of stabilised base**
- **Need of crack relief layer? its application, SS1/fabric/RS1, Prime coat/Tack coat/fabric, prime coat/fabric/tack coat, sticking of fabric**



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(d) Quality

- Lab v/s field mix
- Daily work's cubes casting & testing by field CTM
- UCS of daily casted cubes

- Density meters
- Core cutting v/s deflectometer
 - LWD v/s FWD



THANK YOU