INSPECTION TEST PLAN

S.No	Name Of Test	Test Code Reference	Test Frequency	Acceptance Criteria	Acceptance Criteria Reference
1) Embankment Materials / Cut Formation					
1	Free Swell Index	IS: 2720, Part 40	As required	$\leq$ 50 %	MoRT&H Clause 305.2.1.2
2	Grain size Analysis	IS: 2720, Part 4	Two Test per 3000 m^3	Not Specified	-
3	Optimum Moisture Content / Maximum Dry Density (Modified Proctor Test)	IS: 2720, Part 8	2 Test per 3000 m^3	i) Embankment upto 3m height, not subjected to Flooding, MDD $\geq$ 15.2 KN/m^3 ii) Embankment exceeding 3m or any height subjected to long periods of inundation, MDD $\geq$ 16.0 KN/m^3	MoRT&H Table 300-1
4	Atterbergs Limit	IS: 2720, Part 5	2 Test per 3000 m^3	LL $\leq$ 50 % & PI $\leq$ 25 %	MoRT&H Clause 305.2.1.1
5	Deleterious Content Test	IS: 2720, Part 27	As required	$\leq$ 0.50 %	MoRT&H Clause 305.2.1.3
6	Moisture Content Test	IS: 2720, Part 2	2 Test per 3000 m^3	+1% & -2% of OMC	MoRT&H Clause 305.3.5.2 & Clause 903.2.1
7	Field Compaction Test (By Sand Replacement Method)	IS: 2720, Part 28	1set of 10 tests per 3000 m^2	For, Normal soil, Compaction $\geq$ 95 % For, Expansive Clay, Compaction 90 - 95 %	MoRT&H Table 300-2
2) Sub Grade/Shoulder Materials					
1	Free Swelling Index	IS: 2720, Part 40	As required	$\leq$ 50 %	MoRT&H Clause 305.2.1.2
2	Grain size Analysis	IS: 2720, Part 4	2 Test per 3000 m^3	Not Specified	-
3	Optimum Moisture Content / Maximum Dry Density (Modified Proctor Test)	IS: 2720, Part 8	2 Test per 3000 m^3	$\geq$17.5 KN/m3	MoRT&H Table 300-1
4	Atterbergs Limit	IS: 2720, Part 5	2 Test per 3000 m^3	LL $\leq$ 50 % & PI $\leq$ 25	MoRT&H Clause 305.2.1.1

5	CBR	IS: 2720, Part 16	1 Test per 3000 m^3	As per Pavement Design	-
6	Deleterious Content Test	IS: 2720, Part 27	As required	$\leq$ 0.50 %	MoRT&H Clause 305.2.1.3
7	Moisture Content Test	IS: 2720, Part 2	2 Test per 3000 m^3	+1% & -2% of OMC	MoRT&H Clause 305.3.5.2
8	Field Compaction Test (By Sand Replacement Method)	IS: 2720, Part 28	1set of 10 tests per 2000 m^2	$\geq$ 97 %	MoRT&H Table 300-2
3) Granular Sub Base (GSB) Materials					
1	Gradation	IS: 2386, Part 1	1 Test per 400 m^3	Depend on Grading Type	MoRT&H Table 401
2	Optimum Moisture Content / Maximum Dry Density (Modified Proctor Test)	IS: 2720, Part 8	As Required	Not Specified	-
3	Atterbergs Limit	IS: 2720, Part 5	1 Test per 400 m^3	LL $\leq$ 25 % & PI $\leq$ 6 %	MoRT&H Table 402
4	CBR	IS: 2720, Part 16	As Required	$\geq$ 30 %	MoRT&H Table 400-2
5	Deleterious Constituents	IS: 2720, Part 27	As Required	Not Specified	-
6	Water Absorption	IS: 2386, Part 3	As Required	Water Absorption $\leq$ 2 % If Water Absorption of Aggregate is greater than 2 %, then the Aggregates shall be tested for Wet AIV (IS:5640)	MoRT&H Clause 401.2.2
7	Aggregate Impact Value	IS: 2386, Part 4	As Required	$\leq$ 40 %	MoRT&H Table 400-2
8	Wet Aggregate Impact Value	IS: 5640	As Required	$\leq$ 40 %	MoRT&H Table 400-2
9	Moisture content prior to compaction	IS: 2720, Part 2	1 Test per 400 m^3	Not Specified	-
10	Field Compaction Test (By Sand Replacement Method)	IS: 2720, Part 28	1 Test per 1000 m^2	$\geq$ 98 %	MoRT&H Clause 401.3.2
4) Wet Mix Macadam					
1	Gradation of Aggregate (Combined)	MoRT&H Table 400-13	1 Test per 200 m^3	MoRT&H Table 400-13	MoRT&H Table 400-13

2	Optimum Moisture Content / Maximum Dry Density (Modified Proctor Test)	IS: 2720, Part 8	As Required	Not Specified	-
3	Atterbergs Limit	IS: 2720, Part 5	1 Test per 200 m^3	PI < 6 %	MoRT&H Clause 406.2.1.2
4	Aggregate Impact Value	IS: 2386, Part 4	1 Test per 1000 m^3	$\leq$ 30 %	MoRT&H Table 400-12
5	Wet Aggregate Impact Value	IS: 5640	1 Test per 1000 m^3	$\leq$ 30 %	MoRT&H Table 400-12
6	Water Absorption	IS 2386 Part 1	As required	Not Specified	-
7	Flakiness & Elongation Index	IS: 2386, Part 1	1 Test per 500 m^3	$\leq$ 35 %	MoRT&H Table 400-12
8	Field Compaction Test (By Sand Replacement Method)	IS: 2720, Part 28	1 Set of 3 Tests per 1000 m^2	$\geq$ 98 %	MoRT&H Clause 406.3.5
5) Prime Coat					
1	Rate of spread of Binder	MoRT&H Table 500-3	3 Test per day	0.7-1.0 Kg/m2	MoRT&H Table 500-3
6) Tack Coat					
1	Rate of spread of Binder	MoRT&H Table 500-5	3 Test per day	1) 0.20-0.30 Kg/m2 per Bituminous surfaces 2) 0.25-0.30 Kg/m2 per Granular surface treated with primer 3) 0.30-0.35 Kg/m2 Cement concrete pavement	MoRT&H Table 500-5
2	Binder Temperature for application	MoRT&H Clause 503.4.3	At close Interval	20-70^{0}C	MoRT&H Clause 503.4.3
7) Emulsion					
1	Residue on 600 micron IS Sieve	IS: 8887	1 Test per lot	As per type of Emulsion	IS: 8887 Table 1
2	Viscosity	IS: 3117	1 Test per lot	As per type of Emulsion	IS: 8887 Table 1
3	Storage Stability	IS: 8887	1 Test per lot	As per type of Emulsion	IS: 8887 Table 1

4	Stability to mixing with Cement	IS: 8887	1 Test per lot	As per type of Emulsion	IS: 8887 Table 1
5	Test on Residue	-	-		
5.i	Residue by Evaporation	IS: 8887	1 Test per Source	As per type of Emulsion	IS: 8887 Table 1
5.ii	Penetration test @ 25^0C.	IS: 1203	1 Test per Source	As per type of Emulsion	IS: 8887 Table 1
5.iii	Ductility @ 25^0 C.	IS: 1208	1 Test per Source	As per type of Emulsion	IS: 8887 Table 1
5.iv	Solubility in Trychloroethelene	IS: 1216	1 Test per Source	As per type of Emulsion	IS: 8887 Table 1
6	Distillation Test	IS: 1213	1 Test per Source	As per type of Emulsion	IS: 8887 Table 1
8) Bitumen Viscosity Grade					
1	Penetration test @ 25^0 C.	IS: 1203	1 Test per lot	As per Grade of Bitumen	IS: 73 Table 1
2	Absolute Viscosity test @ 60^0C.	IS: 1206, Part 2	1 Test per lot	As per Grade of Bitumen	IS: 73 Table 1
3	Kinematic Viscosity test @ 135^0C.	IS: 1206, Part 3	1 Test per lot	As per Grade of Bitumen	IS: 73 Table 1
4	Softening point test	IS: 1205	1 Test per lot	As per Grade of Bitumen	IS: 73 Table 1
5	Flash Point	IS: 1209	1 Test per lot	As per Grade of Bitumen	IS: 73 Table 1
6	Specific Gravity	IS: 1202	1 Test per lot	As per Grade of Bitumen	IS: 73 Table 1
7) Test on Residue from TFOT					
7.i	Viscosity ratio @ 60^0C.	IS: 1206, Part 2	1 Test per Source	As per Grade of Bitumen	IS: 73 Table 1
7.ii	Ductility @ 25^0C. after TFOT	IS: 1208	1 Test per Source	As per Grade of Bitumen	IS: 73 Table 1
8	Solubility in Trychloroethelene	IS: 1216	1 Test per Source	As per Grade of Bitumen	IS: 73 Table 1

9) Dense Bituminous Macadam (DBM)					
1	Gradation of Aggregate (Individual & Combained)		1 Set per 400 MT subject to Min 2 Test per Day	MoRT&H Table 500-10	-
2	Quality of Binder	IS 73, IRC SP 53 , IS 15462	As per IS 73	-	-
3	Aggregate Impact Value	IS 2386 Part 4	1 Test per 350 m^3	$\leq$ 27%	MoRT&H Table 500-8
4	Los Angeles Abrasion Test	IS 2386 Part 4	1 Test per 350 m^3	LAA $\leq$ 35 % Optional test of AIV.	MoRT&H Table 500-8
5	Combined Flakiness & Elongation	IS 2386 Part 1	1 Test per 350 m^3	$\leq$ 35%	MoRT&H Table 500-8
6	Stripping Value of Aggregates	IS 6241	1 Test per Source	$\geq$ 95%	MoRT&H Table 500-8
7	Soundness of aggregates	IS 2386 Part 5	1 Test per Source	Loss of Weight after 5 cycles tested with : (i) Sodium Sulphate $\leq$ 12% (ii) Magnesium Sulphate $\leq$ 18%	MoRT&H Table 500-8
8	Water Absorption	Is 2386 Part 3	1 Test per Source	$\leq$ 2%	MoRT&H Table 500-8
9	Sand Equivalent Test	IS 2720 Part 37	1 Test per Source	$\geq$ 50%	MoRT&H Clause 505.2.3
10	Plasticity Index	Is 2720 Part 5	1 Test per Source	$\geq$ 4%	MoRT&H Clause 505.2.3
11	Polished Stone Value	BS 812 - 114	1 Test per Source	$\geq$ 55%	MoRT&H Table 500-16

12	Marshall Stability	MS - 2	3 Marshall moulds for each 400 tonnes of mix subject to minimum of two Tests per day per plant	9.00 KN Min	MoRT&H Table 500-11
13	Marshall Flow			2-4 mm	
14	Marshall Density			2.40 g/cc As per Pavement Design	
15	% Air Voids			3 - 5 %	
16	% Voids Filled with Bitumen (VFB)			65 - 80 % (IRC 37)	
17	% Voids in Mineral Aggregat (VMA)			12 % Min	MoRT&H Table 500-12
18	Maximum Specific Gravity (Gmm)	ASTM D 2041	1 Test per Day	Not Specified	-
19	Water Sensitivity of mix (Retained Tensile Strength)	AASHTO T283	1 Test per Source	$\geq$ 80%	MoRT&H Table 500-8
20	Percentage of Fractured Face		1 Test for 350 m^3		MoRT&H Table 900-4
21	Temperature of binder in boiler, aggregate in dryer and mix at the time of laying and compaction.		At regular intervals		
22	Binder Content	ASTM D 2172	1 Set per 400 MT subject to Min 2 Test per Day	4.75 % As per Pavement Design, + or - 0.3%	MoRT&H Table 500-13
23	Rate of spread of Mixed Material		After every 5th truck load	Not Specified	MoRT&H Table 900-4
24	Density of Compacted Layer by Core Cutting		1 Test per 700 m^2	$\geq$ 92% of Theo. Gmm	MoRT&H Clause 505.3.5
10) Bituminous Concrete (BC)					
1	Gradation of Aggregate (Individual & Combained)		1 Set per 400 MT subject to Min 2 Test per Day	MoRT&H Table 500-10	-
2	Quality of Binder	IS 73, IRC SP 53 , IS 15462	As per IS 73	-	-
3	Aggregate Impact Value	IS 2386 Part 4	1 Test per 350 m^3	$\leq$ 24%	MoRT&H Table 500-16

4	Los Angeles Abrasion Test	IS 2386 Part 4	1 Test per 350 m^3	LAA $\leq$ 30 % Optional test of AIV.	MoRT&H Table 500-16
5	Combined Flakiness & Elongation	IS 2386 Part 1	1 Test per 350 m^3	$\leq$ 35%	MoRT&H Table 500-16
6	Stripping Value of Aggregates	IS 6241	1 Test per Source	$\geq$ 95%	MoRT&H Table 500-16
7	Soundness of aggregates	IS 2386 Part 5	1 Test per Source	Loss of Weight after 5 cycles tested with : (i) Sodium Sulphate $\leq$ 12% (ii) Magnesium Sulphate $\leq$ 18%	MoRT&H Table 500-16
8	Water Absorption	Is 2386 Part 3	1 Test per Source	$\leq$ 2%	MoRT&H Table 500-16
9	Sand Equivalent Test	IS 2720 Part 37	1 Test per Source	$\geq$ 50%	MoRT&H Clause 505.2.3
10	Plasticity Index	Is 2720 Part 5	1 Test per Source	$\geq$ 4%	MoRT&H Clause 505.2.3
11	Polished Stone Value	BS 812 - 114	1 Test per Source	$\geq$ 55%	MoRT&H Table 500-16
12	Marshall Stability	MS - 2	3 Marshall moulds for each 400 tonnes of mix subject to minimum of two Tests per day per plant	9.00 KN Min	MoRT&H Table 500-11
13	Marshall Flow			2-4 mm	
14	Marshall Density			Not Specified	
15	% Air Voids			3 - 5 %	
16	% Voids Filled with Bitumen (VFB)			65 - 75%	
17	% Voids in Mineral Aggregat (VMA)			12 % Min	MoRT&H Table 500-12
18	Maximum Specific Gravity (Gmm)	ASTM D 2041	1 Test per Day	Not Specified	-

19	Water Sensitivity of mix (Retained Tensile Strength)	AASHTO T283	1 Test per Source	$\geq$ 80%	MoRT&H Table 500-16
20	Percentage of Fractured Face		1 Test for 350 m^3		MoRT&H Table 900-4
21	Temperature of binder in boiler, aggregate in dryer and mix at the time of laying and compaction.		At regular intervals		
22	Binder Content	ASTM D 2172	1 Set per 400 MT subject to Min 2 Test per Day	As per grade	MoRT&H Table 500-17
23	Rate of spread of Mixed Material		After every 5th truck load	Not Specified	MoRT&H Table 900-4
24	Density of Compacted Layer by Core Cutting		1 Test per 700 m^2	$\geq$ 92% of Theo. Gmm	MoRT&H Clause 507.3.5
11) Dry Lean Concrete (DLC)					
1	Gradation of Aggregate (Individual)		1 Test per Day	Not Specified	-
	Gradation of Aggregate (Combined)		1 Test per Day	As per MoRT&H Table 600-1	MoRT&H Table 600-1
2	Water Absorption	IS 2386 Part 3	Min 1 Test per Day	< 2%	MoRT&H Table 900-6
3	Los Angeles Abrasion Test	IS 2389 Part 4	Min 1 Test per Day	< 50%	IS 383
4	Soundness of Coarse aggregates	IS 2386 Part 5	1 Test per Source	Loss of Weight after 5 cycles tested with : (i) Sodium Sulphate $\leq$ 12% (ii) Magnesium Sulphate $\leq$ 18%	
5	Deleterious constituents	IS 2386 Part 2	1 Test per Day/ relaxed later discretion of the Engineer		
6	Soundness of Fine aggregates	IS 2386 Part 5	1 Test per Source	Loss of Weight after 5 cycles tested with : (i) Sodium Sulphate $\leq$ 10% (ii) Magnesium Sulphate $\leq$ 15%	

7	Alkali Aggregate reactivity	IS 2386 Part 7, IS 456	1 Test per Month		
8	Water Chemical Tests	IS 2386	1 Test for Source		
9	Cement Physical and Chemical Tests	IS 269, IS 456, IS 1489, IS 8112, IS 12269	1 Test per each source	Not Specified	MoRT&H Table 900-6
10	Strength of concrete		3 Samples per 1000sqm	$\geq$ 10 Mpa @ 7 Days	MoRT&H Clause 601.3.4
11	Workability of Fresh Concrete (slump Test)	IS 1199	I Test per dumper load at both Batching plant and Paving site		
12	Thickness Measurement for trail length	Core sampling	3 cores per trail length		
13	Field Compaction Test (By Sand Replacement Method)	IS 2720 Part 28	3 density holes per 1000m^2	$\geq$ 98%	MoRT&H Clause 601.6.5
12) Pavement Quality Concrete (PQC)					
1	Gradation of Coarse Aggregate (Individual)		1 Test per Day	Depend on Grading Type	MoRT&H Table 600-3
	Gradation of Aggregate (Combined)		1 Test per Day	Depend on Grading Type	MoRT&H Table 600-3
2	Deleterious Materials	Is 2386 Part 2	1 Test per Source	As per MoRT&H Table 600-2	MoRT&H Table 600-2
3	Water Absorption	IS 2386 Part 3	1 Test per Source	$\leq$ 2%	MoRT&H Clause 602.2.6.2
4	Moisture Content Test		1 Test per Day	-	-
5	Los Angeles Abrasion Test	IS 2386 Part 4	1 Test per Source	$\leq$ 35%	MoRT&H Clause 602.2.6.2
6	Combined Flakiness & Elongation	IS 2386 Part 1	1 Test per Week	$\leq$ 35%	MoRT&H Clause 602.2.6.2
7	Sand Equivalent Test	IS 2720 Part 37	1 Test per Source	$\geq$ 50%	MoRT&H Clause 602.2.6.3

8	Soundness of aggregates	Is 2386 Part 5	1 Test per Source	Loss of Weight after 5 cycles tested with : (i) Sodium Sulphate $\leq$ 12% (ii) Magnesium Sulphate $\leq$ 18%	MoRT&H Clause 602.2.6.2
9	Alkali Aggregate reactivity	IS 2386 Part 7, IS 456	1 Test per Month		
10	Cement Physical and Chemical Tests	IS 269, IS 456, IS 1489, IS 8112, IS 12269	1 Test per each source	Not Specified	MoRT&H Table 900-6
11	Water Chemical Tests	IS 2386	1 Test for Source		
12	Soundness of Fine aggregates	IS 2386 Part 5	1 Test per Source	Loss of Weight after 5 cycles tested with : (i) Sodium Sulphate $\leq$ 10% (ii) Magnesium Sulphate $\leq$ 15%	
13	Compressive Strength of Concrete	IS 516	2 cubes and 2 beams per 150 cu.m or part of or mínimum 6 cubes an 6 beams (3 for 7days & 3 for 28 days)	As per Design Requirement	Design
14	Flexural Strength			As per Design Requirement	Design
15	Core Strength	IS 516	As Required	$\geq$ 85% of characteristic strength	MoRT&H Clause 602.11.5.4
16	Workabilty of Concrete	IS 1199	One test for each load at both Batching plant site and paving site	25 $\pm$ 15 mm	MoRT&H Clause 602.3.4.2
17	Texture Depth	Sand Patch Method	10 Tests shall be 75m per Lane		MoRT&H Clause 602.12.4.2
13) Aggregates for Cement Concrete Works					
1	Gradation of Coarse Aggregate (Individual)		1 Test per Day	Depend on Grading Type	IS: 383
2	Gradation of Fine Aggregate (Individual)		1 Test per Day	Depend on Grading Type	IS: 383

3	Gradation of Aggregate (Combined)		1 Test per Day	Depend on Grading Type	IS: 383
4	Flakiness & Elongation Index	IS 2386 Part 1	1 Test per Week	$\leq$ 40%	IS: 383
5	Deleterious Constituents	IS 2386 Part 2	1 Test per Source	2%	IS: 383 table 2
6	Moisture Content Test		1 Test per Day	-	-
7	Specify Gravity & Water absorption	IS 2386 Part 3	1 Test per Source	Not Specified	-
8	Aggregate Impact Value	IS 2386 Part 4	1 Test per Week	$\leq$ 45%	IS: 383
9	Los Angeles Abrasion Test	IS 2386 Part 4	1 Test per Source	$\leq$ 50%	IS: 383
10	Aggregate Crushing Value	IS 2386 Part 4	1 Test per Source	$\leq$ 30%	IS: 383
11	Soundness of Coarse aggregates	IS 2386 Part 5	1 Test per Source	Loss of Weight after 5 cycles tested with : (i) Sodium Sulphate $\leq$ 12% (ii) Magnesium Sulphate $\leq$ 18%	IS: 383
12	Soundness of Fine aggregates	IS 2386 Part 5	1 Test per Source	Loss of Weight after 5 cycles tested with : (i) Sodium Sulphate $\leq$ 12% (ii) Magnesium Sulphate $\leq$ 18%	IS: 383
13	Alkali Aggregate Reactivity (CA & FA)	2386 Part 7	1 Test per Source	-	-
14	Clay lumps	IS 2386 Part 2	1 Test per Source	<1%	IS 383 Table 2
15	Material Finer than 75 micron	IS 2386 Part 1	1 Test per Source	<10% Fine Aggregate <1% Coarse Aggregate	IS 383 Table 2

16	Coal and lignite	IS 2386 Part 2	1 Test per Source	<1%	IS 383 Table 2
17	Soft fragments	IS 2386 Part 2	1 Test per Source	<3	IS 383 Table 2
18	Sahale	IS 2386 Part 2	1 Test per Source	<1%	IS 383 Table 2
19	Petrography Examination	IS 2386 Part 1 & Part 8	1 Test per Source		IS 383
14) Cement					
1	Fineness by Dry Sieving	IS 269 2015	1 Test per Consignment	Depend on Cement Type/Grade	IS:12269, IS:8112, IS: 269, IS: 455
2	Consistency test	IS 269 2015	1 Test per Consignment		IS:12269, IS:8112, IS: 269, IS: 455
3	Initial and Final Setting Time	IS 269 2015	1 Test per Consignment		IS:12269, IS:8112, IS: 269, IS: 455
4	Soundness	IS 269 2015	1 Test per Source		IS:12269, IS:8112, IS: 269, IS: 455
5	Compressive Strength	IS 269 2015	1 Test per Consignment		IS:12269, IS:8112, IS: 269, IS: 455
6	Fineness by Blaine Air Permeability Method	IS 269 2015	1 Test per Source		IS:12269, IS:8112, IS: 269, IS: 455
7	Chemical Test	IS 269 2015	1 Test per Source		IS:12269, IS:8112, IS: 269, IS: 455
15) Cement Concrete Works					
1	Compressive Strength of Concrete for Each grade	IS 516	1 to 5 m3 - 1 sample, 6 to15 m3 -2 samples, 16 to30 m3 - 3 samples, 31 to 50 cum - 4 samples, 51 cum and above - 4 +1 samples per additional 50 cum or part thereof.	Minimum Characteristic Strength	MoRT&H Table 1700-9

2	Dry Loose Bulk Density		1 Test per Source	-	-
3	Workabilty of Concrete	IS 1199	One test for each load at both Batching plant site and pouring site	As per Design/Site Requirement	-
16) Cement Concrete Chemical Admixture					
1	Physical Requirements		1 Test per Source	As per IS: 9103 Table 1A	IS: 9103 Table 1A
2	Chloride Content	IS 6925	As Required	$\leq$ 0.20 %	MoRT&H Clause 1012.3.2
3	Dry Material Content	IS 9103 Annex- E	As Required	with in 3% of liquid, 5% of of solid	MoRT&H Clause 1012.3.2
4	Ash content	IS 9103 Annex- E	As Required	Within 1% of the value stated by the manufacturer	MoRT&H Clause 1012.3.2
5	Relative Density (for liquid admixtures)	IS 9103	As Required	Within 2% of the value stated by the manufacturer	MoRT&H Clause 1012.3.2
6	pH	IS 9103	As Required	7-8	MoRT&H Clause 1012.3.2
17) Reinforcement/Untensioned Steel					
1	Carbon	IS 1786 2008	1 test per Lot for each Dia.	Depend on Steel grade	IS : 432 / IS: 1786
2	Sulphur	IS 1786 2008	1 test per Lot for each Dia.	Depend on Steel grade	IS : 432 / IS: 1786
3	Phosphorus	IS 1786 2008	1 test per Lot for each Dia.	Depend on Steel grade	IS : 432 / IS: 1786
4	Sulphur and phosphorus	IS 1786 2008	1 test per Lot for each Dia.	Depend on Steel grade	IS : 432 / IS: 1786
5	0.2 percent proof stress/ yield stress	IS 1786 2008	1 test per Lot for each Dia.	Depend on Steel grade	IS : 432 / IS: 1786
6	Elongation	IS 1786 2008	1 test per Lot for each Dia.	Depend on Steel grade	IS : 432 / IS: 1786
7	Tensile Strength	IS 1786 2008	1 test per Lot for each Dia.	Depend on Steel grade	IS : 432 / IS: 1786

8	TS/YS ratio	IS 1786 2008	1 test per Lot for each Dia.	Depend on Steel grade	IS : 432 / IS: 1786
9	Bend Test	IS 1786 2008	1 test per Lot for each Dia.	Depend on Steel grade	IS : 432 / IS: 1786
10	Re - Bend Test	IS 1786 2008	1 test per Lot for each Dia.	Depend on Steel grade	IS : 432 / IS: 1786
18) Water					
1	Neutralize 100 ml sample of water, using phenolphthalein as an indicator	IS 3025 Part 22	1 Test per Source	$\leq$ 5 ml of 0.02 normal NaOH	MoRT&H Clause 1010
2	Neutralize 100 ml sample of water, using mixed indicator	IS 3025 Part 23	1 Test per Source	$\leq$ 25 ml of 0.02 normal H_2SO_4	MoRT&H Clause 1010
3	Organic	IS 3025 Part 18	1 Test per Source	200 mg/lit	MoRT&H Clause 1010
4	Inorganic	IS 3025 Part 18	1 Test per Source	3000 mg/lit	MoRT&H Clause 1010
5	Sulphates (SO)	IS 3025 Part 28	1 Test per Source	400 mg/lit	MoRT&H Clause 1010
6	Chlorides (Cl)	IS 3025 Part 35	1 Test per Source	2000 mg/lit for concrete work not containing embedded steel and 500 mg/lit for prestressed/reinforced concrete work	MoRT&H Clause 1010
7	Suspended matter	IS 3025 Part 17	1 Test per Source	2000 mg/lit	MoRT&H Clause 1010
19) Steel for Post/ Pre Tensioning					
1	Stress relieved low relaxation seven ply strand for prestressed concrete	IS 14268	1 Test per lot of 10 Tonnes		IS 14268
2	Cold rolled Cold AnneaedSheathing	IS 513	1 Test per lot pf 10 Tonnes		IS 513
3	Nominal & Cross Section, Tensile strength and elongations	IS 1786 2008	1 Test per lot pf 10 Tonnes		IS 1786 2008
4	Structiural Steel	Is 2062	1 Test per lot pf 10 Tonnes		Is 2062
20) Hume Pipe					
1	Reinforcement	IS: 458	IS: 458, Table 22	Depend upon Dia. Of Pipes	IS: 458

2	Three Edge Bearing Test	IS: 458	IS: 458, Table 22	Depend upon Dia. Of Pipes	IS: 458
3	Dimension				
3.i	Diameter	IS: 458	IS: 458, Table 22	Depend upon Dia. Of Pipes	IS: 458
3.ii	Barrel Wall Thickness	IS: 458	IS: 458, Table 22	Depend upon Dia. Of Pipes	IS: 458
3.iii	Length	IS: 458	IS: 458, Table 22	$\pm$ 1 % of Standard Length	IS: 458
4	Hydrostatic Pressure	IS: 458	IS: 458, Table 22	Depend upon Dia. Of Pipes	IS: 458
21) Mineral Admixture (GGBFS)					
1	Manganese Oxide (Mno)%	IS 16714 2018	As required	<5.5 %	IS 16714
2	Magnesium Oxide (Mgo)%	IS 16714 2018	As required	<17%	IS 16714
3	Sulphate SO3)%	IS 16714 2018	As required	<3%	IS 16714
4	Sulphide Sulphur (S)%	IS 16714 2018	As required	<2%	IS 16714
5	Insoluble Residue (IR)%	IS 16714 2018	As required	<3%	IS 16714
6	Chioride Content(CI)%	IS 16714 2018	As required	<0.1%	IS 16714
7	Glass Content %	IS 16714 2018	As required	>85%	IS 16714
8	Loss On Ignition(LOI) %	IS 16714 2018	As required	<3%	IS 16714
9	Moistur Content%	IS 16714 2018	As required	<1%	IS 16714
10	Fineness M^2/Kg	IS 16714 2018	1 Test per Lot	>320	IS 16714
11	Specific gravity	IS 16714 2018	As required	Not Specified	IS 16714

12	Slag Activity Index	IS 16714 2018	1 Test per week	> 60% 7 Days >75% 28 Days	IS 16714
22) Reinforced Earth for RE Wall					
1	Shear Parameters (Drain condition)	IS 2720 Part 13 & 39	As required	Internal Friction Angle Ø > 30	IRC SP 102,MoRT&H Clause 3104
2	Sieve Analysis	IRC SP 102	2 Test per 3000 m3	75 mm - 100% 425 micron - 0 - 60% 75 micron - < 15 %	MoRT&H Clause 3104
3	Density Test (Modified Proctor Test)	IS 2720 Part 8	2 Test per 3000 m3	Not Specified	-
4	Atterbergs Limit	IS 2720 Part 5	2 Test per 3000 m3	PI $\leq$ 6 %	MoRT&H Clause 3104
5	Field Compaction Test (By Sand Replacement Method)	IS 2720 Part 28	1set of 10 tests per 3000 m2	$\geq$ 97 %	MoRT&H Clause 3106.5
6	Deleterious Constituents	IS 23860Part 2	As Required	Not Specified	MoRT&H Clause 3104
23) Back Fill material & Filter Media around structure					
1	Atterbergs Limit	IS 2720 Part 5	As Required	LL $\leq$ 40 % & PI $\leq$ 20 %	MoRT&H Clause 305.4.4
2	Shear Parameters	IS 2720 Part 13 & 39	As required	Not Specified	-

3	Filter Media		As required	D15 (Filter) < 5 D85 (Base) 4< D15 (Filter) < 20 D15 (Base) D50 (Filter) < 25 D50 (Base)	MoRT&H Clause 2504.2
4	Density Test (Modified Proctor Test)	IS 2720 Part 8	2 Test per 3000 m3	Not Specified	-
5	Field Compaction Test (By Sand Replacement Method)	IS 2720 Part 28	1set of 10 tests per 3000 m2	≥ 95 %	MoRT&H Table 300-2
7	Deleterious Constituents	IS 23860Part 2	As Required	Not Specified	-
24) Flyash / Pondash as Embankment & Reinforced Earth					
1	Specific gravity			1.90 - 2.55	IRC: SP: 58 - 2001, Table 1
2	Plasticity	IS 2720 Part 5	As Required	Non Plastic	IRC: SP: 58 - 2001, Table 1
3	Density Test (Modified Proctor Test)	IS 2720 Part 8	As Required	0.9 - 1.6 gm/cc	IRC: SP: 58 - 2001, Table 1
4	Optimum Moisture Content	IS 2720 Part 8	As Required	18 - 38 %	IRC: SP: 58 - 2001, Table 1
5	Cohesion	IS 2720 Part 13 & 39	As Required	Negligible	IRC: SP: 58 - 2001, Table 1
6	Angle of Internal Friction	IS 2720 Part 13 & 39	As Required	30^0 - 40^0	IRC: SP: 58 - 2001, Table 1
7	Co-efficient of Consolidation Cv	IS 1498	As Required	$1.75x10^{-5}$ - 2.01 x 10^{-3} (cm^2/sec)	IRC: SP: 58 - 2001, Table 1
8	Compression Index Cc	IS 1498	As Required	0.05-0.4	IRC: SP: 58 - 2001, Table 1

9	Permeability		As Required	$8x10^{-6}$ - 7 x 10^{-4} (cm/sec)	IRC: SP: 58 - 2001, Table 1
10	Particle Size Distribution	IS 2720 Part 4	As Required	Clay 1-10 % Silt 8-85 % Sand 7-90% Gravel 0-10%	IRC: SP: 58 - 2001, Table 1
11	Coefficient of Uniformity	IS 1498	As Required	3.1-10.7	IRC: SP: 58 - 2001, Table 1
12	Moisture Content Test		2 Test per 3000 m3	±2% of OMC	IRC: SP: 58 - 2001, Table 1
13	Soluble sulphate		As required	< 1.9 gm/lit	IRC: SP: 58 - 2001, Table 1
14	Compaction of Original Ground	IS 2720 Part 8	1set of 10 tests per 3000 m2	≥97 %	IRC: SP: 58 - 2001, Table 1
15	Compaction of flyash	IS 2720 Part 8	1set of 10 tests per 3000 m2	≥ 95 % for Embankment ≥ 97 % for Reinforced Earth	IRC: SP: 58 - 2001, Table 2 MoRT&H Clause 3106.5
25) RE Wall Accessories					
A) Carbon Steel Reinforcing Strips(40*5mm)					
1	Chemical Compositions	BSEN 10025, ISO 1459, ISO 1460,BS 729	5 Tests per lot of 20 MT		BSEN 10025, ISO 1459, ISO 1460,BS 729
2	Tensile Strength		5 Tests per lot of 20 MT		BSEN 10025, ISO 1459, ISO 1460,BS 729
3	Yield Strength		5 Tests per lot of 20 MT		BSEN 10025, ISO 1459, ISO 1460,BS 729
4	Elongation		5 Tests per lot of 20 MT		BSEN 10025, ISO 1459, ISO 1460,BS 729
5	Galvanization		5 Tests per lot of 20 MT		BSEN 10025, ISO 1459, ISO 1460,BS 729

B) Steel Lugs					
1	Chemical Compositions	BSEN 10025, ISO 1459, ISO 1460,BS 729	5 Tests per lot of 10 MT		BSEN 10025, ISO 1459, ISO 1460,BS 729
2	Tensile Strength		5 Tests per lot of 10 MT		BSEN 10025, ISO 1459, ISO 1460,BS 729
3	Yield Strength		5 Tests per lot of 10 MT		BSEN 10025, ISO 1459, ISO 1460,BS 729
4	Elongation		5 Tests per lot of 10 MT		BSEN 10025, ISO 1459, ISO 1460,BS 729
5	Galvanization		5 Tests per lot of 1000 Nos		BSEN 10025, ISO 1459, ISO 1460,BS 729
C) Lifting Anchors					
1	Mechanical Properties	BS 3692, BS 729	5 Tests per lot of 1000 Nos		BS 3692, BS 729
D) Nuts & Bolts					
1	Chemical Analysis	BS 3692, BS 729	5 Tests per lot of 1000 Nos		BS 3692, BS 729
2	Mechanical Properties	BS 3692, BS 729	5 Tests per lot of 1000 Nos		BS 3692, BS 729
3	Galvanization	BS 3692, BS 729	5 Tests per lot of 1000 Nos		BS 3692, BS 729
E) EPDM Rubber Work / Tests					
1	Short Hardness A Tests	Reinforced Earth Specifications	5 Tests per lot of 1000 Nos		Reinforced Earth Specifications
F) Foam					
1	Density	Reinforced Earth Specifications	1 Test per Lot (Lot of 2000 m^2)		Reinforced Earth Specifications
G) Geotextile					
1	Mechanical Properties	Reinforced Earth Specifications	1 Test per Lot (Lot of 2000 m^2)		Reinforced Earth Specifications

26) Curing Compound					
1	Curing Compound Type 2 white Pigmented compound	ASTM C 309	1 Test per Lot	0.2 Litres/m^2	BS 7542, ASTM C 309, ASTM D-883
2	Drying Time	ASTM C 309	Random sampling every batch of the compound	MTC	ASTM C 309
3	Water Retenion	ASTM C 156	Random sampling every batch of the compound		ASTM C 156
4	Light Reflectance	ASTM E 79	Random sampling every batch of the compound		ASTM E 79
27) Bentonite					
1	Density		1 Test per Lot	1.05 g/cc	MoRT&H Clause 1115.2.3
2	Marsh cone Viscosity		1 Test per Lot	30-40	MoRT&H Clause 1115.2.3
3	pH Value	IS 3025	1 Test per Lot	9.5-12	MoRT&H Clause 1115.2.3
4	Silt Content	IS 2720 Part 4	1 Test per Lot	<1%	MoRT&H Clause 1115.2.3
5	Liquid Limit	IS 2720 Part 5	1 Test per Lot	<400 %	MoRT&H Clause 1115.2.3
28) Pot cum PTFE Bearing					
A) POT					
1	Structural Steel	IS 226/ IS 2062	2 Tests per lot/ Change of Source		AISI 304/AISI316 L
2	Cast Steel	IS 1030	2 Tests per lot/ Change of Source		IS 1030
3	Stainless Steel	AISI 304/AISI316 L	2 Tests per lot/ Change of Source		AISI 304/AISI316 L
B)	**PTFE**	**BS 3784**	2 Tests per lot/ Change of Source		**BS 3784**
C) Elastpmer					

1	Hardness	IS 3400 Part 2	2 Tests per lot/ Change of Source		IS 3400 Part 2
2	Minimum tensile strength	IS 3400 Part 1	2 Tests per lot/ Change of Source		IS 3400 Part 1
3	Minimum elongation break	IS 3400 Part 1	2 Tests per lot/ Change of Source		IS 3400 Part 1
29) Elastomeric Bearings					
1	Steel Insert	IS 226/ IS 2062	2 Tests per lot/ Change of Source		IS 226/ IS 2062
2	Raw Elastomer Content	MoRT&H Table 2000-1	2 Tests per lot/ Change of Source		MoRT&H Table 2000-1
3	Ash content	ASTM D 297	2 Tests per lot/ Change of Source		ASTM D 297
4	Adhesion Strength	IS 3400 Part 14	2 Tests per lot/ Change of Source		IS 3400 Part 14
5	Specific Gravity	ASTM D 297	2 Tests per lot/ Change of Source		ASTM D 297
6	Polymer content test	ASTM D 297	2 Tests per lot/ Change of Source		ASTM D 297
7	Identification of Polymer	ASTM D297	2 Tests per lot/ Change of Source		ASTM D297