

LIST OF STRUCTURAL DRAWINGS

STRUCTURAL DRAWING				
SL. No.	DRAWING TITLE	DETAILS OF DRAWING	Rev No.	NO OF SHEETS
1	GENERAL ARRANGEMENT DRAWINGS OF MINOR BRIDGE AT Km. Ch. 83+520.00	VSPL/1718-081/DPR/PKG-2/MNB-01	R0	02
2	GENERAL ARRANGEMENT DRAWINGS OF MINOR BRIDGE AT Km. Ch. 88+760.00	VSPL/1718-081/DPR/PKG-2/MNB-02	R0	02
3	GENERAL ARRANGEMENT DRAWINGS OF MINOR BRIDGE AT Km. Ch. 89+620.00	VSPL/1718-081/DPR/PKG-2/MNB-03	R0	02
4	GENERAL ARRANGEMENT DRAWINGS OF MINOR BRIDGE AT Km. Ch. 91+146.00	VSPL/1718-081/DPR/PKG-2/MNB-04	R0	02
5	GENERAL ARRANGEMENT DRAWINGS OF MINOR BRIDGE AT Km. Ch. 92+090.00	VSPL/1718-081/DPR/PKG-2/MNB-05	R0	02
6	GENERAL ARRANGEMENT DRAWINGS OF MINOR BRIDGE AT Km. Ch. 92+317.00	VSPL/1718-081/DPR/PKG-2/MNB-06	R0	02
7	GENERAL ARRANGEMENT DRAWINGS OF VEHICULAR UNDERPASS AT Km. Ch. 85+160.00	VSPL/1718-081/DPR/PKG-2/VUP-01	R0	02
8	TYPICAL GENERAL ARRANGEMENT DRAWING OF SINGLE CELL PIPE CULVERT	VSPL/1718-081/DPR/PKG-2/PC	R0	01
9	SCHEDULE OF PIPE CULVERTS	VSPL/1718-081/DPR/PKG-2/PC	R0	02

CLIENT :



**NATIONAL HIGHWAYS AND INFRASTRUCTURE
DEVELOPMENT CORPORATION LTD. (MINISTRY
OF ROAD TRANSPORT AND HIGHWAYS)
GOVERNMENT OF INDIA**

PROJECT :

**CONSULTANCY SERVICES FOR PREPARATION OF
DETAILED PROJECT REPORT FOR DEVELOPMENT OF
ECONOMIC CORRIDORS, INTER CORRIDORS AND
FEEDER ROUTES TO IMPROVE THE EFFICIENCY OF
FREIGHT MOVEMENTS IN INDIA UNDER
BHARATMALA PARIYOJANA (LOT-1:PACKAGE II)**

DESIGN CONSULTANT:

VOYANTS SOLUTIONS PVT LTD.
403, 4th Floor, Park Centra,
Sector-30, NH-9
Gurugram-122001, Haryana, India
CIN- U74140HR2004PTC046918
Ph: 0124-4598200, Fax: 0124-4019051,
E-mail: info@voyants.in, www.voyants.in

Detailed Project Report

REV.	DATE	DESCRIPTION

REV. DATE DESCRIPTION

DESIGNED BY DRAWN BY CHECKED BY APPROVED BY

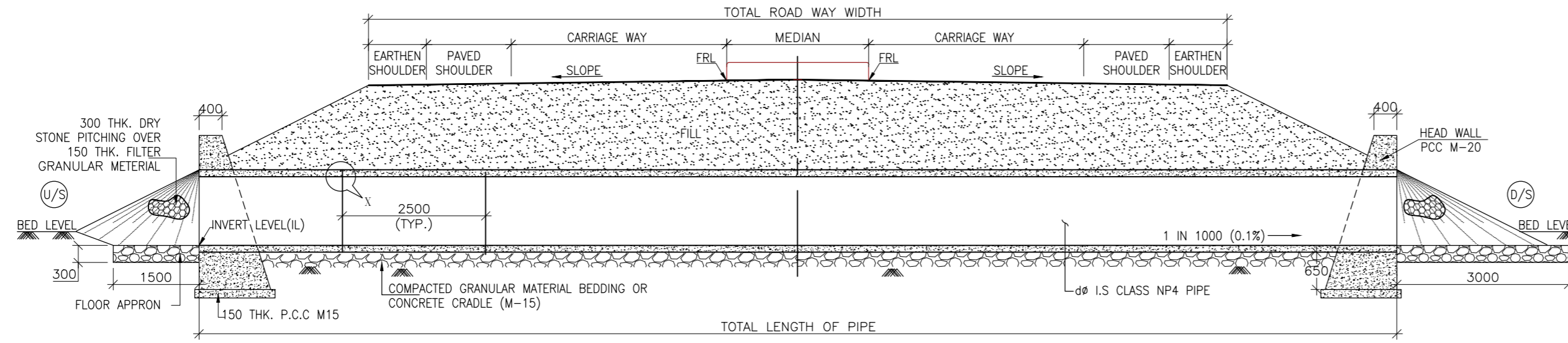
SCALE : AS SHOWN SHEET SIZE A2

TITLE :

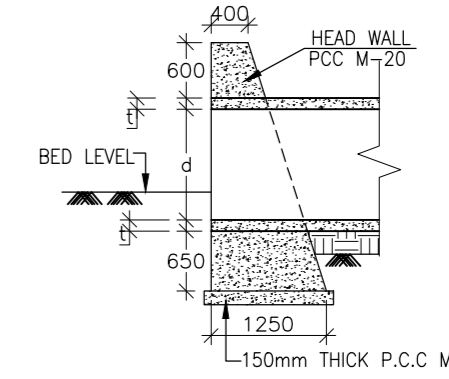
TABLE OF CONTENTS

DRG. No. :

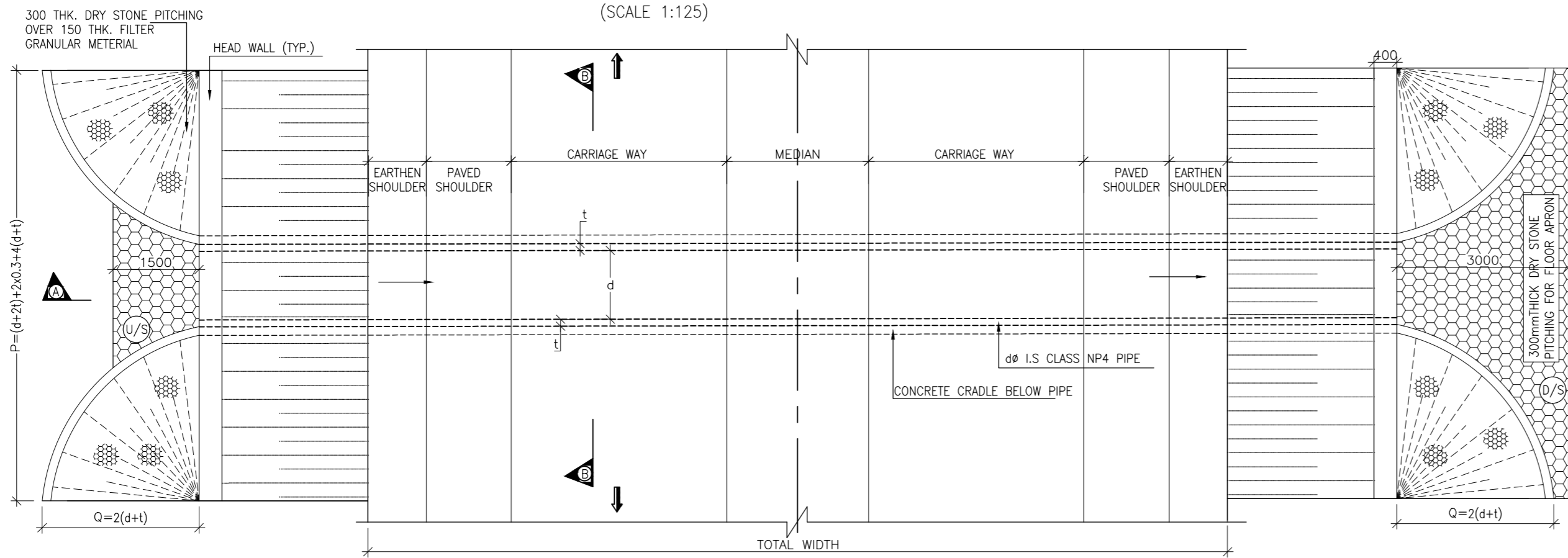
REVISION: R0 April, 2020



SECTION AT A-A
(SCALE 1:125)

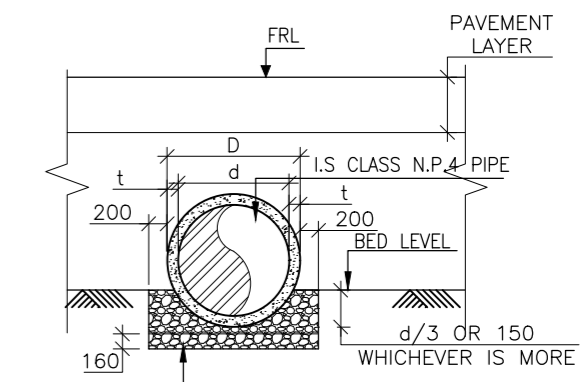


SECTION OF HEADWALL (OVER PIPE)
(SCALE 1:75)

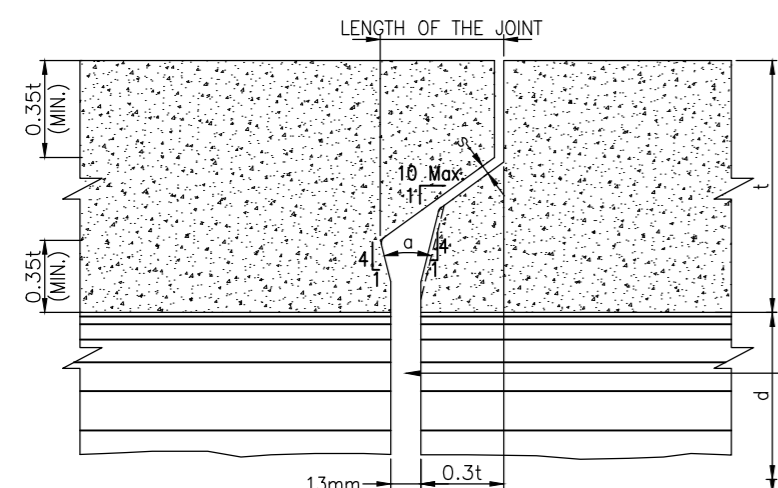


PLAN
(SCALE 1:125)

WHERE d=INTERNAL DIAMETER OF PIPE
t=THICKNESS OF PIPE

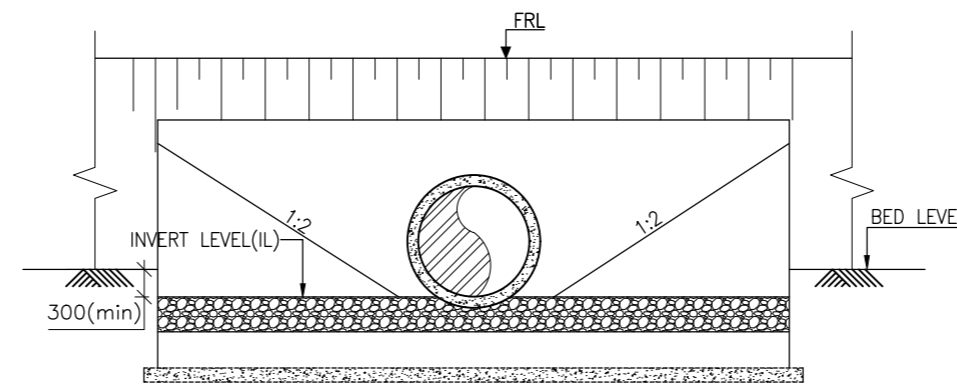


SECTION AT B-B
(SCALE 1:75)



DETAIL - X
SHOWING DETAILS OF TYP. PIPE JOINT
(SCALE 1:75)

t - WALL THICKNESS.
s - 0.002 OF INTERNAL DIA. OR 2 mm. Min.
d - INTERNAL DIAMETER.
α - INCLUDED ANGLE NOT MORE THAN 25°
n - NUMBER OF PIPE
α - INCLUDED ANGLE NOT MORE THAN 25°



SECTION AT C-C
(SCALE 1:75)


NOTES:-

1. ALL DIMENSIONS ARE IN mm, EXCEPT WHERE OTHERWISE MENTIONED.
2. NO DIMENSION SHALL BE SCALED, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT HIGHWAY DRAWINGS. FRL & CAMBER / SUPER ELEVATION AT PARTICULAR LOCATION SHALL BE VERIFIED WITH THE HIGHWAY DWG. DISCREPANCY, IF ANY, IS TO BE IMMEDIATELY BROUGHT TO THE NOTICE OF ENGINEER FOR NECESSARY MODIFICATION IN THE DRAWING.
4. HUME PIPE (NP4 TYPE), SHALL CONFORM TO IS : 458-2003.
5. COMPACTED GRANULAR BED SHALL CONFORM TO MORT&H SPECIFICATION CLAUSE NO.2904.
6. LONGITUDINAL SLOPE OF WIDENED PIPE SHALL BE 1 : 1000 (MIN.)
7. LENGTH, LOCATION, ORIENTATION & INVERT LEVEL OF PIPE CULVERT SHALL BE ADJUSTED TO SUIT SITE CONDITION AND AS APPROVED BY THE ENGINEER.
8. TRENCHES SHALL BE BACKFILLED IMMEDIATELY AFTER THE PIPES HAVE BEEN LAID AND THE JOINTING MATERIAL HAS HARDENED.
9. PIPE SHALL BE JOINED BY FLUSH JOINT METHOD AS PER THE DETAILS GIVEN IN SECTION 2906 OF MORT&H SPECIFICATIONS OF ROAD & BRIDGE WORKS.
10. FLOOR APRON SHALL BE PROVIDED AT NON-IRRIGATION CROSS DRAINAGE WORKS ONLY.

CLIENT :

NATIONAL HIGHWAYS AND INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.
(MINISTRY OF ROAD TRANSPORT AND HIGHWAYS)
GOVERNMENT OF INDIA

PROJECT :
CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT FOR DEVELOPMENT OF ECONOMIC CORRIDORS, INTER CORRIDORS AND FEEDER ROUTES TO IMPROVE THE EFFICIENCY OF FREIGHT MOVEMENTS IN INDIA UNDER BHARATMALA PARIYOJANA (LOT-1:PACKAGE II)

DESIGN CONSULTANT:

VOYANTS SOLUTIONS PVT LTD.
403, 4th Floor, Park Centra,
Sector-30, NH-8
Gurgaon-122001, Haryana, India
CIN: U74140HR2004PTC046918
Ph: 0124-4598200, Fax: 0124-4019051,
E-mail: info@voyants.in, www.voyants.in

Detailed Project Report

REV.	DATE	DESCRIPTION

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
DSR	SJC	SB	SKC

SCALE : AS SHOWN SHEET SIZE A2

TITLE :	
TYPICAL GENERAL ARRANGEMENT DRAWING OF SINGLE CELL PIPE CULVERT	
DRG. No. :	(SHEET 01 OF 01)
VSPL/1718-081/DPR/PKG-2/PC	
REVISION:R0	APRIL 2020

Improvement Proposal of Culverts Pkg-2 (From 38+370 To 76+822)																
Existing Details						Proposal Details										
Sl. No.	Existing Chainage (km)	Type of Culvert	Span Arrangement/Dia. (m)	Total Width of Structure (m)	Total Roadway Width (m)	Remarks	Improvement Proposal	Sl. No.	Design Chainage (km)	Span Arrangement (m)	Type of Culvert	FRL (m)	Proposed Pipe top Level (m)	Invert Level (m)	Proposed width (as per TCS)	Phase Details
1	42+453	Pipe Culvert	2x1.0	20.261	11.465	Ext. Retain	New 2Lane	118	80+976	2x1.0	Pipe Culvert	98.729	95.838	94.723	3	Phase-4 Km.80+930 to km.96+400 Length- 15.47km
2	42+718	Pipe Culvert	2x0.9	19.997	10.605	Reconstruction	New 4Lane	119	81+240	2x1.2	Pipe Culvert	99.221	97.405	96.085	3	
3	42+865	Pipe Culvert	2x1.2	22.823	10.758	Ext. Retain	New 2Lane	120	81+387	2x1.2	Pipe Culvert	99.250	97.086	95.766	3	
4	43+121	Pipe Culvert	2x0.9	17.821	9.908	Reconstruction	New 4Lane	121	81+643	2x1.2	Pipe Culvert	99.231	97.677	96.357	3	
5	43+400	Pipe Culvert	1x0.6	15.198	11.213	Reconstruction	New 4Lane	122	81+922	2x1.2	Pipe Culvert	99.534	98.576	97.256	3	
6	43+813	Pipe Culvert	2x1.2	20.318	11.221	Ext. Retain	New 2Lane	123	82+334	2x1.2	Pipe Culvert	98.198	95.454	94.134	2	
7	43+923	Pipe Culvert	2x1.2	20.1	12.4	Ext. Retain	New 2Lane	124	82+444	2x1.2	Pipe Culvert	97.879	96.166	94.846	2	
8	44+223	Pipe Culvert	2x1.2	20.315	12.056	Ext. Retain	New 2Lane	125	82+744	2x1.2	Pipe Culvert	97.162	94.787	93.467	2	
9	44+279	Pipe Culvert	2x1.2	20.309	12.068	Ext. Retain	New 2Lane	126	82+800	2x1.2	Pipe Culvert	97.100	95.012	93.692	2	
10	44+467	Pipe Culvert	2x1.2	17.699	11.931	Ext. Retain	New 2Lane	127	82+988	2x1.2	Pipe Culvert	96.512	94.654	93.334	2	
11	44+647	Pipe Culvert	2x1.2	17.786	12.549	Ext. Retain	New 2Lane	128	83+168	2x1.2	Pipe Culvert	96.065	94.251	92.931	2	
12	45+362	Pipe Culvert	2x1.0	17.652	11.267	Ext. Retain	New 2Lane	129	83+885	2x1.0	Pipe Culvert	95.648	93.679	92.564	2	
13	45+497	Pipe Culvert	2x1.2	17.609	11.442	Ext. Retain	New 2Lane	130	84+020	2x1.2	Pipe Culvert	95.693	93.440	92.120	2	
14	45+806	Pipe Culvert	2x1.2	17.916	11.215	Ext. Retain	New 2Lane	131	84+328	2x1.2	Pipe Culvert	95.912	93.838	92.518	2	
15	46+089	Pipe Culvert	2x1.2	17.831	11.856	Ext. Retain	New 2Lane	132	84+612	2x1.2	Pipe Culvert	95.873	93.698	92.378	2	
16	46+302	Pipe Culvert	2x1.2	17.635	11.353	Ext. Retain	New 2Lane	133	84+824	2x1.2	Pipe Culvert	97.633	93.859	92.539	7	
17	46+443	Pipe Culvert	2x0.6	17.721	11.375	Reconstruction	New 4Lane	134	84+966	2x1.2	Pipe Culvert	101.138	94.766	93.446	7	
18	46+533	Pipe Culvert	2x0.9	17.591	9.904	Reconstruction	New 4Lane	135	85+054	2x1.2	Pipe Culvert	103.327	95.487	94.167	7	
19	46+861	Pipe Culvert	2x1.2	17.604	11.696	Ext. Retain	New 2Lane	136	85+382	2x1.2	Pipe Culvert	100.438	95.152	93.832	7	
20	47+083	Pipe Culvert	2x0.6	17.672	11.809	Reconstruction	New 4Lane	137	85+604	2x1.2	Pipe Culvert	97.565	95.707	94.387	2	
21	47+307	Pipe Culvert	2x0.6	17.701	11.763	Reconstruction	New 4Lane	138	85+829	2x1.2	Pipe Culvert	97.704	95.866	94.546	2	
22	47+578	Pipe Culvert	2x0.6	17.528	11.615	Reconstruction	New 4Lane	139	86+101	2x1.2	Pipe Culvert	97.772	96.283	94.963	2	
23	47+908	Pipe Culvert	2x1.2	17.709	10.257	Ext. Retain	New 2Lane	140	86+430	2x1.2	Pipe Culvert	97.741	95.501	94.181	2	
24	48+113	Pipe Culvert	2x1.2	17.647	11.832	Ext. Retain	New 2Lane	141	86+635	2x1.2	Pipe Culvert	97.705	95.152	93.832	2	
25	48+217	Pipe Culvert	2x1.0	17.592	12.335	Ext. Retain	New 2Lane	142	86+740	2x1.0	Pipe Culvert	97.807	96.168	95.053	2	
26	48+448	Pipe Culvert	2x1.2	17.610	11.669	Ext. Retain	New 2Lane	143	86+971	2x1.2	Pipe Culvert	97.691	95.608	94.288	1	
27	48+800	Pipe Culvert	2x0.9	17.739	11.631	Ext. Retain	New 2Lane	144	87+340	2x1.0	Pipe Culvert	97.856	96.496	95.376	1A	
28						Bokulia Bypass	New 4Lane	145	87+550	1x1.2	Pipe Culvert	98.544	96.809	95.489	1A	
29						Bokulia Bypass	New 4Lane	146	87+800	1x1.2	Pipe Culvert	97.955	96.807	95.487	1A	
30						Bokulia Bypass	New 4Lane	147	88+050	1x1.2	Pipe Culvert	98.379	96.723	95.403	1A	
31						Bokulia Bypass	New 4Lane	148	88+300	1x1.2	Pipe Culvert	97.706	96.474	95.154	1A	
32						Bokulia Bypass	New 4Lane	149	88+550	1x1.2	Pipe Culvert	98.629	97.280	95.960	1A	

CLIENT :



**NATIONAL HIGHWAYS AND INFRASTRUCTURE
DEVELOPMENT CORPORATION LTD.**
(MINISTRY OF ROAD TRANSPORT AND HIGHWAYS)
GOVERNMENT OF INDIA

PROJECT :

**CONSULTANCY SERVICES FOR PREPARATION OF
DETAILED PROJECT REPORT FOR DEVELOPMENT OF
ECONOMIC CORRIDORS, INTER CORRIDORS AND FEEDER
ROUTES TO IMPROVE THE EFFICIENCY OF FREIGHT
MOVEMENTS IN INDIA UNDER BHARATMALA PARIYOJANA
(LOT-1:PACKAGE II)**

DESIGN CONSULTANT:

VOYANTS SOLUTIONS PVT LTD.
403, 4th Floor, Park Centra,
Sector-30, NH-8
Gurgaon-122001, Haryana, India
CIN- U74140HR2004PTC046918
Ph: 0124-4598200, Fax: 0124-4019051,
E-mail: info@voyants.in, www.voyants.in

Detailed Project Report

REV.	DATE	DESCRIPTION

DESIGNED BY

DSR

DRAWN BY

SJC

CHECKED BY

SB

APPROVED BY

SKC

TITLE :

SCHEDULE OF PIPE CULVERTS

DRG. No. : (SHEET 01 OF 02)
VSPL/1718-081/DPR/PKG-2/PC

REVISION:R0 APRIL 2020

SCALE :

AS SHOWN

SHEET SIZE


A2

Improvement Proposal of Culverts Pkg-2 (From 38+370 To 76+822)																
Existing Details							Proposal Details									
Sl. No.	Existing Chainage (km)	Type of Culvert	Span Arrangement/Dia. (m)	Total Width of Structure (m)	Total Roadway Width (m)	Remarks	Improvement Proposal	Sl. No.	Design Chainage (km)	Span Arrangement (m)	Type of Culvert	FRL (m)	Proposed Pipe top Level (m)	Invert Level (m)	Proposed width (as per TCS)	Phase Details
33						Bokulia Bypass	New 4Lane	150	88+800	1x1.2	Pipe Culvert	100.13	97.988	96.668	1A	Phase-4 Km.80+930 to km.96+400 Length- 15.47km
34						Bokulia Bypass	New 4Lane	151	89+000	1x4.5	Box Culvert	99.565	100.885	96.265	1A	
35						Bokulia Bypass	New 4Lane	152	89+300	1x1.2	Pipe Culvert	99.806	98.830	97.510	1A	
36						Bokulia Bypass	New 4Lane	153	89+550	1x1.2	Pipe Culvert	100.635	99.153	97.833	1A	
37						Bokulia Bypass	New 4Lane	154	89+800	1x1.2	Pipe Culvert	99.636	97.741	96.421	1A	
38						Bokulia Bypass	New 4Lane	155	90+050	1x1.2	Pipe Culvert	99.273	96.606	95.286	1A	
39						Bokulia Bypass	New 4Lane	156	90+300	1x1.2	Pipe Culvert	100.004	98.936	97.616	1A	
40						Bokulia Bypass	New 4Lane	157	90+460	1x5.0	Box Culvert	100.508	102.328	97.208	1A	
41						Bokulia Bypass	New 4Lane	158	90+550	1x1.2	Pipe Culvert	100.791	100.055	98.735	1A	
42						Bokulia Bypass	New 4Lane	159	90+800	1x1.2	Pipe Culvert	101.579	100.343	99.023	1A	
43						Bokulia Bypass	New 4Lane	160	91+050	1x1.2	Pipe Culvert	102.128	101.059	99.739	1A	
44						Bokulia Bypass	New 4Lane	161	91+300	1x1.2	Pipe Culvert	102.461	101.247	99.927	1A	
45						Bokulia Bypass	New 4Lane	162	91+550	1x1.2	Pipe Culvert	104.083	102.507	101.187	1A	
46						Bokulia Bypass	New 4Lane	163	91+800	1x1.2	Pipe Culvert	104.127	102.536	101.216	1A	
47						Bokulia Bypass	New 4Lane	164	92+050	1x1.2	Pipe Culvert	104.595	102.885	101.565	1A	
48						Bokulia Bypass	New 4Lane	165	92+550	1x1.2	Pipe Culvert	104.463	103.142	101.822	1A	
49						Bokulia Bypass	New 4Lane	166	92+800	1x1.2	Pipe Culvert	105.156	103.520	102.200	1A	
50						Bokulia Bypass	New 4Lane	167	93+050	1x1.2	Pipe Culvert	104.721	103.043	101.723	1A	
51						Bokulia Bypass	New 4Lane	168	93+300	1x1.2	Pipe Culvert	105.497	104.014	102.694	1A	
52						Bokulia Bypass	New 4Lane	169	93+550	1x1.2	Pipe Culvert	105.114	104.240	102.920	1A	
53						Bokulia Bypass	New 4Lane	170	93+800	1x1.2	Pipe Culvert	104.961	103.833	102.513	1A	
54						Bokulia Bypass	New 4Lane	171	94+050	1x1.2	Pipe Culvert	104.58	104.285	102.965	1A	
55						Bokulia Bypass	New 4Lane	172	94+300	1x1.2	Pipe Culvert	105.153	103.275	101.955	1A	
56						Bokulia Bypass	New 4Lane	173	94+550	1x1.2	Pipe Culvert	103.485	102.117	100.797	1A	
57						Bokulia Bypass	New 4Lane	174	94+800	1x1.2	Pipe Culvert	101.575	100.019	98.699	1A	
58	56+426	Pipe Culvert	1x0.9	15.059	10.684	Ext. Retain	New 2Lane	175	94+960	1x0.9	Pipe Culvert	101.06	99.978	98.958	1A	
59	56+850	Pipe Culvert	1x0.9	15.188	9.939	Ext. Retain	New 2Lane	176	95+388	1x0.9	Pipe Culvert	100.766	100.124	99.104	2	
60	57+344	Pipe Culvert	1x1.2	17.839	10.517	Ext. Retain	New 2Lane	177	95+880	1x1.2	Pipe Culvert	102.255	100.427	99.107	2	
61	57+410	Pipe Culvert	1x1.2	17.934	10.975	Ext. Retain	New 2Lane	178	95+946	1x1.2	Pipe Culvert	102.383	100.823	99.503	1A	
62	57+636	Pipe Culvert	1x1.2	17.928	11.516	Ext. Retain	New 2Lane	179	96+157	1x1.2	Pipe Culvert	102.033	100.902	99.582	2	
63	57+668	Pipe Culvert	1x0.6	18.145	11.599	Reconstruction	New 4Lane	180	96+190	1x1.2	Pipe Culvert	102.132	100.678	99.358	2	
64	57+740	Pipe Culvert	1x1.2	17.725	10.702	Ext. Retain	New 2Lane	181	96+258	1x1.2	Pipe Culvert	102.336	101.364	100.044	2	

CLIENT :

NATIONAL HIGHWAYS AND INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.
(MINISTRY OF ROAD TRANSPORT AND HIGHWAYS)
GOVERNMENT OF INDIA

PROJECT :
CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT FOR DEVELOPMENT OF ECONOMIC CORRIDORS, INTER CORRIDORS AND FEEDER ROUTES TO IMPROVE THE EFFICIENCY OF FREIGHT MOVEMENTS IN INDIA UNDER BHARATMALA PARIYOJANA (LOT-1:PACKAGE II)

DESIGN CONSULTANT:

VOYANTS SOLUTIONS PVT LTD.
403, 4th Floor, Park Centra,
Sector-30, NH-8
Gurgaon-122001, Haryana, India
CIN- U74140HR2004PTC046918
Ph: 0124-4598200, Fax: 0124-4019051,
E-mail: info@voyants.in, www.voyants.in

Detailed Project Report	
REV.	DESCRIPTION

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
DSR	SJC	SB	SKC

SCALE : AS SHOWN SHEET SIZE A2

TITLE :	
SCHEDULE OF PIPE CULVERTS	
DRG. No. :	(SHEET 02 OF 02)
VSPL/1718-081/DPR/PKG-2/PC	
REVISION:R0	APRIL 2020