付録 -2.1: Meeting Agenda regarding Additional Survey Works

2nd March 2017

(Draft) Meeting Agenda regarding NH54 Additional Survey Works

1. Comments on Draft ICR

i) Scope of Survey Works (quantity) should be shown.

ii) Detailed work schedule (section-wise) and basis of scheduling (average work quantity per day) should be shown.

iii) The simple process about stability analysis should be shown. (The result of laboratory test about C/φ will not be adopted. We want to know how to use C/φ)

iv) There is no description about D/D (slope protection & road). Scope, schedule, methodology, staffing, and output should be shown.

v) Coordination system between BPC and JICA team should be shown briefly.

vi) If possible, it's better to make a progress monitoring table including plan.

2. Topographic Survey Works

i) Sequence of topographic survey is recommended from section 2, section 3, and section 1 in consideration of necessary time for design revision work of each section.

ii) Survey of existing kilometer post is recommended. (S1: total 5 positions, at around starting and ending positions, and three intermediate positions. S2: total 5 positions, at around starting and ending positions, and three intermediate positions, plus BSNL tower at JICA design km 178+780. S3: (km250-km290): total 5 positions, at around starting and ending positions, and three intermediate positions. S3: (after km290): all positions. Selection of kilometer posts shall be the ones available in original DPR survey drawings.

iii) Since survey points of S2 are limited within existing carriage way, topographic survey method in the attachment is recommended.

3. Work schedule

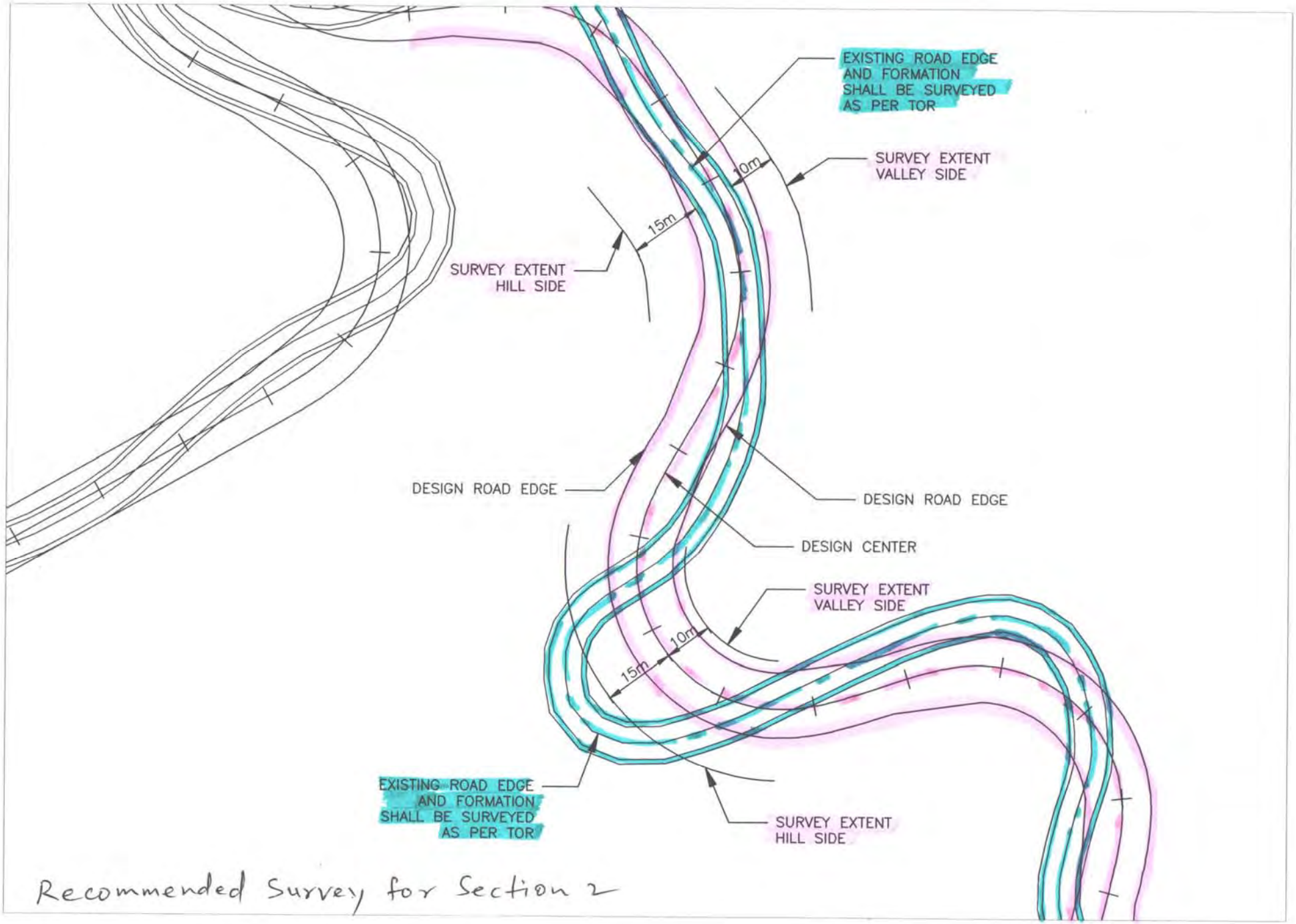
i) Since progress of survey is behind the original schedule, survey staffing in the attachment is recommended.

4. Others

i) Planning of spoil banks

Attachment:

1. Recommended topographic survey method S2
2. Recommended survey staffing to catch up the original schedule



Recommended Survey for Section 2

Section 1
Section 2
Section 3
manually adjusted
in WGS84 system

S1
S2
S3

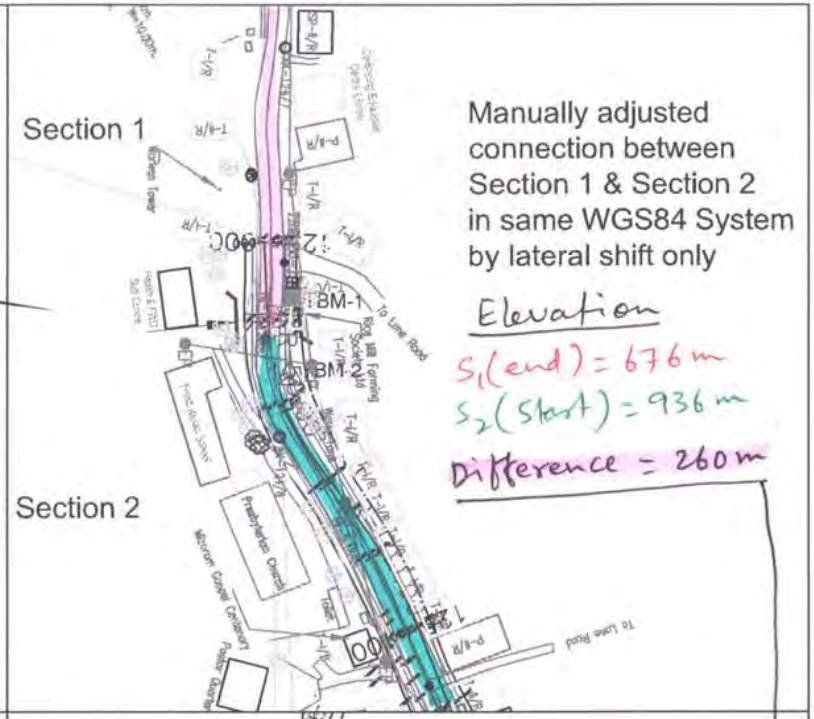
ERROR in Section 2 DPR Survey data

① Error in Plan = 200 m
② Error in Elevation = 18 m

Section 1
(Shifted to
WGS84 System)

Section 2
(Shifted to
WGS84 System)

Section 3
(Original Survey in
WGS84 System
for Initial 40km length)



Manually adjusted
connection between
Section 1 & Section 2
in same WGS84 System
by lateral shift only

Elevation
S_1(end) = 676 m
S_2(start) = 936 m
Difference = 260 m

Section 1
(Original Survey
Arbitrary X1,Y1)

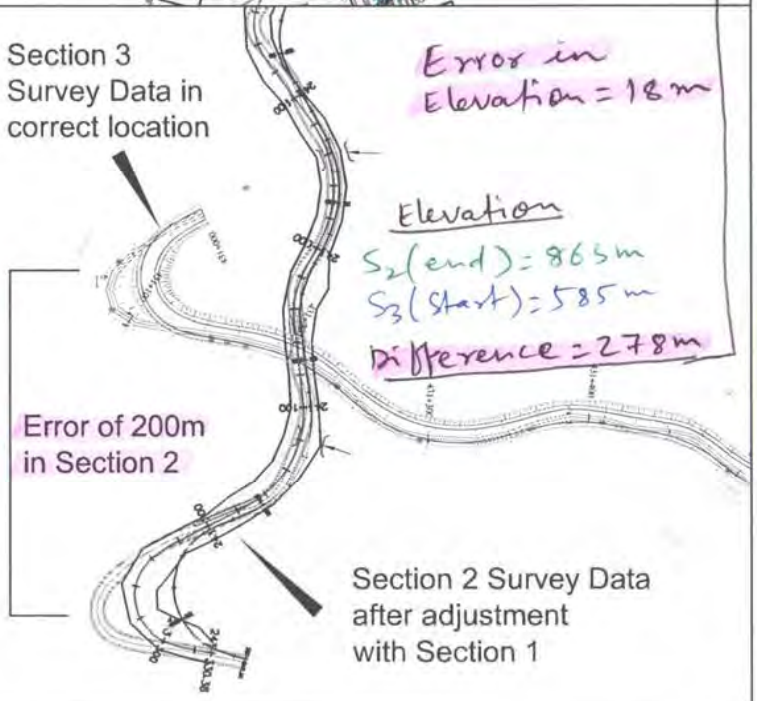
Section 2
(Original Survey
Arbitrary X2,Y2)

Section 1
(Original Survey
Arbitrary X1,Y1)

Section 2
(Original Survey
Arbitrary X2,Y2)

S1
S2

Section 3
Survey Data in
correct location



Error in
Elevation = 18 m

Elevation
S_2(end) = 865 m
S_3(start) = 585 m
Difference = 278 m

Error of 200m
in Section 2

Section 2 Survey Data
after adjustment
with Section 1

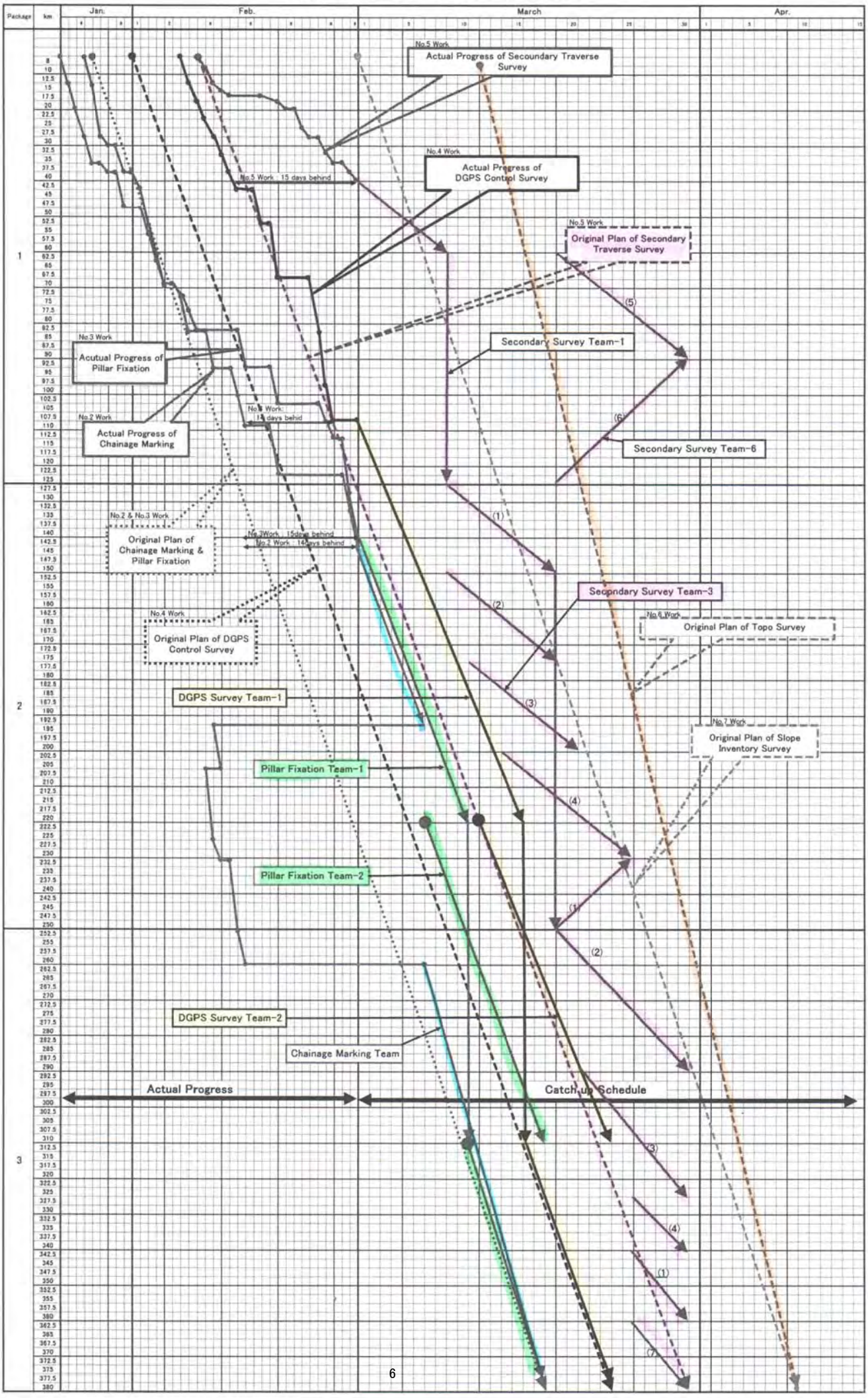
A Study of Necessary Team for Control Point, Topo & Slope Inventory Survey Works

Work Item No.	Work Item Details	Total Length	Work Program Plan					Actual Progress (up to 28th Feb.)						Ccomparison of Progress (%)			Remarks
		(km)	Start	End	Days	Team	km/day	Start	km		Days	Team	km/day	Plan	Actual	Differ.	
2	Chainage Marking on Existing Alignment	372	26 Jan.	17 Mar.	51	1	7.3	23 Jan.	8+000～143+000	203.0	37	1	5.5	66.7	54.6	−12.1	to be improved
3	Pillar Fixation	372	26 Jan.	17 Mar.	51	1	7.3	31 Jan.	8+000～140+000	132.0	29	1	4.6	66.7	35.5	−31.2	to be improved
4	DGPS Primary Control Survey	372	1 Feb.	23 Mar.	51	1	7.3	7 Feb.	8+000～108+000	100.0	22	1	4.5	54.9	26.9	−28.0	to be improved
5	Secondary Traverse Survey	372	9 Feb.	30 Mar.	50	1	7.4	9 Feb.	8+000～40+000	32.0	20	1	1.6	40.0	8.6	−31.4	to be improved
6	Topo Servey	372	11 Mar.	9 Apr.	30	5	2.5	not yet						0.0	0.0	0.0	to be improved
7	Slope Inventory Survey	372	1 Mar.	9 Apr.	39	2	4.8	not yet						0.0	0.0	0.0	to be improved

Recommendation of Necessary Number of Team

Item	Work Item Details	Remains of Length (km)		Remains of Working Day	No. of Team	km/day	Recommendation
2	Chainage Marking on Existing Alignment	8.0～143.0=135.0	169.0	17	1	9.9	No need additional Team
		192.0～260.0=68.0			2	5.0	
		372−135−68			3	3.3	
3	Pillar Fixation of DGPS	372−132	240.0	17	1	14.1	
					2	7.1	Additional 1 Team
					3	4.7	
4	DGPS Primary Control Survey	372−100	272.0	23	1	11.8	
					2	5.9	Additional 1 Team
					3	3.9	
5	Secondary Traverse Survey	372−32	340.0	30	2	5.7	
					4	2.8	
					5	2.3	Additional 4～7 Team
6	Topo Servey	not yet	372.0	30	5	2.5	
					6	2.1	Additional 1 Team
					7	1.8	
7	Slope Inventory Survey @40m (25nos./km)	not yet	372.0	39	2	4.8	
					4	2.4	
					6	1.6	
					8	1.2	
					10	1.0	Additional 8 Team

Progress Check Sheet & Catch-up Schedule



付録 -2.2 : Meeting Report with BPC

MEETING REPORT

Venue	BPC Site office(KL-B 23,C.Chawnghnuna Building,AL Road,ZemabawkEast,796001,,Aizawl,Mizor
Time	11:00 AM

Attendance:

BPC Mr.Sumanta Pakira ,Leader of Borehole
Mr.Dinesh Kumar, Manager (Geotechnical)
(In the meeting, JICA team talked with Mr. Sourav Dasgupta in Kolkata by phone, as well)

JICA team Mr.Motoki Iwamaru
Mr.Michael Lalhmachhuana

Point of Discussion

1 Revise Scheduled of each Survey items of BPC:
Mr.Sourav will prepare the update scheduled of site survey work and will produce soon.

2 Topo survey:
After the survey completion of Secondary traverse and DGPS Survey,Topo survey will start from Sec-II.

3 New Chainage marking:
Previously BPC started chainage marking from 8+000km as per design chainage. Due to instructed by NHIDCL new chainage marking was started again at the same beginning point from 8+292km for Sec-I for the purpose of land acquisition issue, and new chainage marking reached upto 58km for Sec-I, while Sec-II & Sec-III are not required. Regarding the old chainage marking vanished in some section along NH-54 due to the pavement work construction, marking again on newly paved road must be considered/discuss between the team and the official staff of BPC

4 Secondary Traverse Survey:
6 (Six) Surveyor teams were formed currently and surveyed at different point ,They were expected to complete the survey by the mid of May 2017,And hope to Submit the drawing of Sec-I by the end of April,During the survey the kilometer posts co-ordination and detail were recorded.

5 Slope inventory Survey
Slope inventory Survey was completed and currently engage in data entry Four Staff Namely

Mr. Sumanta Pakira
Mr. Saradindu Mukherjee
Mr. Abhik Nayak
Mr. Dinesh Kumar

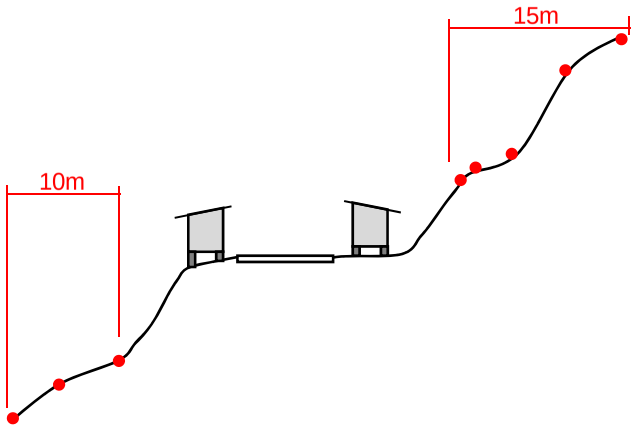
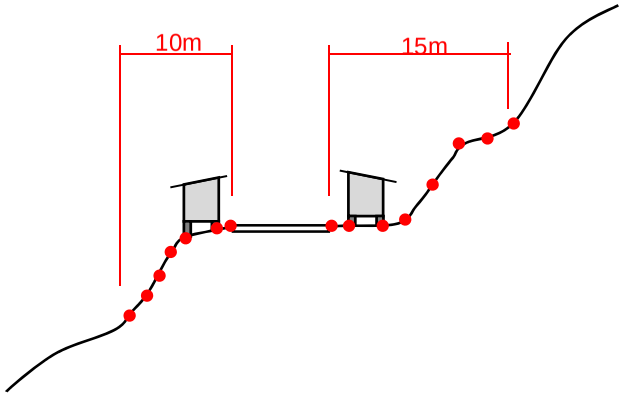
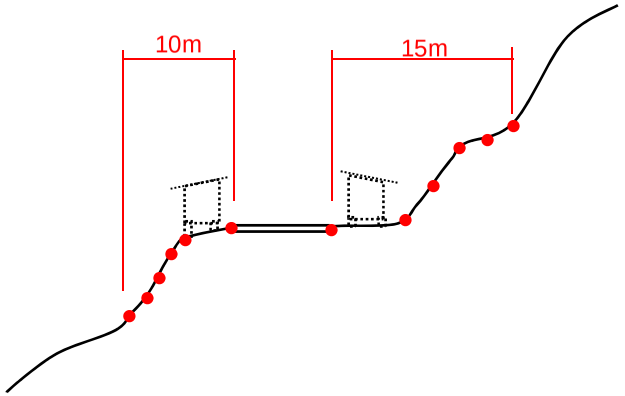
Responsible for slope inventory

6 Bore hole Survey
Currently 3 teams work at different location with one machine each team. 3 more machine is on the way which will reach within 3-4 days to site, for further total of Six team and six machine will be expected to execute the work. After 10 days detail and photo along with log sheet of borehole will be completed until A25.

7 Work Progress of BPC From 12th April to 18th April 2017,will be attached on the weekly report on Wednesday (19th April 2017)

付録 -2.3 : Comparison of Topo Method

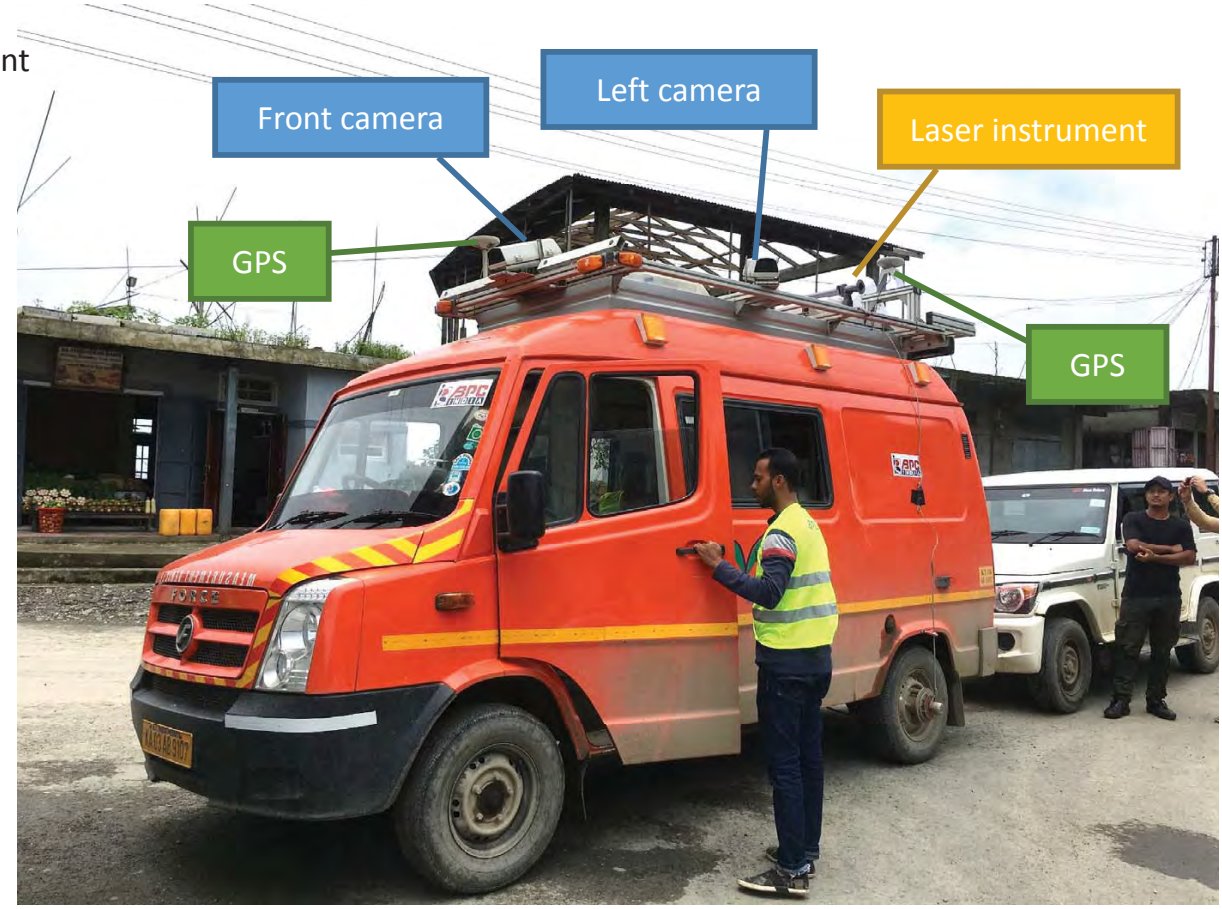
Comparison of Detail Topographic Survey Method

	Type-1 : Applicable to Section-1	Type-2 : Applicable to Section-2	Type-3 : Applicable to Section-3
Total Station	 - Only for acceptable precision of DPR topo - Particular sections (missing section for updated design only) -Terrain survey only - Without object drawing	 - For unacceptable precision of DPR topo - All section -Terrain and objects survey from edge of pavement -Objects drawing	 - For unacceptable precision of DPR topo - All section -Terrain survey from edge of pavement only -Without object drawing
	- Almost-use DPR design in updated design	**- No-use DPR design in updated design**	**- Partially-use DPR design in updated design**
Lidar Survey	**- Time for field survey can be shorten from Total Station** **- This is test case for BPC** **- No-use DPR design in updated design and take longer time than above method**		

付録 -2.4 : Outline of LIDAR Survey

LIDAR SURVEY

Vehicle equipment



Vehicle is owned by VECTRA Geospatial India Pvt Ltd. which head office is in Bangalore, 560043.
Two technicians are dispatched from the company. (Mr. Kevi Mor, #89510-00715)

LIDAR SURVEY

Vehicle equipment

Camera is located only front and left side (no camera on right side). Camera purpose is only taking photo to recognize visible objects, not for measurement.
Laser instrument is located at the rear center of the vehicle.

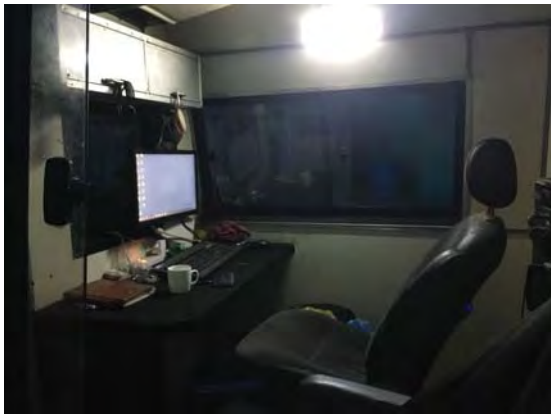
LIDAR SURVEY

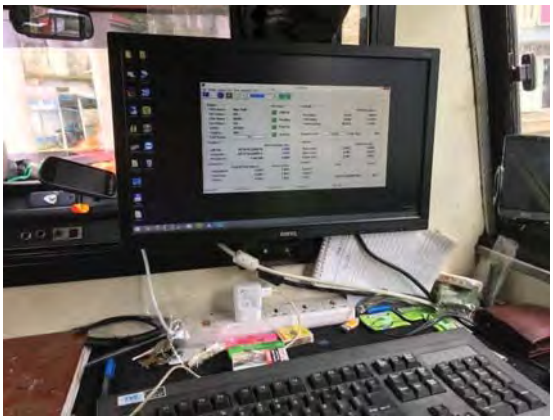
Vehicle equipment

Laser spins 360 degree and can acquire 2 million points in five second.
Each observed point has geospatial information of XYZ.

LIDAR SURVEY

Vehicle equipment





In the vehicle there is computer systems to monitor survey process.

LIDAR SURVEY

Road painting

Two team are doing new road painting before vehicle running.
Painting target is GPS pillar, TBM pillar (Secondary traverse), Culvert, Landslide and Spoil bank.
According to the technician, especially white color can be well acquired by Laser. So this painting can help to recognize position of remarkable object through not only camera view but also laser.

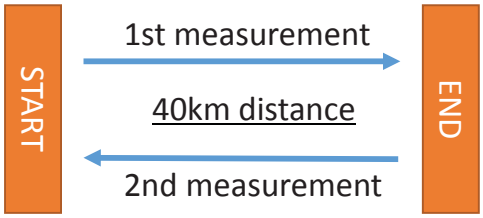
LIDAR SURVEY

Road painting

White color foam polystyrene board is placed at every pillar of GPS and TBM.
At the time of processing, these pillar position of XYZ observed by laser will be adjusted with known pillar position by the previous survey.

LIDAR SURVEY

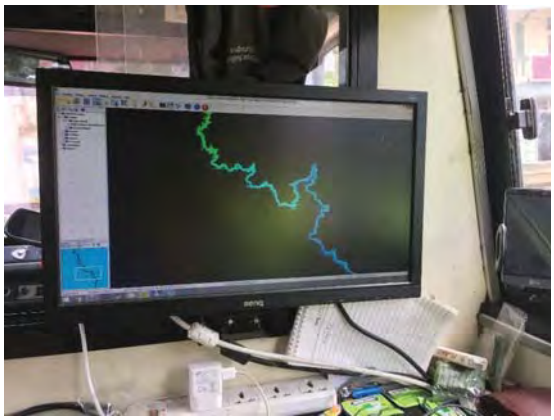
Measurement

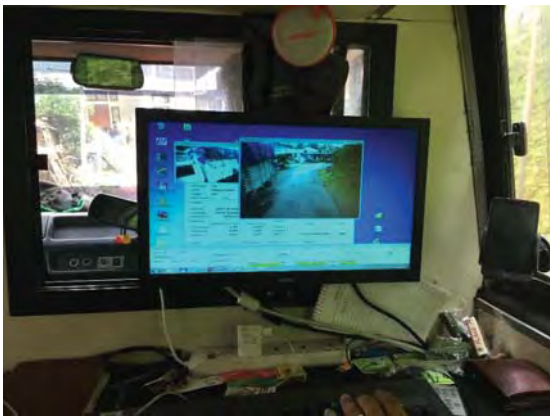


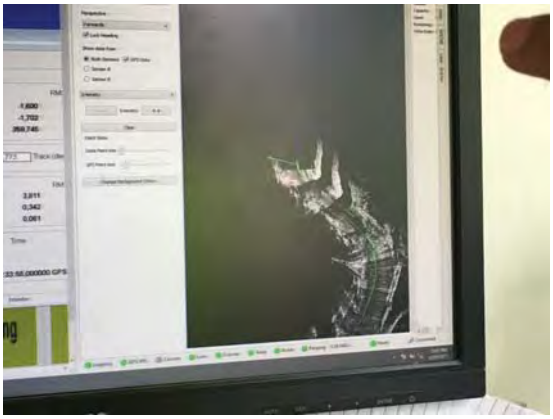
Laser points are collected through 2 time observation for running both direction, but actually only one observation data which has better acquirements will be adopted for the final.
Vehicle runs left side of the road to observe objects as much as possible.
Running speed is average 20-25 km/h, but at rough road or density area running speed is reduced.

LIDAR SURVEY

Measurement

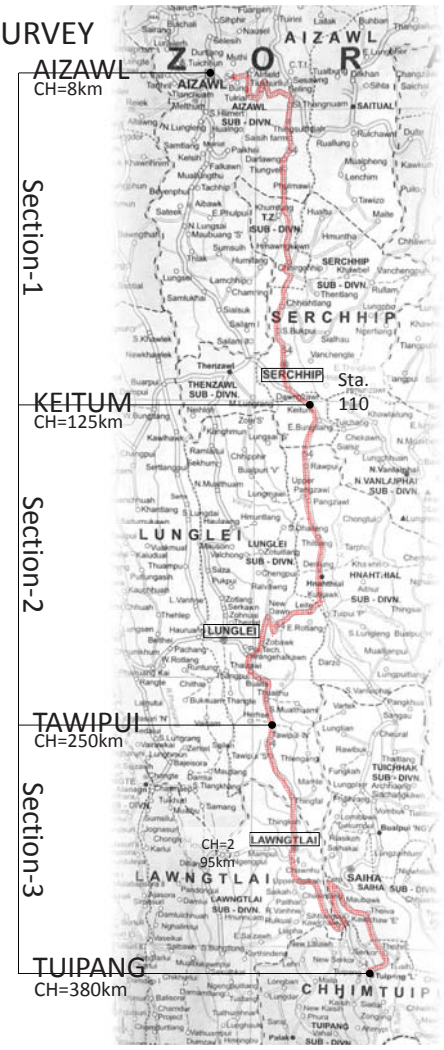


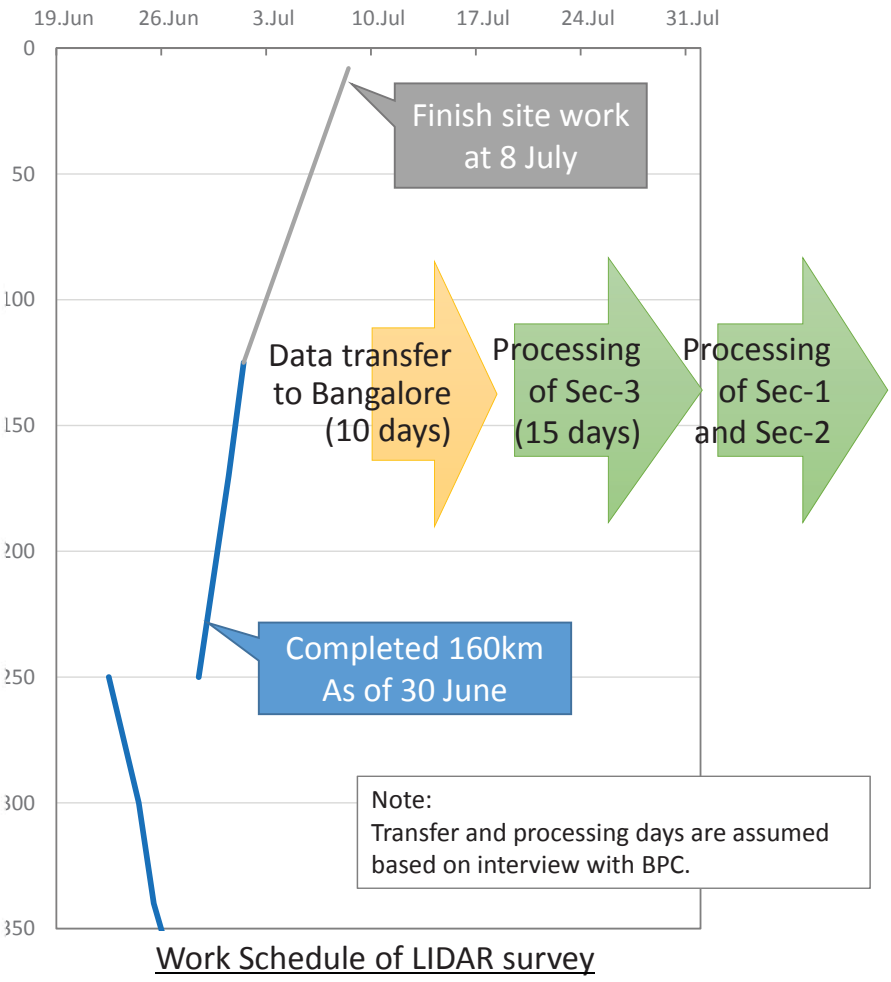




During measurement, observed points appear on the monitor in real time.

LIDAR SURVEY





Work Schedule of LIDAR survey

付録 -3 :　Critical Slope Inventory Sheet

Critical Slope Inventory Sheet

Legend

Side: Landslide distribution side

L	Left side on the road
R	Right side on the road
C	Crossing

Landslide type:

MM	Mass Movement (active)
MM-p	Potential Mass Movement (inactive)
SF	Slope Failure

Widening: Plan of widening side

L	Left side on the existing road
R	Right side on the existing road

Impact: Estimated Landslide volume

A	Estimated Landslide Volume more than 1000m3 (Mainly large-scale mass movement and slope failure)
B	Estimated Landslide Volume100-1000m3 (Mainly medium-scale mass movement, slope failure, and debris flow)
C	Estimated Landslide Volume less than 100m3 (Mainly surface failure)

Stability: Assumed Landslide Stability

a	SF:	There is soil mass or fragmented rock concerned to be destabilized on slope.
	MM:	There us severe deformation such as cracks, subsidence, and bulges.
b	SF:	There is less unstable soil mass and rock on slope, but no vegetation and expose of weathered rock, and it is concerned to expand existing slope failure in the future.
	MM:	No new deformation can be observed, but existing deformation such as crack, etc indicates the past movement. It is concerned destabilization by the road construction.
c	SF:	Soil masses and rocks had completely fallen from slope, and fresh and intact bed rock layer can be confirmed at the collapsed slope. There is no indication that the slope failure expands.
	MM:	Slope can be recognized as mass movement topography, but there is no deformation which indicates recent movement on road facility and vegetation, that assumed to be stabilized.

Countermeasures:

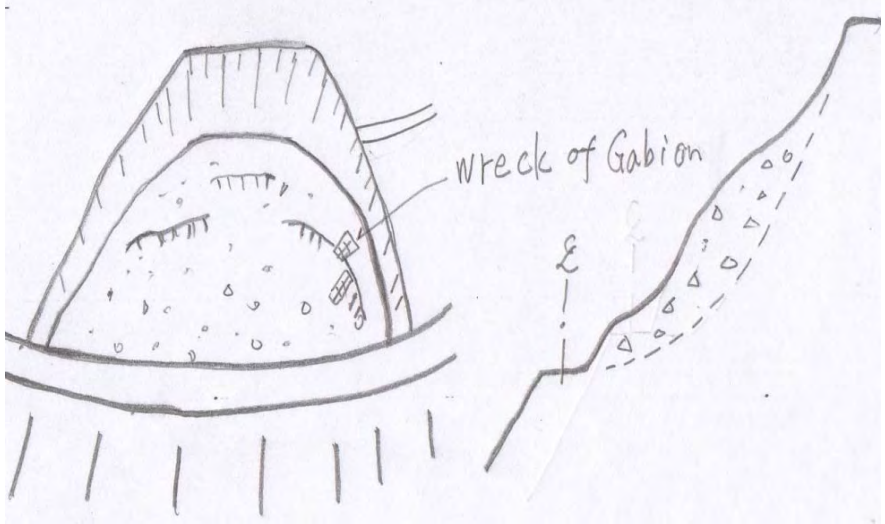
GW	Gabion wall	RW	Retaining Wall
RS	Removal Soil	CwF	Counterweight Fill
GwD	Groundwater Drainage	HyS	Hydroseeding
RfPW/F	Rockfall Prevention Wall/Fence	CrW	Crib Work
Anc	Anchor Work	RB	Rock-bolt Work

Critical Slope Inventory Sheet

Section No. I-1

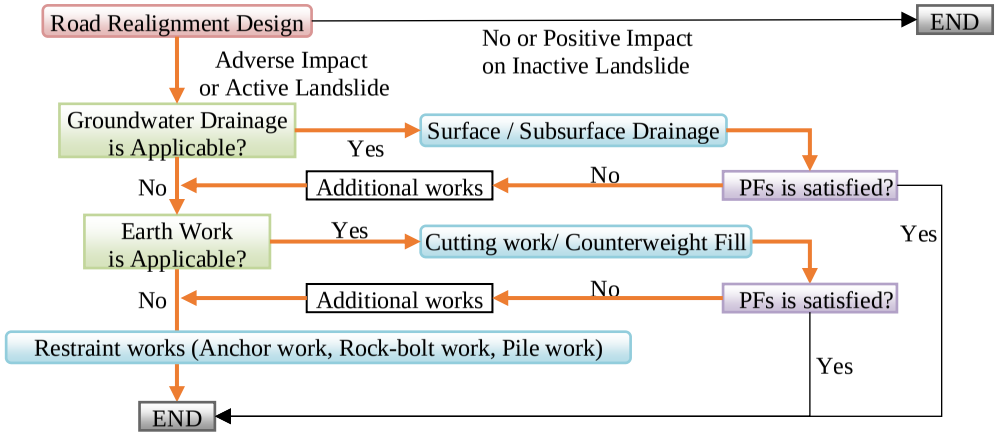
Slope No.	A03	Sta.	xxx	+	xxx	-	xxx	+	xxx	Side	R	Landslide type	SF

Sketch



Landslide body	colluvium	Length	54	m	Width	113	m	Height	74.4	m
Widening	R	Impact	A		Stability	a		Evaluation	Aa	

Remarks:



Countermeasure	GW,GwD,RS,HyS,CrW,Anc

Consited of colluvial deposit

View from the beginning point

Deformation of gabion wall

Front view of landslide

Road condition

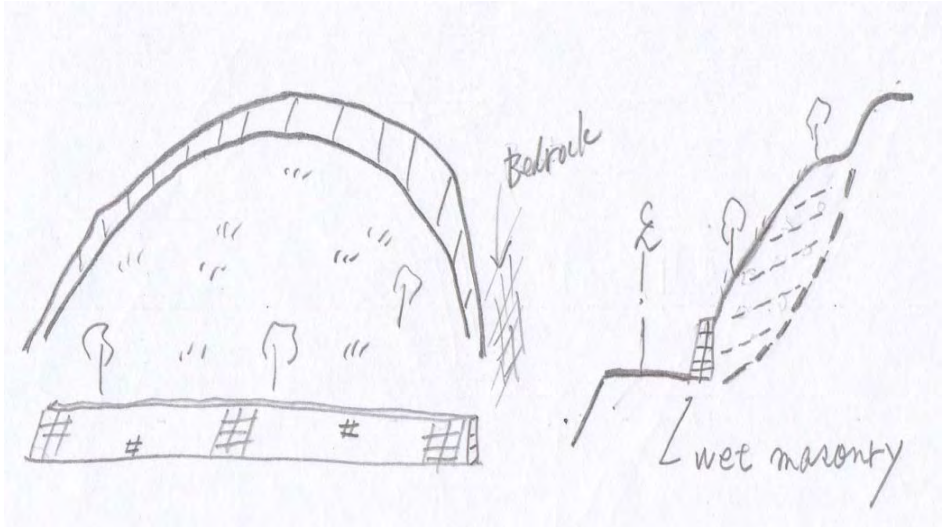
At the centre of lanslide area

Critical Slope Inventory Sheet

Section No. I-1

Slope No.	A05	Sta.	xxx	+	xxx	-	xxx	+	xxx	Side	R	Landslide type	SF

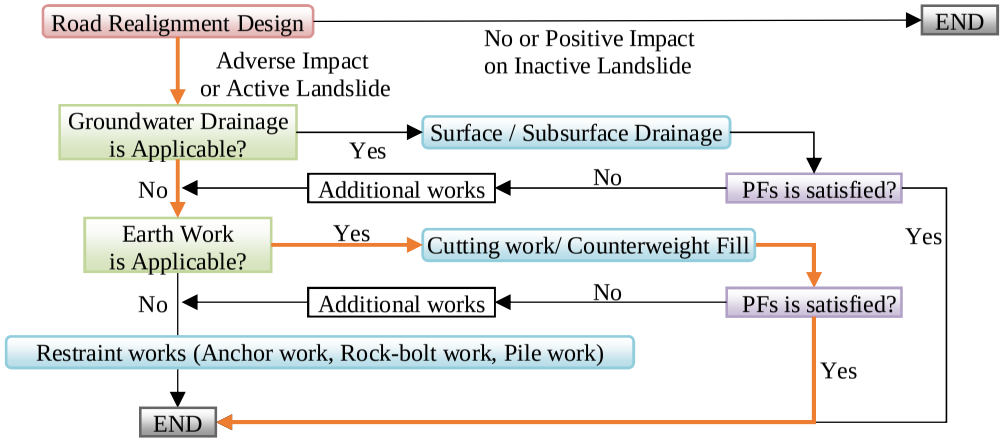
Sketch



Landslide body	Weathered Rock	Length	36	m	Width	30	m	Height	23	m

Widening	R	Impact	A	Stability	b	Evaluation	Ab

Remarks: Houses on valley side (left).



Countermeasure	GW,RS,HyS

Full view of landslide

Side view of the slope

Condition of scarp portion

Hard rock on hill slope

Scarp of landslide

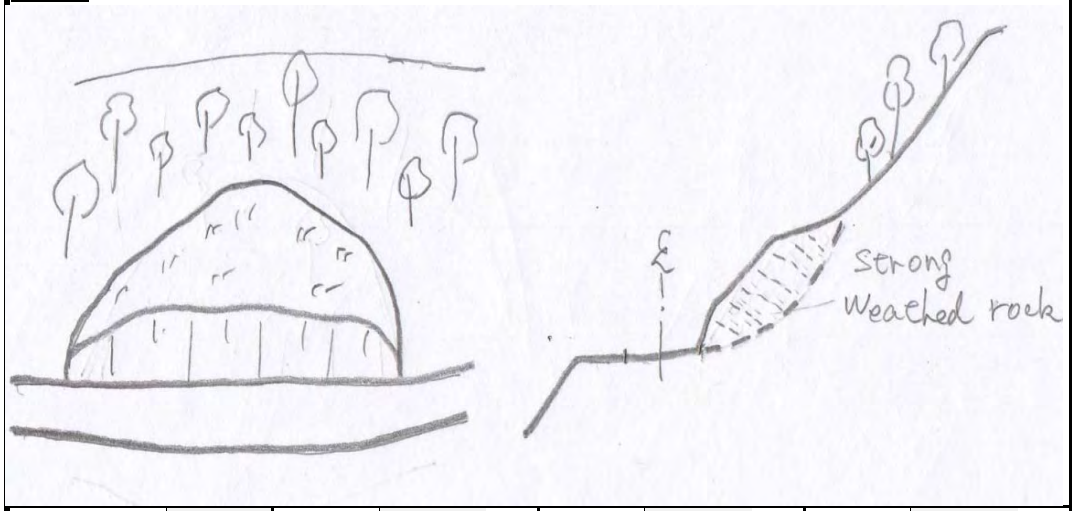
Borehole point

Critical Slope Inventory Sheet

Section No. I-1

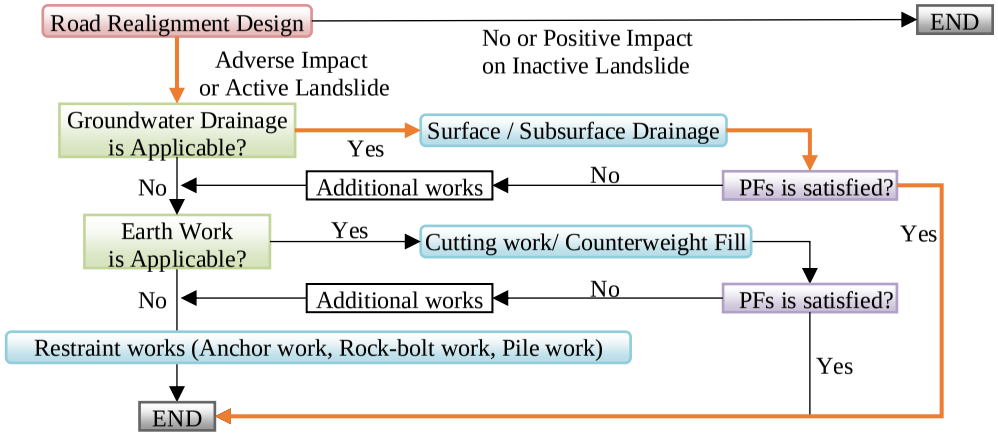
Slope No.	A11	Sta.	xxx	+	xxx	-	xxx	+	xxx	Side	R	Landslide type	SF

Sketch



Landslide body	eathered Rc	Length	80	m	Width	110	m	Height	31.4	m
Widening	L	Impact	B		Stability	b		Evaluation	Bb	

Remarks: Depending on the alignment both side widening applicable



Countermeasure GW,GwD,

Full view of slope

Side view of slope

Borehole point

Strong weather rock

Slope of hill

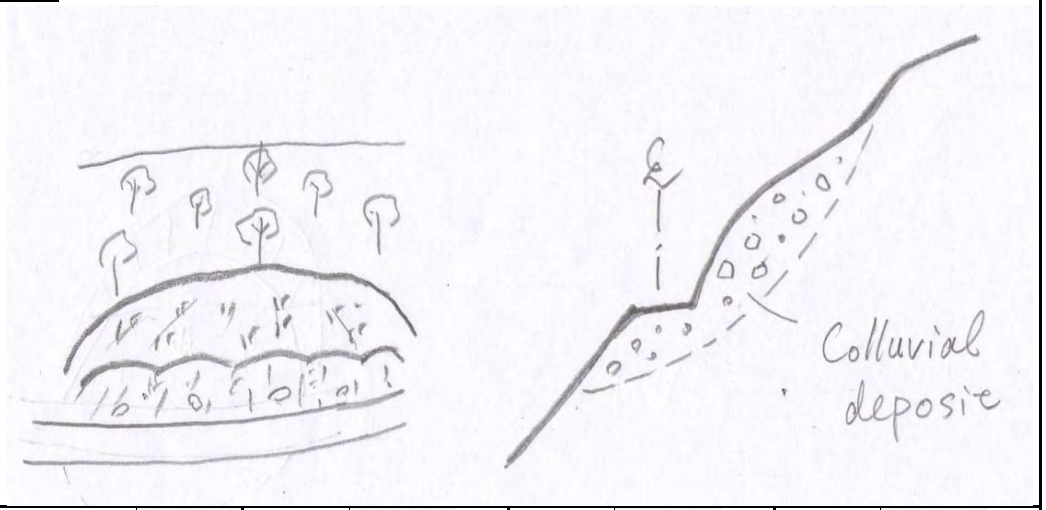
View from the hill slope

Critical Slope Inventory Sheet

Section No. I-1

Slope No.	A12	Sta.	xxx + xxx - xxx + xxx	Side	C	Landslide type	SF

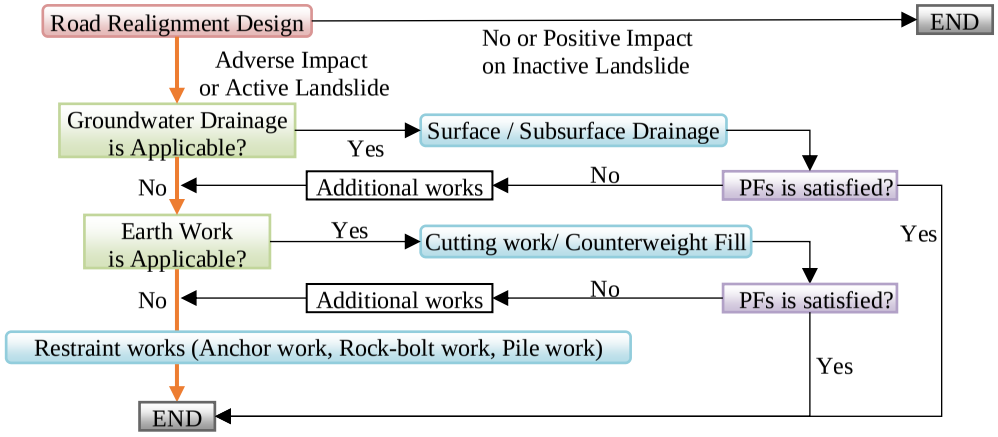
Sketch



Landslide body	Colluvium	Length	38	m	Width	65	m	Height	30	m

Widening	R	Impact	A	Stability	a	Evaluation	Aa

Remarks: Depending on the alignment both side widening applicable



Countermeasure	CrW,Anc,HyS

Full view of landslide

Side view of slope

colluvial deposit

Valley side of the slope

Road and centre line

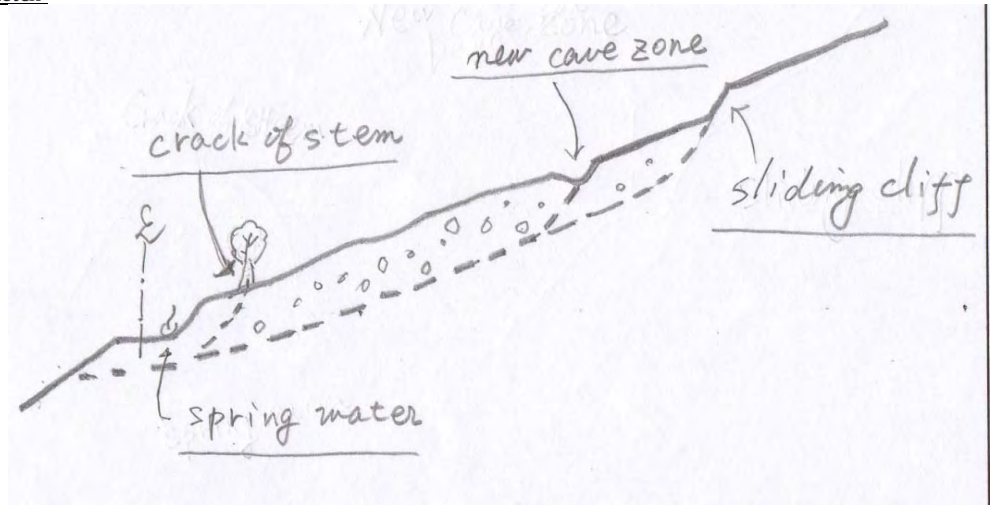
Condition of hill slope

Critical Slope Inventory Sheet

Section No. I-1

Slope No.	A14	Sta.	xxx	+	xxx	-	xxx	+	xxx	Side	R	Landslide type	MM

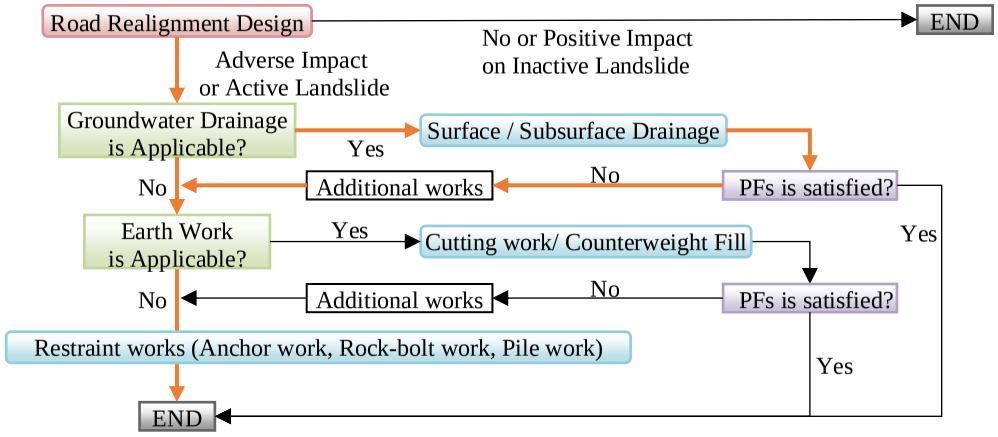
Sketch



Landslide body	Colluvium	Length	35	m	Width	50	m	Height	30	m

Widening	L	Impact	A	Stability	a	Evaluation	Aa

Remarks:



Countermeasure	GW,GwD,

Full view of landslide

Valley of the slope

Accumulate waste water

Scarp of landslide

Front view of slope

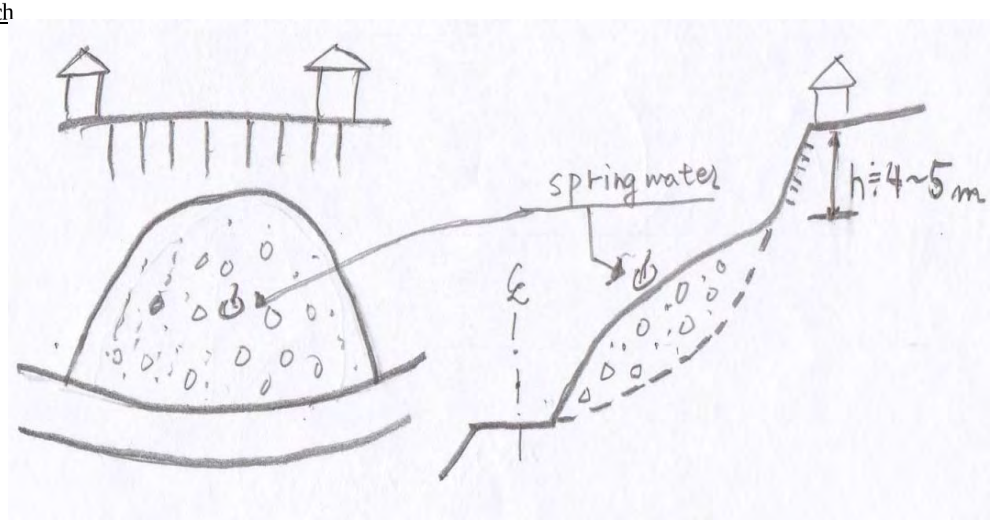
Road and centre line

Critical Slope Inventory Sheet

Section No. I-1

Slope No.	A15	Sta.	23	+	xxx	-	xxx	+	xxx	Side	R	Landslide type	SF

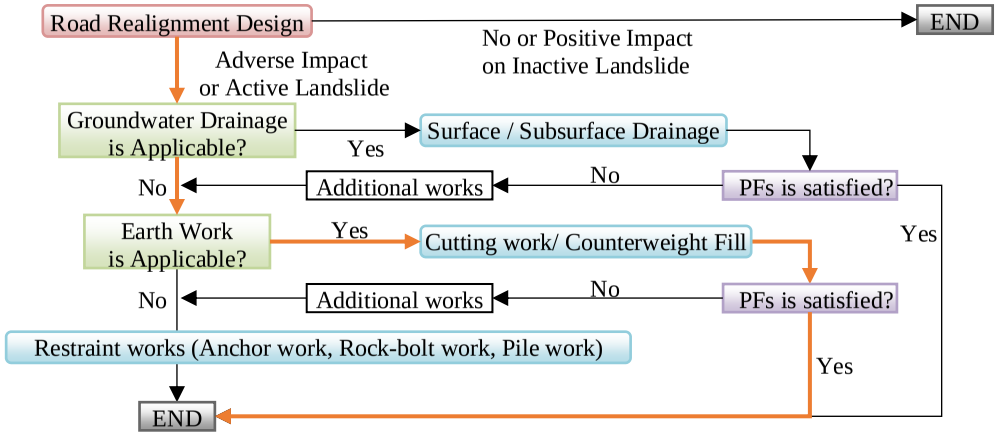
Sketch



Landslide body	Colluvium	Length	26.4	m	Width	17.8	m	Height	13	m

Widening	R	Impact	B	Stability	a	Evaluation	Ba

Remarks:



Countermeasure	GW,RS

Full view of landslide

Side view of landslide

Top portion of scarp

Deposit soil of landslide

Side view

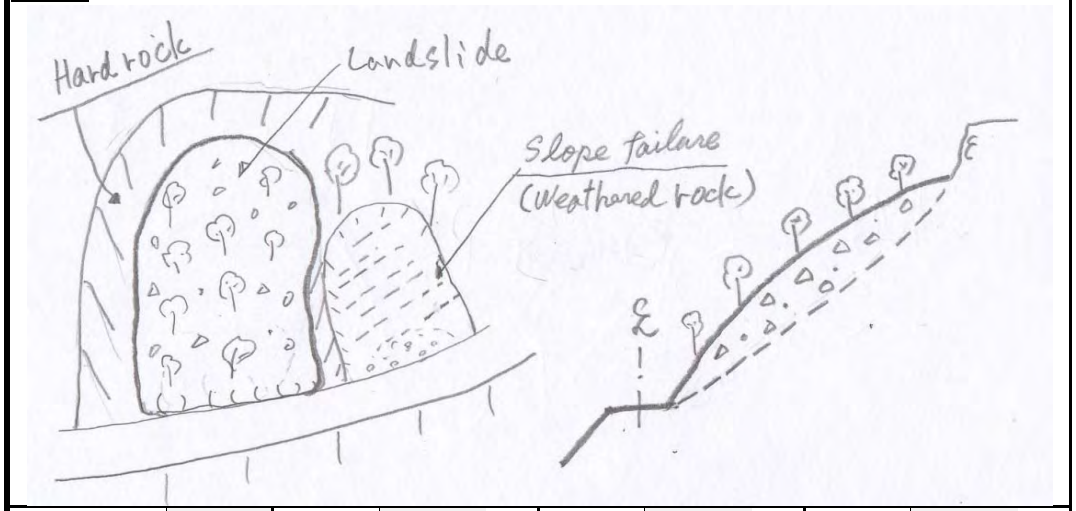
Centre of landslide

Critical Slope Inventory Sheet

Section No. I-1

Slope No.	A21	Sta.	57	+	750	-	57	+	800	Side	R	Landslide type	MM-p

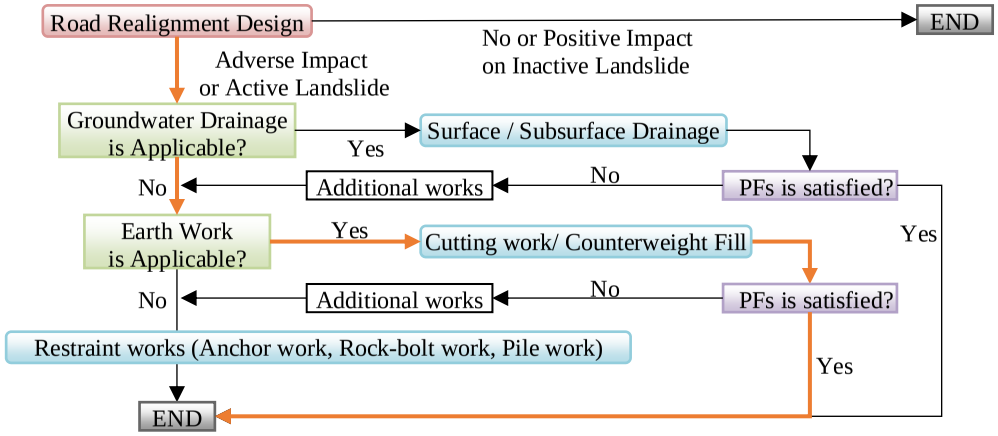
Sketch



Landslide body	Colluvium	Length	28	m	Width	66	m	Height	53	m

Widening	L	Impact	A	Stability	b	Evaluation	Ab

Remarks: If it is necessary to cut on hill side, anchor worls shall be applied for stabilization.



Countermeasure	GW,GwD,(CrW,Anc)

Full Side view from North

View from beginning point

Hard rock at the side

Head portion of lanslide

View from centre line

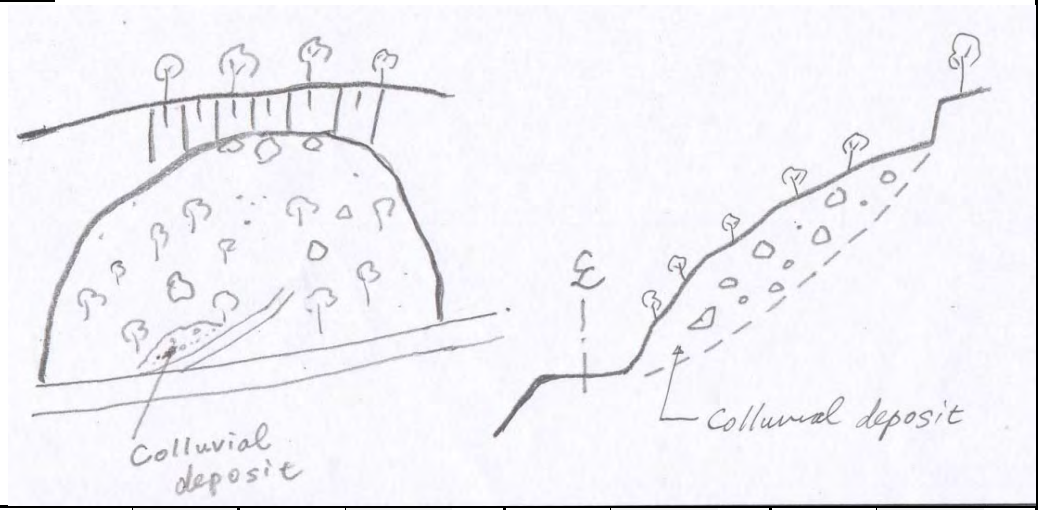
Road condition with centre line

Critical Slope Inventory Sheet

Section No. I-1

Slope No.	A22	Sta.	57	+	820	-	57	+	900	Side	R	Landslide type	MM-p

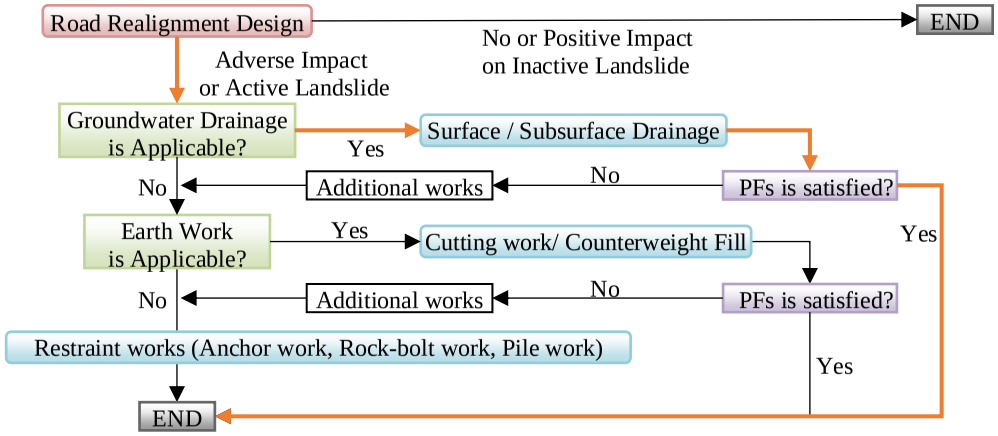
Sketch



Landslide body	Colluvium	Length	70	m	Width	74	m	Height	66.8	m

Widening	L	Impact	A	Stability	b	Evaluation	Ab

Remarks: If it is necessary to cut on hill side, anchor worls shall be applied for stabilization.



Countermeasure	GW,GwD,(CrW,Anc)


Full view of landslide


Front view of landslide


Soil condition


Scarp of landslide


Drainage line and Bore hole point

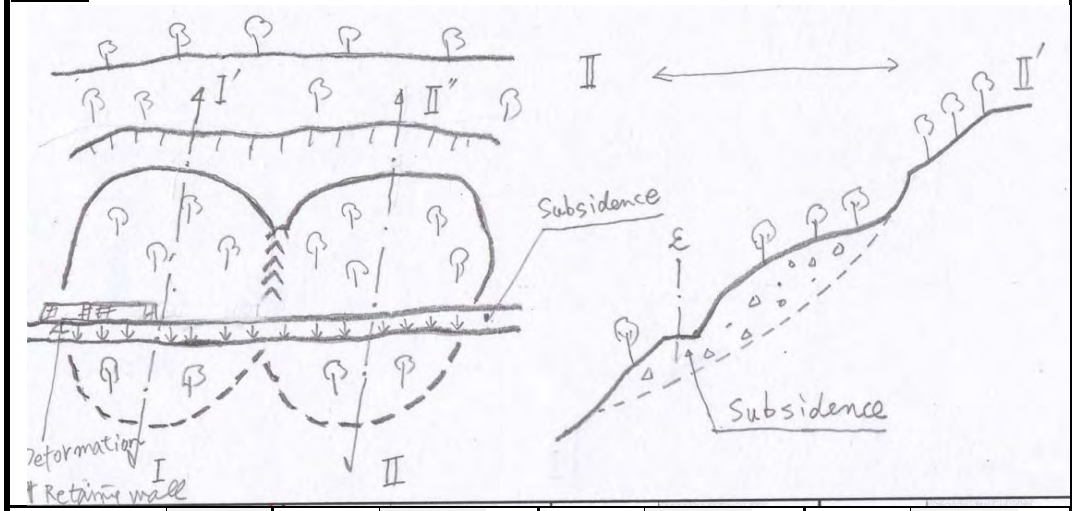

Borehole point

Critical Slope Inventory Sheet

Section No. I-1

Slope No.	A25	Sta.	61	+	790	-	61	+	930	Side	L	Landslide type	MM

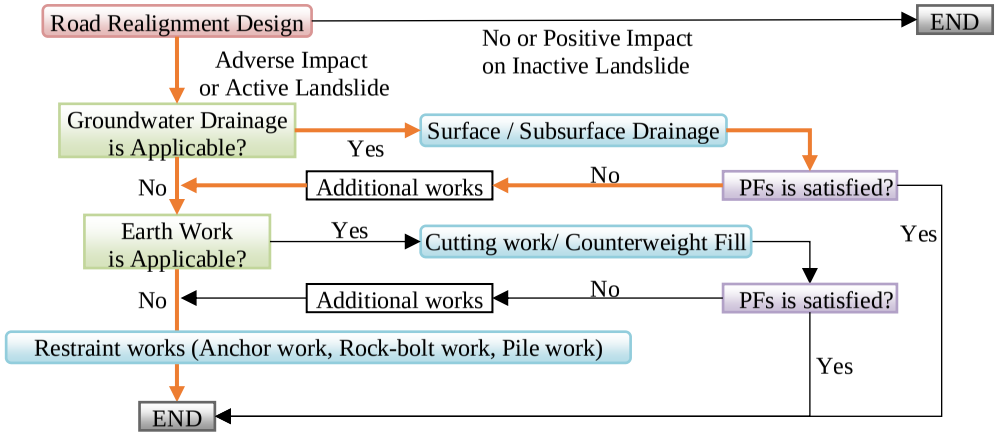
Sketch



Landslide body	Colluvium	Length	131	m	Width	45.8	m	Height	33	m

Widening	R	Impact	A	Stability	a	Evaluation	Aa

Remarks:



Countermeasure	GW,GwD,Hys,CrW,Anc

Full view of slope

Full view from beginning point

Deformation of retaining wall

Road condition

Bore hole point

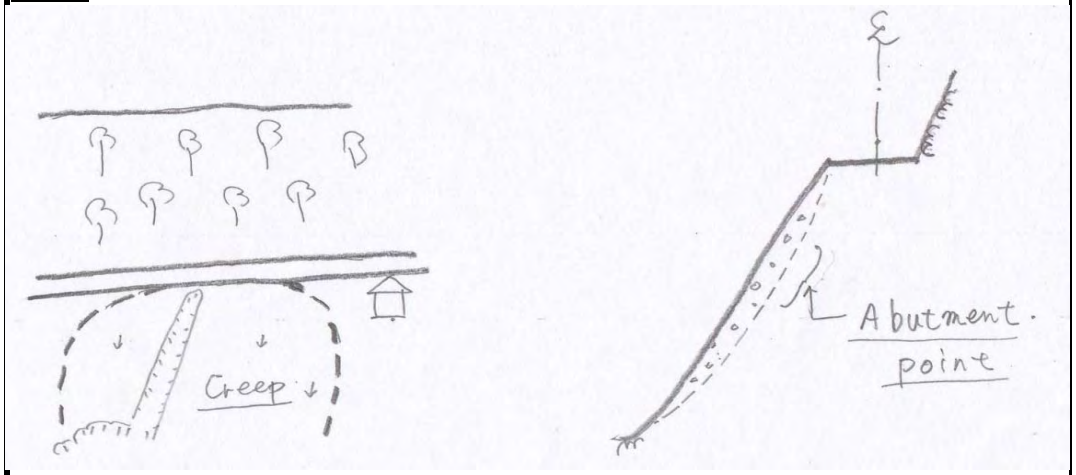
Bottom of valley side

Critical Slope Inventory Sheet

Section No. I-2

Slope No.	A28	Sta.	77	+	600	-	77	+	620	Side	R	Landslide type	SF

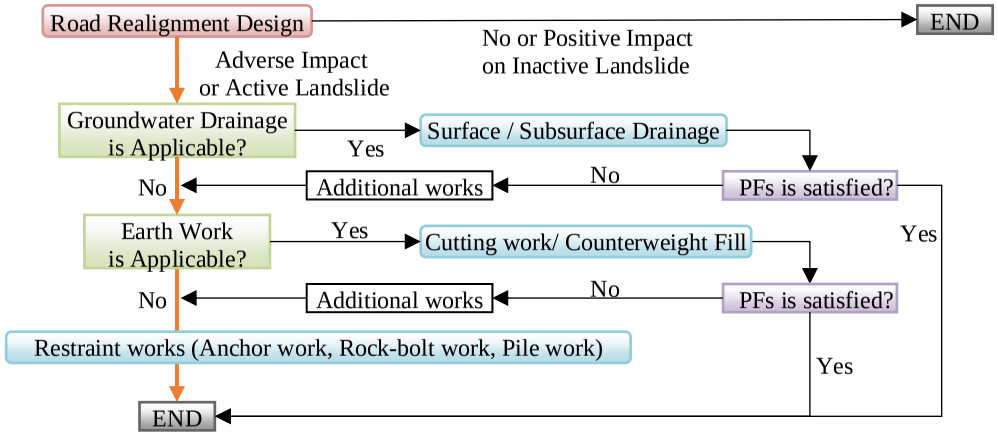
Sketch



Landslide body	Colluvium	Length	30	m	Width	28	m	Height	19.2	m

Widening	Bridge	Impact	B	Stability	a	Evaluation	Ba

Remarks: New bridge is planned and the abutment is located at the top of the slope failure. (Chhingchhip bridge)



Countermeasure	CrW,RB

Full view of Critical slope

Point of bore hole

Highly weather soil deposit

Crack of dump soil

Top of slope

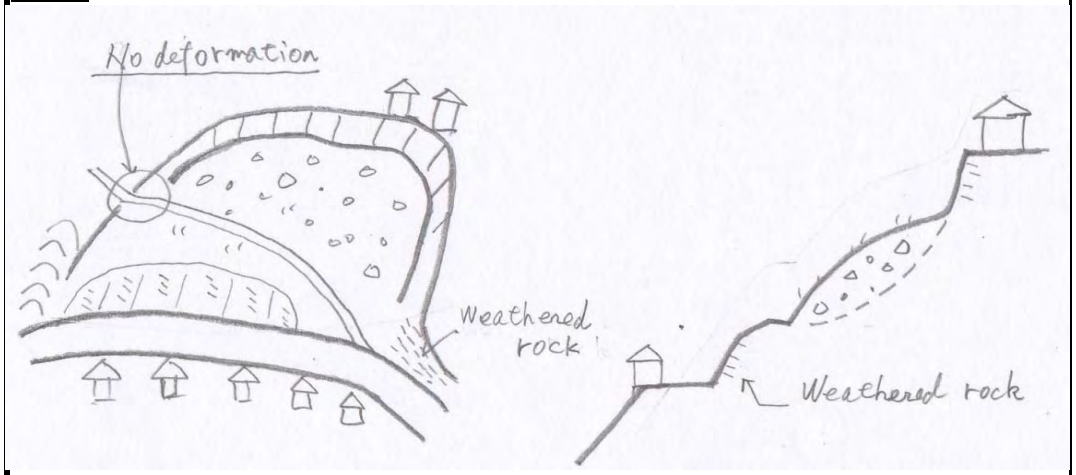
Bottom of slope

Critical Slope Inventory Sheet

Section No. I-2

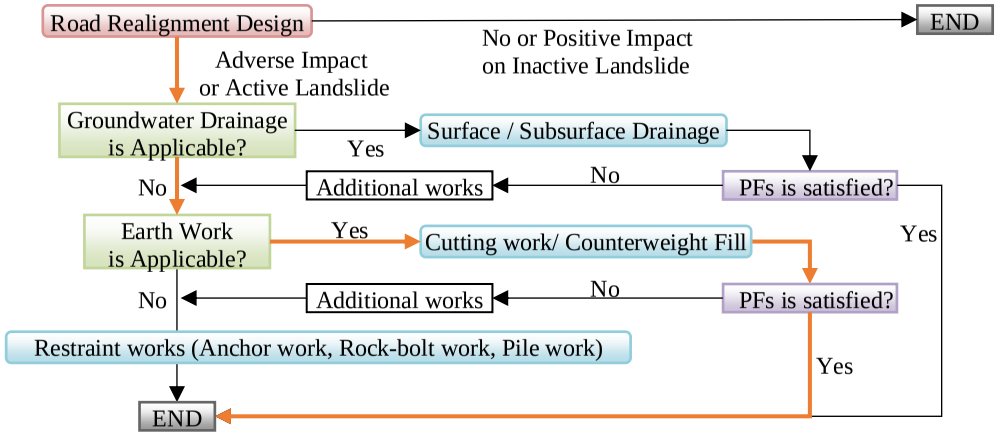
Slope No.	A29	Sta.	79	+	790	-	79	+	825	Side	R	Landslide type	MM

Sketch



Landslide body	Colluvium	Length	35	m	Width	25	m	Height	17	m
Widening	R	Impact	B		Stability	a		Evaluation	Aa	

Remarks: Rock-bolt and crib works are planned on the scarp slope.



Countermeasure	GW,GwD,HyS,RS,CrW,RB

Full vie of landslide

Front view of landslide

pattern of soft rock

View from the top of lanslide

Road condition

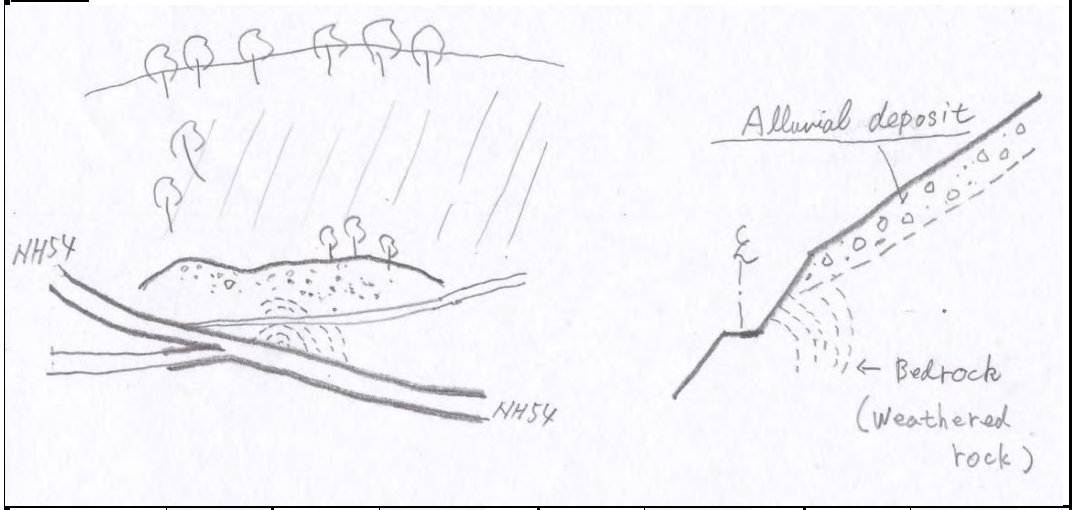
Earthen foot path across lanslide

Critical Slope Inventory Sheet

Section No. I-2

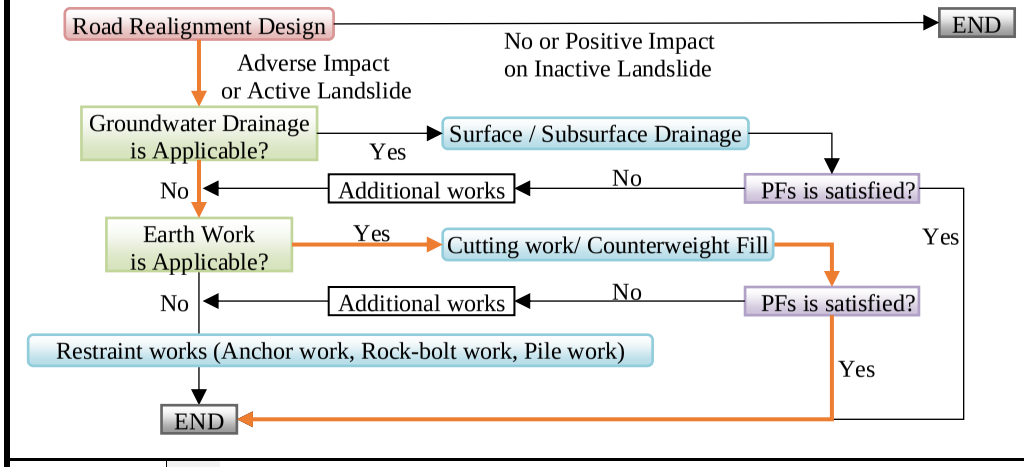
Slope No.	A33	Sta.	80	+	300	-	80	+	375	Side	R	Landslide type	SF

Sketch



Landslide body	Colluvium	Length	80	m	Width	100	m	Height	40	m
Widening	R	Impact	A		Stability	b		Evaluation	Ab	

Remarks: Widening on hill side is up to foot path, and one on valley side needs connection to side road.



Countermeasure	GW,HyS

Full view of landslide

Full view of Critical slope

Unstable soil

Road condition

Fresh scarp

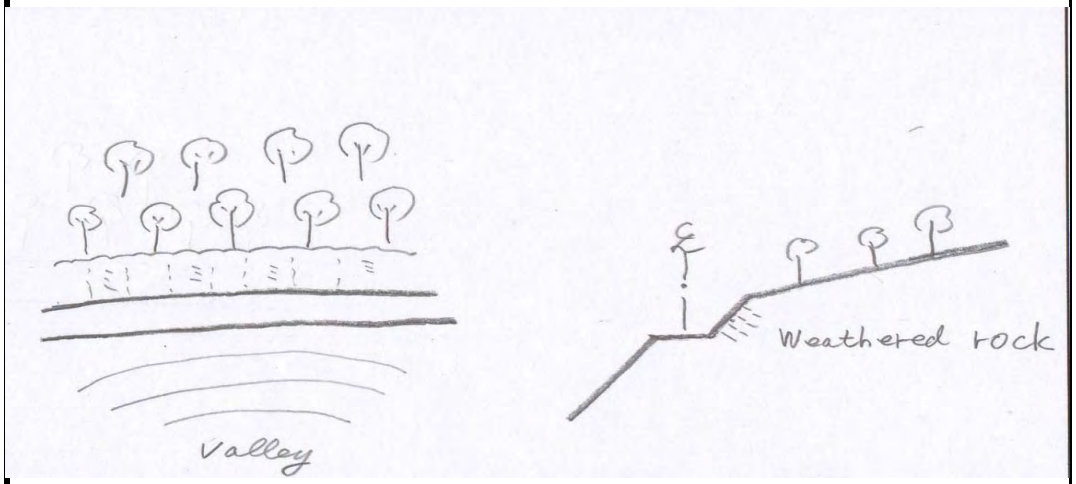
Minor lanslide on earthen road

Critical Slope Inventory Sheet

Section No. I-2

Slope No.	A30	Sta.	98	+	350	-	98	+	400	Side	R	Landslide type	MM-p

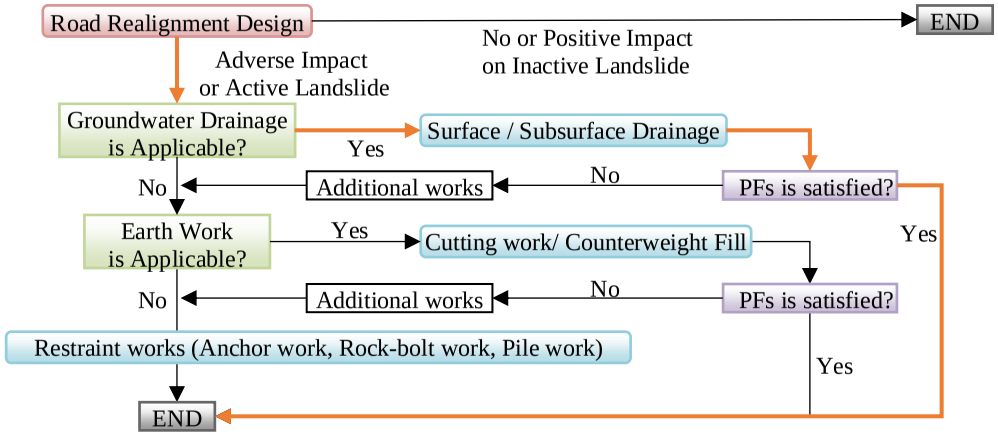
Sketch



Landslide body	Colluvium	Length	75	m	Width		m	Height		m

Widening	R	Impact	A	Stability	b	Evaluation	Ab

Remarks:



Countermeasure	GW,GwD,

Full View of slope

View from other side

Tree root branch out

weather soil

Road condition

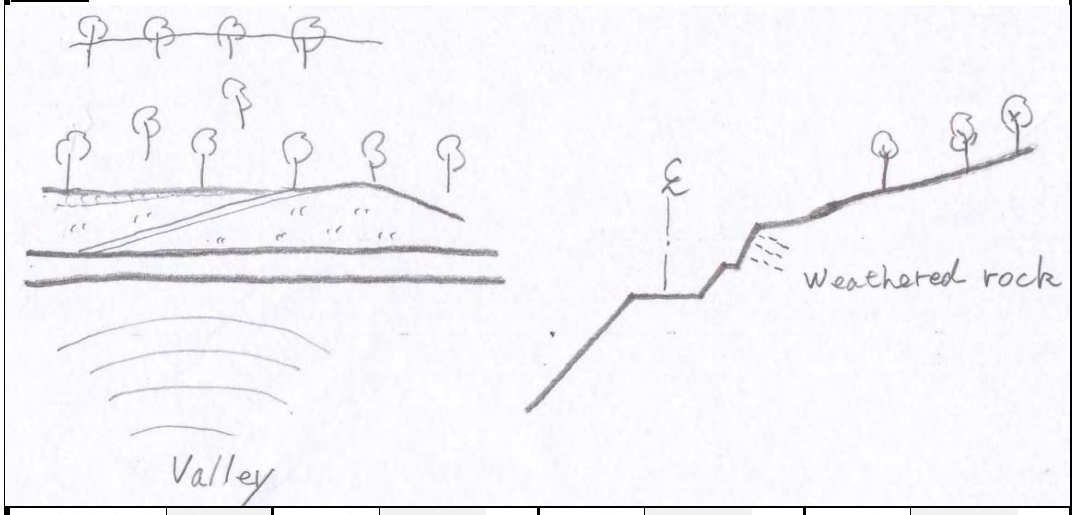
loose soil deposit

Critical Slope Inventory Sheet

Section No. I-2

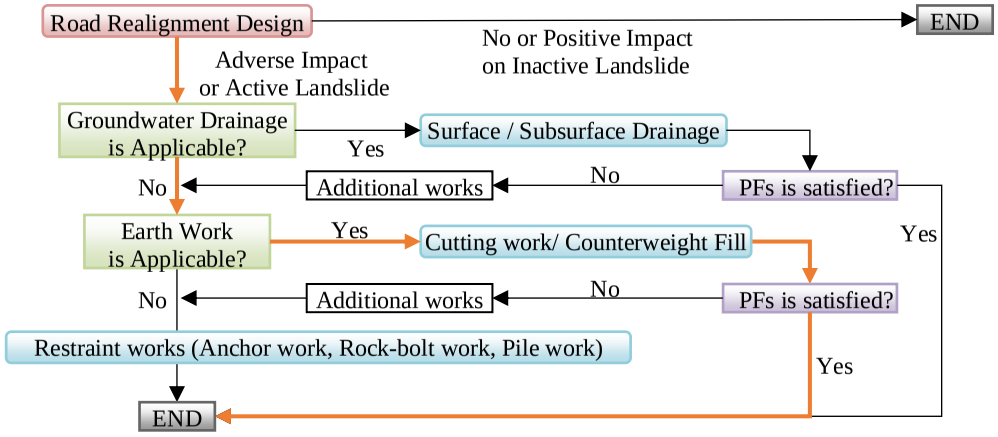
Slope No.	A31	Sta.	98	+	400	-	98	+	450	Side	L	Landslide type	SF

Sketch



Landslide body	eathered Rc	Length		m	Width	6.4	m	Height	2	m
Widening		Impact	C		Stability	c		Evaluation		

Remarks:



Countermeasure GW,GwD,

Full view of Critical slope

Front view of slope

Highly weather soil

Road condition

Slope of valley side

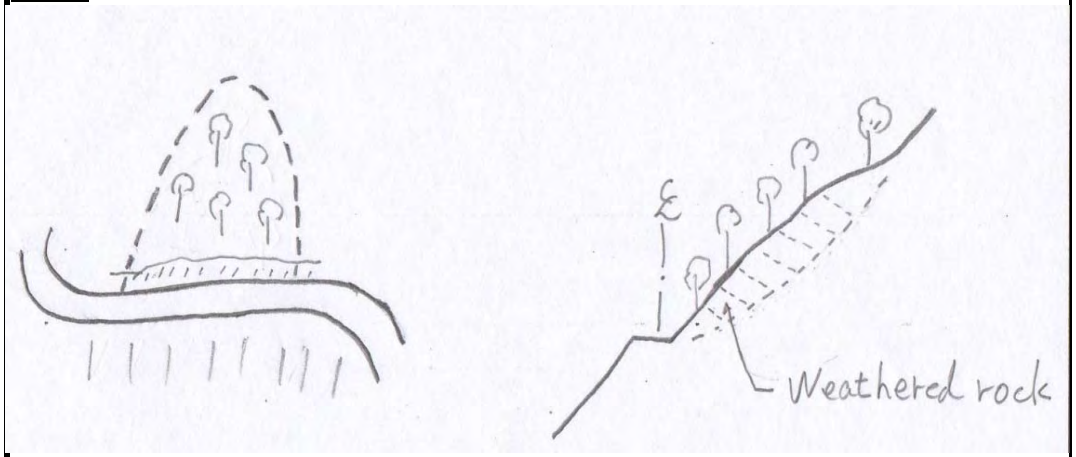
Earthen Road

Critical Slope Inventory Sheet

Section No. I-2

Slope No.	B01	Sta.	111	+	725	-	xxx	+	xxx	Side	L	Landslide type	SF

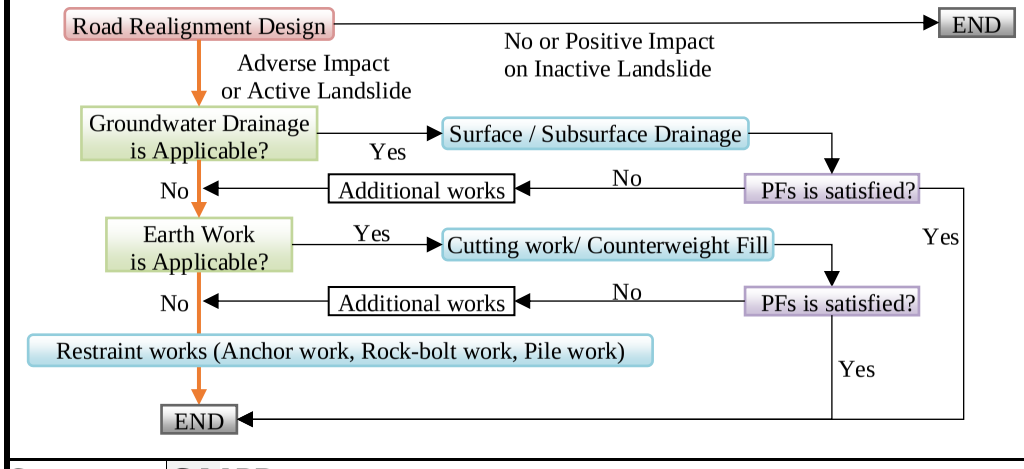
Sketch



Landslide body	Weathered Rock	Length	30	m	Width	50	m	Height	30	m

Widening	R	Impact	B	Stability	b	Evaluation	Bb

Remarks:



Countermeasure	CrW,RB

Full view of landslide

View from beginning point

Sandy soil

Soil condition

Front view of hill side

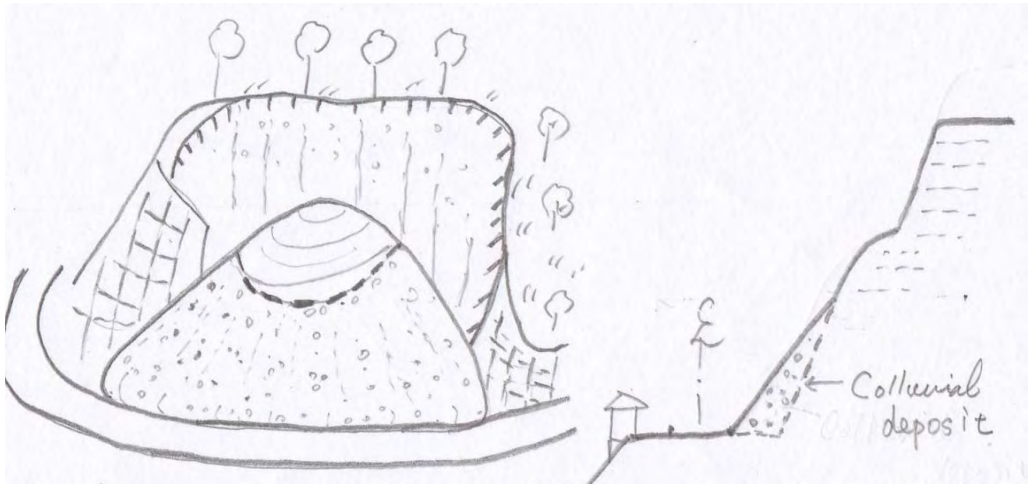
General slope of the section

Critical Slope Inventory Sheet

Section No. II-1

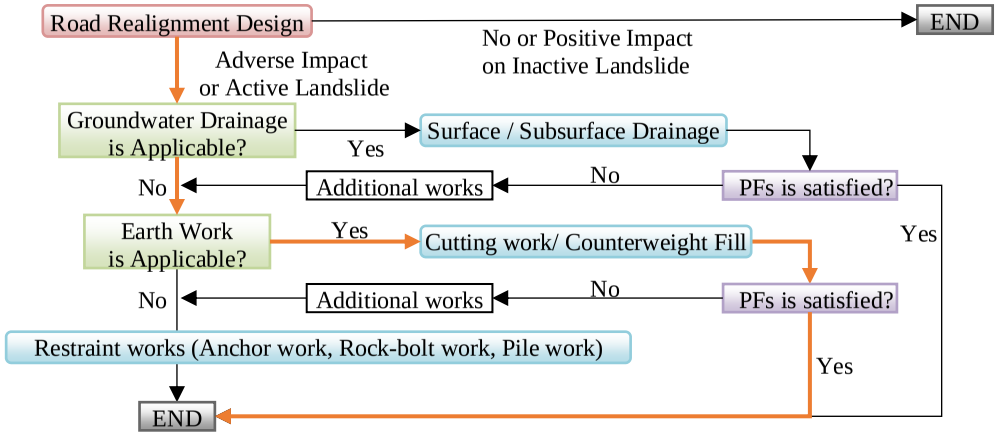
Slope No.	B17	Sta.	xxx	+	xxx	-	xxx	+	xxx	Side	R	Landslide type	SF

Sketch



Landslide body	Colluvium	Length	17	m	Width	10.6	m	Height	9.8	m
Widening	R	Impact	B		Stability	b		Evaluation	Bb	

Remarks: Houses on valley side (left side).



Countermeasure	RS,HyS

Full view of landslide

View from beginning point

Condition of soil

Front view of lanslide

General slope of landslide

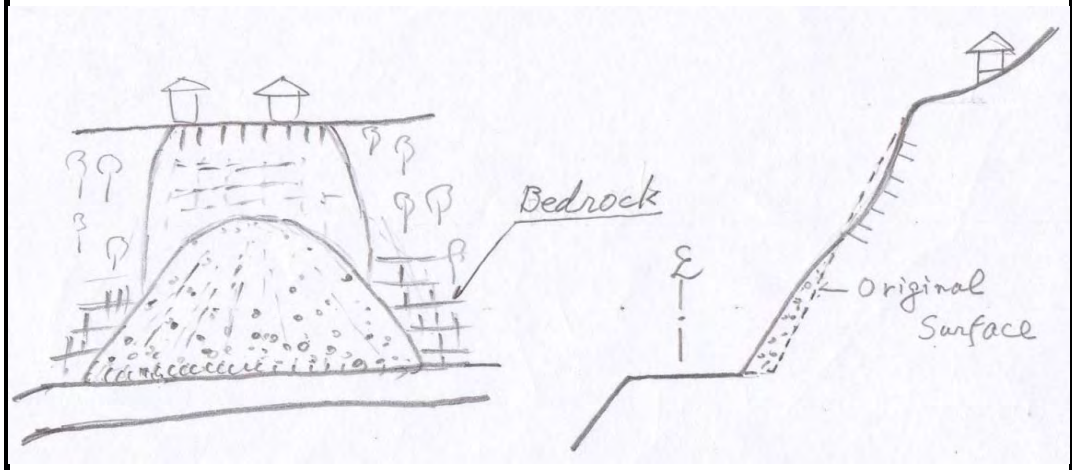
Road condtion

Critical Slope Inventory Sheet

Section No. II-2

Slope No.	B18	Sta.	172	+	000	-	172	+	025	Side	L	Landslide type	SF

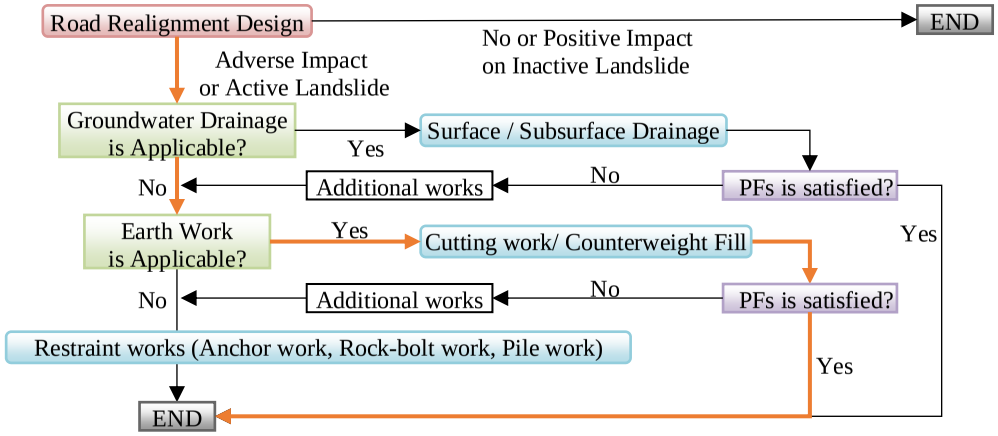
Sketch



Landslide body	Colluvium	Length	16.5	m	Width	20	m	Height	20	m

Widening	L	Impact	B	Stability	a	Evaluation	Ba

Remarks: Rock-bolt and Crib works are planned on the scarp slope.
Inside Hnahthial bypass section.

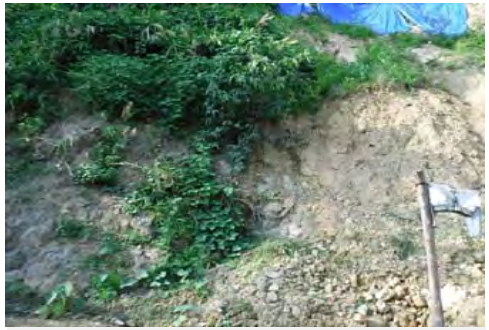


Countermeasure	RW, RS, CrW, RB

Full view of slope

View from beginning point

Bed rock formation



Vegetation,loose soil on hill side

Slope of land slide

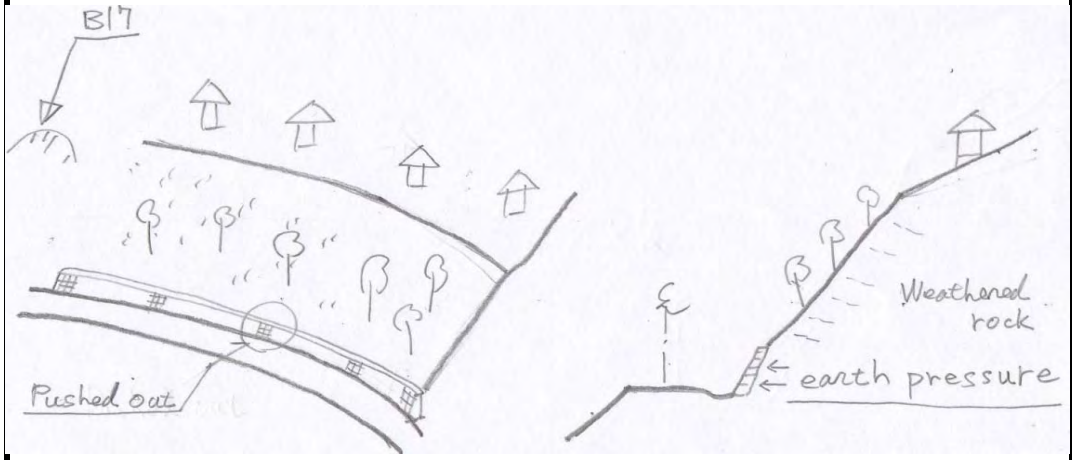
View from top of landslide

Critical Slope Inventory Sheet

Section No. II-2

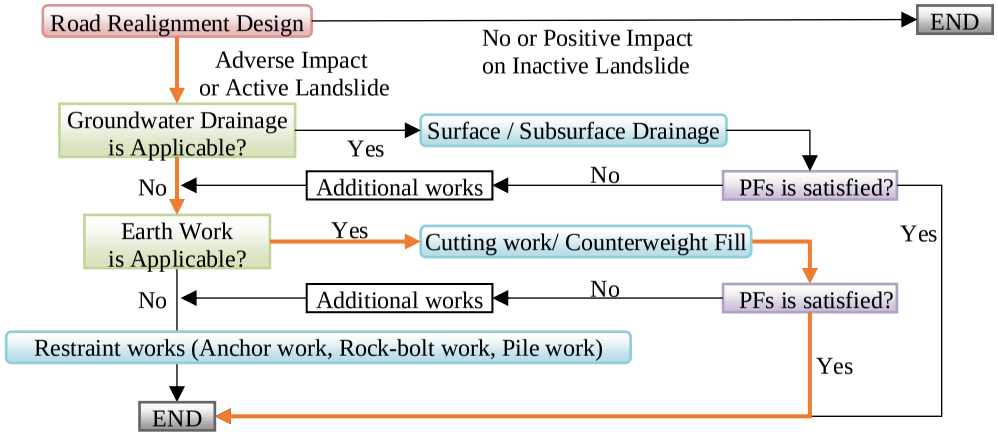
Slope No.	B05	Sta.	172	+	075	-	172	+	120	Side	L	Landslide type	MM

Sketch



Landslide body	Colluvium	Length	45	m	Width	25	m	Height	18	m
Widening	L	Impact	A		Stability	a		Evaluation	Aa	

Remarks: Inside Hnahthial bypass section.



Countermeasure: GW (or RW) as counterweightfill

Full view of landslide

Full view from beginning point

Weather rock

Dusted out

Earthen wall formation

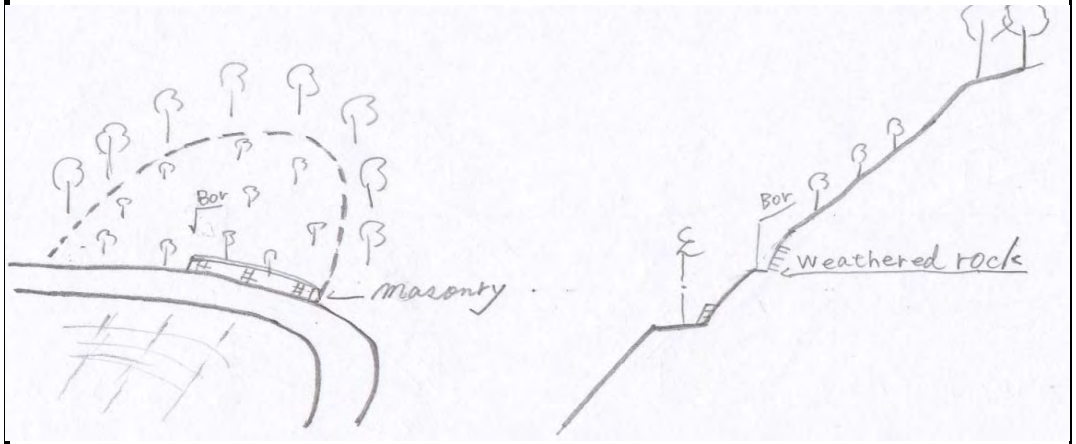
Borehole point at top of landslide

Critical Slope Inventory Sheet

Section No. II-2

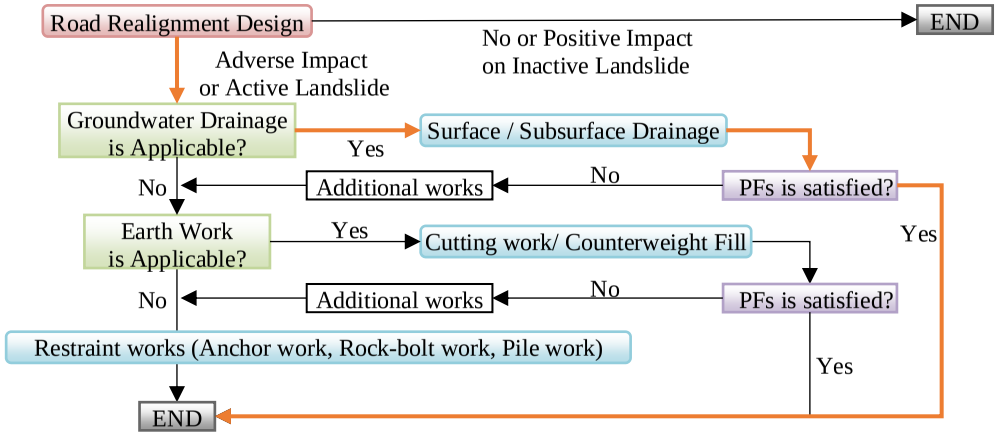
Slope No.	B07	Sta.	174 + 780	-	174 + 820	Side	L	Landslide type	MM

Sketch



Landslide body	Weathered Rock	Length	51	m	Width	60	m	Height	30	m
Widening	R	Impact	B		Stability	b		Evaluation	Bb	

Remarks:



Countermeasure	GW,GwD

Full view of the slope

View from beginning point

Bed rock formation

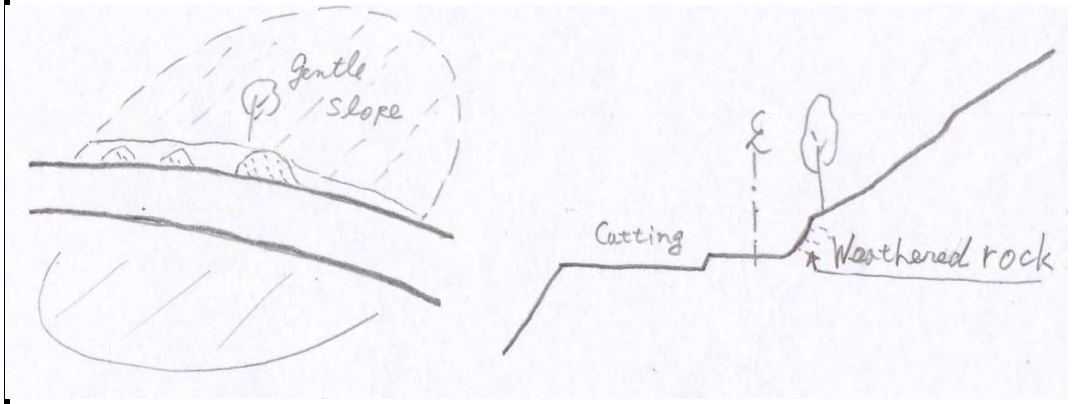
Loose soil

Retaining wall on hill side

Earthen drainage

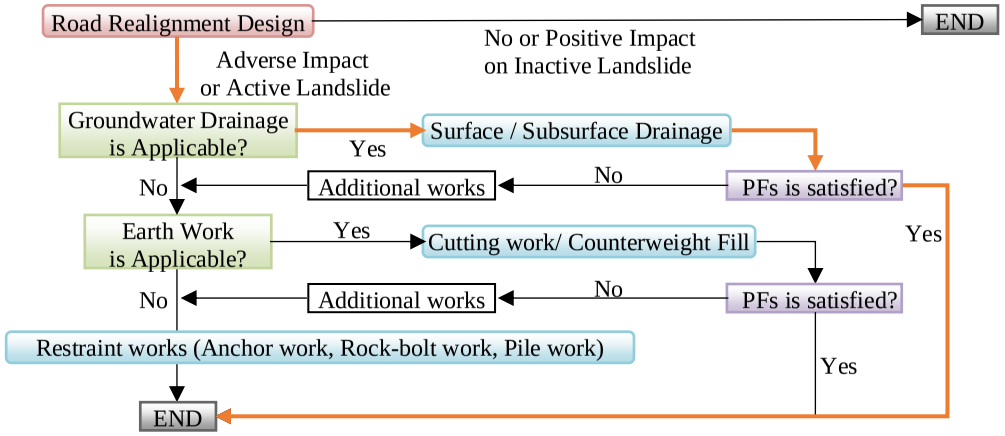
Slope No.	B09	Sta.	xxx	+	xxx	-	xxx	+	xxx	Side	C	Landslide type	MM-p

Sketch



Landslide body	eathered Rc	Length	90	m	Width	100	m	Height	30	m
Widening	L	Impact	B		Stability	b		Evaluation	Bb	

Remarks:



Countermeasure	GB,GwD

Full view of slope

View from beginning point

Soil condtion

Cut of earthen soil

General slope of hill

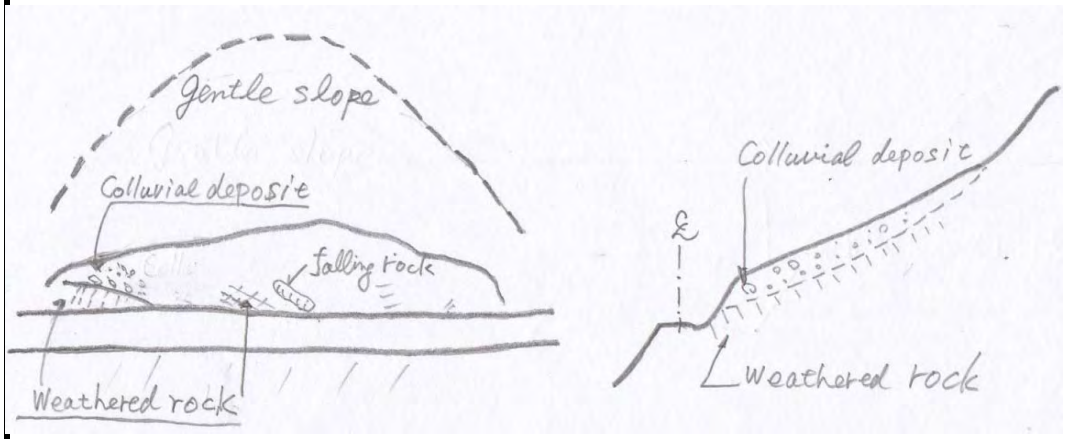
Old asphalt batching plant station on valley side

Critical Slope Inventory Sheet

Section No. II-2

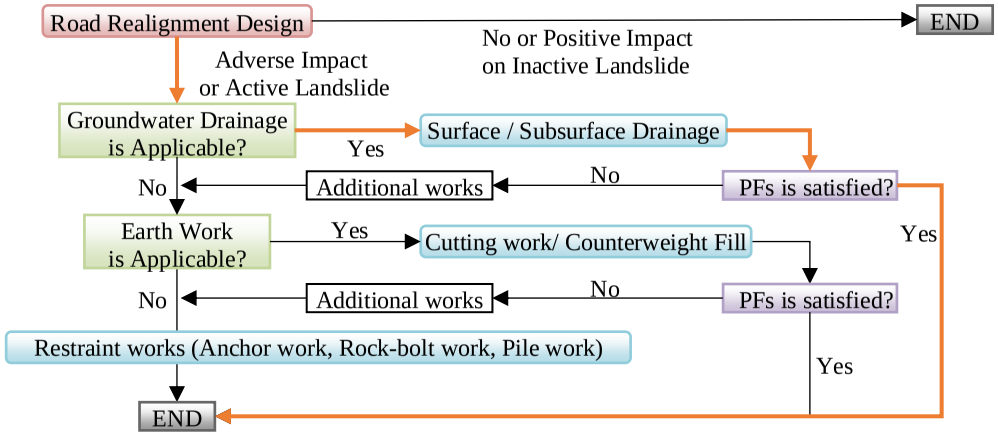
Slope No.	B10	Sta.	200	+	100	-	xxx	+	xxx	Side	R	Landslide type	SF

Sketch



Landslide body	Colluvium	Length	60	m	Width	60	m	Height	45	m
Widening	L	Impact	A		Stability	b		Evaluation	Ab	

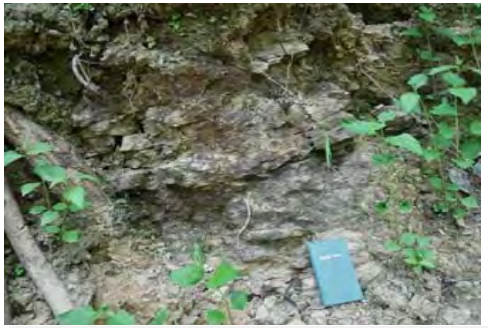
Remarks:



Countermeasure	GW,GwD

Vull view of the slope

Rock formation



Tilt of bed rock

Cut slope

Earthen drainage line

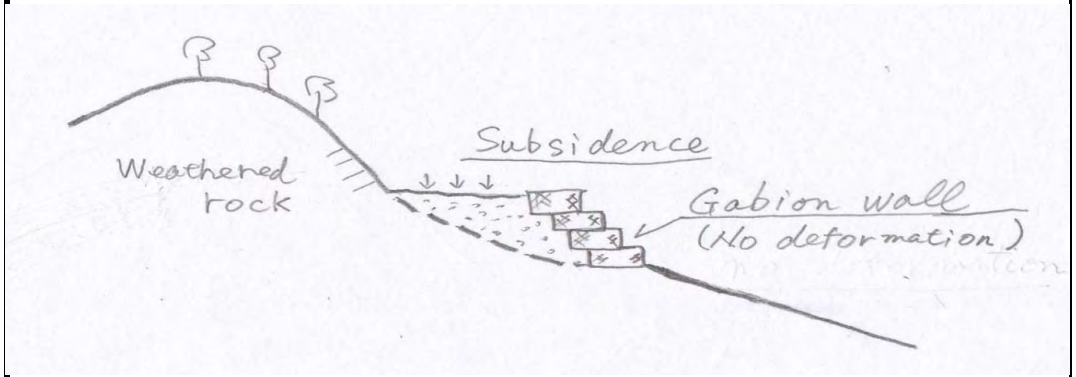
Borehole machine work in progress

Critical Slope Inventory Sheet

Section No. II-3

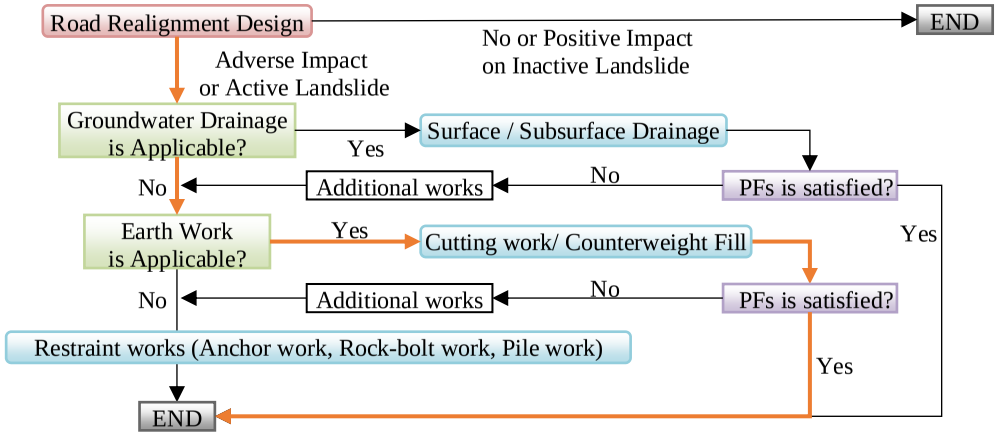
Slope No.	B13	Sta.	208	+	781	-	xxx	+	xxx	Side	R	Landslide type	MM-p

Sketch



Landslide body	Colluvium	Length	60	m	Width	100	m	Height	30	m
Widening	L	Impact	B		Stability	b		Evaluation	Bb	

Remarks:



Countermeasure	GW,GwD,CwF

Full view of slope

Slope of Valley side

Geological structure of soil

Cutting formation of hill side

Gabion wall on valley sie

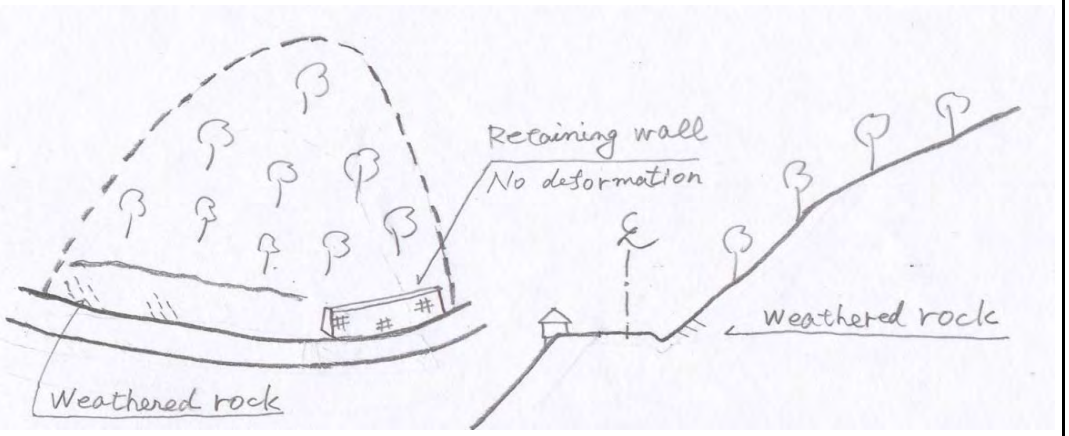
Road condition

Critical Slope Inventory Sheet

Section No. II-3

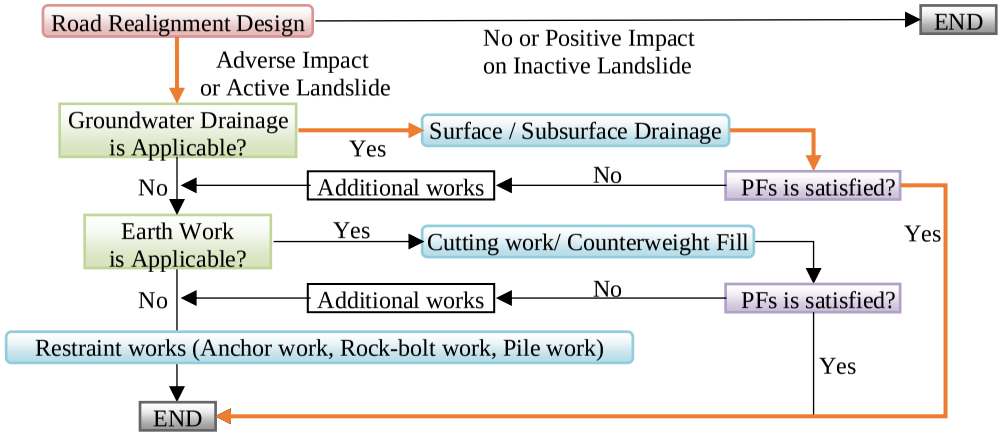
Slope No.	B14	Sta.	209	+	390	-	209	+	450	Side	R	Landslide type	MM-p

Sketch



Landslide body	Weathered Rock	Length	58	m	Width	50	m	Height	30	m
Widening	R	Impact	A		Stability	b		Evaluation	Ab	

Remarks: Houses on valley (left) side



Countermeasure GW, GwD

Full view of the slope

View from beginning point

Bed rock deformation

Hard rock on hill side

Retaining wall on hill side

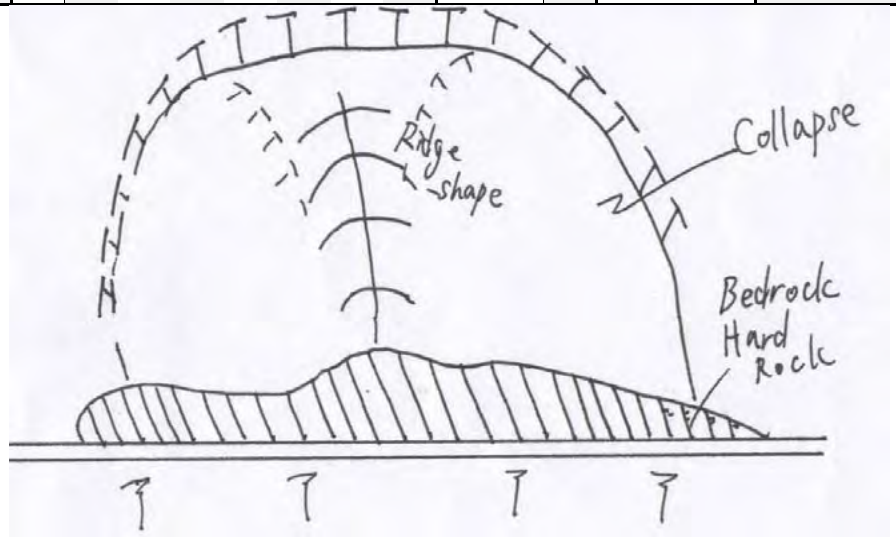
Bore hole point on hill side

Critical Slope Inventory Sheet

Section No. II

Slope No.	C23	Sta.	xxx	+	xxx	-	xxx	+	xxx	Side	L	Landslide type	SF

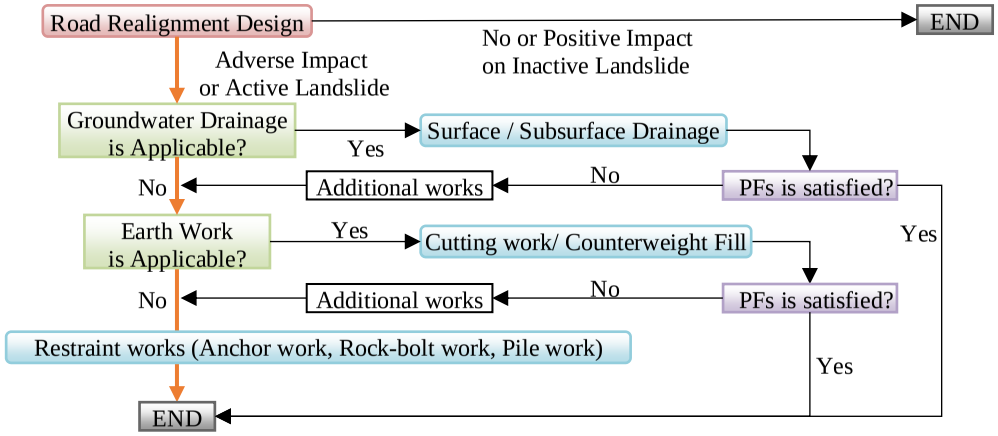
Sketch



Landslide body	Colluvium	Length	46	m	Width	101	m	Height	42	m

Widening	R	Impact	B	Stability	a	Evaluation	Ba

Remarks: New landslide



Countermeasure	RfPF

Full view of slope

View from beginning point

Bed layer of rock

Geological rock structure

Slope of valley side

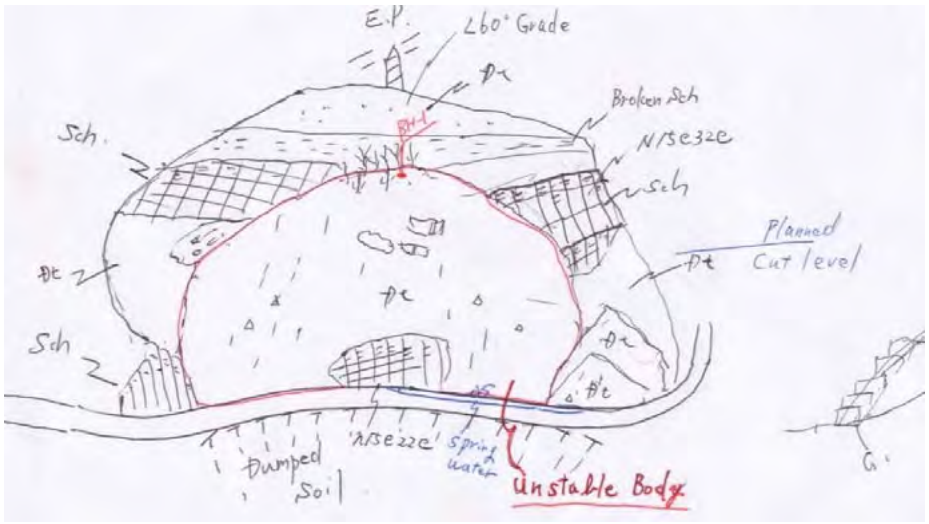
General view of the slop

Critical Slope Inventory Sheet

Section No. II

Slope No.	C22	Sta.	262	+	185.0	-	262	+	225	Side	L	Landslide type	SF

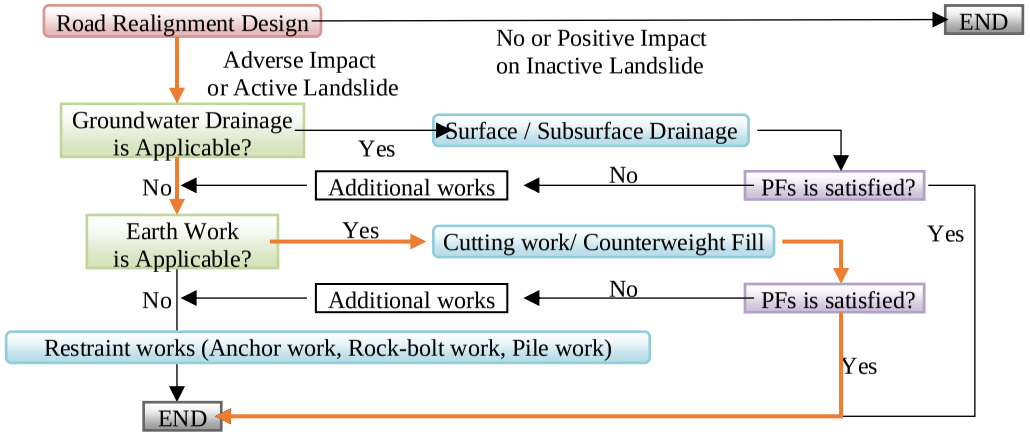
Sketch



Landslide body	Weathered Rock	Length	138	m	Width	31	m	Height	31	m

Widening	L.R	Impact	A	Stability	a	Evaluation	Aa

Remarks:



Countermeasure	GW,GwD,

Full view of landslide

View from beginning point

Slope of valley side

Section of landslide

Ground water seepage

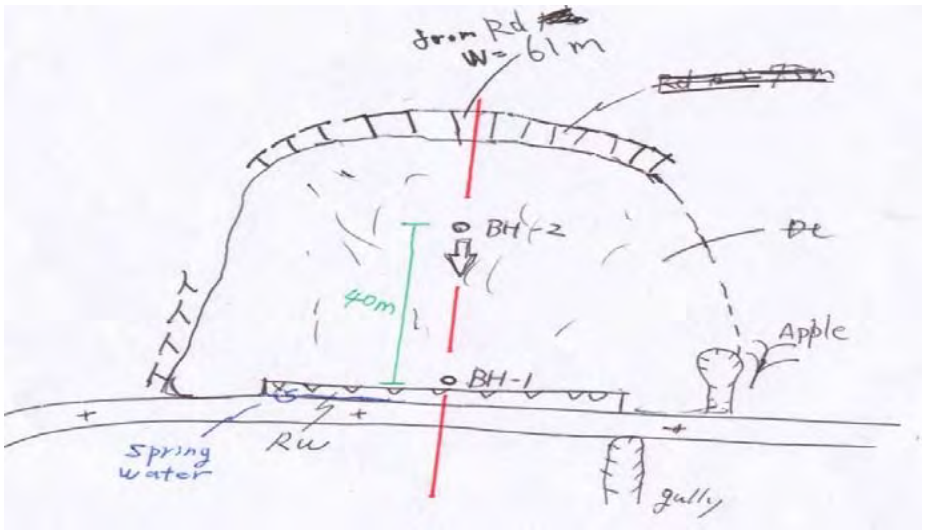
Road condition

Critical Slope Inventory Sheet

Section No. II

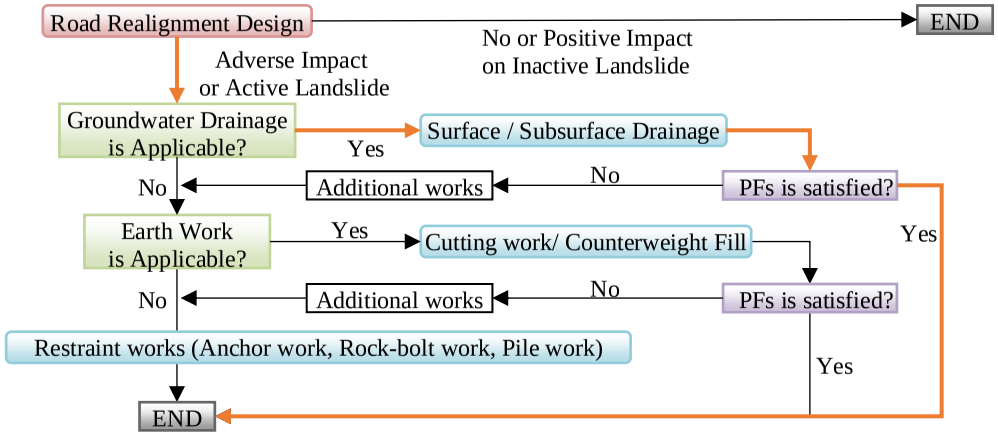
Slope No.	C11	Sta.	239	+	130	-	239	+	185	Side	R	Landslide type	MM-P

Sketch



Landslide body	Colluvium	Length	47	m	Width	60	m	Height	50	m
Widening	R	Impact	A		Stability	b		Evaluation	Ab	

Remarks:



Countermeasure	GwD

Full view of slope

View from beginning point

Spring water at the botom of wall

Masaonry retaining wall

Road condition

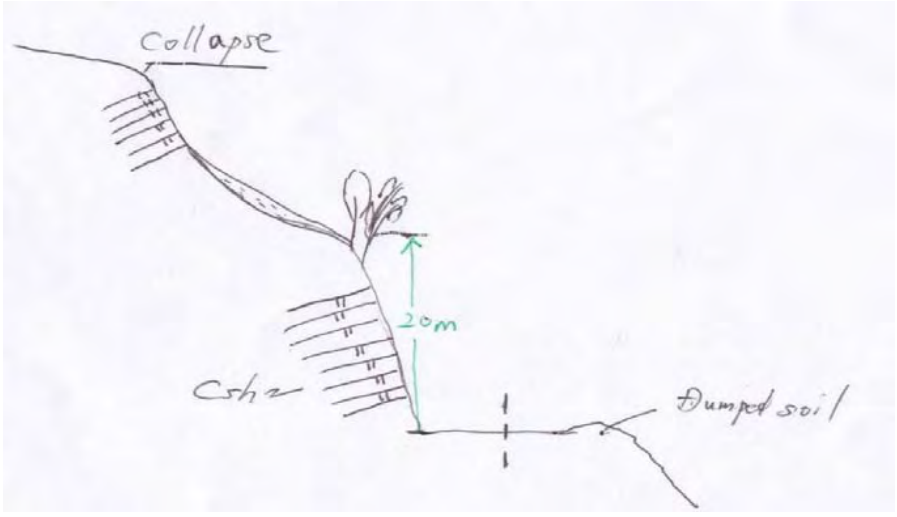
Front view of the slope

Critical Slope Inventory Sheet

Section No. II

Slope No.	C21	Sta.	241	+	604	-	241	+	647	Side	L	Landslide type	SF

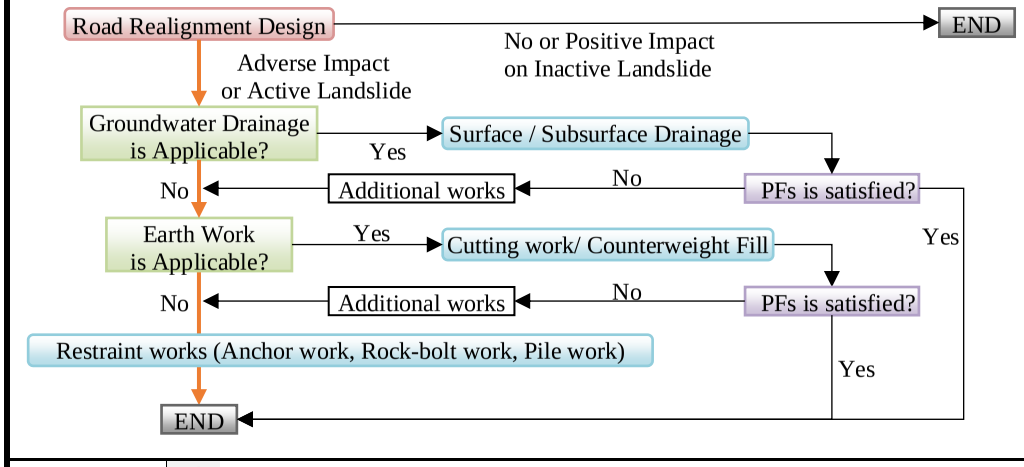
Sketch



Landslide body	Colluvium	Length	43	m	Width	30	m	Height	40	m

Widening	R	Impact	B	Stability	a	Evaluation	Ba

Remarks:



Countermeasure	RfPF

Full view of Critical slope

Rocky road slope

Full veiw of slope

Weathered rock formation

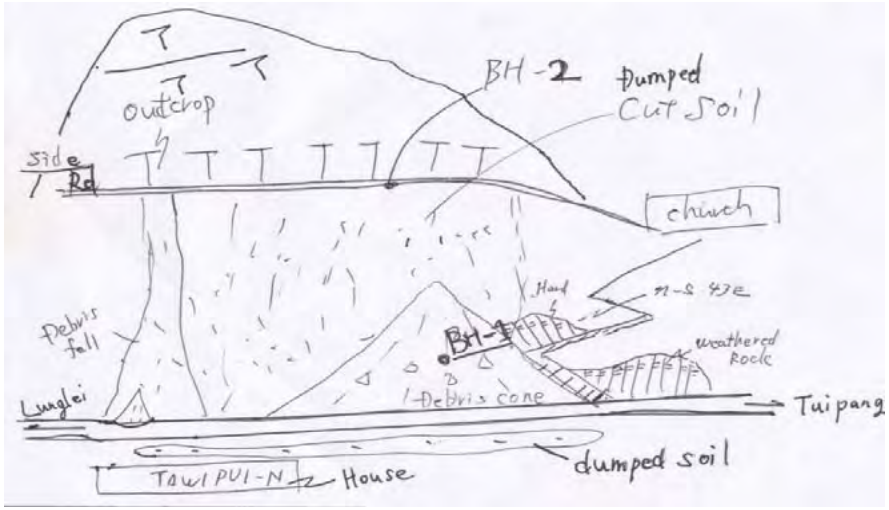
Road condition

Critical Slope Inventory Sheet

Section No. III

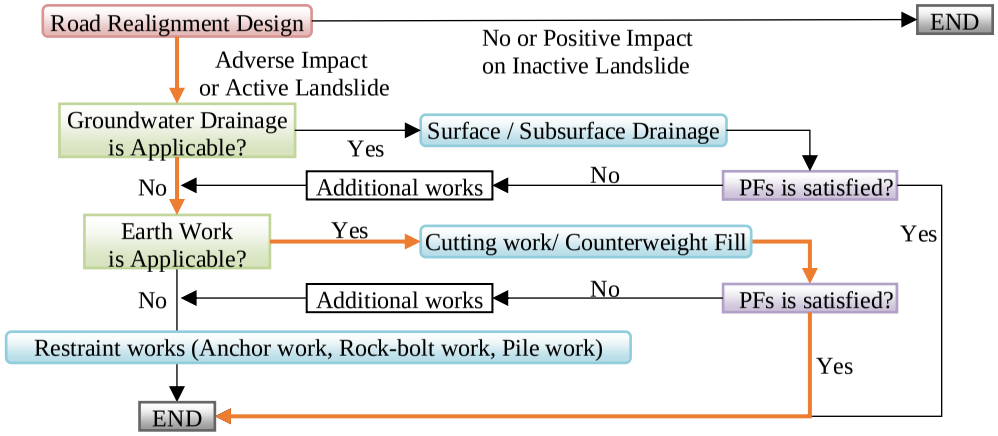
Slope No.	C13	Sta.	255	+	481	-	255	+	520	Side	L	Landslide type	SF

Sketch



Landslide body	Colluvium	Length	39	m	Width	66.6	m	Height	29	m
Widening	L	Impact	B		Stability	A		Evaluation	Ba	

Remarks:



Countermeasure	GW,RS,HyS

Full view of landslide

View from side

Soil condition

Link road on the upper landslide

Slope view from upper link road

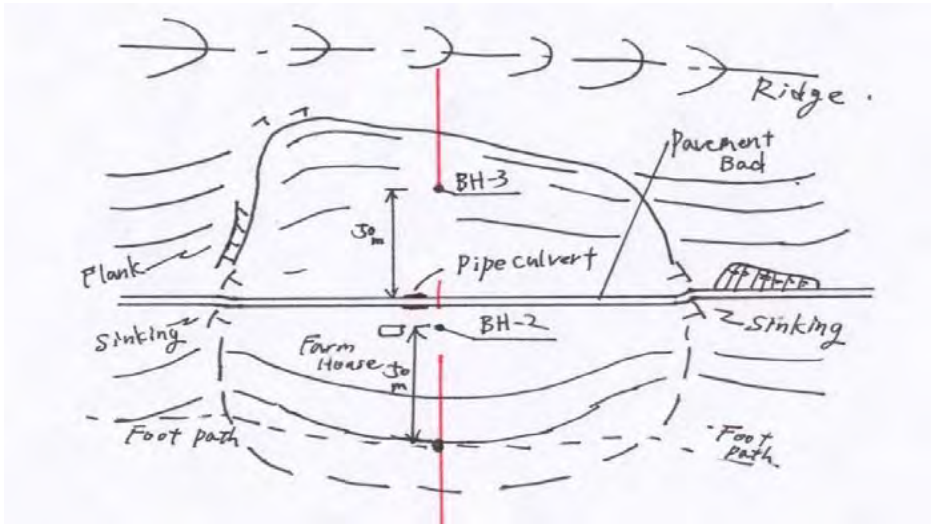
Slope of landslide

Critical Slope Inventory Sheet

Section No. III

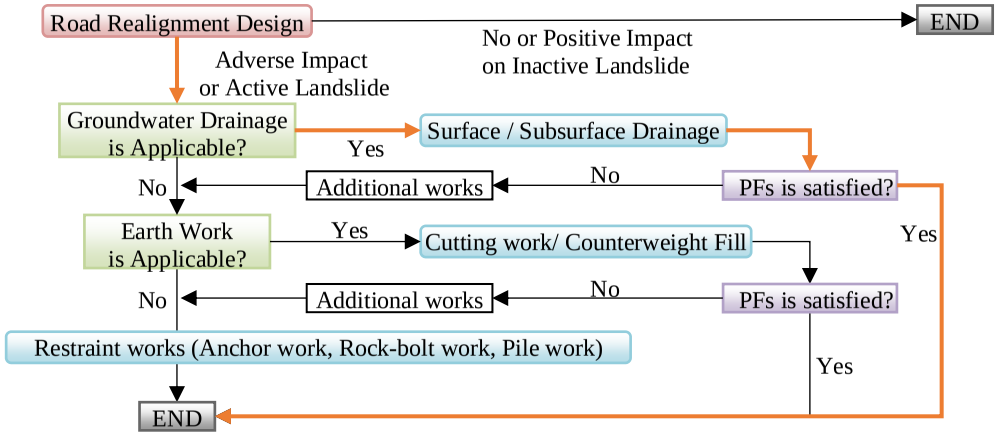
Slope No.	C17	Sta.	278	+	438	-	278	+	600	Side	C	Landslide type	MM-P

Sketch



Landslide body	Colluvium	Length	146	m	Width	180	m	Height	50	m
Widening	L	Impact	A		Stability	b		Evaluation	Ab	

Remarks: With result of ground water table coutermeasure will be plan



Countermeasure GwD,GW

Full view of slope

View from beginning pont

Slope on hilly side

Road condition (Sinking)

Flank on end side

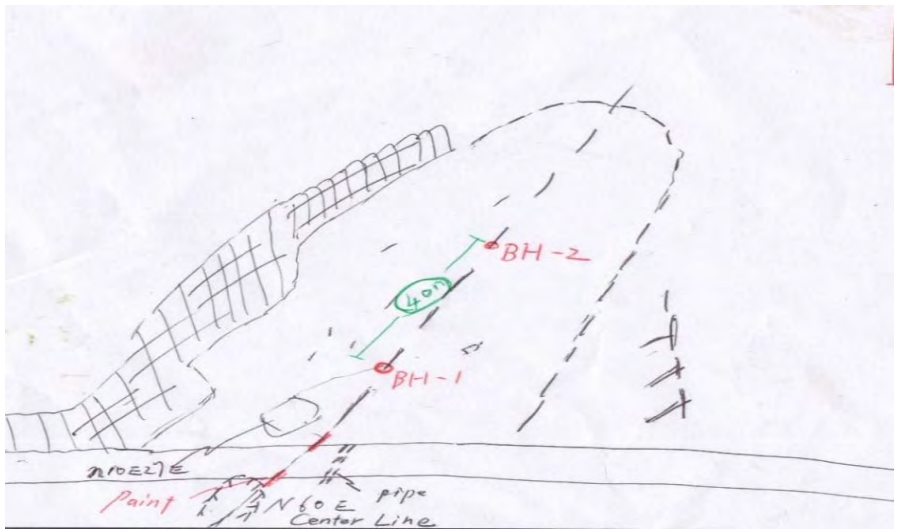
Lower slope used for cultivated land

Critical Slope Inventory Sheet

Section No. III

Slope No.	D04	Sta.	309	+	023	-	309	+	058	Side	R	Landslide type	MM

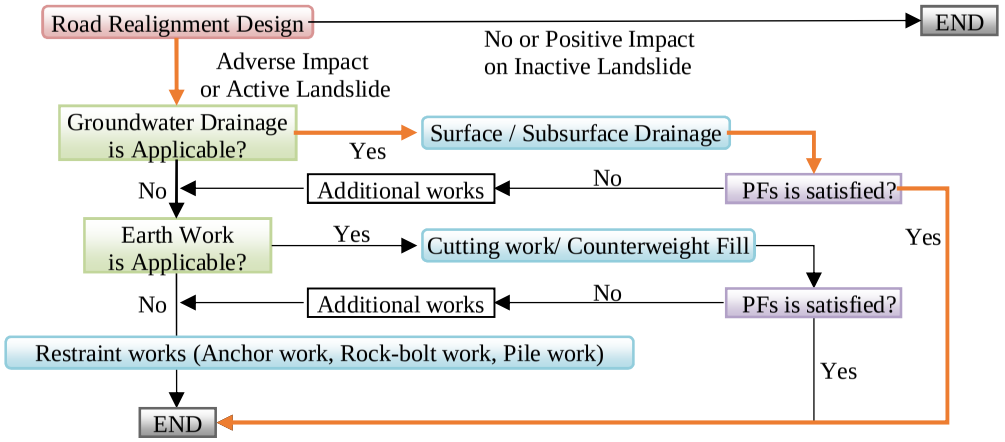
Sketch



Landslide body	Colluvium	Length	34.4	m	Width	60	m	Height	30	m

Widening	L	Impact	A	Stability	a	Evaluation	Aa

Remarks:



Countermeasure	GwD,GW


Full view of landslide


View from another point


Hard rock on hill side


Front view of landslide


Road condition

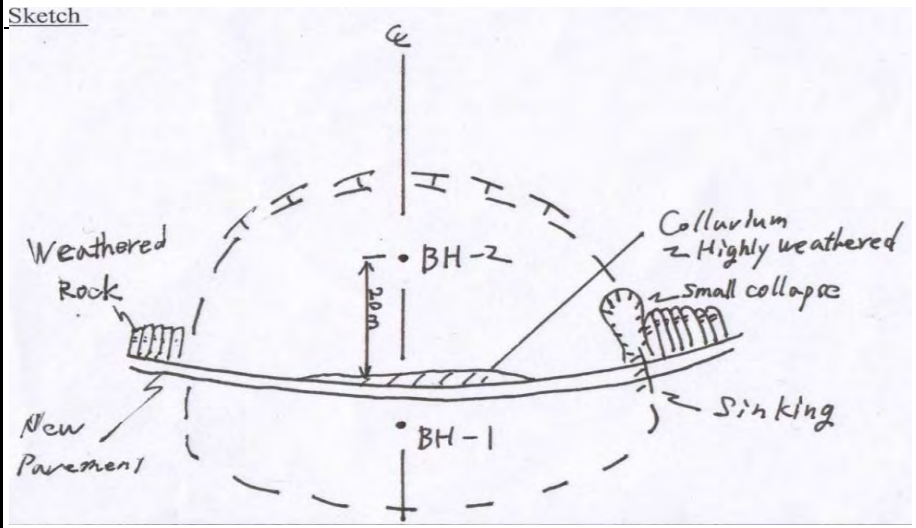

General slope of landslide

Critical Slope Inventory Sheet

Section No. III

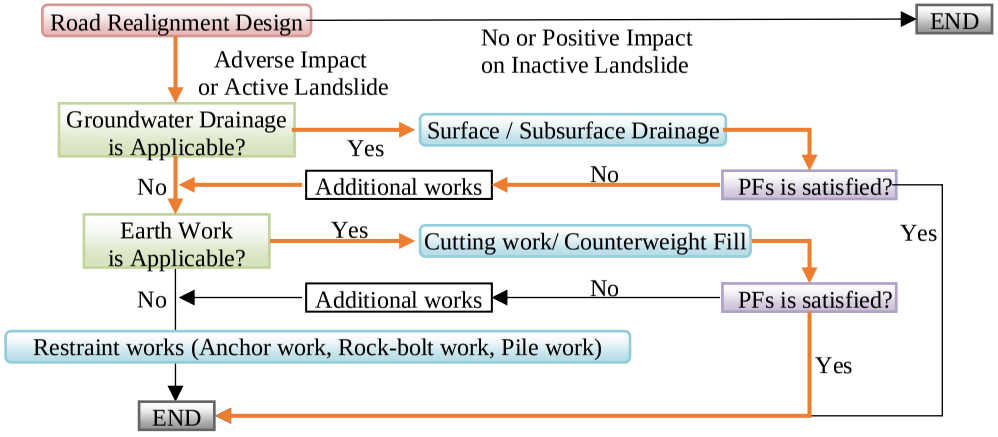
Slope No.	D09	Sta.	317	+	513	-	317	+	604	Side	C	Landslide type	MM

Sketch



Landslide body	Colluvium	Length	60	m	Width	1680.6	m	Height	30	m
Widening	R	Impact	A		Stability	b		Evaluation	Ab	

Remarks:



Countermeasure	GW,GwD,RS,HyS

Full view of the slope

View from another point

Hard rock on hill side

Soil condtion

Slope from beginning side

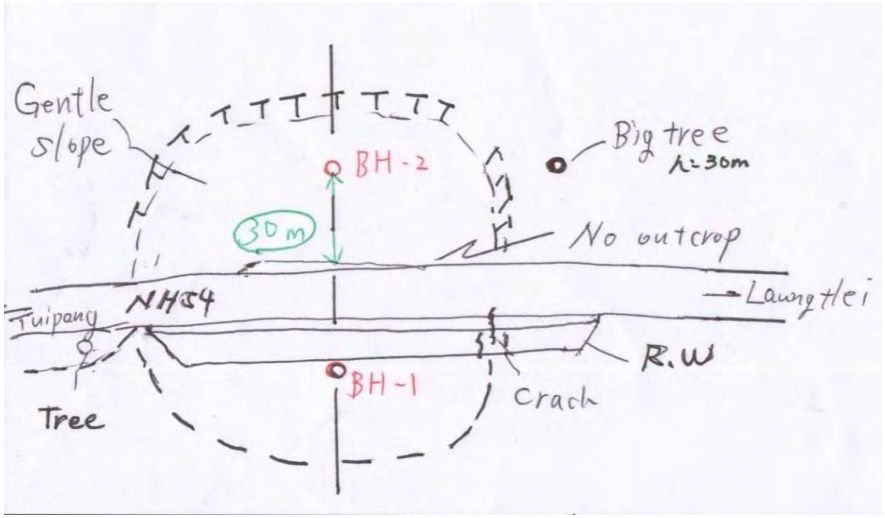
Sinking portion

Critical Slope Inventory Sheet

Section No. III

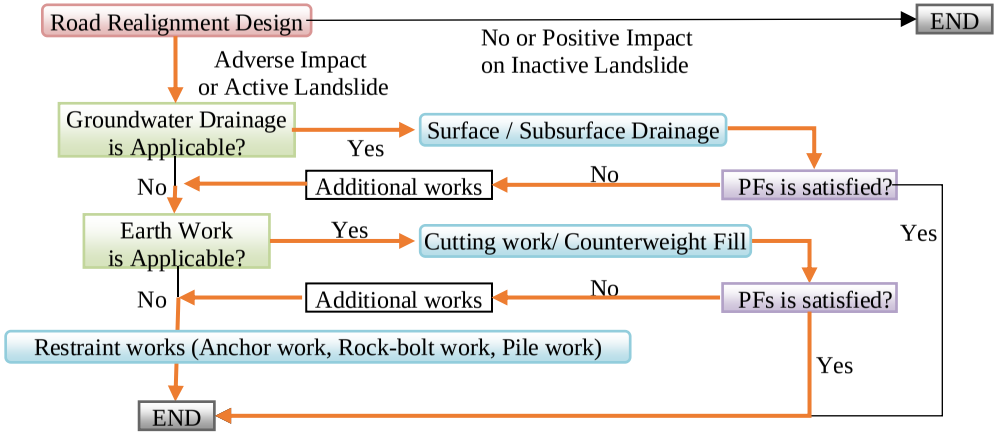
Slope No.	D10	Sta.	318	+	830	-	318	+	770	Side	C	Landslide type	MM

Sketch



Landslide body	Colluvium	Length	40	m	Width	70	m	Height	30	m
Widening	R	Impact	A		Stability	a		Evaluation	Aa	

Remarks:



Countermeasure	Anc,CrW,GW,RS,GwD

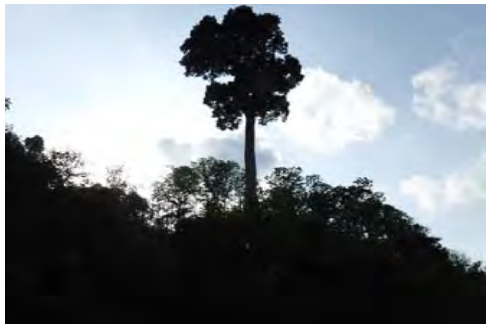
Full view of slope

View from another point

Centre of survey line

Crack on retaining wall at side of landslide

Road condition



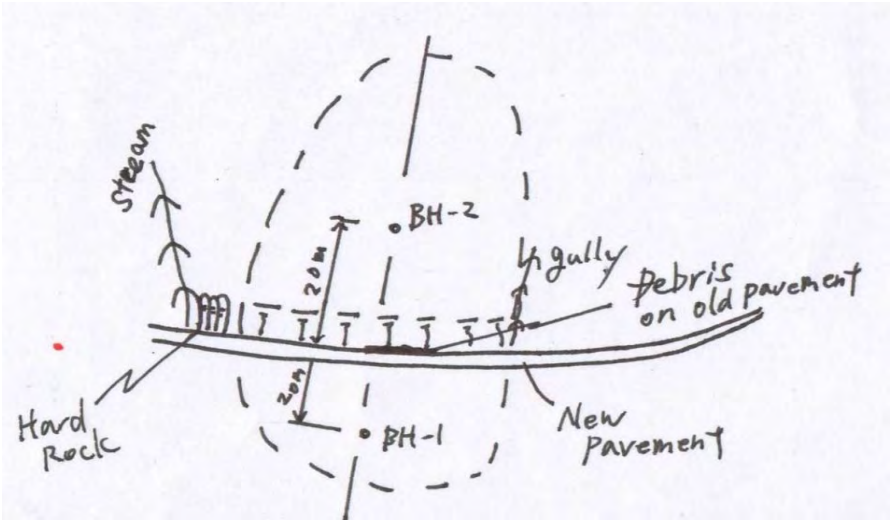
Giant tree on hill of slope

Critical Slope Inventory Sheet

Section No. III

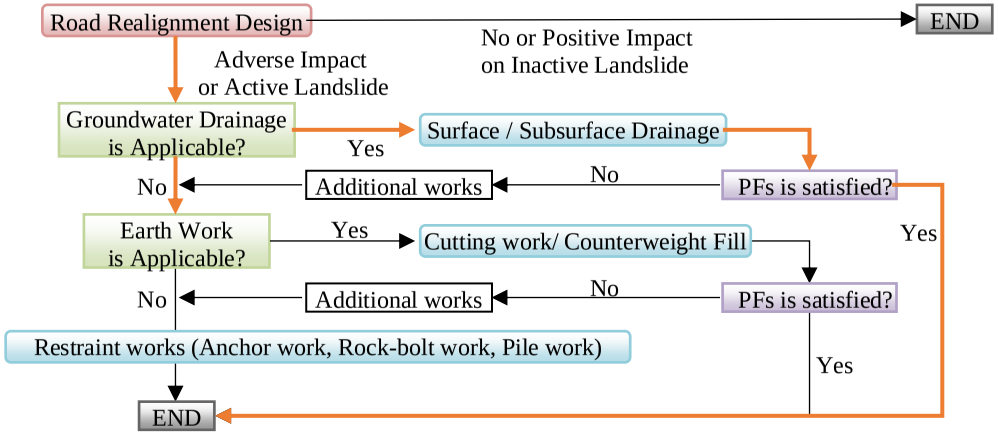
Slope No.	D11	Sta.	319	+	170	-	319	+	240	Side	C	Landslide type	MM-P

Sketch



Landslide body	Weather R	Length	56	m	Width	90	m	Height	35	m
Widening	L	Impact	A		Stability	b		Evaluation	Aa	

Remarks:



Countermeasure	GwD,GW

View of landslide

View from beginning point

Old pavement covered by landslide

Weather rock on hill side

Road condition

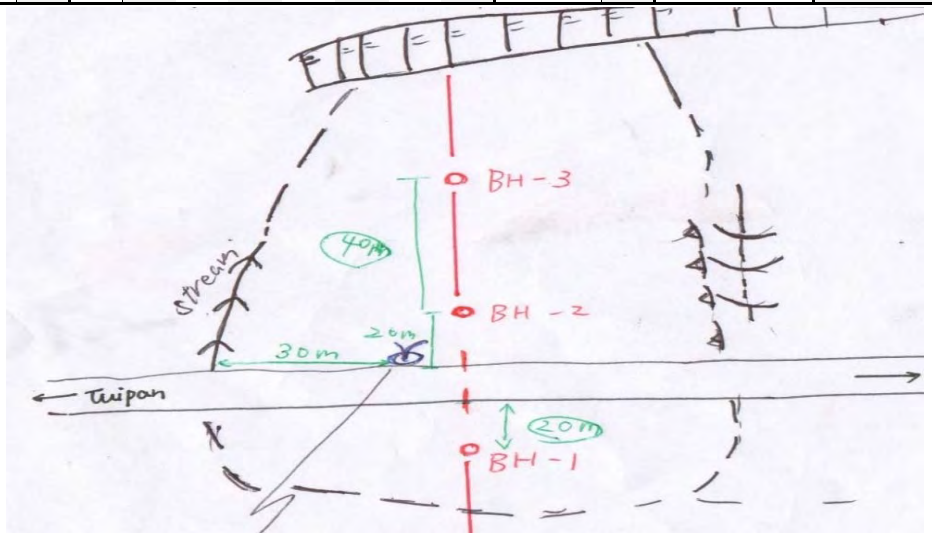
Full view of slope from end side

Critical Slope Inventory Sheet

Section No. III

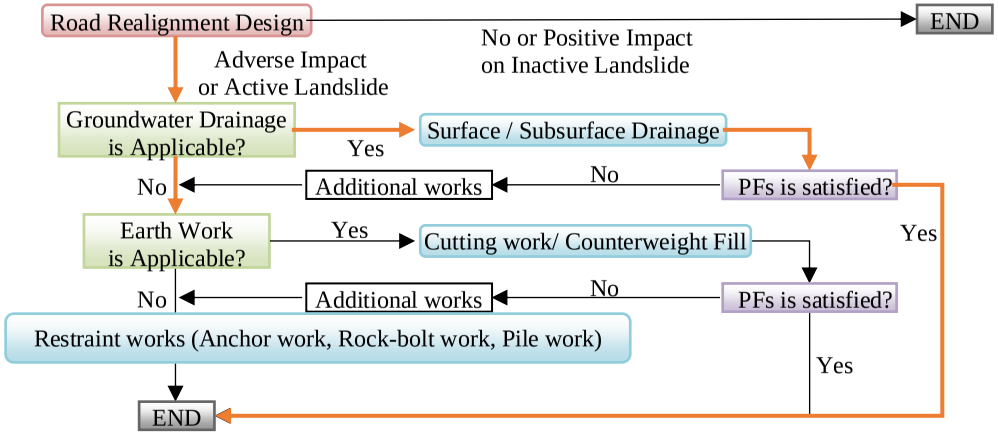
Slope No.	D13	Sta.	324	+	880	-	324	+	950	Side	C	Landslide type	MM-P

Sketch



Landslide body	Colluvium	Length	700	m	Width	100	m	Height	100	m
Widening	L	Impact	A		Stability	b		Evaluation	ab	

Remarks:



Countermeasure	GW,GwD

Full view of the Critical slope

Road condition

Spring water

water way on hill side

Centre of survey line

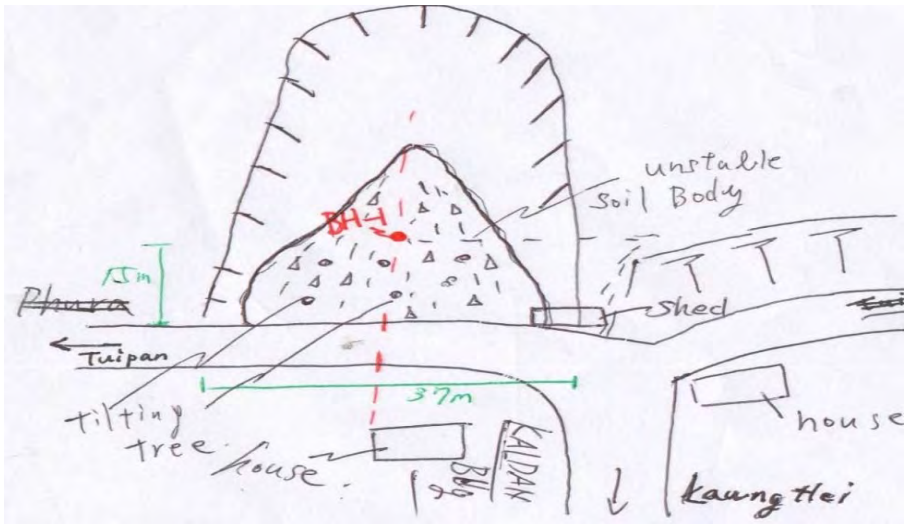
Condition and slope of hill side

Critical Slope Inventory Sheet

Section No. III

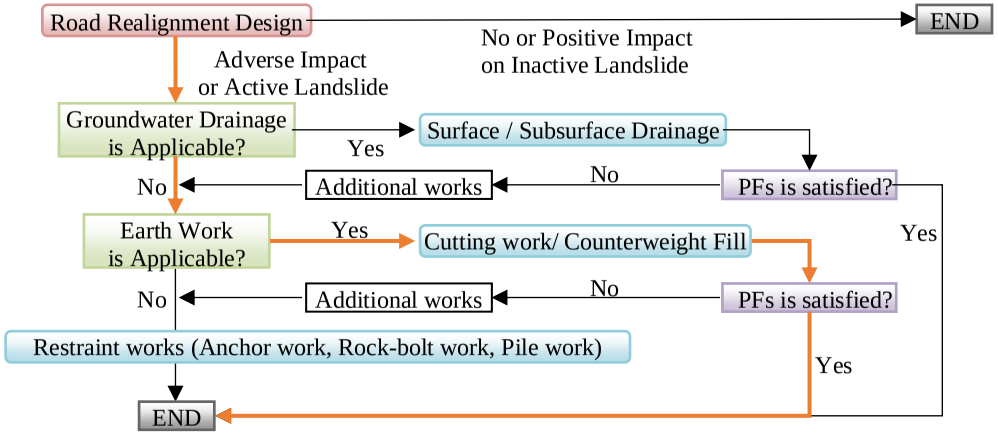
Slope No.	D14	Sta.	326 + 484	-	326 + 524	Side	R	Landslide type	SF

Sketch



Landslide body	Colluvium	Length	40	m	Width	46	m	Height	52	m
Widening	R	Impact	A		Stability	a		Evaluation	Aa	

Remarks:



Countermeasure	GW,RS,HyS

Full view of landslide

Shed on beginning side

Soil condition of landslide

Front view of landslide

Full vew from beginning side

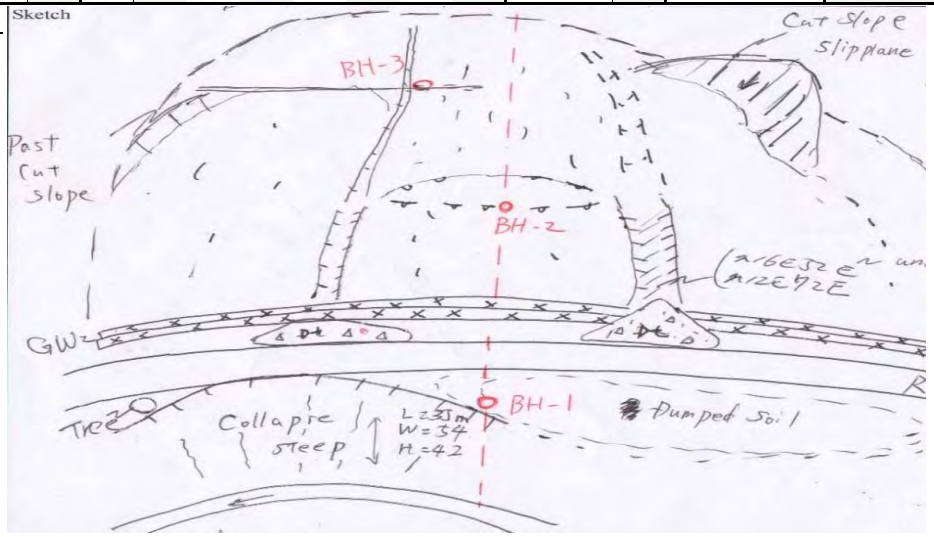
Waiting shed,sign board on landslide area

Critical Slope Inventory Sheet

Section No. III

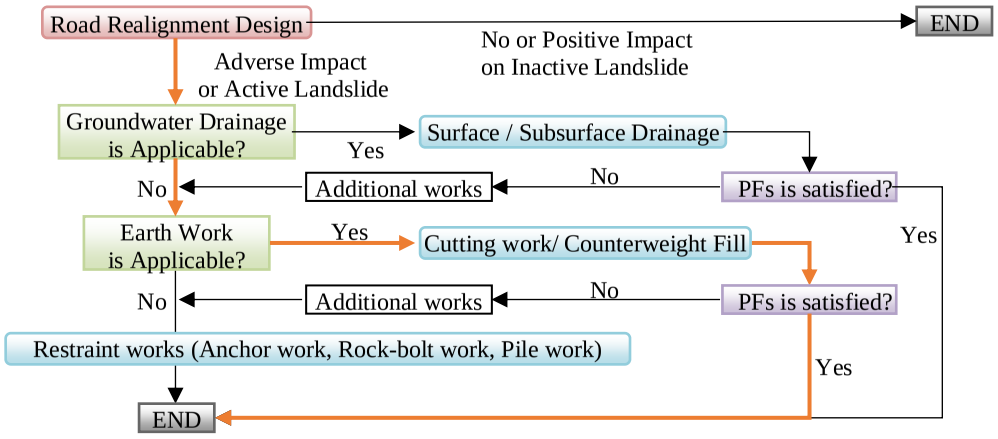
Slope No.	D18	Sta.	331	+	50	-	331	+	140	Side	R	Landslide type	SF

Sketch



Landslide body	Colluvium	Length	83	m	Width	138	m	Height	99	m
Widening		Impact	A		Stability	a		Evaluation	Aa	

Remarks:



Countermeasure	GW,RS,HyS,SD

Full view of landslide

Full view from another point

Collapse of dumped soil on valley side

General slope

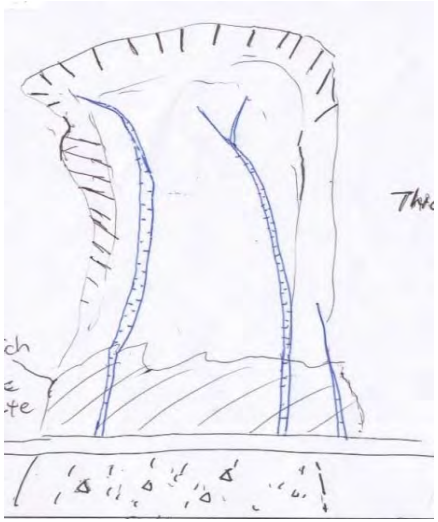
Full view of landslide

Critical Slope Inventory Sheet

Section No. III

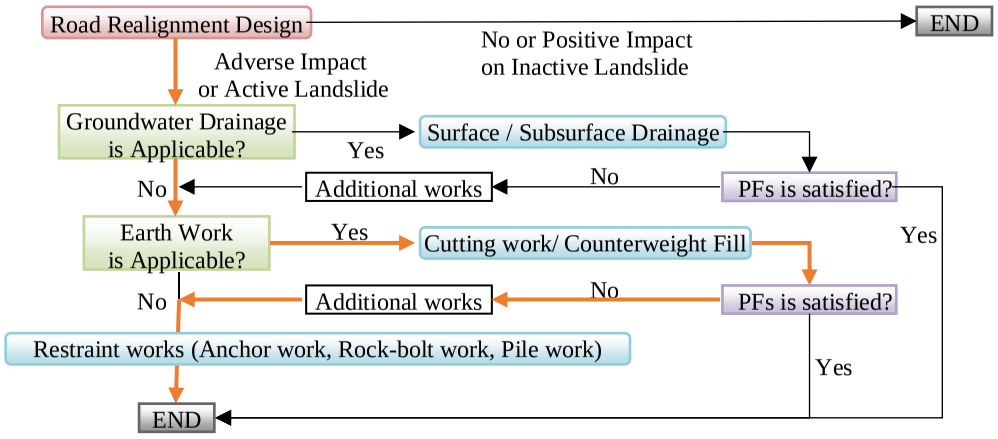
Slope No.	D19	Sta.	332	+	150	-	332	+	194	Side	R	Landslide type	SF

Sketch



Landslide body	Colluvium	Length	34	m	Width	70	m	Height	57	m
Widening	R	Impact	A		Stability	a		Evaluation	Aa	

Remarks: Bore hole is not applicable



Countermeasure	RW,RS,HyS,Anc,CrW,SD

Full view of landslide

Full view from another point

Debris accumulate at road side

Pattern of bed rock layer

Collapse of dumped soil on valley side

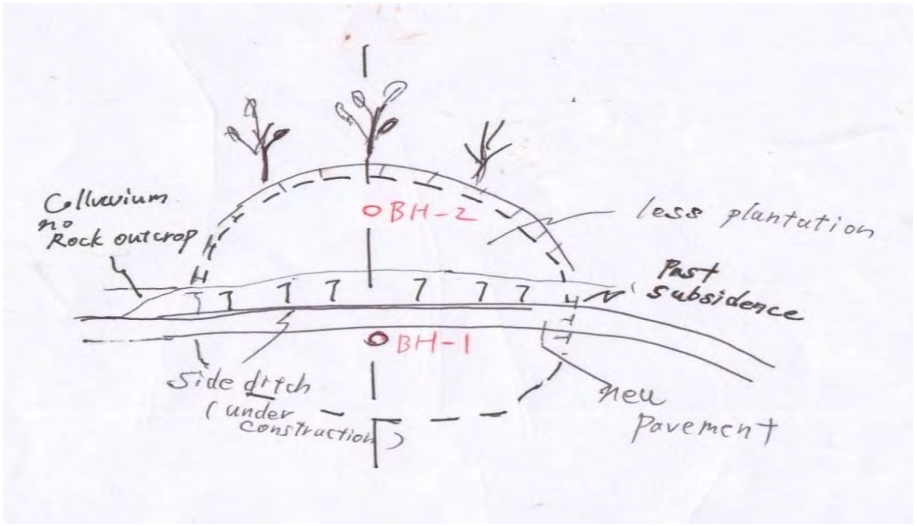
Rock formation at upper portion of lanslide

Critical Slope Inventory Sheet

Section No. III

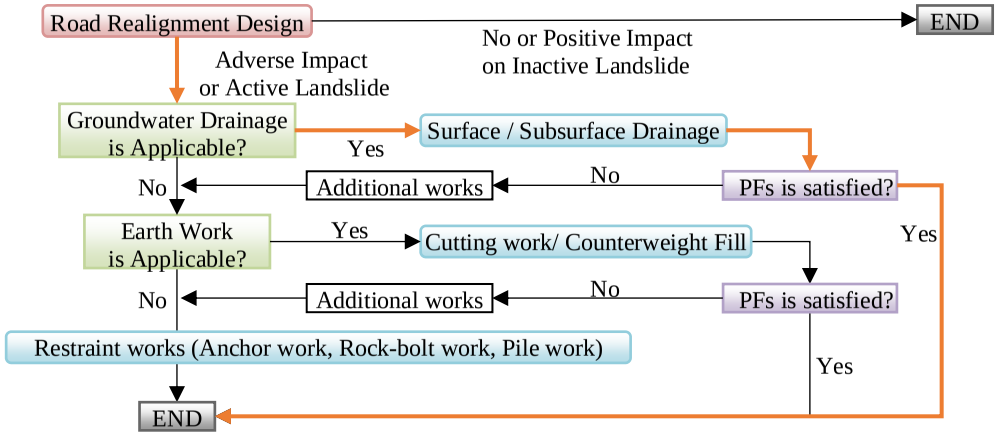
Slope No.	D22	Sta.	335	+	080	-	335	+	120	Side	C	Landslide type	MM

Sketch



Landslide body	Colluvium	Length	35	m	Width	50	m	Height	21	m
Widening	L	Impact	A		Stability	b		Evaluation	Ab	

Remarks:



Countermeasure	GW,GwD

Full section of critical slope

Full view with general slope

Condition of soil

Slope of valley side

Road contion

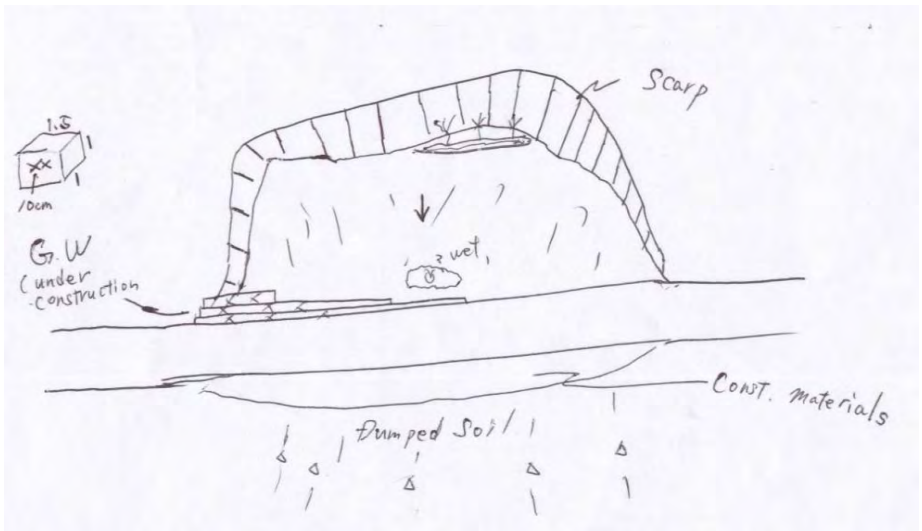
Concrete Drainage

Critical Slope Inventory Sheet

Section No. III

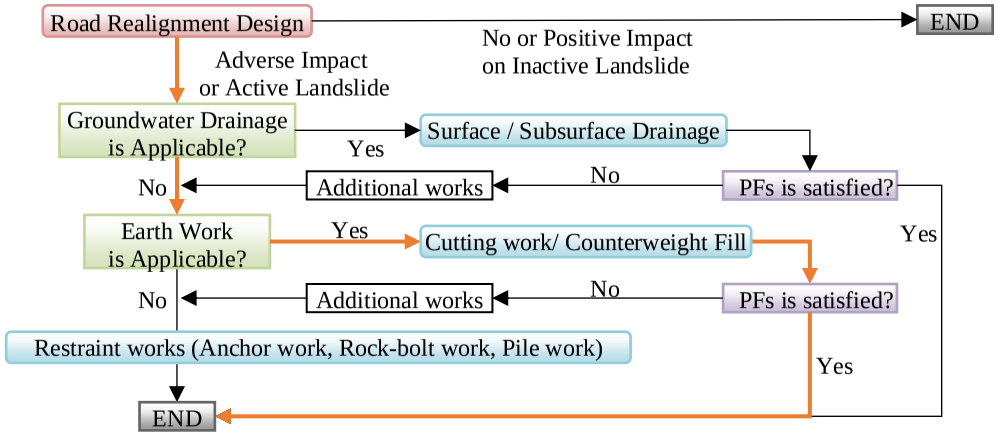
Slope No.	D33	Sta.	347	+	660	-	347	+	716	Side	R	Landslide type	MM

Sketch



Landslide body	Colluvium	Length	33	m	Width	20	m	Height	14	m
Widening	L	Impact	A		Stability	a		Evaluation	Aa	

Remarks: Collapse in 2015-16
GW has been constructed



Countermeasure


Full view of landslide


Slope of valley side


Road condition and general slope view


Gabion wall contruction in progress


Condition of landslide

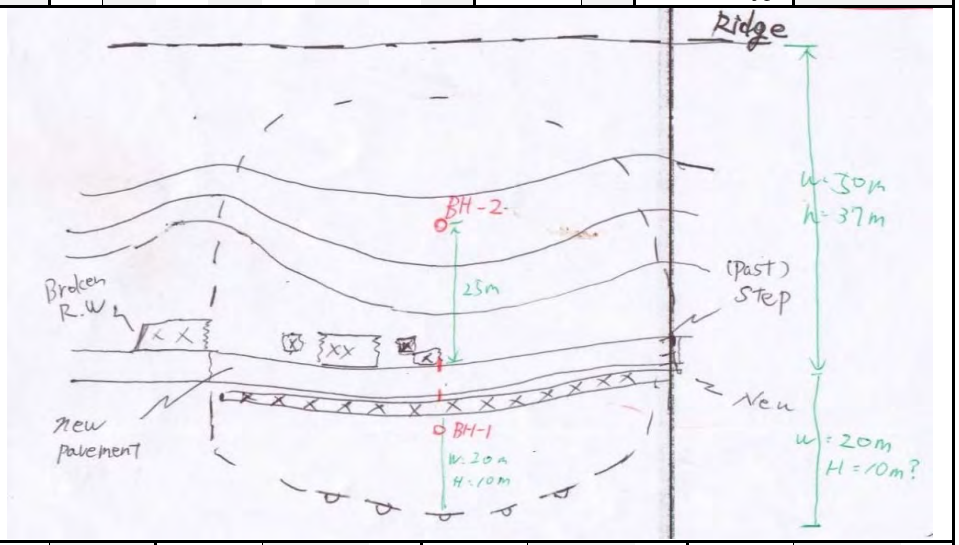

Full section of land slide area

Critical Slope Inventory Sheet

Section No. III

Slope No.	D24	Sta.	350	+	570	-	350	+	660	Side	C	Landslide type	MM

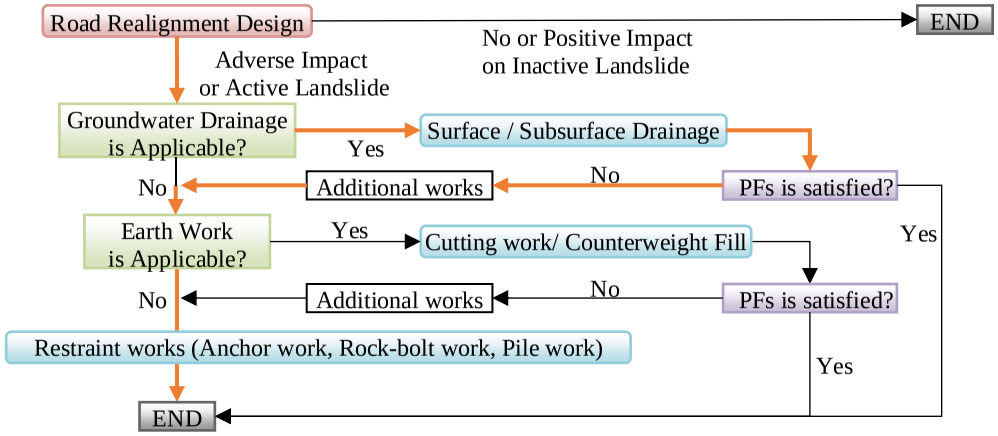
Sketch



Landslide body	Colluvium	Length	55	m	Width	70	m	Height	47	m

Widening	R	Impact	A	Stability	a	Evaluation	Aa

Remarks:



Countermeasure	GW,HyS,Anc,CrW,GwD

Full view of the slope

Full view from another point

Deformation of retaining wall

Road sinking in ladnsldie area

Slope of the hill side

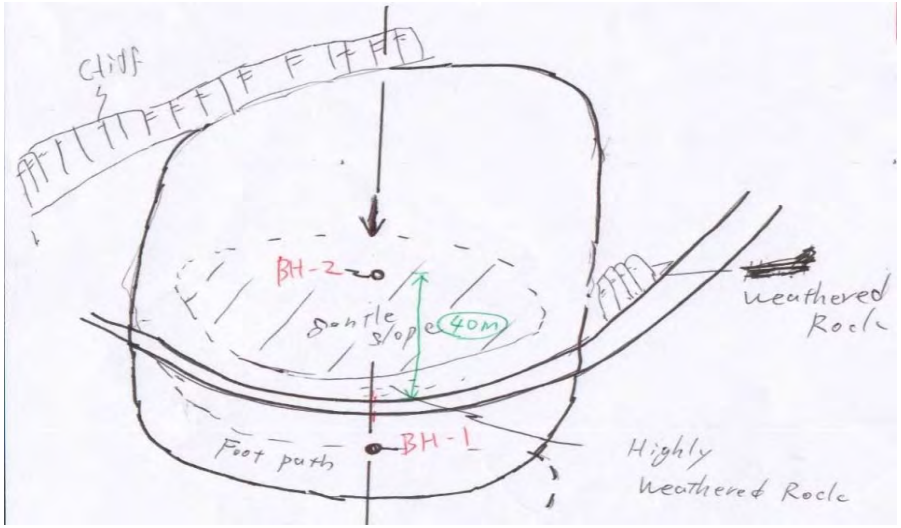
Deformartion of wall

Critical Slope Inventory Sheet

Section No. III

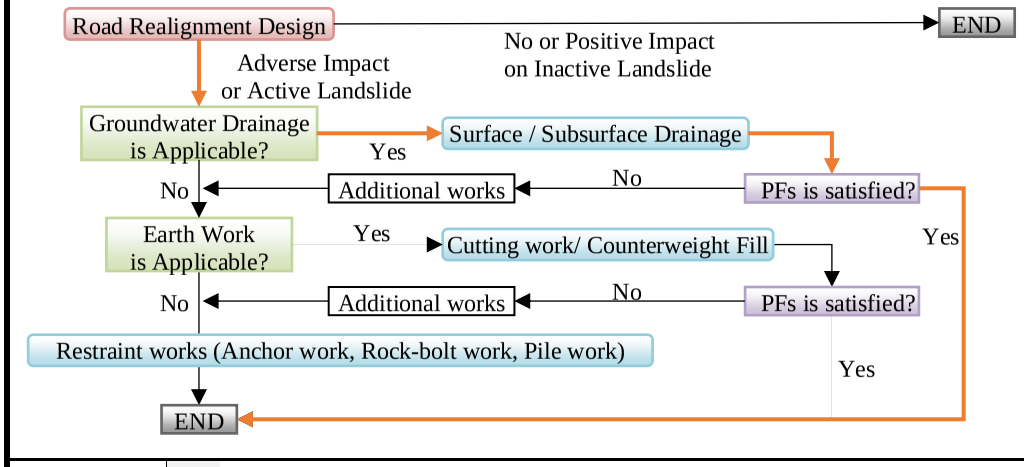
Slope No.	D25	Sta.	350	+	752	-	350	+	841	Side	C	Landslide type	MM-P

Sketch



Landslide body	Colluvium	Length	89	m	Width	125	m	Height	50	m
Widening	R	Impact	A		Stability	b		Evaluation	Ab	

Remarks: Cutting valley side is recommended



Countermeasure GW,GwD

View of the slope

Side view of the slope

Highly weathered rock on slope

Close view of outcrop

Full view of slope from beginning side

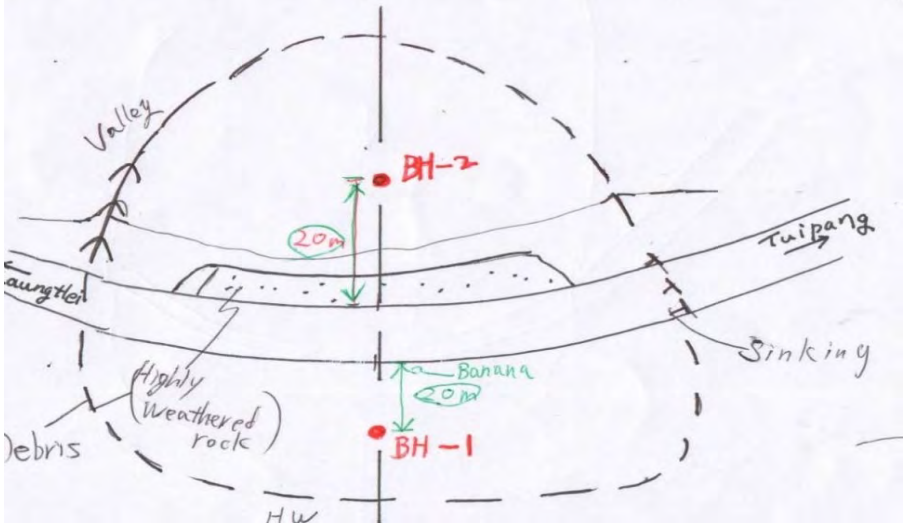
Road condition

Critical Slope Inventory Sheet

Section No. III

Slope No.	D26	Sta.	351	+	975	-	352	+	050	Side	C	Landslide type	MM-P

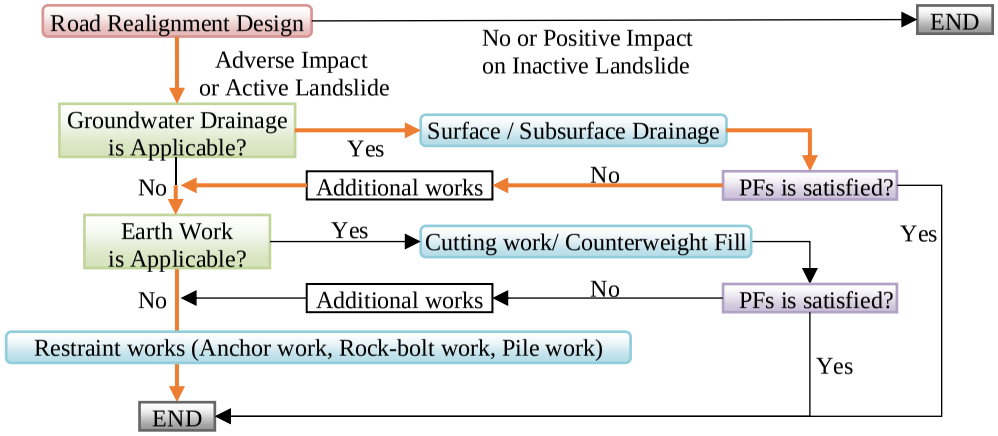
Sketch



Landslide body	Colluvium	Length	53	m	Width	85	m	Height	40	m

Widening	R	Impact	A	Stability	a	Evaluation	Aa

Remarks:



Countermeasure	GW,GwD,RS,HyS,CrW,Anc

View of the slope

Road condition

Rock on hill side

Front view of the slope

View of slope from the side

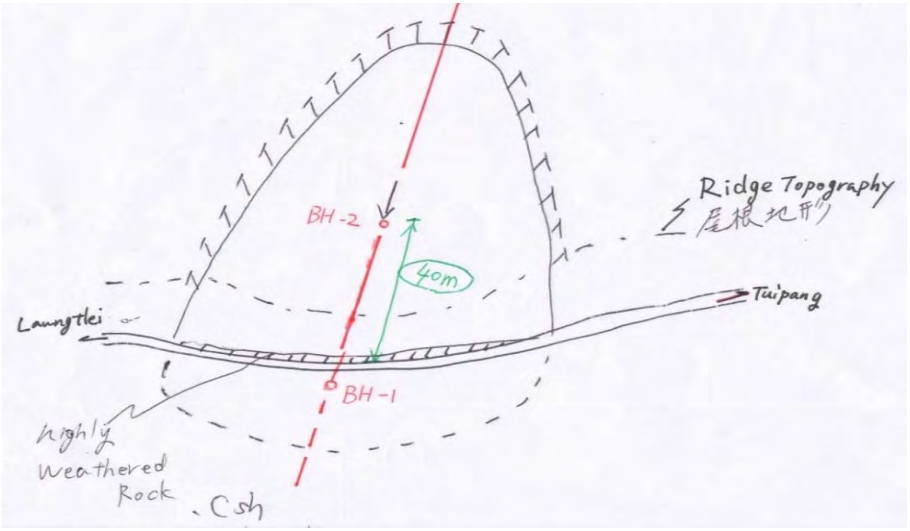
The upper part of the slope

Critical Slope Inventory Sheet

Section No. III

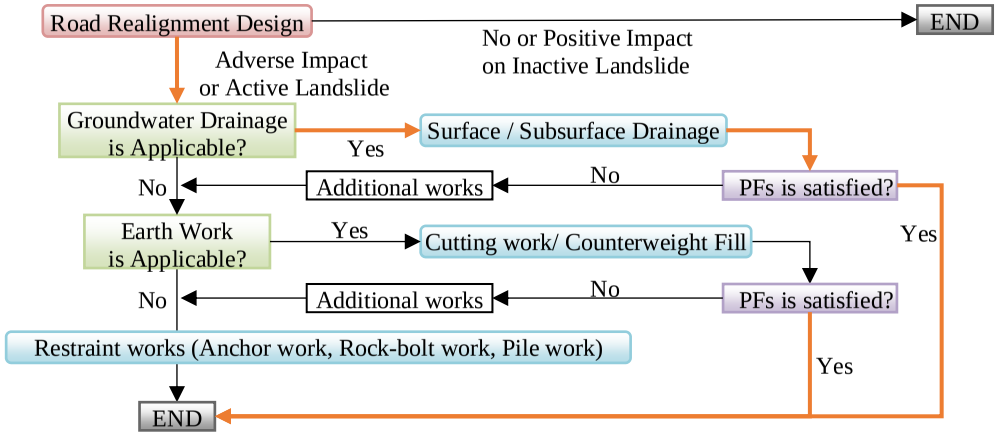
Slope No.	D27	Sta.	360	+	800	-	360	+	870	Side	C	Landslide type	MM-P

Sketch



Landslide body	Weather R	Length	85	m	Width	80	m	Height	40	m
Widening	R	Impact	A		Stability	b		Evaluation	Ab	

Remarks:



Countermeasure	GW,GwD

View of the slope

Centre line of survey

Broken bed rock

Rock formation

Left side view of the slope

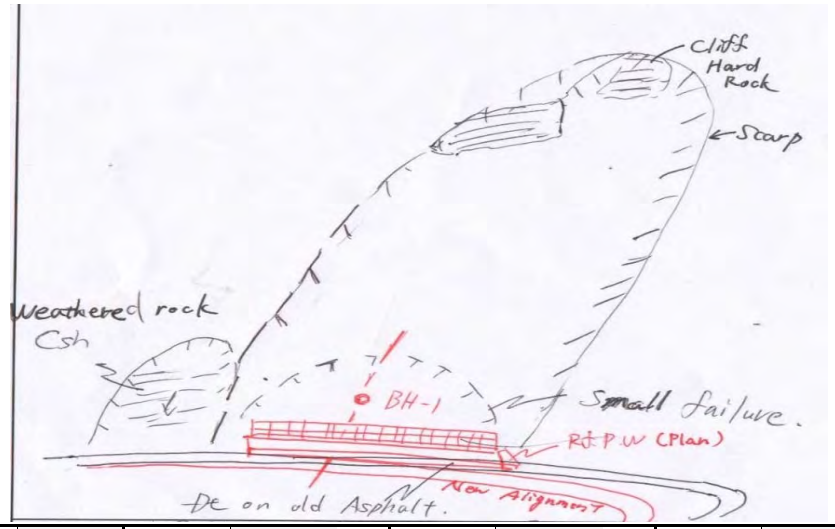
Right side view of the slope

Critical Slope Inventory Sheet

Section No. III

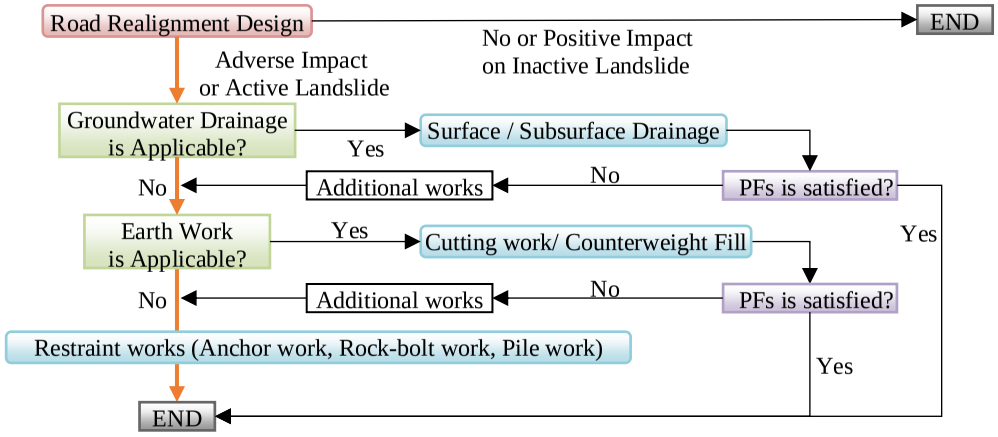
Slope No.	D28	Sta.	361	+	350	-	361	+	380	Side	L	Landslide type	SF

Sketch



Landslide body	Colluvium	Length	26	m	Width	60	m	Height	50	m
Widening	R	Impact	A		Stability	a		Evaluation	Aa	

Remarks:



Countermeasure	RfPW

Full side view of landslide

View from another point

Rock condition on hill

Old pavement destructed by landslide

Slope of lanslide

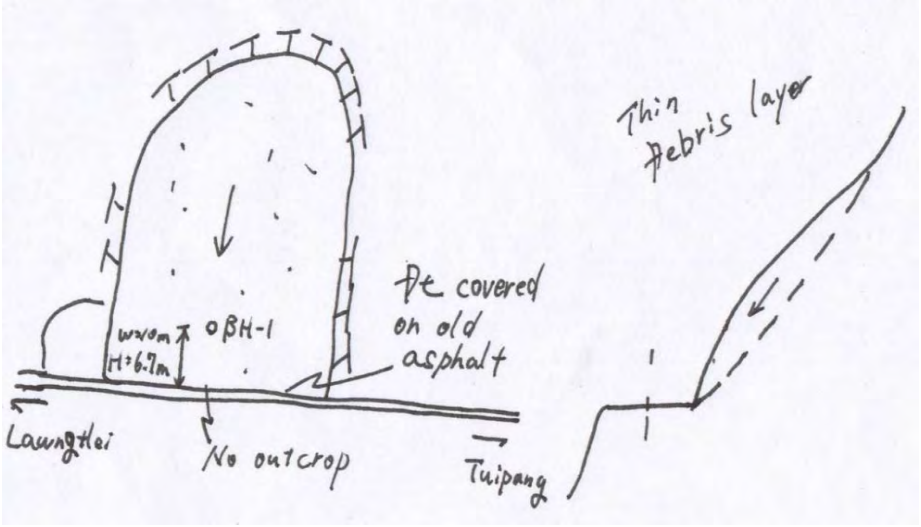
condition of valley side

Critical Slope Inventory Sheet

Section No. III

Slope No.	D29	Sta.	361	+	525	-	361	+	575	Side	L	Landslide type	MM-P

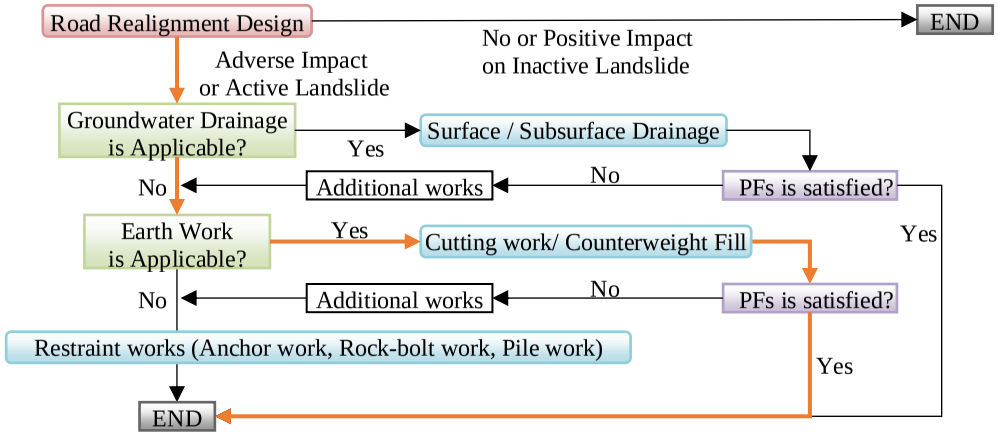
Sketch



Landslide body	Weather Roc	Length	33	m	Width	28.6	m	Height	27	m

Widening	R	Impact	A	Stability	b	Evaluation	Ab

Remarks:



Countermeasure	GW,CwF

Full view of Critical slope

Front view of slope

Rock observed on hill

Road condition

Upper part of the slope

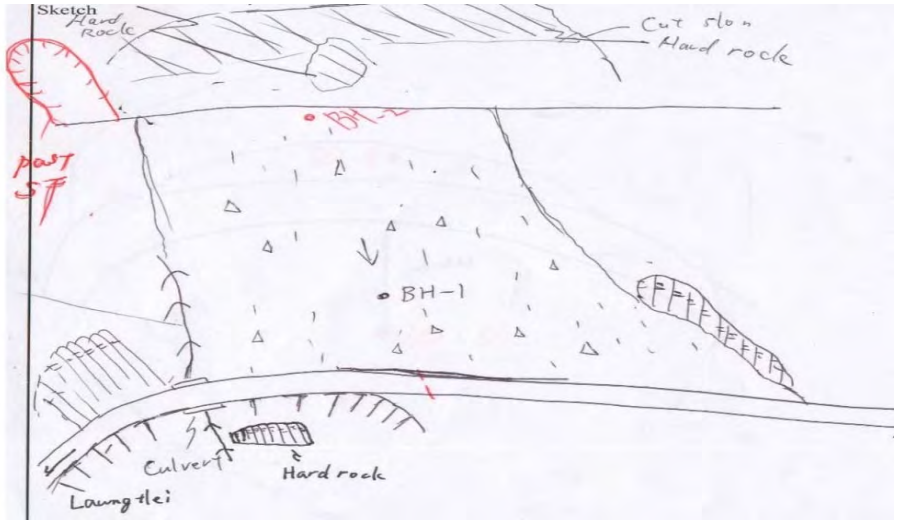
Earthen drainage

Critical Slope Inventory Sheet

Section No. III

Slope No.	D31	Sta.	365	+	765	-	365	+	835	Side	L	Landslide type	SF

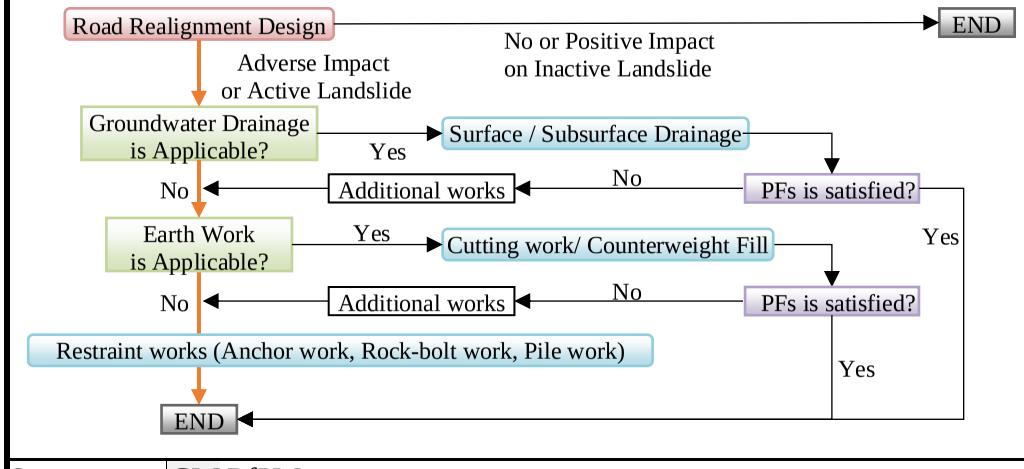
Sketch



Landslide body	Colluvium	Length	67	m	Width	126	m	Height	99	m

Widening	R	Impact	A	Stability	a	Evaluation	Aa

Remarks: Due to Weak Bearing capacity of soil anchor work can not be adopted



Countermeasure	GW,RfPW

Full view of slope

Full view of slope from beginning side

Slope of valley side

Upper link road on landslide

Front view of landslide

Upper landslide from link road

付録 -4.1：Joint Site Verification

Joint Site Verification

Date: 13th – 15th January, 2017

Venue: Section-1 (From Aizawl to Keitum)

Participants: Nippon Koei; Mr. Katagiri, Mr. Katsuro, and Mr. Kawahara
BPC; Mr. Sourav Dasgupta, Mr.Kousik Pal, and Mr.Sumonto

1. **Topographical Survey in Landslide Area**

In this joint site verification, Nippon Koei instructed BPC topographical survey area and cross-section survey line in section-1 (Aizawl – Keitum). Nippon Koei suggested BPC to calculate total quantity of topographical survey approximately, and submit to NHIDCL and Nippon Koei in advance of commencement of the survey.

2. **Slope Inventory Survey**

Nippon Koei share the document of "Slope Inventory Survey Manual" with BPC, and instructed BPC the methodology of slope inventory survey in this joint site verification. Nippon Koei also shared the formats of the slope inventory survey sheet (see attachment) with BPC, and lectured BPC how to conduct the slope inventory survey at the site as well. BPC shall be expected to train his surveyors and conduct the survey based on the lecture Nippon Koei gave.

Regarding critical slopes, location of borehole points and area of topographical survey shall be verified by Nippon Koei and BPC jointly. Therefore, Engineers of both Nippon Koei and BPC shall survey the critical slopes, and decide the location of the borehole survey at the same time.

BPC shall start the slope inventory survey on schedule. Nippon Koei and BPC shall communicate each other, and fix start date of the inventory survey for the critical slope based on his mobilization schedule.

3. **Borehole Survey**

Nippon Koei and BPC jointly verified the location of borehole survey in Section-1 in terms of landslide observation and drilling workability. The location and drilling length are shown in Table-1 below. Based on this plan, BPC shall start the borehole survey with total length 580m.

Borehole location in the rest of the sections shall be verified by Nippon Koei and BPC jointly. The timing of next joint site verification shall be decided by both sides based on the BPC's survey schedule.

4. Other

In connection to slope design mentioned in TOR of the contract with NHIDCL, Nippon Koei shared a report about slope stability analysis with BPC for his reference only.

Table.1 List of Borehole Plan in Section-1 (Aizawl – Keitum)

NH-54

No.	LS No.	Start		End	Disaster Type	Soil/Rock Condition	Landslide Size Length	Width	Depth	Boring Plan in TOR No.	Length	Total	Revised Boring Plan No.	Length	Total
Section-1															
New	A03	8 +	~	8 + 490	MM	Soft	40	80	6			0	2	20	40
1	A05	10 + 450	~	10 + 480	MM	Soft	32	38	5	2	10	20	1	15	15
2	A10	16 + 820	~	16 + 900	MM-p	Soft	80	30	12	2	20	40	0		0
3	A11	18 + 680	~	18 + 770	MM-p	Soft	80	120	12	3	20	60	1	15	15
4	A12	18 + 850	~	18 + 890	MM	Soft	38	65	6	2	15	30	2	20	40
5	A14	19 + 620	~	19 + 650	MM	Soft	30	220	5	5	10	50	3	20	60
6	A15	22 + 900	~	22 + 950	MM	Soft	40	16	6	2	15	30	1	15	15
7	A21	54 + 500	~	54 + 530	MM	Hard	30	60	5	2	10	20	2	20	40
8	A22	54 + 530	~	54 + 590	MM	Hard	60	65	10	2	15	30	3	20-30	75
9	A25	58 + 800	~	58 + 900	MM	Soft	125	50	18	4	25	100	6	30	180
10	A28	73 + 500	~	73 + 560	MM	Soft	30	60	5	2	10	20	1	15	15
11	A29	75 + 200	~	75 + 410	MM	Soft	30	25	5	2	10	20	1	20	20
12	A30	88 + 000	~	88 + 040	MM-p	Soft	40	80	6	2	15	30	1	15	15
13	A31	88 + 100	~	88 + 260	MM-p	Soft	45	100	7	3	15	45	1	15	15
New	A33				MM-p	Soft	30	50	5			0	1	15	15
14	B01	104 + 500	~	104 + 535	MM-p	Soft	35	25	5	1	10	10	1	20	20
							Total Length					505			580

Section I-1

Attachment

Slope Inventory Survey Sheet

S.No.	km	GPS			Geo-Structure		Left side								Right side							Photo	Remark
		check	X	Y	Strike	Dip	H/V	Rock/Soil	Type	Condition	Grade	Dip S.	Landslide	H/V	Rock/Soil	Type	Condition	Grade	Dip S.	Landslide		
1	0.00	ok			12E	68E	H	Rock	Shady shale	Soft	67°	Yes	SF	V	Soil	Gravely	Loose	45°	Yes	-	ok	
2	0.04	ok			32W	70W	V	Rock	Sand stone	Hard	80°	No	-	H	Soil	Clayey	Loose	40°	No	MM	ok	Spring water, Rd Sinking
3	0.08																					
4	0.12																					
5	0.16																					
6	0.20																					
7	0.24																					
8	0.28																					
9	0.32																					
10	0.36																					
11	0.40																					
12	0.44																					
13	0.48																					
14	0.52																					
15	0.56																					
16	0.60																					
17	0.64																					
18	0.68																					
19	0.72																					
20	0.76																					
21	0.80																					
22	0.84																					
23	0.88																					
24	0.92																					
25	0.96																					
26	1.00																					
27	1.04																					
28	1.08																					
29	1.12																					
30	1.16																					
31	1.20																					

Critical Slope Inventory Sheet

Section No. _____ - _____

Date

Critical Slope Inventory Survey Sheet

Critical Slope No.		Sta.	+	-	+	Side	L / R / C	GPS Log	Landslide type
Sketch									Photo
Landslide body		Length		m	Width	m	Hight	m	Photo
Widening	L / R	Effect		Impact	Stability		Evaluation		
Remarks:									

付録 -4.2 : First Comments on the Slope Inventory Survey

First Comments on the Slope Inventory Survey

Date: 1st June, 2017

JICA Study Team reviews the result of the slope inventory survey given by BPC on 24th and 26th May, 2017, and would like to make first comments below.

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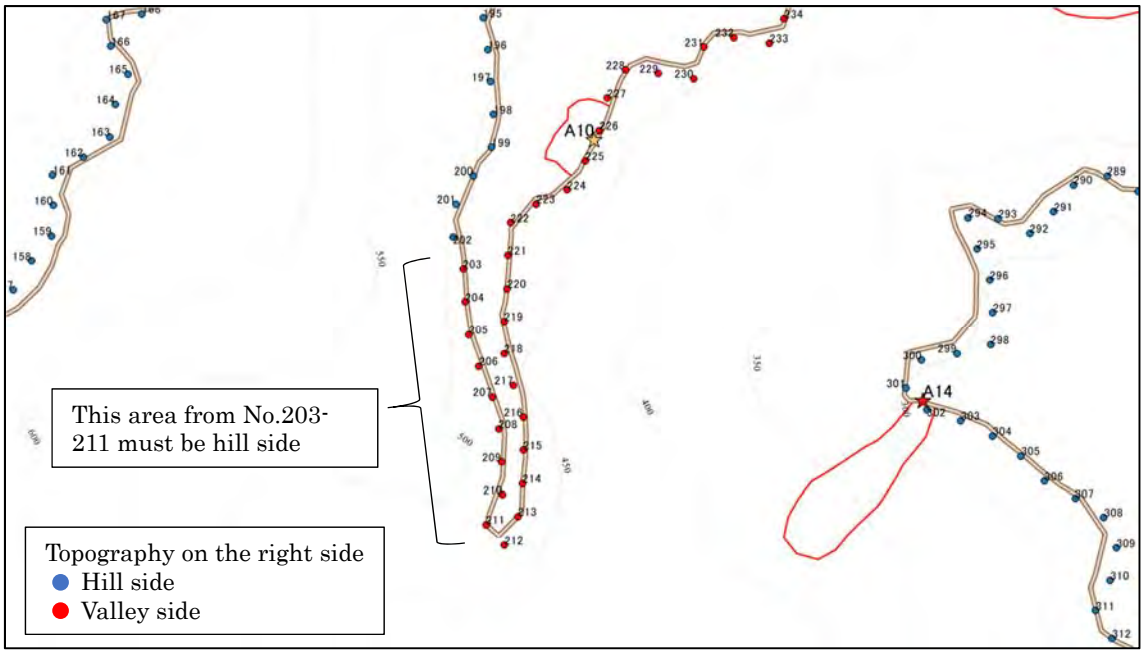
1. Mismatching between Coordinates and Descriptions

First of all, the coordinates and description on the inventory sheets are not matching as shown in figure below. The points in the figure show the location of the survey plotted based on the coordinates on the inventory sheet, and the point color shows the mountain and valley side on right side at each position. We found that some points are obviously different from actual site condition, and accordingly other descriptions such as geological/geotechnical condition and dip slope are incorrect.

We reviewed only 8-33km in section 1, but found same mistakes in several part. I would like to request you to check and modify the slope inventory sheet first, otherwise, we cannot review if the result is correct.



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2. Dip slope

We would like to request you to check the description of dip slope on the inventory sheet. Definition of dip slope is that the dip of the geological layer is same or almost same as slope direction. Around the starting point, 8km post, the slope on right side shows dip slope as we can see form BPC office clearly, nevertheless, the inventory sheet doesn't

describe as the dip slope on those slopes. We suppose BPC surveyor doesn't know the definition, we would like to request to check this item as well.

End of Document

付録 -4.3 : Joint Site Verification

Meeting Report: Site Verification for Landslide Survey

Date: 22nd May, 2017

The joint site verification was done by engineers in JICA Study Team and BPC

1 Summary

(1) Date: 12th ~ 16th May, 2017

(2) Participants:

(JICA Study Team) Mr. Hiroyuki Katsuro, Mr. Naoki Kawahara, Mr. Michael Lalhmachhuana

(BPC) Mr. Sumanta Pakhira

(3) Venue: Section I, II, and III

(4) Agenda:

1. Borehole locations in Section II and III
2. Boreholes Investigation Results
3. Slope Inventory Survey
4. Topographical Survey
5. Comments on Borehole Survey

2 Memo of Discussion

2.1 Borehole Locations in Section II and III

JICA study team instructed borehole location in section II and III in terms of landslide type and shape, and geological and topographical setting, and verified the location together with BPC. Table below summaries the borehole survey plan. The borehole length in each site was adjusted based on the actual site condition. Including the actual drilled length in section I, the total drilling length is 1,510m as same as the ToR in the contract.

Table: Summary of Borehole Survey

Sec No.	ToR	Plan	Remark
Sec-I	505	575	Actual Drilled Length
Sec-III	230	245	
Sec-III	775	690	
	1510	**1510**	

As will mention below, borehole must be drilled on the center line of landslide, not be selected easier place to set up a drilling machines. JICA Study Team requests BPC to conduct the borehole survey as per our instruction.

Table: Plan of Borehole Location and Length

Geotechnical Borehole Plan

SR NO	LS No.	NEW/ OLD	CHAINAGE	ROAD SIDE POSITION	BH NO	Planned DEPTH	Coordinates		Remarks
							X	Y	
Section-II					**Total**	**245**	**X**	**Y**	
27	B17	NEW	tbc	Hill	BH-1	20	23.017865159	92.920595035	
28	B18	NEW	172+010	Hill	BH-1	30	22.967991075	92.925623087	
29	B05	ToR	172+100	Hill	BH-1	30	22.967264531	92.925972445	
30	B07	ToR	174+800	Hill	BH-1	15	On the top of retaining road on the verified center line		
31				Hill	BH-2	25	40m apart from BH-1 on the verified center line		
32	B09	ToR	tbc	-	Cancel	-			
33	B10	ToR	tbc	Hill	BH-1	15	22.883858224	92.854113048	
34				Hill	BH-2	20	30m apart from BH-1 on the verified center line		
35	B13	ToR	tbc	-	Cancel	-			
36	B14	ToR	202+420	Hill	BH-1	15	On the verified center line at the same height as the top of retaining wall		
37				Hill	BH-2	25	40m apart from BH-1 on the verified center line		
38	C11	ToR	239+160	Hill	BH-1	20	On the top of retaining road on the verified center line (XY was recorded by Mr.Sumanta)		
39				Hill	BH-2	30	40m apart from BH-1 on the verified center line		
Section-III					**Total**	**690**	**X**	**Y**	
40	C13	ToR	255+500	Hill	BH-1	15	22.717458922	92.837654594	
41				Hill	BH-2	20	22.717297990	92.838211739	
42	C22	New	262+205	Hill	BH-1	25	22.690235507	92.841097796	
43	C17	ToR	278+500	Valley	BH-1	30	50m apart from the road shoulder on the verified center line		
44				Valley	BH-2	30	Near the road shoulder on the verified center line (XY was recorded by Mr.Sumanta)		
45				Hill	BH-3	30	50m apart from BH-2 on the verified center line		
43	D04	ToR	309+020	Hill	BH-1	20	22.462868756	92.906731199	
44				Hill	BH-2	25	40m apart from BH-1 on the verified center line		
45	D09	ToR	317+570	Valley	BH-1	20	22.435288019	92.927080868	
46				Hill	BH-2	20	20m apart from the road shoulder on the verified center line		
47	D10	ToR	317+750	Valley	BH-1	15	22.427990315	92.930140598	At the toe of the retaining wall on the verified center line
48				Hill	BH-2	20	30m apart from the road shoulder on the verified center line		
49	D11	ToR	319+205	Valley	BH-1	20	20m apart from the road shoulder on the verified center line		
50				Hill	BH-2	20	20m apart from the road shoulder on the verified center line		
51	D13	ToR	324+915	Valley	BH-1	20	20m apart from the road shoulder on the verified center line		
52				Hill	BH-2	25	22.400802858	92.949578064	
53				Hill	BH-3	30	40m apart from BH-2 on the verified center line		
54	D14	ToR	326+500	Hill	BH-1	15	15m apart from BH-2 on the verified center line at the same height as neighboring new cut slope		
55	D18	ToR	331+095	Hill	BH-1	15	22.428759774	92.947940156	
56				Hill	BH-2	20	22.429025313	92.948377607	
57				Hill	BH-3	20	22.429362014	92.948451033	BH-3 is not located on the verified center line.
58	D19	ToR	332+160	-	Cancel	-			
59	D22	ToR	335+100	Hill	BH-1	15	22.455022205	92.943323655	
60				Hill	BH-2	15	22.455143239	92.943435218	
61	D24	ToR	350+630	Valley	BH-1	20	22.420759164	92.992838239	
62				Hill	BH-2	20	22.420958905	92.992807059	
63	D25	ToR	350+790	Valley	BH-1	20	22.420543078	92.994565414	
64				Hill	BH-2	20	40m apart from the road shoulder on the verified center line		
65	D26	ToR	352+025	Valley	BH-1	15	20m apart from the road shoulder on the verified center line		
66				Hill	BH-2	15	20m apart from the road shoulder on the verified center line		
67	D27	ToR	360+835	Valley	BH-1	15	22.388222292	93.035320742	
68				Hill	BH-2	15	40m apart from the road shoulder on the verified center line		
69	D28	ToR	361+365	Hill	BH-1	15	22.386192027	93.035347983	
70	D29	ToR	361+550	Hill	BH-1	15	22.384646991	93.034992004	
71	D31	New	365+790	Hill	BH-1	15	22.365986444	93.042427339	
72				Hill	BH-2	20	22.365943277	93.042783402	

* The coordinates in the list were recorded by a mobile GPS, therefore, BPC shall prioritize the JICA Study Team's instruction at the site.

2.2 Boreholes Investigation Results

BPC has been preparing the boring log, photograph, groundwater table of boreholes drilled in section I. BPC shall share those documents with JICA Study Team on 24th May and explain the results along with core samples on 25th May.

JICA Study Team would like to suggest below.

(1) The boring log shall clarify depth of assumed slip plane and groundwater level, considering the purpose of the survey.

(2) Core sample must be taken form plastic bag when BPC takes photograph.

2.3 Slope Inventory Survey

BPC shall share the slope inventory survey for general slope result with JICA Study Team on 24th May.

2.4 Topographical Survey

(1) Schedule

As requested before, we would like to share whole schedule of topographical survey. Because we couldn't receive any concrete information form the leaders of topographical survey team, we would like you to deploy a site manager who controls all topographic survey team.

(2) Topographical Survey in Landslide Area

As discussed in Kick-off meeting held on 11th January, BPC is requested to conduct topographical survey including plan survey and cross-section survey in landslide area. As JICA Study Team instructed the landslide area and center line at the site, the plane survey around the landslide area and the cross-section survey along the center line shall be carried out. The list of landslide area and center line is attached (see attachmen-1), and also a location file (kmz. File) shall be shared for his reference.

2.5 Comments on Boreholes Investigation

JICA Study Team would like to make comments on the borehole survey.

(1) Borehole Location

Some borehole locations are so improper and located on different place from where JICA Study Team instructed at the site on 13th and 14th January, 2017 (see attachment-2). Because such borehole cannot clarify slip plane and groundwater depth correctly, the boring results cannot be utilized for landslide analysis and countermeasure design.

And also, conservation measures of installed PVC pipe were not so sufficient that some of them were broken and clogged, and cannot be used for groundwater monitoring.

(2) Core sample-1

Besides low core recovery rate, BPC didn't store the core samples between SPT points (see attachment-3). Because drilling length 1,510m specified in the ToR including SPT sections, BPC must store not only SPT samples but core samples between SPTs, if they include the SPT sections in the drilling length.

(3) Core sample-2

At the B11 site, we found core sample had been scattered without any marks and descriptions. And also, the leader of boring crew couldn't identify which sample is taken from which depth, even worse upside or down was not seeable. Therefore, such survey results are not reliable.

Attachment

Attachment-1: List of Topographic Survey in Critical Landslide Area

Attachment-2: Comments on Borehole Locations

Attachment-3: Photo of Core Sample Storage

End of Document

Attachment-1

List of Topographic Survey in Critical Landslide Area

No.	LS Zone	CS Length (m)		Plane Survey
		No.1	No.2	Area (m2)
1	A03	144.0		11,969.2
2	A05	70.5		4,030.2
3	A11	87.9		
4	A12	68.6		3,665.2
5	A14	118.7		7,521.5
6	A15	46.3		2,736.9
7	A21	82.3		3,537.0
8	A22	118.4		12,518.4
9	A25	241.7	246.0	54,750.3
10	A28	60.0		2,542.5
11	A29	60.0		3,080.1
12	A30	86.2		
13	A31	87.1		
14	A33	57.4		
15	B01	85.9		
16	B05	61.0		5,130.2
17	B07	81.6		
18	B09	52.4		
19	B10	56.5		
20	B14	62.6		
21	B17	60.3		
22	B18	42.1		
23	C11	162.6		
24	C13	75.9		
25	C17	346.2		
26	C22	79.5		6,548.1
27	D04	172.6		
28	D09	201.9		25,226.1
29	D10	133.7		12,411.8
30	D11	179.6		
31	D13	198.5		
32	D14	60.4		2,697.3
33	D18	160.1		17,870.7
34	D22	84.5		
35	D24	93.1		7,688.4
36	D25	248.8		
37	D26	111.9		8,969.6
38	D27	75.1		
39	D28	108.8		
40	D29	98.6		
41	D31	136.8		
		4,560.1		**192,893.7**

Attachment-2

Comments on Borehole Locations

BH No.	Comment
A03 BH-1	Pipe is broken and clogged. It cannot be used for groundwater monitoring
A03 BH-2	Missing? We couldn't find the borehole. Is it fixed with concrete foundation?
A12 BH-1	The borehole was drilled near the side flank of landslide, not on the center line JICA Study Team instructed. About 10m apart from the center line.
A12 BH-2	Similarly to BH-1, the borehole was drilled near the flank of landslide, not on the center line JICA Study Team instructed.
A14 BH-2	Although BH-1 is on the center line JICA Study Team instructed, but BH-2 is about 15m apart from the center line.
A14 BH-3	Similarly to BH-2, the BH-3 location is apart from center line and near to the flank. BH-3 is only 16m apart from BH-2, while the instruction is 40m. There is foot path connecting to upper slope, nevertheless, the borehole seemed to be selected easier place to carry out.
A21 BH-1	The borehole was drilled near the flank of landslide, not on the center line JICA Study Team instructed.
A25 BH-4	The borehole was drilled near the flank of landslide, not on the center line JICA Study Team instructed, while BH-5 is on the center line.
A29 BH-1	The borehole was clogged with gravels, it may be done by local children. It is necessary to add a lockable cap and explain the survey to local people.

Attachment-3

Photo of Core Sample Storage

付録 -4.4 : Meeting for Geotechnical Survey

Meeting Report: Geotechnical Survey

Date: 29th May, 2017

JICA Study Team and BPC had a meeting for geotechnical survey as shown below.

1 Summary

(1) Date: 29th May, 2017. Time: 10:00am -13:30pm

(2) Participants:
(JICA Study Team) Mr. Hiroyuki Katsuro, Mr. Naoki Kawahara, Mr. Michael Lalhmachhuana
(BPC) Mr. Sumanta Pakhira (Leader of Geotechnical Survey)
Mr. Biblap Maity (Leader of Topographic Survey)

(3) Venue: BPC site office, Zemabawk, Aizawl, Mizoram

(4) Agenda:

1. Review of the site meeting report on 12th – 16th June, 2017
2. Boreholes Investigation Results in Sec-I
3. Topographical Survey in Landslide Area

2 MEMO OF DISCUSSION :

2.1 Review of the site meeting report on 12th – 16th June, 2017

JICA Study Team and BPC jointly reviewed and agreed the meeting report of joint site verification for landslide survey held on 12th – 16th May, 2017.

JICA Study Team and BPC jointly verified borehole location in Section I on 13th and 14th January, 2017 at the site. Nevertheless, some boreholes were drilled different place where BPC could drill easily. As mentioned in the meeting report, such boring results cannot be utilized for analysis and plan of countermeasure. Now that BPC verified drilling location jointly, JICA Study Team strongly requested to conduct the borehole survey at proper location as per his instruction. If BPC would like to change location for some reason, it is required to give information to JICA Study Team in advance.

2.2 Boreholes Investigation Results in Section I

JICA Study Team give instruction and suggestion about boring log, core sample photograph, and groundwater monitoring as shown below.

1) Boring Log

- As JICA requested before, the boring log is requested to show slip plane and groundwater level considering the purpose of the survey.
- As JICA pointed out by E-mail, SPT shall be conducted at every 1m in depth. And core sample shall be also stored at every 1m in depth.
- The core sample shall be described by soil type, rock type, color, alteration, hardness, shape of core sample, etc, in boring log, and defined weathering classification by those observation not simply using the core recovery rate.
- The angle of plane structure such as schistosity, joint, and layer of the core sample shall be recorded in boring log. Based on those observation in addition to topographic and geological setting of the landslide site, the slip plan has to be assumed.

- Following the above instruction, BPC shall revise the boring logs, and submit to JICA Study Team by 2nd June, 2017.

2) Core Sample Photograph

- The core sample shall be taken out from plastic bag when the core sample photograph is taken.
- Photograph of each core sample shall be taken after cleaning the core sample with fresh water and removing adherent mud so that the texture of the core sample could be visible with the original appearance which is vital for observation.
- Following the above instruction, BPC shall take photographs of the core sample and submit to JICA Study Team by 2nd June, 2017.

3) Groundwater Monitoring

- Contrary to the ToR of the contract, groundwater level was monitored every day for 10 to 12 days just after they completed the drilling. JICA Study Team requested to conduct the groundwater monitoring following the ToR of the contract. Namely, the monitoring shall be done twice a week for five weeks in order to verify groundwater variation with precipitation.
- Because some boreholes were clogged by local people, JICA Study Team suggested to make a cap of the PVC pipe for protection.
- The groundwater level was recorded by 5cm or 10cm. JICA Study Team requested to measure by 1cm in more detail.
- Before installing the perforated PVC pipe, BPC shall mark No. on each pipe so that NHIDCL can inspect how many pipes installed.
- According the photograph taken in some drilling, any screen filter was not applied, while the ToR of the contract specified to roll over the installed PVC pipes.

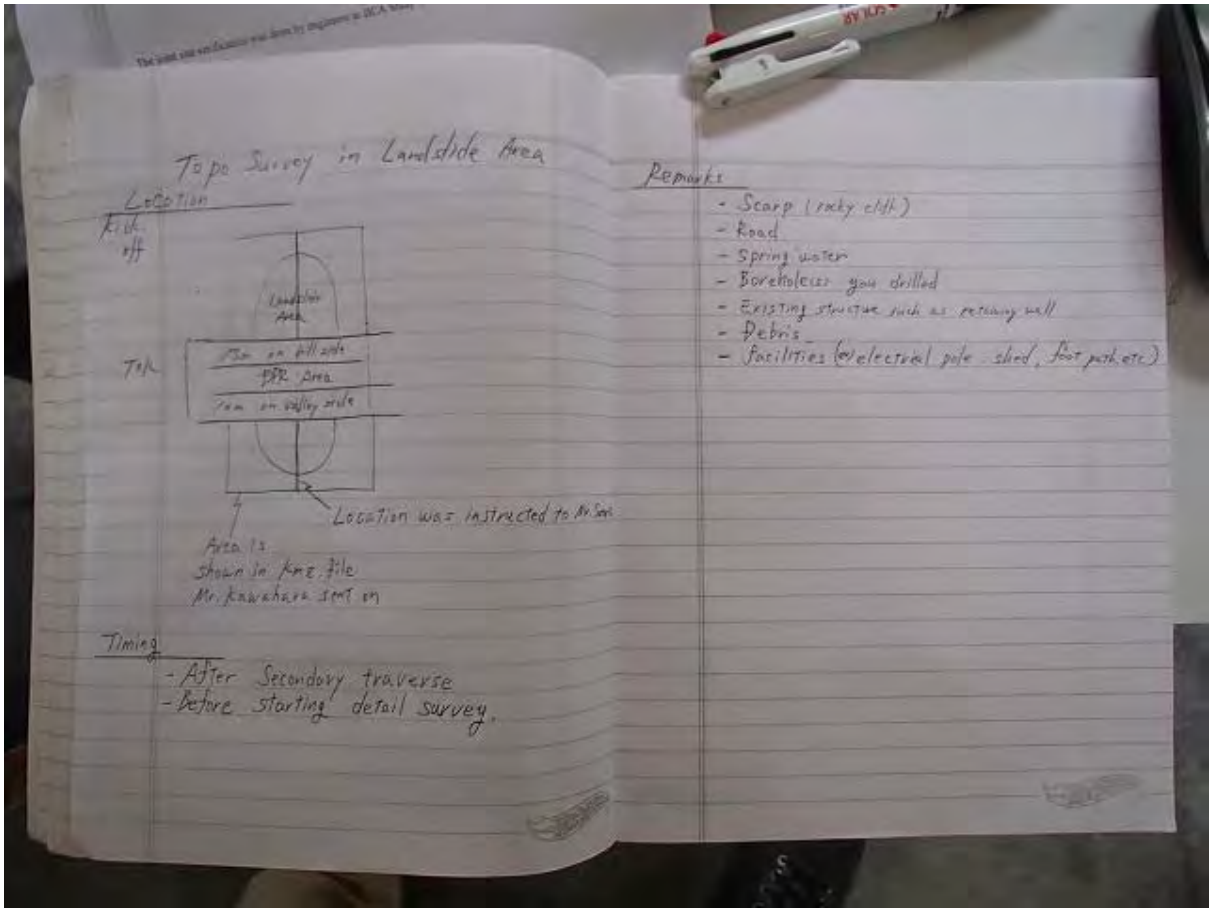
4) Topographic Survey (Attachment-1):

- Mr. Biblap Maity shall be in charge of the topographic survey, and currently three teams are working at a stage of secondary traverse point checking.
  As JICA Study Team requested by E-mail before, BPC shall share the whole schedule of the topographic survey with JICA Study Team.
- JICA Study Team instructed the location and area of the detail topographic survey in landslide area as listed in the last meeting report.
- In the topographic survey in landslide area, BPC was instructed to include all the topographic features such as national highway, house, scarp, rocky cliff, collapsed soil range, spring water, borehole, existing structures, (ie. retaining wall, gabion wall, electric pole, foot path, etc.)
- BPC was requested to start this survey in landslide area prior to the detail survey along the road.

End of Document

Attachment-1

Discussion on the Topographic Survey in Landslide Area



付録 -4.5 : Landslide Prevention Flow

(Draft) Flow of Landslide Prevention Design Work

1. Flow of Stability Analysis and Prevention Design Work

Flow of stability analysis and prevention design work is as shown in Figure 1.1. Specific contents are as shown blow.

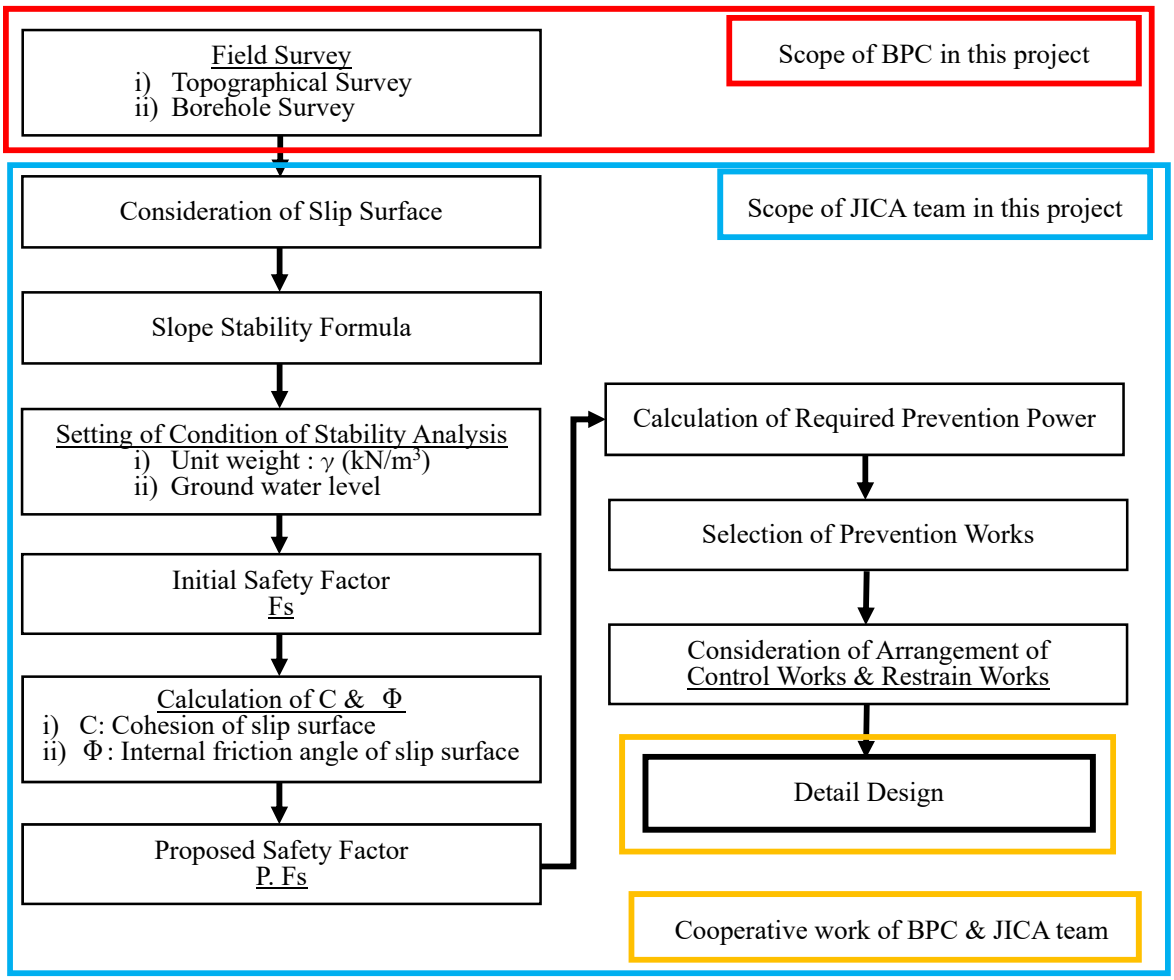


Figure 1.1 Flow of Stability Analysis and Prevention Design Works

(1) Consideration of Slip Surface

Consideration of slip surface is the most important step. Slip Surface should be decided by topographic feature, the scale of landslide, the result of geological survey which are got from field survey.

The layer thickness of the landslide is presumed empirically from the landform shape of the landslide. But, slip surface should be decided ultimately using the geological data of borehole (boring core, the result of standard penetration test and its sample).

(2) Slope Stability Formula

Fellenius' Method (Simple Method of Slices) shall be adopted in the slope stability calculation.

$$P.Fs = \frac{\Sigma\left(c \cdot l + \left(W - u \cdot b\right) cos\alpha \cdot tan\Phi\right)}{\Sigma W sin\alpha}$$

Where,

Fs = Initial Factor of Safety

C (kN/m^2) = Cohesion of sliding surface

Φ (°) = Internal friction angle of sliding surface

l (m) = Length of sliding surface acting on the slice

u (kN/m) = Pore pressure acting on the base of the slice

b (m) =Width of the slice (m)

W (kN/m) =Weight of the slice

A (°) = Angle of the base of the slice to the horizontal

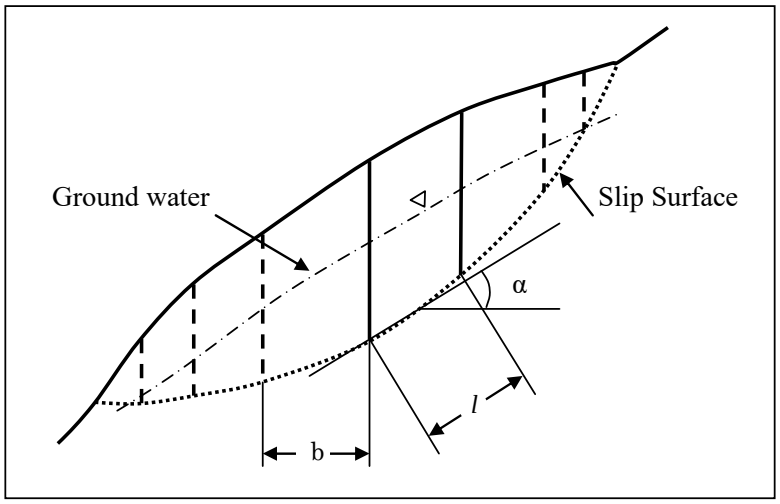


Figure 1.1 Schematic Diagram of Stability Analysis Formula

(3) Decision of every kind of Parameter

Every kind of parameter regarding to stability analysis such as unit weight, ground water level, C & Φ, initial and proposed safety as shown Figure 1.1 should be decided.

i) Unit Weight (γ)

Unit weight of landslide is generally approximately γ = 1.8 (kN/m^3) besides rock landslide which is formed by almost bedrock. Because, landslide materials consist of clay, sediment, rock and void.

ii) Groundwater Level

Groundwater level should be selected by observed data using boreholes. Number of the data is desirable to get from the observation points of three boreholes at least. But in case the scale of landslide is small, that is not required. Data after rainfall are desirable.

iii) Present Safety Factor

Evaluation of initial safety factor should be decided in order to share the present stability of landslide. Initial safety factor is generally *Fs=0.95 – 1.00*.

Table 1.1 Criteria for Selection

Safety factor	Value	Criteria
Present safety factor	0.95	Activity of landslide is continuous regardless of rainfall.
	0.98-1.00	Activity of landslide is intermittent.
	1.05-1.15	Landslide configuration is obvious but activity is not clear.

iv) Calculation of C & Φ

There are two methods about calculation of C & Φ. One is a method by back calculating which was developed in Japan, another is a method by using a result of laboratory test. In the latter case, materials for laboratory test should be collected from slip surface. Generally, it is almost difficult to collect materials with undisturbed sample from slip surface. A method by back calculating is a method which Φ is calculated by C presumed from empirical value as shown Table 1.2.

Table 1.2 Empirical value of C

Average Vertical Layer Thickness of Landslide (m)	Cohesion (kN/m^2)
5	5
10	10
15	15
20	20
25	25

Internal friction angle is calculated by the following formula.

In case of Fs=1.00 and C=10, tan ϕ is calculated as following;

$$tan\Phi = \frac{1.00 \cdot \Sigma W sin\alpha - 10 \cdot \Sigma l}{\Sigma\left(W - u \cdot b\right)cos\alpha}$$

v) Proposed Safety Factor

Proposed safety factor should be decided by the importance of the preservation facilities. And that value is generally *P.Fs=1.05 -1.20*. The criteria for selection are as shown in Table 1.3.

Table 1.3 Criteria for Selection

Safety factor	Value	Criteria
Proposed safety factor	1.05	Not main road. There are little important facilities along the road.
	1.10 - 1.20	Main road which connects the main towns. The economic loss will be enormous if traffic close is occurred by landslide. Proposed safety factor should be decided according to scale of disaster and the economic loss.

(4) Calculation of Required Prevention Power

Required prevention power (Pr) is calculated by the following formula.

$$P.Fs = \frac{\Sigma\left(c \cdot l + \left(W - u \cdot b\right) cos\alpha \cdot tan\Phi\right) + Pr}{\Sigma W sin\alpha}$$

$$\therefore \quad Pr = P.Fs \cdot \Sigma W sin\alpha - \Sigma(c \cdot l + \left(W - u \cdot b\right) cos\alpha \cdot tan\Phi)$$

付録 -5 : Culvert List

Package-1 / NH54

Sl. No.	Chainage (km)	Type / Opening of Culvert (m)	Remarks
1	8+110	Pipe culvert dia 1.2m	Re-construction
2	8+240	Pipe culvert dia 1.2m	New
3	8+475	Pipe culvert dia 1.2m	Re-construction
4	8+580	Pipe culvert dia 1.2m	Re-construction
5	8+750	Pipe culvert dia 1.2m	Re-construction
6	8+970	Pipe culvert dia 1.2m	Re-construction
7	9+090	Pipe culvert dia 1.2m	Re-construction
8	9+140	Pipe culvert dia 1.2m	Re-construction
9	9+350	Pipe culvert dia 1.2m	Re-construction
10	9+550	Pipe culvert dia 1.2m	Re-construction
11	9+740	Pipe culvert dia 1.2m	Re-construction
12	9+910	Pipe culvert dia 1.2m	Re-construction
13	10+080	Pipe culvert dia 1.2m	New
14	10+300	Pipe culvert dia 1.2m	Re-construction
15	10+460	Pipe culvert dia 1.2m	Re-construction
16	10+580	Pipe culvert dia 1.2m	New
17	10+610	Pipe culvert dia 1.2m	Re-construction
18	10+720	Pipe culvert dia 1.2m	Re-construction
19	10+830	Pipe culvert dia 1.2m	Re-construction
20	10+880	Pipe culvert dia 1.2m	Re-construction
21	10+980	Box Culvert 2mX2m	New
22	11+130	Box Culvert 2mX2m	Re-construction
23	11+250	Pipe culvert dia 1.2m	Re-construction
24	11+410	Pipe culvert dia 1.2m	Re-construction
25	11+525	Pipe culvert dia 1.2m	Re-construction
26	11+640	Pipe culvert dia 1.2m	Re-construction
27	11+710	Pipe culvert dia 1.2m	Re-construction
28	11+890	Pipe culvert dia 1.2m	Re-construction
29	12+010	Pipe culvert dia 1.2m	Re-construction
30	12+150	Pipe culvert dia 1.2m	New
31	12+270	Pipe culvert dia 1.2m	Re-construction
32	12+500	Pipe culvert dia 1.2m	Re-construction
33	12+650	Pipe culvert dia 1.2m	New
34	12+850	Pipe culvert dia 1.2m	New
35	13+040	Pipe culvert dia 1.2m	Re-construction
36	13+190	Pipe culvert dia 1.2m	Re-construction
37	13+290	Pipe culvert dia 1.2m	Re-construction
38	13+410	Pipe culvert dia 1.2m	Re-construction
39	13+550	Pipe culvert dia 1.2m	Re-construction
40	13+670	Pipe culvert dia 1.2m	Re-construction
41	13+855	Pipe culvert dia 1.2m	New
42	14+010	Pipe culvert dia 1.2m	Re-construction
43	14+080	Pipe culvert dia 1.2m	Re-construction
44	14+210	Pipe culvert dia 1.2m	Re-construction
45	14+280	Pipe culvert dia 1.2m	New
46	14+440	Pipe culvert dia 1.2m	Re-construction
47	14+640	Pipe culvert dia 1.2m	New
48	14+800	Pipe culvert dia 1.2m	Re-construction
49	15+040	Pipe culvert dia 1.2m	Re-construction
50	15+310	Pipe culvert dia 1.2m	Re-construction
51	15+460	Pipe culvert dia 1.2m	Re-construction
52	15+650	Pipe culvert dia 1.2m	New
53	15+900	Pipe culvert dia 1.2m	Re-construction
54	16+085	Pipe culvert dia 1.2m	New
55	16+240	Pipe culvert dia 1.2m	Re-construction
56	16+390	Pipe culvert dia 1.2m	Re-construction
57	16+545	Pipe culvert dia 1.2m	Re-construction
58	16+710	Pipe culvert dia 1.2m	Re-construction
59	16+760	Pipe culvert dia 1.2m	New
60	16+900	Pipe culvert dia 1.2m	Re-construction
61	17+120	Pipe culvert dia 1.2m	New
62	17+350	Pipe culvert dia 1.2m	Re-construction

Package-1 / NH54

Sl. No.	Chainage (km)	Type / Opening of Culvert (m)	Remarks
63	17+550	Box Culvert 2mX2m	Re-construction
64	17+770	Box Culvert 2mX2m	Re-construction
65	17+880	Pipe culvert dia 1.2m	Re-construction
66	18+070	Pipe culvert dia 1.2m	Re-construction
67	18+160	Pipe culvert dia 1.2m	Re-construction
68	18+200	Pipe culvert dia 1.2m	Re-construction
69	18+370	Pipe culvert dia 1.2m	Re-construction
70	18+540	Pipe culvert dia 1.2m	Re-construction
71	18+740	Pipe culvert dia 1.2m	New
72	18+970	Pipe culvert dia 1.2m	Re-construction
73	19+110	Pipe culvert dia 1.2m	Re-construction
74	19+370	Pipe culvert dia 1.2m	Re-construction
75	19+550	Pipe culvert dia 1.2m	Re-construction
76	19+660	Pipe culvert dia 1.2m	New
77	19+770	Pipe culvert dia 1.2m	Re-construction
78	19+930	Pipe culvert dia 1.2m	Re-construction
79	20+000	Pipe culvert dia 1.2m	Re-construction
80	20+090	Pipe culvert dia 1.2m	Re-construction
81	20+260	Pipe culvert dia 1.2m	Re-construction
82	20+400	Box Culvert 3mx3m	Re-construction
83	20+510	Pipe culvert dia 1.2m	Re-construction
84	20+610	Pipe culvert dia 1.2m	Re-construction
85	20+700	Pipe culvert dia 1.2m	New
86	20+780	Pipe culvert dia 1.2m	Re-construction
87	20+830	Pipe culvert dia 1.2m	New
88	20+950	Pipe culvert dia 1.2m	New
89	21+040	Pipe culvert dia 1.2m	Re-construction
90	21+150	Pipe culvert dia 1.2m	New
91	21+300	Pipe culvert dia 1.2m	Re-construction
92	21+370	Box Culvert 3mx3m	Re-construction
93	21+420	Pipe culvert dia 1.2m	Re-construction
94	21+490	Pipe culvert dia 1.2m	Re-construction
95	21+720	Pipe culvert dia 1.2m	Re-construction
96	21+890	Pipe culvert dia 1.2m	Re-construction
97	22+000	Pipe culvert dia 1.2m	Re-construction
98	22+120	Pipe culvert dia 1.2m	Re-construction
99	22+220	Pipe culvert dia 1.2m	Re-construction
100	22+530	Pipe culvert dia 1.2m	Re-construction
101	22+630	Pipe culvert dia 1.2m	Re-construction
102	22+790	Pipe culvert dia 1.2m	Re-construction
103	23+030	Pipe culvert dia 1.2m	Re-construction
104	23+170	Pipe culvert dia 1.2m	New
105	23+220	Pipe culvert dia 1.2m	Re-construction
106	23+450	Pipe culvert dia 1.2m	Re-construction
107	23+640	Pipe culvert dia 1.2m	Re-construction
108	23+810	Pipe culvert dia 1.2m	Re-construction
109	24+090	Box Culvert 2mX2m	Re-construction
110	24+300	Pipe culvert dia 1.2m	Re-construction
111	24+370	Pipe culvert dia 1.2m	New
112	24+650	Pipe culvert dia 1.2m	Re-construction
113	24+745	Pipe culvert dia 1.2m	Re-construction
114	24+885	Pipe culvert dia 1.2m	Re-construction
115	24+970	Pipe culvert dia 1.2m	Re-construction
116	25+140	Pipe culvert dia 1.2m	Re-construction
117	25+210	Pipe culvert dia 1.2m	Re-construction
118	25+420	Pipe culvert dia 1.2m	Re-construction
119	25+450	Box Culvert 2mX2m	Re-construction
120	25+530	Pipe culvert dia 1.2m	New
121	25+625	Pipe culvert dia 1.2m	Re-construction
122	25+710	Pipe culvert dia 1.2m	Re-construction
123	25+810	Pipe culvert dia 1.2m	Re-construction
124	25+910	Pipe culvert dia 1.2m	New

Package-1 / NH54

Sl. No.	Chainage (km)	Type / Opening of Culvert (m)	Remarks
125	26+160	Pipe culvert dia 1.2m	Re-construction
126	26+200	Pipe culvert dia 1.2m	Re-construction
127	26+400	Pipe culvert dia 1.2m	Re-construction
128	26+530	Pipe culvert dia 1.2m	Re-construction
129	26+700	Pipe culvert dia 1.2m	New
130	26+850	Pipe culvert dia 1.2m	Re-construction
131	26+910	Pipe culvert dia 1.2m	Re-construction
132	27+130	Pipe culvert dia 1.2m	Re-construction
133	27+210	Pipe culvert dia 1.2m	Re-construction
134	27+390	Pipe culvert dia 1.2m	Re-construction
135	27+730	Pipe culvert dia 1.2m	Re-construction
136	27+930	Pipe culvert dia 1.2m	New
137	28+085	Pipe culvert dia 1.2m	Re-construction
138	28+250	Pipe culvert dia 1.2m	Re-construction
139	28+400	Pipe culvert dia 1.2m	Re-construction
140	28+640	Pipe culvert dia 1.2m	Re-construction
141	28+800	Pipe culvert dia 1.2m	New
142	28+990	Pipe culvert dia 1.2m	Re-construction
143	29+170	Pipe culvert dia 1.2m	Re-construction
144	29+340	Pipe culvert dia 1.2m	Re-construction
145	29+480	Pipe culvert dia 1.2m	Re-construction
146	29+730	Pipe culvert dia 1.2m	New
147	29+960	Pipe culvert dia 1.2m	New
148	30+070	Pipe culvert dia 1.2m	Re-construction
149	30+380	Pipe culvert dia 1.2m	Re-construction
150	30+640	Pipe culvert dia 1.2m	Re-construction
151	30+830	Pipe culvert dia 1.2m	Re-construction
152	31+060	Pipe culvert dia 1.2m	Re-construction
153	31+270	Pipe culvert dia 1.2m	Re-construction
154	31+400	Pipe culvert dia 1.2m	New
155	31+560	Pipe culvert dia 1.2m	Re-construction
156	31+710	Pipe culvert dia 1.2m	Re-construction
157	31+830	Pipe culvert dia 1.2m	Re-construction
158	31+990	Pipe culvert dia 1.2m	Re-construction
159	32+200	Pipe culvert dia 1.2m	Re-construction
160	32+450	Pipe culvert dia 1.2m	Re-construction
161	32+610	Pipe culvert dia 1.2m	Re-construction
162	32+760	Pipe culvert dia 1.2m	New
163	32+900	Pipe culvert dia 1.2m	Re-construction
164	32+970	Pipe culvert dia 1.2m	Re-construction
165	33+130	Pipe culvert dia 1.2m	New
166	33+380	Pipe culvert dia 1.2m	New
167	33+560	Pipe culvert dia 1.2m	Re-construction
168	33+670	Pipe culvert dia 1.2m	Re-construction
169	33+800	Pipe culvert dia 1.2m	New
170	34+030	Pipe culvert dia 1.2m	Re-construction
171	34+300	Pipe culvert dia 1.2m	New
172	34+460	Pipe culvert dia 1.2m	New
173	34+790	Pipe culvert dia 1.2m	Re-construction
174	35+010	Pipe culvert dia 1.2m	New
175	35+330	Pipe culvert dia 1.2m	Re-construction
176	35+600	Pipe culvert dia 1.2m	Re-construction
177	35+660	Pipe culvert dia 1.2m	Re-construction
178	35+780	Pipe culvert dia 1.2m	Re-construction
179	36+050	Pipe culvert dia 1.2m	Re-construction
180	36+300	Pipe culvert dia 1.2m	Re-construction
181	36+580	Pipe culvert dia 1.2m	Re-construction
182	36+750	Pipe culvert dia 1.2m	Re-construction
183	36+820	Pipe culvert dia 1.2m	Re-construction
184	37+010	Pipe culvert dia 1.2m	New
185	37+300	Pipe culvert dia 1.2m	New
186	37+670	Pipe culvert dia 1.2m	Re-construction

Package-1 / NH54

Sl. No.	Chainage (km)	Type / Opening of Culvert (m)	Remarks
187	37+790	Pipe culvert dia 1.2m	Re-construction
188	38+080	Pipe culvert dia 1.2m	Re-construction
189	38+270	Pipe culvert dia 1.2m	Re-construction
190	38+510	Pipe culvert dia 1.2m	Re-construction
191	38+710	Pipe culvert dia 1.2m	Re-construction
192	38+990	Pipe culvert dia 1.2m	Re-construction
193	39+250	Pipe culvert dia 1.2m	Re-construction
194	39+500	Pipe culvert dia 1.2m	Re-construction
195	39+660	Pipe culvert dia 1.2m	Re-construction
196	40+000	Pipe culvert dia 1.2m	New
197	40+140	Pipe culvert dia 1.2m	Re-construction
198	40+300	Pipe culvert dia 1.2m	Re-construction
199	40+530	Pipe culvert dia 1.2m	New
200	40+770	Pipe culvert dia 1.2m	Re-construction
201	41+005	Pipe culvert dia 1.2m	New
202	41+250	Pipe culvert dia 1.2m	Re-construction
203	41+450	Pipe culvert dia 1.2m	Re-construction
204	41+530	Pipe culvert dia 1.2m	Re-construction
205	41+660	Pipe culvert dia 1.2m	Re-construction
206	41+860	Pipe culvert dia 1.2m	New
207	42+010	Pipe culvert dia 1.2m	Re-construction
208	42+200	Pipe culvert dia 1.2m	Re-construction
209	42+290	Pipe culvert dia 1.2m	Re-construction
210	42+450	Pipe culvert dia 1.2m	Re-construction
211	42+530	Pipe culvert dia 1.2m	Re-construction
212	42+760	Pipe culvert dia 1.2m	Re-construction
213	42+900	Pipe culvert dia 1.2m	Re-construction
214	43+050	Pipe culvert dia 1.2m	New
215	43+200	Pipe culvert dia 1.2m	New
216	43+380	Pipe culvert dia 1.2m	Re-construction
217	43+500	Pipe culvert dia 1.2m	Re-construction
218	43+610	Pipe culvert dia 1.2m	Re-construction
219	43+780	Pipe culvert dia 1.2m	New
220	44+020	Pipe culvert dia 1.2m	Re-construction
221	44+220	Pipe culvert dia 1.2m	Re-construction
222	44+350	Pipe culvert dia 1.2m	Re-construction
223	44+430	Pipe culvert dia 1.2m	Re-construction
224	44+630	Pipe culvert dia 1.2m	Re-construction
225	44+850	Pipe culvert dia 1.2m	Re-construction
226	45+130	Pipe culvert dia 1.2m	New
227	45+350	Pipe culvert dia 1.2m	Re-construction
228	45+540	Pipe culvert dia 1.2m	Re-construction
229	45+640	Pipe culvert dia 1.2m	Re-construction
230	45+730	Pipe culvert dia 1.2m	Re-construction
231	45+950	Pipe culvert dia 1.2m	New
232	46+080	Pipe culvert dia 1.2m	Re-construction
233	46+210	Pipe culvert dia 1.2m	Re-construction
234	46+445	Pipe culvert dia 1.2m	New
235	46+570	Pipe culvert dia 1.2m	Re-construction
236	46+750	Pipe culvert dia 1.2m	Re-construction
237	46+910	Pipe culvert dia 1.2m	Re-construction
238	47+110	Pipe culvert dia 1.2m	Re-construction
239	47+195	Pipe culvert dia 1.2m	Re-construction
240	47+380	Pipe culvert dia 1.2m	Re-construction
241	47+510	Pipe culvert dia 1.2m	Re-construction
242	47+715	Pipe culvert dia 1.2m	Re-construction
243	47+810	Pipe culvert dia 1.2m	Re-construction
244	48+100	Pipe culvert dia 1.2m	Re-construction
245	48+250	Pipe culvert dia 1.2m	Re-construction
246	48+410	Pipe culvert dia 1.2m	Re-construction
247	48+560	Pipe culvert dia 1.2m	Re-construction
248	48+710	Pipe culvert dia 1.2m	Re-construction

Package-1 / NH54

Sl. No.	Chainage (km)	Type / Opening of Culvert (m)	Remarks
249	48+830	Pipe culvert dia 1.2m	Re-construction
250	49+050	Pipe culvert dia 1.2m	Re-construction
251	49+230	Pipe culvert dia 1.2m	New
252	49+320	Pipe culvert dia 1.2m	New
253	49+540	Pipe culvert dia 1.2m	New
254	49+630	Pipe culvert dia 1.2m	Re-construction
255	49+730	Pipe culvert dia 1.2m	New
256	49+910	Pipe culvert dia 1.2m	Re-construction
257	50+070	Pipe culvert dia 1.2m	Re-construction
258	50+330	Pipe culvert dia 1.2m	Re-construction
259	50+510	Pipe culvert dia 1.2m	Re-construction
260	50+830	Pipe culvert dia 1.2m	New
261	51+160	Pipe culvert dia 1.2m	New
262	51+480	Pipe culvert dia 1.2m	New
263	51+760	Pipe culvert dia 1.2m	New
264	52+030	Pipe culvert dia 1.2m	New
265	52+160	Pipe culvert dia 1.2m	Re-construction
266	52+410	Pipe culvert dia 1.2m	Re-construction
267	52+500	Pipe culvert dia 1.2m	New
268	52+640	Pipe culvert dia 1.2m	Re-construction
269	52+830	Pipe culvert dia 1.2m	New
270	53+000	Pipe culvert dia 1.2m	New
271	53+230	Pipe culvert dia 1.2m	Re-construction
272	53+380	Pipe culvert dia 1.2m	Re-construction
273	53+590	Pipe culvert dia 1.2m	Re-construction
274	53+720	Pipe culvert dia 1.2m	New
275	53+920	Pipe culvert dia 1.2m	Re-construction
276	54+260	Pipe culvert dia 1.2m	New
277	54+340	Pipe culvert dia 1.2m	Re-construction
278	54+470	Pipe culvert dia 1.2m	Re-construction
279	54+650	Pipe culvert dia 1.2m	Re-construction
280	54+900	Pipe culvert dia 1.2m	Re-construction
281	55+100	Pipe culvert dia 1.2m	New
282	55+300	Pipe culvert dia 1.2m	Re-construction
283	55+480	Pipe culvert dia 1.2m	New
284	55+560	Pipe culvert dia 1.2m	New
285	55+780	Pipe culvert dia 1.2m	New
286	55+980	Pipe culvert dia 1.2m	Re-construction
287	56+050	Pipe culvert dia 1.2m	Re-construction
288	56+160	Pipe culvert dia 1.2m	Re-construction
289	56+320	Pipe culvert dia 1.2m	Re-construction
290	56+440	Pipe culvert dia 1.2m	Re-construction
291	56+620	Pipe culvert dia 1.2m	Re-construction
292	56+720	Pipe culvert dia 1.2m	Re-construction
293	56+980	Pipe culvert dia 1.2m	New
294	57+235	Pipe culvert dia 1.2m	Re-construction
295	57+365	Pipe culvert dia 1.2m	Re-construction
296	57+500	Pipe culvert dia 1.2m	Re-construction
297	57+635	Pipe culvert dia 1.2m	Re-construction
298	57+820	Pipe culvert dia 1.2m	Re-construction
299	57+950	Pipe culvert dia 1.2m	Re-construction
300	58+130	Pipe culvert dia 1.2m	New
301	58+375	Pipe culvert dia 1.2m	Re-construction
302	58+470	Pipe culvert dia 1.2m	Re-construction
303	58+680	Pipe culvert dia 1.2m	New
304	58+860	Pipe culvert dia 1.2m	Re-construction
305	59+010	Pipe culvert dia 1.2m	Re-construction
306	59+150	Pipe culvert dia 1.2m	Re-construction
307	59+440	Pipe culvert dia 1.2m	New
308	59+660	Pipe culvert dia 1.2m	New
309	59+960	Pipe culvert dia 1.2m	Re-construction
310	60+110	Pipe culvert dia 1.2m	Re-construction

Package-1 / NH54

Sl. No.	Chainage (km)	Type / Opening of Culvert (m)	Remarks
311	60+420	Pipe culvert dia 1.2m	Re-construction
312	60+530	Pipe culvert dia 1.2m	Re-construction
313	60+640	Pipe culvert dia 1.2m	Re-construction
314	60+910	Pipe culvert dia 1.2m	New
315	61+170	Pipe culvert dia 1.2m	New
316	61+430	Pipe culvert dia 1.2m	New
317	61+560	Pipe culvert dia 1.2m	New
318	61+770	Pipe culvert dia 1.2m	Re-construction
319	61+920	Pipe culvert dia 1.2m	Re-construction
320	62+050	Pipe culvert dia 1.2m	Re-construction
321	62+150	Pipe culvert dia 1.2m	Re-construction
322	62+270	Pipe culvert dia 1.2m	Re-construction
323	62+505	Pipe culvert dia 1.2m	Re-construction
324	62+730	Pipe culvert dia 1.2m	New
325	62+930	Pipe culvert dia 1.2m	Re-construction
326	63+030	Pipe culvert dia 1.2m	Re-construction
327	63+150	Pipe culvert dia 1.2m	Re-construction
328	63+230	Pipe culvert dia 1.2m	Re-construction
329	63+450	Pipe culvert dia 1.2m	Re-construction
330	63+570	Pipe culvert dia 1.2m	Re-construction
331	63+740	Pipe culvert dia 1.2m	Re-construction
332	63+810	Pipe culvert dia 1.2m	Re-construction
333	64+020	Pipe culvert dia 1.2m	New
334	64+125	Pipe culvert dia 1.2m	Re-construction
335	64+200	Pipe culvert dia 1.2m	Re-construction
336	64+330	Pipe culvert dia 1.2m	Re-construction
337	64+460	Pipe culvert dia 1.2m	Re-construction
338	64+640	Pipe culvert dia 1.2m	Re-construction
339	64+770	Pipe culvert dia 1.2m	Re-construction
340	64+910	Pipe culvert dia 1.2m	Re-construction

Package-2 / NH54

Sl. No.	Chainage (km)	Type / Opening of Culvert (m)	Remarks
1	65+170	Pipe culvert dia 1.2m	Re-construction
2	65+370	Pipe culvert dia 1.2m	Re-construction
3	65+520	Pipe culvert dia 1.2m	Re-construction
4	65+640	Pipe culvert dia 1.2m	New
5	65+805	Pipe culvert dia 1.2m	Re-construction
6	65+910	Pipe culvert dia 1.2m	Re-construction
7	66+075	Pipe culvert dia 1.2m	Re-construction
8	66+130	Pipe culvert dia 1.2m	Re-construction
9	66+260	Pipe culvert dia 1.2m	Re-construction
10	66+435	Pipe culvert dia 1.2m	New
11	66+560	Pipe culvert dia 1.2m	Re-construction
12	66+800	Pipe culvert dia 1.2m	Re-construction
13	66+980	Pipe culvert dia 1.2m	Re-construction
14	67+160	Pipe culvert dia 1.2m	Re-construction
15	67+365	Pipe culvert dia 1.2m	Re-construction
16	67+460	Pipe culvert dia 1.2m	Re-construction
17	67+620	Pipe culvert dia 1.2m	New
18	67+880	Pipe culvert dia 1.2m	Re-construction
19	68+120	Pipe culvert dia 1.2m	New
20	68+290	Pipe culvert dia 1.2m	Re-construction
21	68+500	Pipe culvert dia 1.2m	New
22	68+810	Pipe culvert dia 1.2m	Re-construction
23	69+030	Pipe culvert dia 1.2m	New
24	69+170	Pipe culvert dia 1.2m	New
25	69+320	Pipe culvert dia 1.2m	Re-construction
26	69+580	Pipe culvert dia 1.2m	Re-construction
27	69+730	Pipe culvert dia 1.2m	Re-construction
28	69+900	Pipe culvert dia 1.2m	Re-construction
29	70+075	Pipe culvert dia 1.2m	Re-construction
30	70+180	Pipe culvert dia 1.2m	Re-construction
31	70+330	Pipe culvert dia 1.2m	Re-construction
32	70+570	Pipe culvert dia 1.2m	Re-construction
33	70+780	Pipe culvert dia 1.2m	Re-construction
34	70+910	Pipe culvert dia 1.2m	Re-construction
35	71+010	Pipe culvert dia 1.2m	Re-construction
36	71+210	Pipe culvert dia 1.2m	Re-construction
37	71+400	Pipe culvert dia 1.2m	New
38	71+480	Pipe culvert dia 1.2m	Re-construction
39	71+690	Pipe culvert dia 1.2m	Re-construction
40	71+830	Pipe culvert dia 1.2m	Re-construction
41	72+030	Pipe culvert dia 1.2m	Re-construction
42	72+150	Pipe culvert dia 1.2m	Re-construction
43	72+240	Pipe culvert dia 1.2m	Re-construction
44	72+390	Pipe culvert dia 1.2m	Re-construction
45	72+610	Pipe culvert dia 1.2m	Re-construction
46	72+700	Pipe culvert dia 1.2m	Re-construction
47	72+770	Pipe culvert dia 1.2m	Re-construction
48	72+880	Pipe culvert dia 1.2m	Re-construction
49	73+000	Pipe culvert dia 1.2m	Re-construction
50	73+170	Pipe culvert dia 1.2m	New
51	73+380	Pipe culvert dia 1.2m	Re-construction
52	73+530	Pipe culvert dia 1.2m	New
53	73+630	Pipe culvert dia 1.2m	Re-construction
54	73+730	Pipe culvert dia 1.2m	Re-construction
55	73+830	Pipe culvert dia 1.2m	Re-construction
56	74+120	Pipe culvert dia 1.2m	New
57	74+240	Pipe culvert dia 1.2m	Re-construction
58	74+400	Pipe culvert dia 1.2m	New
59	74+590	Pipe culvert dia 1.2m	Re-construction
60	74+770	Pipe culvert dia 1.2m	Re-construction
61	74+910	Pipe culvert dia 1.2m	Re-construction
62	75+210	Pipe culvert dia 1.2m	Re-construction

Package-2 / NH54

Sl. No.	Chainage (km)	Type / Opening of Culvert (m)	Remarks
63	75+390	Pipe culvert dia 1.2m	New
64	75+550	Pipe culvert dia 1.2m	Re-construction
65	75+710	Pipe culvert dia 1.2m	Re-construction
66	75+920	Pipe culvert dia 1.2m	New
67	76+040	Pipe culvert dia 1.2m	Re-construction
68	76+210	Pipe culvert dia 1.2m	Re-construction
69	76+350	Pipe culvert dia 1.2m	New
70	76+610	Pipe culvert dia 1.2m	New
71	76+830	Pipe culvert dia 1.2m	Re-construction
72	77+020	Pipe culvert dia 1.2m	Re-construction
73	77+180	Pipe culvert dia 1.2m	Re-construction
74	77+330	Pipe culvert dia 1.2m	Re-construction
75	77+530	Pipe culvert dia 1.2m	Re-construction
76	77+740	Pipe culvert dia 1.2m	Re-construction
77	77+860	Pipe culvert dia 1.2m	Re-construction
78	78+020	Pipe culvert dia 1.2m	Re-construction
79	78+100	Pipe culvert dia 1.2m	Re-construction
80	78+270	Pipe culvert dia 1.2m	Re-construction
81	78+450	Pipe culvert dia 1.2m	Re-construction
82	78+700	Pipe culvert dia 1.2m	New
83	78+940	Pipe culvert dia 1.2m	Re-construction
84	79+040	Pipe culvert dia 1.2m	Re-construction
85	79+200	Pipe culvert dia 1.2m	Re-construction
86	79+350	Pipe culvert dia 1.2m	Re-construction
87	79+490	Pipe culvert dia 1.2m	Re-construction
88	79+575	Pipe culvert dia 1.2m	Re-construction
89	79+760	Pipe culvert dia 1.2m	Re-construction
90	79+930	Pipe culvert dia 1.2m	Re-construction
91	80+070	Pipe culvert dia 1.2m	Re-construction
92	80+190	Pipe culvert dia 1.2m	Re-construction
93	80+260	Pipe culvert dia 1.2m	Re-construction
94	80+390	Pipe culvert dia 1.2m	Re-construction
95	80+520	Pipe Culvert dia 1.2m	New
96	80+660	Pipe culvert dia 1.2m	New
97	80+880	Pipe culvert dia 1.2m	Re-construction
98	81+070	Pipe culvert dia 1.2m	New
99	81+255	Pipe culvert dia 1.2m	New
100	81+480	Pipe culvert dia 1.2m	Re-construction
101	81+710	Pipe culvert dia 1.2m	Re-construction
102	81+810	Pipe culvert dia 1.2m	Re-construction
103	81+970	Pipe culvert dia 1.2m	Re-construction
104	82+315	Pipe culvert dia 1.2m	Re-construction
105	82+470	Pipe culvert dia 1.2m	Re-construction
106	82+690	Pipe culvert dia 1.2m	Re-construction
107	82+840	Pipe culvert dia 1.2m	Re-construction
108	82+990	Pipe culvert dia 1.2m	Re-construction
109	83+170	Pipe culvert dia 1.2m	Re-construction
110	83+430	Pipe culvert dia 1.2m	New
111	83+680	Pipe culvert dia 1.2m	New
112	83+900	Pipe culvert dia 1.2m	Re-construction
113	84+110	Pipe culvert dia 1.2m	Re-construction
114	84+440	Pipe culvert dia 1.2m	New
115	84+540	Pipe culvert dia 1.2m	New
116	84+810	Pipe culvert dia 1.2m	New
117	85+000	Pipe culvert dia 1.2m	Re-construction
118	85+190	Pipe culvert dia 1.2m	Re-construction
119	85+330	Pipe culvert dia 1.2m	New
120	85+540	Pipe culvert dia 1.2m	Re-construction
121	85+650	Pipe culvert dia 1.2m	Re-construction
122	85+730	Pipe culvert dia 1.2m	Re-construction
123	85+890	Pipe culvert dia 1.2m	Re-construction
124	86+040	Pipe culvert dia 1.2m	Re-construction

Package-2 / NH54

Sl. No.	Chainage (km)	Type / Opening of Culvert (m)	Remarks
125	86+080	Pipe culvert dia 1.2m	Re-construction
126	86+280	Pipe culvert dia 1.2m	Re-construction
127	86+430	Pipe culvert dia 1.2m	Re-construction
128	86+490	Pipe culvert dia 1.2m	Re-construction
129	86+610	Pipe culvert dia 1.2m	Re-construction
130	86+780	Pipe culvert dia 1.2m	Re-construction
131	86+980	Pipe culvert dia 1.2m	Re-construction
132	87+090	Pipe culvert dia 1.2m	Re-construction
133	87+210	Pipe culvert dia 1.2m	Re-construction
134	87+320	Pipe culvert dia 1.2m	Re-construction
135	87+460	Pipe culvert dia 1.2m	Re-construction
136	87+550	Pipe culvert dia 1.2m	Re-construction
137	87+660	Pipe culvert dia 1.2m	Re-construction
138	87+890	Pipe culvert dia 1.2m	New
139	88+130	Pipe culvert dia 1.2m	Re-construction
140	88+440	Pipe culvert dia 1.2m	Re-construction
141	88+690	Pipe culvert dia 1.2m	New
142	88+940	Pipe culvert dia 1.2m	New
Chitlang Bypass Planned Section			
143	91+300	Pipe culvert dia 1.2m	New
144	91+560	Pipe culvert dia 1.2m	Re-construction
145	91+680	Pipe culvert dia 1.2m	Re-construction
146	91+870	Pipe culvert dia 1.2m	Re-construction
147	92+070	Pipe culvert dia 1.2m	New
148	92+300	Pipe culvert dia 1.2m	New
149	92+520	Pipe culvert dia 1.2m	Re-construction
150	92+640	Pipe culvert dia 1.2m	Re-construction
151	92+780	Pipe culvert dia 1.2m	Re-construction
152	93+020	Pipe culvert dia 1.2m	Re-construction
153	93+320	Pipe culvert dia 1.2m	New
154	93+480	Pipe culvert dia 1.2m	New
155	93+670	Pipe culvert dia 1.2m	Re-construction
156	93+840	Pipe culvert dia 1.2m	Re-construction
157	94+030	Pipe culvert dia 1.2m	Re-construction
158	94+160	Pipe culvert dia 1.2m	Re-construction
159	94+280	Pipe culvert dia 1.2m	New
160	94+620	Pipe culvert dia 1.2m	Re-construction
161	94+810	Pipe culvert dia 1.2m	New
162	95+040	Pipe culvert dia 1.2m	Re-construction
163	95+250	Pipe culvert dia 1.2m	Re-construction
164	95+440	Pipe culvert dia 1.2m	Re-construction
165	95+620	Pipe culvert dia 1.2m	New
166	95+760	Pipe culvert dia 1.2m	Re-construction
167	95+900	Pipe culvert dia 1.2m	Re-construction
168	95+990	Pipe culvert dia 1.2m	Re-construction
169	96+150	Pipe culvert dia 1.2m	New
Serchhip Bypass Planned Section			
170	106+040	Pipe culvert dia 1.2m	Re-construction
171	106+210	Pipe culvert dia 1.2m	Re-construction
172	106+380	Pipe culvert dia 1.2m	Re-construction
173	106+660	Pipe culvert dia 1.2m	Re-construction
174	106+920	Pipe culvert dia 1.2m	Re-construction
175	107+140	Pipe culvert dia 1.2m	New
176	107+290	Pipe culvert dia 1.2m	Re-construction
177	107+420	Pipe culvert dia 1.2m	Re-construction
178	107+570	Pipe culvert dia 1.2m	Re-construction
179	107+750	Pipe culvert dia 1.2m	Re-construction
180	107+850	Pipe culvert dia 1.2m	Re-construction
181	107+960	Pipe culvert dia 1.2m	Re-construction
182	108+130	Pipe culvert dia 1.2m	Re-construction
183	108+250	Pipe culvert dia 1.2m	Re-construction
184	108+620	Pipe culvert dia 1.2m	New
185	108+800	Pipe culvert dia 1.2m	Re-construction

Package-2 / NH54

Sl. No.	Chainage (km)	Type / Opening of Culvert (m)	Remarks
186	109+150	Pipe culvert dia 1.2m	Re-construction
187	109+270	Pipe culvert dia 1.2m	Re-construction
188	109+420	Pipe culvert dia 1.2m	Re-construction
189	109+510	Pipe culvert dia 1.2m	Re-construction
190	109+740	Pipe culvert dia 1.2m	Re-construction
191	109+840	Pipe culvert dia 1.2m	Re-construction
192	109+970	Pipe culvert dia 1.2m	Re-construction
193	110+100	Pipe culvert dia 1.2m	Re-construction
194	110+220	Pipe culvert dia 1.2m	Re-construction
195	110+360	Pipe culvert dia 1.2m	Re-construction
196	110+670	Pipe culvert dia 1.2m	Re-construction
197	110+800	Pipe culvert dia 1.2m	Re-construction
198	110+940	Pipe culvert dia 1.2m	New
199	111+090	Pipe culvert dia 1.2m	Re-construction
200	111+160	Pipe culvert dia 1.2m	Re-construction
201	111+250	Pipe culvert dia 1.2m	Re-construction
202	111+350	Pipe culvert dia 1.2m	New
203	111+580	Pipe culvert dia 1.2m	Re-construction
204	111+680	Pipe culvert dia 1.2m	Re-construction
205	111+840	Pipe culvert dia 1.2m	Re-construction
206	111+920	Pipe culvert dia 1.2m	Re-construction
207	112+080	Pipe culvert dia 1.2m	Re-construction
208	112+190	Pipe culvert dia 1.2m	Re-construction
209	112+370	Pipe culvert dia 1.2m	Re-construction
210	112+530	Pipe culvert dia 1.2m	Re-construction
211	112+680	Pipe culvert dia 1.2m	New
212	112+820	Pipe culvert dia 1.2m	Re-construction
213	112+900	Pipe culvert dia 1.2m	Re-construction
214	112+980	Pipe culvert dia 1.2m	Re-construction
215	113+110	Pipe culvert dia 1.2m	Re-construction
216	113+230	Pipe culvert dia 1.2m	Re-construction
217	113+300	Pipe culvert dia 1.2m	New
218	113+550	Pipe culvert dia 1.2m	Re-construction
219	113+680	Pipe culvert dia 1.2m	Re-construction
220	113+810	Pipe culvert dia 1.2m	Re-construction
221	113+950	Pipe culvert dia 1.2m	Re-construction
222	114+090	Pipe culvert dia 1.2m	Re-construction
223	114+140	Pipe culvert dia 1.2m	Re-construction
224	114+420	Pipe culvert dia 1.2m	Re-construction
225	114+550	Pipe culvert dia 1.2m	Re-construction
226	114+660	Pipe culvert dia 1.2m	Re-construction
227	114+710	Pipe culvert dia 1.2m	Re-construction
228	114+800	Pipe culvert dia 1.2m	Re-construction
229	114+940	Pipe culvert dia 1.2m	Re-construction
230	115+200	Pipe culvert dia 1.2m	New
231	115+420	Pipe culvert dia 1.2m	Re-construction
232	115+680	Pipe culvert dia 1.2m	New
233	115+850	Pipe culvert dia 1.2m	Re-construction

Package-3 / NH54

Sl. No.	Chainage (km)	Type / Opening of Culvert (m)	Remarks
1	125+020	Pipe culvert dia 1.2m	Re-construction
2	125+210	Pipe culvert dia 1.2m	Re-construction
3	125+280	Pipe culvert dia 1.2m	Re-construction
4	125+340	Pipe culvert dia 1.2m	Re-construction
5	125+440	Pipe culvert dia 1.2m	Re-construction
6	125+610	Pipe culvert dia 1.2m	Re-construction
7	125+820	Pipe culvert dia 1.2m	Re-construction
8	125+970	Pipe culvert dia 1.2m	Re-construction
9	126+200	Pipe culvert dia 1.2m	Re-construction
10	126+240	Pipe culvert dia 1.2m	Re-construction
11	126+450	Pipe culvert dia 1.2m	Re-construction
12	126+500	Pipe culvert dia 1.2m	Re-construction
13	126+600	Pipe culvert dia 1.2m	Re-construction
14	126+660	Pipe culvert dia 1.2m	Re-construction
15	126+800	Pipe culvert dia 1.2m	Re-construction
16	126+870	Pipe culvert dia 1.2m	Re-construction
17	127+070	Pipe culvert dia 1.2m	New
18	127+330	Pipe culvert dia 1.2m	Re-construction
19	127+580	Pipe culvert dia 1.2m	Re-construction
20	127+660	Pipe culvert dia 1.2m	Re-construction
21	127+860	Pipe culvert dia 1.2m	New
22	127+950	Pipe culvert dia 1.2m	New
23	128+160	Pipe culvert dia 1.2m	Re-construction
24	128+250	Pipe culvert dia 1.2m	Re-construction
25	128+390	Pipe culvert dia 1.2m	Re-construction
26	128+520	Pipe culvert dia 1.2m	Re-construction
27	128+660	Pipe culvert dia 1.2m	Re-construction
28	128+890	Pipe culvert dia 1.2m	New
29	129+060	Pipe culvert dia 1.2m	New
30	129+210	Pipe culvert dia 1.2m	Re-construction
31	129+425	Pipe culvert dia 1.2m	Re-construction
32	129+570	Pipe culvert dia 1.2m	Re-construction
33	129+820	Pipe culvert dia 1.2m	New
34	130+010	Pipe culvert dia 1.2m	Re-construction
35	130+200	Pipe culvert dia 1.2m	Re-construction
36	130+265	Pipe culvert dia 1.2m	Re-construction
37	130+380	Pipe culvert dia 1.2m	Re-construction
38	130+550	Pipe culvert dia 1.2m	New
39	130+700	Pipe culvert dia 1.2m	New
40	130+990	Pipe culvert dia 1.2m	Re-construction
41	131+110	Pipe culvert dia 1.2m	Re-construction
42	131+290	Pipe culvert dia 1.2m	New
43	131+440	Pipe culvert dia 1.2m	Re-construction
44	131+540	Pipe culvert dia 1.2m	Re-construction
45	131+810	Pipe culvert dia 1.2m	Re-construction
46	132+050	Pipe culvert dia 1.2m	New
47	132+330	Pipe culvert dia 1.2m	Re-construction
48	132+470	Pipe culvert dia 1.2m	Re-construction
49	132+800	Pipe culvert dia 1.2m	Re-construction
50	132+910	Pipe culvert dia 1.2m	Re-construction
51	133+180	Pipe culvert dia 1.2m	Re-construction
52	133+210	Pipe culvert dia 1.2m	Re-construction
53	133+310	Pipe culvert dia 1.2m	Re-construction
54	133+410	Pipe culvert dia 1.2m	Re-construction
55	133+530	Pipe culvert dia 1.2m	Re-construction
56	133+690	Pipe culvert dia 1.2m	Re-construction
57	133+980	Pipe culvert dia 1.2m	New
58	134+080	Pipe culvert dia 1.2m	Re-construction
59	134+190	Pipe culvert dia 1.2m	Re-construction
60	134+350	Pipe culvert dia 1.2m	Re-construction
61	134+520	Pipe culvert dia 1.2m	New
62	134+750	Pipe culvert dia 1.2m	New
63	134+970	Pipe culvert dia 1.2m	Re-construction
64	135+210	Pipe culvert dia 1.2m	Re-construction
65	135+370	Pipe culvert dia 1.2m	New

Package-3 / NH54

Sl. No.	Chainage (km)	Type / Opening of Culvert (m)	Remarks
66	135+740	Pipe culvert dia 1.2m	New
67	135+920	Pipe culvert dia 1.2m	New
68	136+050	Pipe culvert dia 1.2m	Re-construction
69	136+270	Pipe culvert dia 1.2m	Re-construction
70	136+420	Pipe culvert dia 1.2m	Re-construction
71	136+650	Pipe culvert dia 1.2m	New
72	136+790	Pipe culvert dia 1.2m	Re-construction
73	136+950	Pipe culvert dia 1.2m	Re-construction
74	137+040	Pipe culvert dia 1.2m	Re-construction
75	137+280	Pipe culvert dia 1.2m	New
76	137+360	Pipe culvert dia 1.2m	New
77	137+550	Pipe culvert dia 1.2m	Re-construction
78	137+640	Pipe culvert dia 1.2m	Re-construction
79	137+740	Pipe culvert dia 1.2m	Re-construction
80	138+090	Pipe culvert dia 1.2m	New
81	138+190	Pipe culvert dia 1.2m	Re-construction
82	138+420	Pipe culvert dia 1.2m	Re-construction
83	138+650	Pipe culvert dia 1.2m	Re-construction
84	138+840	Pipe culvert dia 1.2m	New
85	139+060	Pipe culvert dia 1.2m	Re-construction
86	139+320	Pipe culvert dia 1.2m	New
87	139+550	Pipe culvert dia 1.2m	New
88	139+840	Pipe culvert dia 1.2m	New
89	139+990	Pipe culvert dia 1.2m	New
90	140+310	Pipe culvert dia 1.2m	Re-construction
91	140+380	Pipe culvert dia 1.2m	Re-construction
92	140+560	Pipe culvert dia 1.2m	Re-construction
93	140+760	Pipe culvert dia 1.2m	New
94	140+960	Pipe culvert dia 1.2m	Re-construction
95	141+145	Pipe culvert dia 1.2m	Re-construction
96	141+395	Pipe culvert dia 1.2m	Re-construction
97	141+500	Pipe culvert dia 1.2m	Re-construction
98	141+570	Pipe culvert dia 1.2m	Re-construction
99	141+740	Pipe culvert dia 1.2m	Re-construction
100	141+870	Pipe culvert dia 1.2m	Re-construction
101	141+990	Pipe culvert dia 1.2m	Re-construction
102	142+130	Pipe culvert dia 1.2m	Re-construction
103	142+310	Pipe culvert dia 1.2m	Re-construction
104	142+490	Pipe culvert dia 1.2m	Re-construction
105	142+520	Pipe culvert dia 1.2m	Re-construction
106	142+670	Pipe culvert dia 1.2m	Re-construction
107	142+790	Pipe culvert dia 1.2m	Re-construction
108	143+130	Pipe culvert dia 1.2m	Re-construction
109	143+340	Pipe culvert dia 1.2m	Re-construction
110	143+570	Pipe culvert dia 1.2m	Re-construction
111	143+740	Pipe culvert dia 1.2m	New
112	143+875	Pipe culvert dia 1.2m	New
113	143+960	Pipe culvert dia 1.2m	Re-construction
114	144+040	Pipe culvert dia 1.2m	New
115	144+140	Pipe culvert dia 1.2m	New
116	144+400	Pipe culvert dia 1.2m	Re-construction
117	144+570	Pipe culvert dia 1.2m	New
118	144+810	Pipe culvert dia 1.2m	Re-construction
119	145+000	Pipe culvert dia 1.2m	Re-construction
120	145+120	Pipe culvert dia 1.2m	Re-construction
121	145+260	Pipe culvert dia 1.2m	Re-construction
122	145+470	Pipe culvert dia 1.2m	New
123	145+700	Pipe culvert dia 1.2m	Re-construction
124	145+770	Pipe culvert dia 1.2m	New
125	145+890	Pipe culvert dia 1.2m	New
126	146+110	Pipe culvert dia 1.2m	New
127	146+280	Pipe culvert dia 1.2m	Re-construction
128	146+390	Pipe culvert dia 1.2m	Re-construction
129	146+490	Pipe culvert dia 1.2m	Re-construction
130	146+660	Pipe culvert dia 1.2m	New

Package-3 / NH54

Sl. No.	Chainage (km)	Type / Opening of Culvert (m)	Remarks
131	146+770	Pipe culvert dia 1.2m	Re-construction
132	146+830	Pipe culvert dia 1.2m	Re-construction
133	146+930	Pipe culvert dia 1.2m	New
134	147+050	Pipe culvert dia 1.2m	Re-construction
135	147+230	Pipe culvert dia 1.2m	Re-construction
136	147+390	Pipe culvert dia 1.2m	Re-construction
137	147+480	Pipe culvert dia 1.2m	Re-construction
138	147+630	Pipe culvert dia 1.2m	Re-construction
139	147+660	Pipe culvert dia 1.2m	Re-construction
140	147+780	Pipe culvert dia 1.2m	Re-construction
141	147+970	Pipe culvert dia 1.2m	New
142	148+200	Pipe culvert dia 1.2m	Re-construction
143	148+240	Pipe culvert dia 1.2m	Re-construction
144	148+450	Pipe culvert dia 1.2m	Re-construction
145	148+630	Pipe culvert dia 1.2m	Re-construction
146	148+990	Pipe culvert dia 1.2m	Re-construction
147	149+080	Pipe culvert dia 1.2m	Re-construction
148	149+240	Pipe culvert dia 1.2m	Re-construction
149	149+295	Pipe culvert dia 1.2m	Re-construction
150	149+390	Pipe culvert dia 1.2m	Re-construction
151	149+665	Pipe culvert dia 1.2m	Re-construction
152	149+770	Pipe culvert dia 1.2m	Re-construction
153	149+840	Pipe culvert dia 1.2m	Re-construction
154	149+990	Pipe culvert dia 1.2m	Re-construction
155	150+230	Pipe culvert dia 1.2m	New
156	150+470	Pipe culvert dia 1.2m	Re-construction
157	150+790	Pipe culvert dia 1.2m	Re-construction
158	150+925	Pipe culvert dia 1.2m	Re-construction
159	151+070	Pipe culvert dia 1.2m	Re-construction
160	151+190	Pipe culvert dia 1.2m	Re-construction
161	151+460	Pipe culvert dia 1.2m	New
162	151+710	Pipe culvert dia 1.2m	Re-construction
163	151+780	Pipe culvert dia 1.2m	Re-construction
164	151+970	Pipe culvert dia 1.2m	Re-construction
165	152+030	Pipe culvert dia 1.2m	Re-construction
166	152+250	Pipe culvert dia 1.2m	Re-construction
167	152+300	Pipe culvert dia 1.2m	Re-construction
168	152+425	Pipe culvert dia 1.2m	Re-construction
169	152+475	Pipe culvert dia 1.2m	Re-construction
170	152+670	Pipe culvert dia 1.2m	Re-construction
171	152+850	Pipe culvert dia 1.2m	Re-construction
172	152+940	Pipe culvert dia 1.2m	Re-construction
173	153+170	Pipe culvert dia 1.2m	Re-construction
174	153+270	Pipe culvert dia 1.2m	Re-construction
175	153+380	Pipe culvert dia 1.2m	New
176	153+510	Pipe culvert dia 1.2m	Re-construction
177	153+790	Pipe culvert dia 1.2m	Re-construction
178	153+910	Pipe culvert dia 1.2m	New
179	154+080	Pipe culvert dia 1.2m	Re-construction
180	154+200	Pipe culvert dia 1.2m	Re-construction
181	154+400	Pipe culvert dia 1.2m	New
182	154+485	Pipe culvert dia 1.2m	Re-construction
183	154+660	Pipe culvert dia 1.2m	New
184	154+800	Pipe culvert dia 1.2m	New
185	154+990	Pipe culvert dia 1.2m	Re-construction
186	155+130	Pipe culvert dia 1.2m	Re-construction
187	155+380	Pipe culvert dia 1.2m	Re-construction
188	155+470	Pipe culvert dia 1.2m	New
189	155+590	Pipe culvert dia 1.2m	Re-construction
190	155+770	Pipe culvert dia 1.2m	Re-construction
191	155+960	Pipe culvert dia 1.2m	Re-construction
192	156+090	Pipe culvert dia 1.2m	New
193	156+290	Pipe culvert dia 1.2m	Re-construction
194	156+440	Pipe culvert dia 1.2m	New
195	156+720	Pipe culvert dia 1.2m	New

Package-3 / NH54

Sl. No.	Chainage (km)	Type / Opening of Culvert (m)	Remarks
196	156+970	Pipe culvert dia 1.2m	Re-construction
197	157+090	Pipe culvert dia 1.2m	New
198	157+300	Pipe culvert dia 1.2m	New
199	157+430	Pipe culvert dia 1.2m	Re-construction
200	157+640	Pipe culvert dia 1.2m	New
201	157+830	Pipe culvert dia 1.2m	New
202	157+980	Pipe culvert dia 1.2m	Re-construction
203	158+140	Pipe culvert dia 1.2m	New
204	158+260	Pipe culvert dia 1.2m	Re-construction
205	158+370	Pipe culvert dia 1.2m	Re-construction
206	158+615	Box Culvert 2mx2m	Re-construction
207	158+760	Pipe culvert dia 1.2m	Re-construction
208	158+830	Pipe culvert dia 1.2m	Re-construction
209	158+900	Pipe culvert dia 1.2m	New
210	158+980	Pipe culvert dia 1.2m	New
211	159+100	Pipe culvert dia 1.2m	Re-construction
212	159+240	Pipe culvert dia 1.2m	New
213	159+550	Pipe culvert dia 1.2m	New
214	159+770	Pipe culvert dia 1.2m	New
215	160+070	Pipe culvert dia 1.2m	Re-construction
216	160+180	Pipe culvert dia 1.2m	New
217	160+390	Pipe culvert dia 1.2m	Re-construction
218	160+540	Pipe culvert dia 1.2m	New
219	160+700	Pipe culvert dia 1.2m	Re-construction
220	160+970	Pipe culvert dia 1.2m	New
221	161+010	Pipe culvert dia 1.2m	New
222	161+310	Pipe culvert dia 1.2m	Re-construction
223	161+410	Pipe culvert dia 1.2m	New
224	161+500	Pipe culvert dia 1.2m	New
225	161+760	Pipe culvert dia 1.2m	New
226	162+010	Pipe culvert dia 1.2m	New
227	162+110	Pipe culvert dia 1.2m	Re-construction
228	162+245	Pipe culvert dia 1.2m	Re-construction
229	162+350	Pipe culvert dia 1.2m	Re-construction
230	162+490	Pipe culvert dia 1.2m	New
231	162+720	Pipe culvert dia 1.2m	New
232	162+770	Pipe culvert dia 1.2m	Re-construction
233	162+900	Pipe culvert dia 1.2m	Re-construction
234	163+030	Pipe culvert dia 1.2m	Re-construction
235	163+070	Pipe culvert dia 1.2m	New
236	163+160	Pipe culvert dia 1.2m	New
237	163+230	Pipe culvert dia 1.2m	Re-construction
238	163+425	Pipe culvert dia 1.2m	Re-construction
239	163+500	Pipe culvert dia 1.2m	Re-construction
240	163+590	Pipe culvert dia 1.2m	Re-construction
241	163+655	Pipe culvert dia 1.2m	New
242	163+820	Pipe culvert dia 1.2m	Re-construction
243	163+930	Pipe culvert dia 1.2m	Re-construction
244	164+095	Pipe culvert dia 1.2m	Re-construction
245	164+340	Pipe culvert dia 1.2m	Re-construction
246	164+440	Pipe culvert dia 1.2m	Re-construction
247	164+680	Pipe culvert dia 1.2m	Re-construction
248	164+740	Pipe culvert dia 1.2m	Re-construction
249	164+925	Pipe culvert dia 1.2m	New

Package-4 / NH54

Sl. No.	Chainage (km)	Type / Opening of Culvert (m)	Remarks
1	166+120	Pipe culvert dia 1.2m	New
2	166+440	Pipe culvert dia 1.2m	New
3	166+625	Pipe culvert dia 1.2m	Re-construction
4	166+820	Pipe culvert dia 1.2m	Re-construction
5	167+000	Pipe culvert dia 1.2m	New
6	167+290	Pipe culvert dia 1.2m	Re-construction
7	167+400	Pipe culvert dia 1.2m	Re-construction
8	167+470	Pipe culvert dia 1.2m	Re-construction
9	167+780	Pipe culvert dia 1.2m	New
10	167+940	Pipe culvert dia 1.2m	Re-construction
Hnatial Bypass Planned Section			
11	175+140	Pipe culvert dia 1.2m	Re-construction
12	175+240	Pipe culvert dia 1.2m	Re-construction
13	175+340	Pipe culvert dia 1.2m	Re-construction
14	175+590	Pipe culvert dia 1.2m	Re-construction
15	175+780	Pipe culvert dia 1.2m	New
16	175+860	Pipe culvert dia 1.2m	Re-construction
17	175+950	Pipe culvert dia 1.2m	Re-construction
18	176+110	Pipe culvert dia 1.2m	Re-construction
19	176+430	Pipe culvert dia 1.2m	Re-construction
20	176+610	Pipe culvert dia 1.2m	New
21	176+870	Pipe culvert dia 1.2m	Re-construction
22	176+960	Pipe culvert dia 1.2m	Re-construction
23	177+100	Pipe culvert dia 1.2m	New
24	177+300	Pipe culvert dia 1.2m	New
25	177+390	Pipe culvert dia 1.2m	Re-construction
26	177+560	Pipe culvert dia 1.2m	New
27	177+630	Pipe culvert dia 1.2m	Re-construction
28	177+770	Pipe culvert dia 1.2m	Re-construction
29	177+980	Pipe culvert dia 1.2m	New
30	178+060	Pipe culvert dia 1.2m	Re-construction
31	178+180	Pipe culvert dia 1.2m	Re-construction
32	178+290	Pipe culvert dia 1.2m	New
33	178+490	Pipe culvert dia 1.2m	New
34	178+560	Pipe culvert dia 1.2m	Re-construction
35	178+770	Pipe culvert dia 1.2m	New
36	178+850	Pipe culvert dia 1.2m	Re-construction
37	179+040	Pipe culvert dia 1.2m	Re-construction
38	179+390	Pipe culvert dia 1.2m	New
39	179+490	Pipe culvert dia 1.2m	New
40	179+620	Pipe culvert dia 1.2m	Re-construction
41	179+780	Pipe culvert dia 1.2m	Re-construction
42	179+830	Pipe culvert dia 1.2m	Re-construction
43	180+100	Pipe culvert dia 1.2m	Re-construction
44	180+200	Pipe culvert dia 1.2m	Re-construction
45	180+500	Pipe culvert dia 1.2m	New
46	180+690	Pipe culvert dia 1.2m	Re-construction
47	180+740	Pipe culvert dia 1.2m	New
48	180+890	Pipe culvert dia 1.2m	Re-construction
49	181+060	Pipe culvert dia 1.2m	Re-construction
50	181+150	Pipe culvert dia 1.2m	Re-construction
51	181+370	Pipe culvert dia 1.2m	Re-construction
52	181+420	Pipe culvert dia 1.2m	New
53	181+470	Pipe culvert dia 1.2m	New
54	181+600	Pipe culvert dia 1.2m	New
55	181+650	Pipe culvert dia 1.2m	Re-construction
56	181+870	Pipe culvert dia 1.2m	Re-construction
57	182+000	Pipe culvert dia 1.2m	New
58	182+140	Pipe culvert dia 1.2m	Re-construction
59	182+340	Pipe culvert dia 1.2m	Re-construction
60	182+530	Pipe culvert dia 1.2m	New
61	182+750	Pipe culvert dia 1.2m	New
62	182+850	Pipe culvert dia 1.2m	New
63	183+000	Pipe culvert dia 1.2m	Re-construction

Package-4 / NH54

Sl. No.	Chainage (km)	Type / Opening of Culvert (m)	Remarks
64	183+190	Pipe culvert dia 1.2m	Re-construction
65	183+470	Pipe culvert dia 1.2m	New
66	183+550	Pipe culvert dia 1.2m	New
67	183+620	Pipe culvert dia 1.2m	New
68	183+720	Pipe culvert dia 1.2m	Re-construction
69	183+770	Pipe culvert dia 1.2m	New
70	183+800	Box Culvert 2mx2m	Re-construction
71	183+970	Pipe culvert dia 1.2m	Re-construction
72	184+100	Pipe culvert dia 1.2m	Re-construction
73	184+270	Pipe culvert dia 1.2m	Re-construction
74	184+540	Pipe culvert dia 1.2m	New
75	184+720	Pipe culvert dia 1.2m	Re-construction
76	184+930	Pipe culvert dia 1.2m	Re-construction
77	185+120	Pipe culvert dia 1.2m	Re-construction
78	185+280	Box Culvert 2mx2m	Re-construction
79	185+350	Pipe culvert dia 1.2m	Re-construction
80	185+510	Box Culvert 2mx2m	New
81	185+670	Pipe culvert dia 1.2m	Re-construction
82	185+960	Pipe culvert dia 1.2m	Re-construction
83	186+130	Pipe culvert dia 1.2m	New
84	186+310	Pipe culvert dia 1.2m	Re-construction
85	186+420	Pipe culvert dia 1.2m	Re-construction
86	186+650	Pipe culvert dia 1.2m	Re-construction
87	186+720	Pipe culvert dia 1.2m	Re-construction
88	186+790	Pipe culvert dia 1.2m	Re-construction
89	186+850	Pipe culvert dia 1.2m	Re-construction
90	186+990	Pipe culvert dia 1.2m	Re-construction
91	187+050	Pipe culvert dia 1.2m	Re-construction
92	187+270	Pipe culvert dia 1.2m	Re-construction
93	187+370	Pipe culvert dia 1.2m	Re-construction
94	187+520	Pipe culvert dia 1.2m	Re-construction
95	187+700	Pipe culvert dia 1.2m	Re-construction
96	187+910	Pipe culvert dia 1.2m	Re-construction
97	188+020	Pipe culvert dia 1.2m	New
98	188+250	Pipe culvert dia 1.2m	Re-construction
99	188+370	Pipe culvert dia 1.2m	Re-construction
100	188+650	Pipe culvert dia 1.2m	New
101	188+840	Pipe culvert dia 1.2m	New
102	188+950	Pipe culvert dia 1.2m	Re-construction
103	189+090	Pipe culvert dia 1.2m	Re-construction
104	189+120	Pipe culvert dia 1.2m	Re-construction
105	189+260	Pipe culvert dia 1.2m	New
106	189+350	Pipe culvert dia 1.2m	Re-construction
107	189+580	Pipe culvert dia 1.2m	Re-construction
108	189+760	Pipe culvert dia 1.2m	Re-construction
109	189+850	Pipe culvert dia 1.2m	Re-construction
110	189+890	Pipe culvert dia 1.2m	New
111	189+950	Pipe culvert dia 1.2m	New
112	190+010	Pipe culvert dia 1.2m	Re-construction
113	190+140	Pipe culvert dia 1.2m	Re-construction
114	190+320	Pipe culvert dia 1.2m	New
115	190+410	Pipe culvert dia 1.2m	Re-construction
116	190+610	Pipe culvert dia 1.2m	Re-construction
117	190+790	Pipe culvert dia 1.2m	Re-construction
118	191+010	Box Culvert 2mx2m	Re-construction
119	191+100	Pipe culvert dia 1.2m	New
120	191+270	Pipe culvert dia 1.2m	Re-construction
121	191+370	Pipe culvert dia 1.2m	Re-construction
122	191+420	Pipe culvert dia 1.2m	New
123	191+500	Pipe culvert dia 1.2m	Re-construction
124	191+730	Box Culvert 2mx2m	New
125	191+850	Pipe culvert dia 1.2m	New
126	192+060	Pipe culvert dia 1.2m	Re-construction
127	192+260	Pipe culvert dia 1.2m	New
128	192+340	Pipe culvert dia 1.2m	Re-construction

Package-4 / NH54

Sl. No.	Chainage (km)	Type / Opening of Culvert (m)	Remarks
129	192+540	Pipe culvert dia 1.2m	New
130	192+630	Pipe culvert dia 1.2m	Re-construction
131	192+870	Box Culvert 2mx2m	New
132	192+980	Pipe culvert dia 1.2m	Re-construction
133	193+020	Pipe culvert dia 1.2m	New
134	193+140	Box Culvert 3mx3m	New
135	193+660	Box Culvert 2mx2m	Re-construction
136	193+850	Pipe culvert dia 1.2m	Re-construction
137	193+930	Pipe culvert dia 1.2m	New
138	194+110	Pipe culvert dia 1.2m	Re-construction
139	194+200	Pipe culvert dia 1.2m	New
140	194+250	Pipe culvert dia 1.2m	New
141	194+310	Pipe culvert dia 1.2m	Re-construction
142	194+410	Pipe culvert dia 1.2m	Re-construction
143	194+490	Pipe culvert dia 1.2m	Re-construction
144	194+700	Pipe culvert dia 1.2m	Re-construction
145	194+890	Pipe culvert dia 1.2m	Re-construction
146	195+130	Pipe culvert dia 1.2m	Re-construction
147	195+290	Pipe culvert dia 1.2m	Re-construction
148	195+410	Pipe culvert dia 1.2m	Re-construction
149	195+510	Pipe culvert dia 1.2m	Re-construction
150	195+600	Pipe culvert dia 1.2m	New
151	195+750	Pipe culvert dia 1.2m	Re-construction
152	196+050	Pipe culvert dia 1.2m	Re-construction
153	196+200	Pipe culvert dia 1.2m	Re-construction
154	196+450	Pipe culvert dia 1.2m	Re-construction
155	196+570	Pipe culvert dia 1.2m	Re-construction
156	196+750	Pipe culvert dia 1.2m	Re-construction
157	196+920	Pipe culvert dia 1.2m	New
158	197+150	Box Culvert 3mx3m	New
159	197+350	Box Culvert 3mx3m	Re-construction
160	197+470	Box Culvert 3mx3m	New
161	197+580	Box Culvert 3mx3m	Re-construction
162	197+700	Pipe culvert dia 1.2m	Re-construction
163	197+770	Pipe culvert dia 1.2m	Re-construction
164	197+890	Pipe culvert dia 1.2m	Re-construction
165	197+980	Pipe culvert dia 1.2m	Re-construction
166	198+080	Pipe culvert dia 1.2m	Re-construction
167	198+150	Pipe culvert dia 1.2m	Re-construction
168	198+240	Pipe culvert dia 1.2m	Re-construction
169	198+340	Pipe culvert dia 1.2m	Re-construction
170	198+440	Box culvert 4mx6m	Re-construction
171	198+570	Pipe culvert dia 1.2m	Re-construction
172	198+700	Pipe culvert dia 1.2m	New
173	198+770	Pipe culvert dia 1.2m	New
174	198+870	Pipe culvert dia 1.2m	Re-construction
175	199+040	Pipe culvert dia 1.2m	Re-construction
176	199+180	Pipe culvert dia 1.2m	Re-construction
177	199+380	Pipe culvert dia 1.2m	Re-construction
178	199+520	Pipe culvert dia 1.2m	Re-construction
179	199+800	Pipe culvert dia 1.2m	Re-construction
180	199+950	Pipe culvert dia 1.2m	New
181	200+190	Pipe culvert dia 1.2m	Re-construction
182	200+410	Pipe culvert dia 1.2m	Re-construction
183	200+470	Pipe culvert dia 1.2m	Re-construction
184	200+740	Pipe culvert dia 1.2m	Re-construction
185	200+830	Pipe culvert dia 1.2m	New
186	200+950	Box Culvert 2mx2m	New
187	201+210	Pipe culvert dia 1.2m	Re-construction
188	201+400	Pipe culvert dia 1.2m	Re-construction
189	201+550	Pipe culvert dia 1.2m	Re-construction
190	201+600	Pipe culvert dia 1.2m	Re-construction
191	201+670	Pipe culvert dia 1.2m	New
192	201+800	Pipe culvert dia 1.2m	Re-construction
193	201+900	Pipe culvert dia 1.2m	Re-construction
194	202+260	Pipe culvert dia 1.2m	Re-construction
195	202+550	Pipe culvert dia 1.2m	Re-construction
196	202+860	Pipe culvert dia 1.2m	Re-construction

Package-4 / NH54

Sl. No.	Chainage (km)	Type / Opening of Culvert (m)	Remarks
197	203+100	Pipe culvert dia 1.2m	Re-construction
198	203+190	Pipe culvert dia 1.2m	New
199	203+450	Pipe culvert dia 1.2m	Re-construction
200	203+560	Pipe culvert dia 1.2m	New
201	203+730	Pipe culvert dia 1.2m	Re-construction
202	204+010	Pipe culvert dia 1.2m	New
203	204+210	Pipe culvert dia 1.2m	Re-construction
204	204+360	Pipe culvert dia 1.2m	Re-construction
205	204+480	Pipe culvert dia 1.2m	Re-construction
206	204+710	Pipe culvert dia 1.2m	New
207	204+890	Pipe culvert dia 1.2m	Re-construction
208	205+080	Pipe culvert dia 1.2m	Re-construction
209	205+270	Pipe culvert dia 1.2m	Re-construction
210	205+350	Pipe culvert dia 1.2m	New
211	205+610	Pipe culvert dia 1.2m	Re-construction
212	205+850	Pipe culvert dia 1.2m	Re-construction
213	205+950	Pipe culvert dia 1.2m	Re-construction
214	206+050	Pipe culvert dia 1.2m	Re-construction
215	206+210	Pipe culvert dia 1.2m	Re-construction
216	206+450	Box culver 2mx2m	Re-construction
217	206+560	Pipe culvert dia 1.2m	Re-construction
218	206+690	Pipe culvert dia 1.2m	Re-construction
219	206+880	Pipe culvert dia 1.2m	New
220	207+110	Pipe culvert dia 1.2m	Re-construction
221	207+330	Pipe culvert dia 1.2m	Re-construction
222	207+380	Pipe culvert dia 1.2m	Re-construction
223	207+550	Pipe culvert dia 1.2m	Re-construction
224	207+650	Pipe culvert dia 1.2m	Re-construction
225	207+930	Pipe culvert dia 1.2m	Re-construction
226	208+050	Pipe culvert dia 1.2m	Re-construction
227	208+390	Pipe culvert dia 1.2m	New
228	208+610	Pipe culvert dia 1.2m	Re-construction
229	208+770	Pipe culvert dia 1.2m	Re-construction

Package-5 / NH54

Sl. No.	Chainage (km)	Type / Opening of Culvert (m)	Remarks
1	208+090	Pipe culvert dia 1.2m	Re-construction
2	208+380	Pipe culvert dia 1.2m	New
3	208+720	Pipe culvert dia 1.2m	Re-construction
4	208+830	Pipe culvert dia 1.2m	Re-construction
5	208+905	Pipe culvert dia 1.2m	Re-construction
6	209+050	Pipe culvert dia 1.2m	New
7	209+290	Pipe culvert dia 1.2m	Re-construction
8	209+540	Pipe culvert dia 1.2m	Re-construction
9	209+700	Pipe culvert dia 1.2m	Re-construction
10	210+000	Pipe culvert dia 1.2m	Re-construction
11	210+200	Pipe culvert dia 1.2m	Re-construction
12	210+370	Pipe culvert dia 1.2m	Re-construction
13	210+570	Pipe culvert dia 1.2m	Re-construction
14	210+770	Pipe culvert dia 1.2m	Re-construction
15	210+920	Pipe culvert dia 1.2m	Re-construction
16	211+050	Pipe culvert dia 1.2m	Re-construction
17	211+180	Pipe culvert dia 1.2m	Re-construction
18	211+330	Pipe culvert dia 1.2m	Re-construction
19	211+430	Pipe culvert dia 1.2m	Re-construction
20	211+700	Pipe culvert dia 1.2m	Re-construction
21	211+880	Pipe culvert dia 1.2m	Re-construction
22	212+150	Pipe culvert dia 1.2m	New
23	212+340	Pipe culvert dia 1.2m	Re-construction
24	212+690	Pipe culvert dia 1.2m	New
25	213+010	Pipe culvert dia 1.2m	Re-construction
26	213+250	Pipe culvert dia 1.2m	Re-construction
27	213+560	Pipe culvert dia 1.2m	Re-construction
28	213+840	Pipe culvert dia 1.2m	Re-construction
29	213+910	Pipe culvert dia 1.2m	New
30	214+100	Pipe culvert dia 1.2m	New
31	214+240	Pipe culvert dia 1.2m	Re-construction
32	214+510	Pipe culvert dia 1.2m	Re-construction
33	214+820	Pipe culvert dia 1.2m	Re-construction
34	215+300	Pipe culvert dia 1.2m	Re-construction
35	215+450	Pipe culvert dia 1.2m	New
36	215+810	Pipe culvert dia 1.2m	Re-construction
37	215+930	Pipe culvert dia 1.2m	Re-construction
38	216+060	Pipe culvert dia 1.2m	Re-construction
39	216+150	Box Culvert 2mx2m	Re-construction
40	216+290	Pipe culvert dia 1.2m	Re-construction
41	216+540	Pipe culvert dia 1.2m	Re-construction
42	216+820	Pipe culvert dia 1.2m	Re-construction
43	216+940	Box Culvert 2mx2m	Re-construction
44	217+045	Box Culvert 2mx2m	Re-construction
45	217+260	Pipe culvert dia 1.2m	Re-construction
46	217+360	Pipe culvert dia 1.2m	Re-construction
47	217+480	Pipe culvert dia 1.2m	Re-construction
48	217+650	Pipe culvert dia 1.2m	New
49	217+790	Pipe culvert dia 1.2m	Re-construction
50	217+940	Pipe culvert dia 1.2m	Re-construction
51	218+060	Pipe culvert dia 1.2m	Re-construction
52	218+370	Pipe culvert dia 1.2m	New
53	218+490	Pipe culvert dia 1.2m	Re-construction
54	218+670	Pipe culvert dia 1.2m	Re-construction
55	218+820	Pipe culvert dia 1.2m	Re-construction
56	218+980	Pipe culvert dia 1.2m	Re-construction
57	219+080	Pipe culvert dia 1.2m	Re-construction
58	219+240	Pipe culvert dia 1.2m	Re-construction
59	219+360	Pipe culvert dia 1.2m	Re-construction
60	219+550	Pipe culvert dia 1.2m	Re-construction
61	219+720	Pipe culvert dia 1.2m	Re-construction
62	219+910	Pipe culvert dia 1.2m	Re-construction
63	220+050	Pipe culvert dia 1.2m	Re-construction
64	220+370	Pipe culvert dia 1.2m	New
65	220+480	Pipe culvert dia 1.2m	New
66	220+890	Pipe culvert dia 1.2m	Re-construction
67	221+140	Pipe culvert dia 1.2m	Re-construction
68	221+390	Pipe culvert dia 1.2m	Re-construction
69	221+490	Box Culvert 2mx2m	Re-construction
70	221+600	Pipe culvert dia 1.2m	Re-construction
71	221+760	Pipe culvert dia 1.2m	New
72	221+890	Pipe culvert dia 1.2m	Re-construction
73	222+040	Pipe culvert dia 1.2m	New

Package-5 / NH54

Sl. No.	Chainage (km)	Type / Opening of Culvert (m)	Remarks
74	222+180	Pipe culvert dia 1.2m	New
75	222+280	Pipe culvert dia 1.2m	New
76	222+410	Pipe culvert dia 1.2m	Re-construction
77	222+555	Box Culvert 3mx3m	Re-construction
78	222+660	Box Culvert 2mx2m	New
79	222+720	Box Culvert 2mx2m	Re-construction
80	223+010	Pipe culvert dia 1.2m	Re-construction
81	223+260	Pipe culvert dia 1.2m	Re-construction
82	223+440	Box Culvert 2mx2m	Re-construction
83	223+600	Pipe culvert dia 1.2m	New
84	223+670	Pipe culvert dia 1.2m	Re-construction
85	223+870	Pipe culvert dia 1.2m	Re-construction
86	224+030	Pipe culvert dia 1.2m	Re-construction
87	224+200	Pipe culvert dia 1.2m	New
88	224+370	Pipe culvert dia 1.2m	Re-construction
89	224+450	Pipe culvert dia 1.2m	Re-construction
90	224+560	Pipe culvert dia 1.2m	Re-construction
91	224+710	Pipe culvert dia 1.2m	Re-construction
92	224+880	Pipe culvert dia 1.2m	Re-construction
93	225+050	Box Culvert 4mx6m	Re-construction
94	225+180	Box Culvert 3mx3m	Re-construction
95	225+290	Pipe culvert dia 1.2m	New
96	225+360	Pipe culvert dia 1.2m	Re-construction
97	225+430	Pipe culvert dia 1.2m	Re-construction
98	225+610	Pipe culvert dia 1.2m	Re-construction
99	225+810	Pipe culvert dia 1.2m	Re-construction
100	226+040	Pipe culvert dia 1.2m	Re-construction
101	226+240	Pipe culvert dia 1.2m	Re-construction
102	226+470	Pipe culvert dia 1.2m	New
103	226+550	Pipe culvert dia 1.2m	Re-construction
104	226+700	Box Culvert 3mx3m	Re-construction
105	226+800	Pipe culvert dia 1.2m	New
106	226+960	Pipe culvert dia 1.2m	Re-construction
107	227+080	Pipe culvert dia 1.2m	Re-construction
108	227+225	Pipe culvert dia 1.2m	Re-construction
109	227+410	Pipe culvert dia 1.2m	Re-construction
110	227+590	Pipe culvert dia 1.2m	Re-construction
111	227+725	Box Culvert 2mx2m	Re-construction
112	227+750	Pipe culvert dia 1.2m	New
113	227+910	Pipe culvert dia 1.2m	Re-construction
114	228+170	Pipe culvert dia 1.2m	Re-construction
115	228+350	Pipe culvert dia 1.2m	Re-construction
116	228+500	Pipe culvert dia 1.2m	Re-construction
117	228+620	Box Culvert 4mx4m	Re-construction
118	228+790	Box Culvert 4mx4m	Re-construction
119	228+940	Pipe culvert dia 1.2m	New
120	229+140	Pipe culvert dia 1.2m	Re-construction
121	229+410	Pipe culvert dia 1.2m	Re-construction
122	229+525	Pipe culvert dia 1.2m	Re-construction
123	229+700	Pipe culvert dia 1.2m	New
124	229+930	Pipe culvert dia 1.2m	New
125	230+170	Pipe culvert dia 1.2m	New
126	230+280	Pipe culvert dia 1.2m	Re-construction
127	230+360	Pipe culvert dia 1.2m	Re-construction
128	230+470	Pipe culvert dia 1.2m	Re-construction
129	230+690	Pipe culvert dia 1.2m	Re-construction
130	230+910	Pipe culvert dia 1.2m	Re-construction
131	231+110	Pipe culvert dia 1.2m	Re-construction
132	231+260	Pipe culvert dia 1.2m	Re-construction
133	231+400	Pipe culvert dia 1.2m	Re-construction
134	231+600	Box Culvert 2mx2m	Re-construction
135	231+660	Pipe culvert dia 1.2m	Re-construction
136	231+710	Pipe culvert dia 1.2m	New
137	231+890	Pipe culvert dia 1.2m	Re-construction
138	232+060	Pipe culvert dia 1.2m	Re-construction
139	232+160	Pipe culvert dia 1.2m	Re-construction
140	232+340	Pipe culvert dia 1.2m	Re-construction
141	232+445	Pipe culvert dia 1.2m	Re-construction
142	232+560	Pipe culvert dia 1.2m	New
143	232+700	Pipe culvert dia 1.2m	Re-construction
144	232+940	Pipe culvert dia 1.2m	Re-construction
145	233+140	Pipe culvert dia 1.2m	Re-construction
146	233+335	Pipe culvert dia 1.2m	Re-construction
147	233+490	Pipe culvert dia 1.2m	Re-construction

Package-5 / NH54

Sl. No.	Chainage (km)	Type / Opening of Culvert (m)	Remarks
148	233+640	Pipe culvert dia 1.2m	New
149	233+800	Pipe culvert dia 1.2m	Re-construction
150	233+910	Pipe culvert dia 1.2m	Re-construction
151	234+090	Pipe culvert dia 1.2m	Re-construction
152	234+170	Pipe culvert dia 1.2m	Re-construction
153	234+390	Pipe culvert dia 1.2m	Re-construction
154	234+470	Box Culvert 4mx6m	Re-construction
155	234+570	Box Culvert 2mx2m	Re-construction
156	234+710	Pipe culvert dia 1.2m	Re-construction
157	234+880	Pipe culvert dia 1.2m	New
158	235+140	Pipe culvert dia 1.2m	New
159	235+270	Pipe culvert dia 1.2m	Re-construction
160	235+450	Pipe culvert dia 1.2m	Re-construction
161	235+720	Box Culvert 3mx3m	Re-construction
162	235+770	Pipe culvert dia 1.2m	Re-construction
163	235+910	Pipe culvert dia 1.2m	Re-construction
164	235+990	Pipe culvert dia 1.2m	Re-construction
165	236+210	Pipe culvert dia 1.2m	Re-construction
166	236+290	Pipe culvert dia 1.2m	Re-construction
167	236+440	Pipe culvert dia 1.2m	New
168	236+640	Pipe culvert dia 1.2m	Re-construction
169	236+910	Pipe culvert dia 1.2m	Re-construction
170	237+000	Pipe culvert dia 1.2m	New
171	237+180	Pipe culvert dia 1.2m	Re-construction
172	237+320	Box Culvert 2mx2m	Re-construction
173	237+470	Pipe culvert dia 1.2m	Re-construction
174	237+580	Pipe culvert dia 1.2m	Re-construction
175	237+790	Pipe culvert dia 1.2m	Re-construction
176	238+060	Pipe culvert dia 1.2m	Re-construction
177	238+140	Pipe culvert dia 1.2m	Re-construction
178	238+380	Pipe culvert dia 1.2m	New
179	238+520	Pipe culvert dia 1.2m	Re-construction
180	238+660	Pipe culvert dia 1.2m	Re-construction
181	238+860	Pipe culvert dia 1.2m	Re-construction
182	238+970	Pipe culvert dia 1.2m	Re-construction
183	239+160	Pipe culvert dia 1.2m	New
184	239+360	Pipe culvert dia 1.2m	Re-construction
185	239+510	Pipe culvert dia 1.2m	Re-construction
186	239+730	Pipe culvert dia 1.2m	Re-construction
187	239+900	Pipe culvert dia 1.2m	Re-construction
188	240+130	Pipe culvert dia 1.2m	Re-construction
189	240+290	Pipe culvert dia 1.2m	Re-construction
190	240+490	Pipe culvert dia 1.2m	New
191	240+590	Pipe culvert dia 1.2m	Re-construction
192	240+780	Pipe culvert dia 1.2m	Re-construction
193	240+930	Pipe culvert dia 1.2m	New
194	241+090	Pipe culvert dia 1.2m	Re-construction
195	241+210	Pipe culvert dia 1.2m	Re-construction
196	241+400	Pipe culvert dia 1.2m	Re-construction
197	241+500	Pipe culvert dia 1.2m	Re-construction
198	241+660	Pipe culvert dia 1.2m	Re-construction
199	241+800	Pipe culvert dia 1.2m	New
200	241+940	Pipe culvert dia 1.2m	Re-construction
201	242+160	Pipe culvert dia 1.2m	Re-construction
202	242+340	Pipe culvert dia 1.2m	Re-construction

Package-6 / NH54

Sl. No.	Chainage (km)	Type / Opening of Culvert (m)	Remarks
1	250+050	Pipe culvert dia 1.2m	New
2	250+255	Pipe culvert dia 1.2m	Re-construction
3	250+390	Pipe culvert dia 1.2m	Re-construction
4	250+700	Pipe culvert dia 1.2m	Re-construction
5	250+890	Pipe culvert dia 1.2m	Re-construction
6	251+050	Pipe culvert dia 1.2m	Re-construction
7	251+240	Pipe culvert dia 1.2m	Re-construction
8	251+470	Pipe culvert dia 1.2m	Re-construction
9	251+540	Pipe culvert dia 1.2m	Re-construction
10	251+660	Pipe culvert dia 1.2m	Re-construction
11	251+820	Pipe culvert dia 1.2m	Re-construction
12	251+980	Pipe culvert dia 1.2m	Re-construction
13	252+170	Pipe culvert dia 1.2m	Re-construction
14	252+480	Pipe culvert dia 1.2m	Re-construction
15	252+770	Pipe culvert dia 1.2m	Re-construction
16	252+990	Pipe culvert dia 1.2m	Re-construction
17	253+060	Box Culvert 2mx2m	Re-construction
18	253+210	Pipe culvert dia 1.2m	Re-construction
19	253+430	Pipe culvert dia 1.2m	New
20	253+580	Pipe culvert dia 1.2m	Re-construction
21	253+830	Pipe culvert dia 1.2m	Re-construction
22	253+960	Pipe culvert dia 1.2m	Re-construction
23	254+200	Pipe culvert dia 1.2m	Re-construction
24	254+390	Pipe culvert dia 1.2m	Re-construction
25	254+525	Pipe culvert dia 1.2m	Re-construction
26	254+670	Pipe culvert dia 1.2m	Re-construction
27	254+900	Pipe culvert dia 1.2m	New
28	255+100	Pipe culvert dia 1.2m	Re-construction
29	255+190	Pipe culvert dia 1.2m	Re-construction
30	255+390	Pipe culvert dia 1.2m	Re-construction
31	255+560	Pipe culvert dia 1.2m	Re-construction
32	255+800	Pipe culvert dia 1.2m	Re-construction
33	255+900	Pipe culvert dia 1.2m	Re-construction
34	256+050	Pipe culvert dia 1.2m	New
35	256+180	Pipe culvert dia 1.2m	New
36	256+250	Box Culvert 2mx2m	Re-construction
37	256+430	Pipe culvert dia 1.2m	Re-construction
38	256+600	Box Culvert 4mx4m	Re-construction
39	256+830	Pipe culvert dia 1.2m	Re-construction
40	256+930	Pipe culvert dia 1.2m	Re-construction
41	257+110	Pipe culvert dia 1.2m	Re-construction
42	257+225	Pipe culvert dia 1.2m	Re-construction
43	257+400	Pipe culvert dia 1.2m	Re-construction
44	257+560	Pipe culvert dia 1.2m	Re-construction
45	257+680	Pipe culvert dia 1.2m	Re-construction
46	257+800	Pipe culvert dia 1.2m	Re-construction
47	257+950	Pipe culvert dia 1.2m	Re-construction
48	258+105	Pipe culvert dia 1.2m	Re-construction
49	258+190	Box Culvert 2mx2m	Re-construction
50	258+270	Pipe culvert dia 1.2m	New
51	258+445	Pipe culvert dia 1.2m	Re-construction
52	258+550	Pipe culvert dia 1.2m	Re-construction
53	258+780	Pipe culvert dia 1.2m	Re-construction
54	258+905	Pipe culvert dia 1.2m	Re-construction
55	259+090	Pipe culvert dia 1.2m	Re-construction
56	259+200	Pipe culvert dia 1.2m	Re-construction
57	259+400	Pipe culvert dia 1.2m	Re-construction
58	259+570	Pipe culvert dia 1.2m	Re-construction
59	259+880	Pipe culvert dia 1.2m	Re-construction
60	260+060	Pipe culvert dia 1.2m	Re-construction
61	260+165	Pipe culvert dia 1.2m	Re-construction
62	260+400	Pipe culvert dia 1.2m	New
63	260+580	BOX culvert 2mx2m	Re-construction
64	260+770	BOX culvert 2mx2m	Re-construction

Package-6 / NH54

Sl. No.	Chainage (km)	Type / Opening of Culvert (m)	Remarks
65	260+940	Pipe culvert dia 1.2m	New
66	261+100	Pipe culvert dia 1.2m	Re-construction
67	261+250	Pipe culvert dia 1.2m	New
68	261+380	Pipe culvert dia 1.2m	Re-construction
69	261+470	Pipe culvert dia 1.2m	Re-construction
70	261+710	Pipe culvert dia 1.2m	Re-construction
71	261+860	Pipe culvert dia 1.2m	Re-construction
72	262+020	Pipe culvert dia 1.2m	Re-construction
73	262+200	Pipe culvert dia 1.2m	New
74	262+315	Pipe culvert dia 1.2m	Re-construction
75	262+570	Pipe culvert dia 1.2m	Re-construction
76	262+630	Pipe culvert dia 1.2m	New
77	262+890	Pipe culvert dia 1.2m	Re-construction
78	263+070	Pipe culvert dia 1.2m	New
79	263+220	Pipe culvert dia 1.2m	Re-construction
80	263+400	Pipe culvert dia 1.2m	Re-construction
81	263+480	Pipe culvert dia 1.2m	Re-construction
82	263+650	Pipe culvert dia 1.2m	Re-construction
83	263+945	Pipe culvert dia 1.2m	Re-construction
84	264+215	Pipe culvert dia 1.2m	Re-construction
85	264+460	Pipe culvert dia 1.2m	Re-construction
86	264+660	Pipe culvert dia 1.2m	Re-construction
87	264+880	Pipe culvert dia 1.2m	Re-construction
88	265+000	Pipe culvert dia 1.2m	Re-construction
89	265+190	Pipe culvert dia 1.2m	Re-construction
90	265+300	Pipe culvert dia 1.2m	New
91	265+410	Pipe culvert dia 1.2m	Re-construction
92	265+450	Pipe culvert dia 1.2m	Re-construction
93	265+540	Pipe culvert dia 1.2m	New
94	265+670	Pipe culvert dia 1.2m	Re-construction
95	265+760	Pipe culvert dia 1.2m	New
96	265+920	Pipe culvert dia 1.2m	Re-construction
97	266+010	Pipe culvert dia 1.2m	Re-construction
98	266+250	Pipe culvert dia 1.2m	Re-construction
99	266+345	Pipe culvert dia 1.2m	Re-construction
100	266+580	Pipe culvert dia 1.2m	Re-construction
101	266+760	Pipe culvert dia 1.2m	Re-construction
102	266+950	Pipe culvert dia 1.2m	New
103	267+200	Pipe culvert dia 1.2m	Re-construction
104	267+450	Pipe culvert dia 1.2m	Re-construction
105	267+700	Pipe culvert dia 1.2m	Re-construction
106	267+935	Pipe culvert dia 1.2m	Re-construction
107	268+020	Pipe culvert dia 1.2m	Re-construction
108	268+150	Pipe culvert dia 1.2m	Re-construction
109	268+280	Pipe culvert dia 1.2m	New
110	268+345	Pipe culvert dia 1.2m	Re-construction
111	268+510	Pipe culvert dia 1.2m	Re-construction
112	268+575	Pipe culvert dia 1.2m	Re-construction
113	268+645	Pipe culvert dia 1.2m	Re-construction
114	268+910	Pipe culvert dia 1.2m	Re-construction
115	269+110	Pipe culvert dia 1.2m	Re-construction
116	269+400	Pipe culvert dia 1.2m	Re-construction
117	269+490	Pipe culvert dia 1.2m	New
118	269+560	Pipe culvert dia 1.2m	Re-construction
119	269+700	Pipe culvert dia 1.2m	Re-construction
120	269+870	Pipe culvert dia 1.2m	New
121	270+000	Pipe culvert dia 1.2m	Re-construction
122	270+210	Pipe culvert dia 1.2m	Re-construction
123	270+330	Pipe culvert dia 1.2m	New
124	270+425	Pipe culvert dia 1.2m	Re-construction
125	270+600	Pipe culvert dia 1.2m	Re-construction
126	270+830	Pipe culvert dia 1.2m	Re-construction
127	270+980	Pipe culvert dia 1.2m	New
128	271+200	Pipe culvert dia 1.2m	Re-construction

Package-6 / NH54

Sl. No.	Chainage (km)	Type / Opening of Culvert (m)	Remarks
129	271+480	Pipe culvert dia 1.2m	Re-construction
130	271+640	Pipe culvert dia 1.2m	Re-construction
131	271+860	Pipe culvert dia 1.2m	New
132	272+130	Pipe culvert dia 1.2m	Re-construction
133	272+280	Pipe culvert dia 1.2m	Re-construction
134	272+500	Pipe culvert dia 1.2m	Re-construction
135	272+610	Pipe culvert dia 1.2m	New
136	272+820	Pipe culvert dia 1.2m	Re-construction
137	273+040	Pipe culvert dia 1.2m	Re-construction
138	273+200	Pipe culvert dia 1.2m	Re-construction
139	273+430	Pipe culvert dia 1.2m	New
140	273+580	Pipe culvert dia 1.2m	Re-construction
141	273+715	Pipe culvert dia 1.2m	Re-construction
142	273+920	Pipe culvert dia 1.2m	Re-construction
143	274+070	Pipe culvert dia 1.2m	Re-construction
144	274+180	Pipe culvert dia 1.2m	New
145	274+360	Pipe culvert dia 1.2m	New
146	274+620	Pipe culvert dia 1.2m	Re-construction
147	274+830	Pipe culvert dia 1.2m	Re-construction
148	274+900	Pipe culvert dia 1.2m	Re-construction
149	275+185	Pipe culvert dia 1.2m	Re-construction
150	275+280	Pipe culvert dia 1.2m	Re-construction
151	275+315	Pipe culvert dia 1.2m	Re-construction
152	275+460	Pipe culvert dia 1.2m	Re-construction
153	275+580	Pipe culvert dia 1.2m	New
154	275+740	Pipe culvert dia 1.2m	Re-construction
155	275+850	Pipe culvert dia 1.2m	New
156	275+910	Pipe culvert dia 1.2m	Re-construction
157	275+990	Pipe culvert dia 1.2m	New
158	276+090	Pipe culvert dia 1.2m	Re-construction
159	276+255	Pipe culvert dia 1.2m	Re-construction
160	276+390	Pipe culvert dia 1.2m	Re-construction
161	276+470	Pipe culvert dia 1.2m	New
162	276+720	Pipe culvert dia 1.2m	Re-construction
163	276+950	Pipe culvert dia 1.2m	Re-construction
164	277+050	Pipe culvert dia 1.2m	Re-construction
165	277+220	Pipe culvert dia 1.2m	Re-construction
166	277+360	Pipe culvert dia 1.2m	Re-construction
167	277+560	Pipe culvert dia 1.2m	Re-construction
168	277+825	Pipe culvert dia 1.2m	Re-construction
169	278+000	Pipe culvert dia 1.2m	New
170	278+270	Pipe culvert dia 1.2m	Re-construction
171	278+440	Pipe culvert dia 1.2m	Re-construction
172	278+660	Pipe culvert dia 1.2m	Re-construction
173	278+935	Pipe culvert dia 1.2m	New
174	279+220	Pipe culvert dia 1.2m	Re-construction
175	279+430	Pipe culvert dia 1.2m	Re-construction
176	279+630	Pipe culvert dia 1.2m	Re-construction
177	279+850	Pipe culvert dia 1.2m	Re-construction
178	279+940	Pipe culvert dia 1.2m	New
179	280+120	Pipe culvert dia 1.2m	Re-construction
180	280+220	Pipe culvert dia 1.2m	Re-construction
181	280+420	Pipe culvert dia 1.2m	Re-construction
182	280+570	Pipe culvert dia 1.2m	New
183	280+670	Pipe culvert dia 1.2m	Re-construction
184	280+900	Pipe culvert dia 1.2m	Re-construction
185	281+060	Pipe culvert dia 1.2m	Re-construction
186	281+130	Pipe culvert dia 1.2m	Re-construction
187	281+330	Pipe culvert dia 1.2m	New
188	281+460	Pipe culvert dia 1.2m	Re-construction
189	281+580	Pipe culvert dia 1.2m	New
190	281+810	Pipe culvert dia 1.2m	Re-construction
191	282+060	Pipe culvert dia 1.2m	Re-construction
192	282+160	Pipe culvert dia 1.2m	New

Package-6 / NH54

Sl. No.	Chainage (km)	Type / Opening of Culvert (m)	Remarks
193	282+400	Pipe culvert dia 1.2m	Re-construction
194	282+670	Pipe culvert dia 1.2m	Re-construction
195	282+870	Pipe culvert dia 1.2m	Re-construction
196	283+090	Pipe culvert dia 1.2m	Re-construction
197	283+230	Pipe culvert dia 1.2m	Re-construction
198	283+390	Pipe culvert dia 1.2m	Re-construction
199	283+590	Pipe culvert dia 1.2m	New
200	283+850	Pipe culvert dia 1.2m	Re-construction
201	284+100	Pipe culvert dia 1.2m	Re-construction
202	284+240	Pipe culvert dia 1.2m	Re-construction
203	284+330	Pipe culvert dia 1.2m	Re-construction
204	284+450	Pipe culvert dia 1.2m	New
205	284+630	Pipe culvert dia 1.2m	Re-construction
206	284+820	Pipe culvert dia 1.2m	New
207	284+970	Pipe culvert dia 1.2m	Re-construction
208	285+250	Pipe culvert dia 1.2m	New
209	285+390	Pipe culvert dia 1.2m	Re-construction
210	285+550	Pipe culvert dia 1.2m	Re-construction
211	285+630	Pipe culvert dia 1.2m	Re-construction
212	285+680	Pipe culvert dia 1.2m	Re-construction
213	285+850	Pipe culvert dia 1.2m	Re-construction
214	285+960	Pipe culvert dia 1.2m	Re-construction
215	286+190	Pipe culvert dia 1.2m	Re-construction
216	286+300	Pipe culvert dia 1.2m	Re-construction
217	286+550	Pipe culvert dia 1.2m	Re-construction
218	286+790	Pipe culvert dia 1.2m	Re-construction
219	286+940	Pipe culvert dia 1.2m	New
220	287+170	Pipe culvert dia 1.2m	Re-construction
221	287+450	Pipe culvert dia 1.2m	Re-construction
222	287+640	Pipe culvert dia 1.2m	New
223	287+840	Pipe culvert dia 1.2m	Re-construction
224	287+970	Pipe culvert dia 1.2m	New
225	288+110	Pipe culvert dia 1.2m	Re-construction
226	288+330	Pipe culvert dia 1.2m	Re-construction
227	288+410	Pipe culvert dia 1.2m	Re-construction
228	288+510	Pipe culvert dia 1.2m	New
229	288+760	Pipe culvert dia 1.2m	Re-construction
230	289+030	Pipe culvert dia 1.2m	New
231	289+190	Box Culvert 2mx2m	Re-construction
232	289+320	Pipe culvert dia 1.2m	Re-construction
233	289+620	Pipe culvert dia 1.2m	Re-construction
234	289+800	Pipe culvert dia 1.2m	Re-construction
235	290+050	Pipe culvert dia 1.2m	Re-construction
236	290+240	Pipe culvert dia 1.2m	Re-construction
237	290+450	Pipe culvert dia 1.2m	New
Lawnglai Bypass Planned Section			

Package-7 / NH54

Sl. No.	Chainage (km)	Type / Opening of Culvert (m)	Remarks
1	295+030	Pipe culvert dia 1.2m	Re-construction
2	295+220	Pipe culvert dia 1.2m	New
3	295+410	Pipe culvert dia 1.2m	Re-construction
4	295+490	Pipe culvert dia 1.2m	New
5	295+730	Pipe culvert dia 1.2m	Re-construction
6	295+870	Pipe culvert dia 1.2m	Re-construction
7	296+140	Pipe culvert dia 1.2m	New
8	296+230	Pipe culvert dia 1.2m	Re-construction
9	296+300	Pipe culvert dia 1.2m	New
10	296+370	Pipe culvert dia 1.2m	Re-construction
11	296+600	Pipe culvert dia 1.2m	New
12	296+670	Pipe culvert dia 1.2m	Re-construction
13	296+860	Pipe culvert dia 1.2m	New
14	297+040	Pipe culvert dia 1.2m	New
15	297+150	Pipe culvert dia 1.2m	New
16	297+290	Pipe culvert dia 1.2m	Re-construction
17	297+440	Pipe culvert dia 1.2m	Re-construction
18	297+630	Pipe culvert dia 1.2m	Re-construction
19	297+970	Pipe culvert dia 1.2m	Re-construction
20	298+150	Pipe culvert dia 1.2m	New
21	298+370	Pipe culvert dia 1.2m	Re-construction
22	298+670	Pipe culvert dia 1.2m	Re-construction
23	298+720	Pipe culvert dia 1.2m	Re-construction
24	298+860	Pipe culvert dia 1.2m	Re-construction
25	298+920	Pipe culvert dia 1.2m	Re-construction
26	298+985	Pipe culvert dia 1.2m	Re-construction
27	299+160	Pipe culvert dia 1.2m	New
28	299+300	Pipe culvert dia 1.2m	Re-construction
29	299+380	Pipe culvert dia 1.2m	Re-construction
30	299+470	Pipe culvert dia 1.2m	Re-construction
31	299+690	Pipe culvert dia 1.2m	New
32	299+770	Pipe culvert dia 1.2m	Re-construction
33	299+900	Pipe culvert dia 1.2m	Re-construction
34	300+080	Pipe culvert dia 1.2m	New
35	300+280	Pipe culvert dia 1.2m	Re-construction
36	300+380	Pipe culvert dia 1.2m	Re-construction
37	300+440	Pipe culvert dia 1.2m	New
38	300+630	Pipe culvert dia 1.2m	Re-construction
39	300+790	Pipe culvert dia 1.2m	Re-construction
40	301+080	Pipe culvert dia 1.2m	New
41	301+190	Pipe culvert dia 1.2m	Re-construction
42	301+380	Pipe culvert dia 1.2m	Re-construction
43	301+540	Pipe culvert dia 1.2m	Re-construction
44	301+840	Pipe culvert dia 1.2m	New
45	301+960	Pipe culvert dia 1.2m	New
46	302+190	Pipe culvert dia 1.2m	New
47	302+380	Pipe culvert dia 1.2m	New
48	302+610	Pipe culvert dia 1.2m	Re-construction
49	302+740	Pipe culvert dia 1.2m	Re-construction
50	302+920	Pipe culvert dia 1.2m	Re-construction
51	303+100	Pipe culvert dia 1.2m	Re-construction
52	303+240	Pipe culvert dia 1.2m	New
53	303+370	Box culvert 2mx2m	Re-construction
54	303+490	Pipe culvert dia 1.2m	Re-construction
55	303+630	Pipe culvert dia 1.2m	Re-construction
56	303+750	Pipe culvert dia 1.2m	Re-construction
57	303+840	Pipe culvert dia 1.2m	Re-construction
58	304+020	Pipe culvert dia 1.2m	Re-construction
59	304+090	Pipe culvert dia 1.2m	New
60	304+340	Pipe culvert dia 1.2m	New
61	304+440	Pipe culvert dia 1.2m	New
62	304+510	Box culvert 2mx2m	Re-construction
63	304+680	Pipe culvert dia 1.2m	Re-construction
64	304+840	Pipe culvert dia 1.2m	New
65	304+930	Pipe culvert dia 1.2m	Re-construction
66	305+040	Pipe culvert dia 1.2m	New
67	305+130	Pipe culvert dia 1.2m	New
68	305+220	Box culvert 2mx2m	Re-construction
69	305+470	Pipe culvert dia 1.2m	Re-construction
70	305+560	Pipe culvert dia 1.2m	Re-construction
71	305+720	Pipe culvert dia 1.2m	Re-construction

Package-7 / NH54

Sl. No.	Chainage (km)	Type / Opening of Culvert (m)	Remarks
72	305+900	Pipe culvert dia 1.2m	New
73	306+080	Box culvert 2mx2m	Re-construction
74	306+290	Pipe culvert dia 1.2m	New
75	306+390	Pipe culvert dia 1.2m	Re-construction
76	306+660	Pipe culvert dia 1.2m	Re-construction
77	306+960	Pipe culvert dia 1.2m	Re-construction
78	307+275	Pipe culvert dia 1.2m	Re-construction
79	307+440	Pipe culvert dia 1.2m	New
80	307+580	Pipe culvert dia 1.2m	Re-construction
81	307+930	Pipe culvert dia 1.2m	Re-construction
82	308+180	Pipe culvert dia 1.2m	Re-construction
83	308+300	Pipe culvert dia 1.2m	New
84	308+500	Pipe culvert dia 1.2m	Re-construction
85	308+650	Pipe culvert dia 1.2m	Re-construction
86	308+840	Pipe culvert dia 1.2m	New
87	309+000	Pipe culvert dia 1.2m	Re-construction
88	309+080	Pipe culvert dia 1.2m	New
89	309+160	Pipe culvert dia 1.2m	New
90	309+270	Box culvert 2mx2m	Re-construction
91	309+320	Pipe culvert dia 1.2m	New
92	309+420	Box culvert 2mx2m	Re-construction
93	309+560	Pipe culvert dia 1.2m	Re-construction
94	309+610	Pipe culvert dia 1.2m	New
95	309+730	Pipe culvert dia 1.2m	Re-construction
96	309+910	Pipe culvert dia 1.2m	Re-construction
97	310+100	Pipe culvert dia 1.2m	Re-construction
98	310+260	Pipe culvert dia 1.2m	Re-construction
99	310+460	Box culvert 3mx3m	Re-construction
100	310+620	Box culvert 3mx3m	Re-construction
101	310+820	Box culvert 3mx3m	Re-construction
102	310+960	Pipe culvert dia 1.2m	Re-construction
103	311+010	Pipe culvert dia 1.2m	Re-construction
104	311+180	Pipe culvert dia 1.2m	New
105	311+500	Box culvert 3mx3m	Re-construction
106	311+560	Box Culvert 4mX4m	Re-construction
107	311+690	Box culvert 2mx2m	New
108	311+800	Pipe culvert dia 1.2m	Re-construction
109	311+920	Pipe culvert dia 1.2m	New
110	312+190	Box culvert 2mx2m	New
111	312+370	Pipe culvert dia 1.2m	Re-construction
112	312+480	Box culvert 2mx2m	Re-construction
113	312+580	Pipe culvert dia 1.2m	New
114	312+720	Pipe culvert dia 1.2m	Re-construction
115	312+930	Pipe culvert dia 1.2m	Re-construction
116	313+100	Pipe culvert dia 1.2m	New
117	313+360	Pipe culvert dia 1.2m	Re-construction
118	313+460	Pipe culvert dia 1.2m	New
119	313+630	Pipe culvert dia 1.2m	Re-construction
120	313+780	Pipe culvert dia 1.2m	New
121	313+910	Box Culvert 4mX4m	Re-construction
122	314+100	Pipe culvert dia 1.2m	Re-construction
123	314+390	Box culvert 2mx2m	Re-construction
124	314+690	Pipe culvert dia 1.2m	New
125	314+830	Pipe culvert dia 1.2m	New
126	315+020	Box culvert 3mx3m	New
127	315+170	Box Culvert 4mX4m	Re-construction
128	315+370	Box culvert 2mx2m	New
129	315+580	Pipe culvert dia 1.2m	Re-construction
130	315+710	Pipe culvert dia 1.2m	New
131	315+800	Pipe culvert dia 1.2m	New
132	315+980	Box culvert 2mx2m	Re-construction
133	316+060	Box culvert 2mx2m	Re-construction
134	316+330	Pipe culvert dia 1.2m	Re-construction
135	316+380	Box culvert 3mx3m	New
136	316+450	Pipe culvert dia 1.2m	Re-construction
137	316+570	Box culvert 2mx2m	Re-construction
138	316+680	Pipe culvert dia 1.2m	Re-construction
139	316+775	Box culvert 2mx2m	New
140	316+940	Box Culvert 4mX4m	Re-construction
141	317+230	Pipe culvert dia 1.2m	New
142	317+480	Pipe culvert dia 1.2m	Re-construction

Package-7 / NH54

Sl. No.	Chainage (km)	Type / Opening of Culvert (m)	Remarks
143	317+720	Pipe culvert dia 1.2m	New
144	317+840	Pipe culvert dia 1.2m	New
145	318+030	Pipe culvert dia 1.2m	Re-construction
146	318+120	Pipe culvert dia 1.2m	Re-construction
147	318+260	Pipe culvert dia 1.2m	New
148	318+480	Pipe culvert dia 1.2m	New
149	318+600	Pipe culvert dia 1.2m	Re-construction
150	318+830	Pipe culvert dia 1.2m	Re-construction
151	319+170	Pipe culvert dia 1.2m	Re-construction
152	319+330	Pipe culvert dia 1.2m	Re-construction
153	319+420	Box culvert 3mx3m	Re-construction
154	319+490	Box culvert 2mx2m	New
155	319+610	Box culvert 2mx2m	Re-construction
156	319+690	Box culvert 2mx2m	Re-construction
157	319+800	Box Culvert 3mx3m	New
158	319+850	Pipe culvert dia 1.2m	Re-construction
159	320+080	Box culvert 3mx3m	New
160	320+160	Pipe culvert dia 1.2m	New
161	320+440	Box culvert 2mx2m	Re-construction
162	320+500	Box culvert 2mx2m	Re-construction
163	320+640	Box culvert 2mx2m	Re-construction
164	320+710	Box culvert 2mx2m	New
165	320+960	Pipe culvert dia 1.2m	Re-construction
166	321+000	Box culvert 2mx2m	New
167	321+120	Pipe culvert dia 1.2m	Re-construction
168	321+270	Box culvert 2mx2m	New
169	321+370	Box culvert 2mx2m	Re-construction
170	321+500	Box culvert 2mx2m	New
171	321+590	Pipe culvert dia 1.2m	Re-construction
172	321+680	Box culvert 2mx2m	New
173	321+800	Pipe culvert dia 1.2m	New
174	321+920	Pipe culvert dia 1.2m	Re-construction
175	322+160	Box culvert 2mx2m	New
176	322+220	Pipe culvert dia 1.2m	Re-construction
177	322+900	Pipe culvert dia 1.2m	New
178	322+950	Box culvert 3mx3m	Re-construction
179	323+140	Box culvert 2mx2m	Re-construction
180	323+400	Box culvert 2mx2m	New
181	323+570	Pipe culvert dia 1.2m	New
182	323+730	Box culvert 2mx2m	Re-construction
183	323+840	Pipe culvert dia 1.2m	New
184	323+960	Box culvert 2mx2m	New
185	324+030	Pipe culvert dia 1.2m	New
186	324+320	Pipe culvert dia 1.2m	Re-construction
187	324+400	Pipe culvert dia 1.2m	Re-construction
188	324+540	Pipe culvert dia 1.2m	Re-construction
189	324+590	Pipe culvert dia 1.2m	Re-construction
190	324+710	Pipe culvert dia 1.2m	New
191	324+800	Pipe culvert dia 1.2m	Re-construction
192	324+840	Pipe culvert dia 1.2m	Re-construction
193	324+930	Box culvert 2mx2m	Re-construction
194	324+970	Pipe culvert dia 1.2m	Re-construction
195	325+000	Box culvert 2mx2m	Re-construction
196	325+130	Pipe culvert dia 1.2m	New
197	325+200	Box culvert 4mx6m	Re-construction
198	325+240	Pipe culvert dia 1.2m	Re-construction
199	325+400	Pipe culvert dia 1.2m	New
200	325+590	Pipe culvert dia 1.2m	Re-construction
201	325+670	Pipe culvert dia 1.2m	Re-construction
202	325+720	Pipe culvert dia 1.2m	New
203	325+770	Box culvert 2mx2m	New
204	325+890	Box culvert 2mx2m	Re-construction
205	326+000	Pipe culvert dia 1.2m	New
206	326+070	Box culvert 2mx2m	Re-construction
207	326+160	Pipe culvert dia 1.2m	Re-construction
208	326+450	Pipe culvert dia 1.2m	Re-construction
209	326+640	Pipe culvert dia 1.2m	Re-construction

Package-7 / NH54

Sl. No.	Chainage (km)	Type / Opening of Culvert (m)	Remarks
210	326+720	Box culvert 2mx2m	Re-construction
211	326+830	Pipe culvert dia 1.2m	Re-construction
212	326+940	Pipe culvert dia 1.2m	Re-construction
213	327+120	Pipe culvert dia 1.2m	Re-construction
214	327+170	Box culvert 4mx6m	Re-construction
215	327+450	Box culvert 2mx2m	Re-construction
216	327+700	Pipe culvert dia 1.2m	Re-construction
217	327+760	Pipe culvert dia 1.2m	Re-construction
218	327+840	Pipe culvert dia 1.2m	Re-construction
219	327+930	Pipe culvert dia 1.2m	New
220	328+000	Pipe culvert dia 1.2m	Re-construction
221	328+100	Pipe culvert dia 1.2m	Re-construction
222	328+220	Pipe culvert dia 1.2m	Re-construction
223	328+500	Box Culvert 4mX4m	Re-construction
224	328+650	Pipe culvert dia 1.2m	Re-construction
225	328+870	Pipe culvert dia 1.2m	Re-construction
226	328+980	Pipe culvert dia 1.2m	Re-construction
227	329+130	Box culvert 2mx2m	Re-construction
228	329+180	Pipe culvert dia 1.2m	Re-construction
229	329+410	Pipe culvert dia 1.2m	New
230	329+580	Pipe culvert dia 1.2m	Re-construction
231	329+740	Pipe culvert dia 1.2m	Re-construction
232	329+900	Pipe culvert dia 1.2m	New
233	330+090	Pipe culvert dia 1.2m	New
234	330+220	Pipe culvert dia 1.2m	Re-construction
235	330+300	Box Culvert 4mX4m	Re-construction
236	330+560	Pipe culvert dia 1.2m	Re-construction
237	330+710	Pipe culvert dia 1.2m	Re-construction
238	330+850	Pipe culvert dia 1.2m	Re-construction
239	331+110	Pipe culvert dia 1.2m	Re-construction
240	331+390	Pipe culvert dia 1.2m	Re-construction
241	331+480	Pipe culvert dia 1.2m	New
242	331+620	Pipe culvert dia 1.2m	Re-construction
243	331+740	Box culvert 2mx2m	Re-construction
244	331+880	Pipe culvert dia 1.2m	New
245	331+970	Box culvert 2mx2m	Re-construction
246	332+170	Box culvert 2mx2m	Re-construction
247	332+380	Pipe culvert dia 1.2m	New
248	332+520	Pipe culvert dia 1.2m	Re-construction
249	332+760	Pipe culvert dia 1.2m	New
250	332+910	Pipe culvert dia 1.2m	Re-construction
251	333+095	Box culvert 2mx2m	Re-construction
252	333+220	Box culvert 2mx2m	New
253	333+340	Pipe culvert dia 1.2m	Re-construction
254	333+640	Pipe culvert dia 1.2m	Re-construction
255	333+760	Pipe culvert dia 1.2m	Re-construction
256	333+850	Pipe culvert dia 1.2m	New
257	334+060	Pipe culvert dia 1.2m	Re-construction

Package-8 / NH54

Sl. No.	Chainage (km)	Type / Opening of Culvert (m)	Remarks
1	334+130	Box culvert 2mx2m	New
2	334+390	Pipe culvert dia 1.2m	New
3	334+560	Pipe culvert dia 1.2m	New
4	334+820	Pipe culvert dia 1.2m	Re-construction
5	335+110	Pipe culvert dia 1.2m	New
6	335+210	Pipe culvert dia 1.2m	New
7	335+370	Pipe culvert dia 1.2m	Re-construction
8	335+560	Pipe culvert dia 1.2m	Re-construction
9	335+700	Pipe culvert dia 1.2m	Re-construction
10	335+940	Pipe culvert dia 1.2m	Re-construction
11	336+020	Pipe culvert dia 1.2m	New
12	336+120	Pipe culvert dia 1.2m	Re-construction
13	336+200	Pipe culvert dia 1.2m	Re-construction
14	336+360	Pipe culvert dia 1.2m	Re-construction
15	336+550	Pipe culvert dia 1.2m	Re-construction
16	336+720	Pipe culvert dia 1.2m	New
17	336+910	Pipe culvert dia 1.2m	Re-construction
18	337+270	Pipe culvert dia 1.2m	Re-construction
19	337+450	Pipe culvert dia 1.2m	New
20	337+680	Pipe culvert dia 1.2m	New
21	337+880	Pipe culvert dia 1.2m	Re-construction
22	337+970	Pipe culvert dia 1.2m	Re-construction
23	338+200	Pipe culvert dia 1.2m	New
24	338+370	Pipe culvert dia 1.2m	Re-construction
25	338+520	Pipe culvert dia 1.2m	Re-construction
26	338+740	Pipe culvert dia 1.2m	New
27	338+920	Pipe culvert dia 1.2m	Re-construction
28	339+120	Pipe culvert dia 1.2m	Re-construction
29	339+310	Pipe culvert dia 1.2m	Re-construction
30	339+570	Pipe culvert dia 1.2m	Re-construction
31	339+660	Pipe culvert dia 1.2m	New
32	339+775	Pipe culvert dia 1.2m	Re-construction
33	339+850	Pipe culvert dia 1.2m	Re-construction
34	339+930	Pipe culvert dia 1.2m	New
35	340+020	Pipe culvert dia 1.2m	Re-construction
36	340+170	Pipe culvert dia 1.2m	Re-construction
37	340+250	Pipe culvert dia 1.2m	New
38	340+380	Pipe culvert dia 1.2m	New
39	340+570	Pipe culvert dia 1.2m	New
40	340+670	Pipe culvert dia 1.2m	New
41	340+880	Pipe culvert dia 1.2m	Re-construction
42	341+080	Pipe culvert dia 1.2m	New
43	341+290	Pipe culvert dia 1.2m	New
44	341+590	Pipe culvert dia 1.2m	New
45	341+800	Pipe culvert dia 1.2m	New
46	342+000	Pipe culvert dia 1.2m	New
47	342+160	Pipe culvert dia 1.2m	Re-construction
48	342+290	Pipe culvert dia 1.2m	New
49	342+420	Pipe culvert dia 1.2m	Re-construction
50	342+630	Pipe culvert dia 1.2m	New
51	342+790	Pipe culvert dia 1.2m	New
52	343+140	Pipe culvert dia 1.2m	Re-construction
53	343+360	Pipe culvert dia 1.2m	Re-construction
54	343+470	Pipe culvert dia 1.2m	Re-construction
55	343+590	Pipe culvert dia 1.2m	Re-construction
56	343+710	Pipe culvert dia 1.2m	Re-construction
57	343+870	Pipe culvert dia 1.2m	Re-construction
58	343+990	Pipe culvert dia 1.2m	Re-construction
59	344+165	Pipe culvert dia 1.2m	New
60	344+270	Box culvert 2mx2m	Re-construction
61	344+380	Pipe culvert dia 1.2m	Re-construction
62	344+470	Pipe culvert dia 1.2m	New
63	344+630	Pipe culvert dia 1.2m	Re-construction
64	344+700	Pipe culvert dia 1.2m	New
65	344+840	Pipe culvert dia 1.2m	Re-construction
66	344+920	Pipe culvert dia 1.2m	New
67	345+060	Pipe culvert dia 1.2m	New
68	345+170	Pipe culvert dia 1.2m	Re-construction
69	345+310	Pipe culvert dia 1.2m	Re-construction
70	345+540	Pipe culvert dia 1.2m	Re-construction
71	345+780	Pipe culvert dia 1.2m	Re-construction

Package-8 / NH54

Sl. No.	Chainage (km)	Type / Opening of Culvert (m)	Remarks
72	345+970	Pipe culvert dia 1.2m	Re-construction
73	346+175	Pipe culvert dia 1.2m	Re-construction
74	346+380	Pipe culvert dia 1.2m	New
75	346+510	Box culvert 2mx2m	Re-construction
76	346+760	Pipe culvert dia 1.2m	Re-construction
77	346+980	Pipe culvert dia 1.2m	Re-construction
78	347+165	Pipe culvert dia 1.2m	Re-construction
79	347+280	Pipe culvert dia 1.2m	Re-construction
80	347+440	Pipe culvert dia 1.2m	New
81	347+600	Pipe culvert dia 1.2m	Re-construction
82	347+670	Pipe culvert dia 1.2m	Re-construction
83	347+800	Pipe culvert dia 1.2m	Re-construction
84	347+850	Pipe culvert dia 1.2m	New
85	348+060	Pipe culvert dia 1.2m	New
86	348+190	Box culvert 2mx2m	Re-construction
87	348+310	Pipe culvert dia 1.2m	Re-construction
88	348+510	Pipe culvert dia 1.2m	New
89	348+730	Pipe culvert dia 1.2m	Re-construction
90	348+900	Pipe culvert dia 1.2m	Re-construction
91	349+110	Pipe culvert dia 1.2m	New
92	349+280	Pipe culvert dia 1.2m	Re-construction
93	349+400	Pipe culvert dia 1.2m	Re-construction
94	349+480	Box culvert 2mx2m	Re-construction
95	349+540	Pipe culvert dia 1.2m	New
96	349+700	Pipe culvert dia 1.2m	New
97	349+810	Box culvert 2mx2m	New
98	349+955	Pipe culvert dia 1.2m	Re-construction
99	350+070	Box culvert 2mx2m	New
100	350+170	Box culvert 2mx2m	New
101	350+280	Pipe culvert dia 1.2m	New
102	350+440	Box culvert 2mx2m	New
103	350+530	Pipe culvert dia 1.2m	New
104	350+635	Box culvert 2mx2m	Re-construction
105	350+920	Box culvert 2mx2m	New
106	351+090	Pipe culvert dia 1.2m	New
107	351+190	Pipe culvert dia 1.2m	New
108	351+340	Pipe culvert dia 1.2m	New
109	351+530	Pipe culvert dia 1.2m	New
110	351+620	Pipe culvert dia 1.2m	New
111	351+770	Pipe culvert dia 1.2m	New
112	351+850	Pipe culvert dia 1.2m	New
113	351+940	Pipe culvert dia 1.2m	New
114	352+170	Pipe culvert dia 1.2m	New
115	352+270	Box culvert 2mx2m	New
116	352+430	Pipe culvert dia 1.2m	New
117	352+570	Box culvert 2mx2m	New
118	352+700	Pipe culvert dia 1.2m	New
119	352+820	Pipe culvert dia 1.2m	Re-construction
120	353+040	Pipe culvert dia 1.2m	Re-construction
121	353+260	Pipe culvert dia 1.2m	Re-construction
122	353+400	Pipe culvert dia 1.2m	New
123	353+550	Pipe culvert dia 1.2m	Re-construction
124	353+680	Pipe culvert dia 1.2m	New
125	353+750	Pipe culvert dia 1.2m	Re-construction
126	354+000	Pipe culvert dia 1.2m	Re-construction
127	354+320	Pipe culvert dia 1.2m	New
128	354+400	Pipe culvert dia 1.2m	New
129	354+640	Pipe culvert dia 1.2m	Re-construction
130	354+790	Pipe culvert dia 1.2m	Re-construction
131	355+090	Pipe culvert dia 1.2m	Re-construction
132	355+210	Pipe culvert dia 1.2m	Re-construction
133	355+330	Pipe culvert dia 1.2m	Re-construction
134	355+500	Pipe culvert dia 1.2m	New
135	355+590	Pipe culvert dia 1.2m	Re-construction
136	355+820	Pipe culvert dia 1.2m	Re-construction
137	355+990	Pipe culvert dia 1.2m	New
138	356+125	Pipe culvert dia 1.2m	Re-construction
139	356+360	Pipe culvert dia 1.2m	Re-construction
140	356+535	Pipe culvert dia 1.2m	Re-construction
141	356+830	Pipe culvert dia 1.2m	Re-construction
142	356+900	Pipe culvert dia 1.2m	Re-construction

Package-8 / NH54

Sl. No.	Chainage (km)	Type / Opening of Culvert (m)	Remarks
143	357+070	Pipe culvert dia 1.2m	Re-construction
144	357+170	Pipe culvert dia 1.2m	Re-construction
145	357+250	Pipe culvert dia 1.2m	New
146	357+330	Pipe culvert dia 1.2m	Re-construction
147	357+420	Pipe culvert dia 1.2m	New
148	357+590	Pipe culvert dia 1.2m	Re-construction
149	357+720	Pipe culvert dia 1.2m	Re-construction
150	357+940	Pipe culvert dia 1.2m	Re-construction
151	358+010	Pipe culvert dia 1.2m	New
152	358+090	Pipe culvert dia 1.2m	Re-construction
153	358+220	Pipe culvert dia 1.2m	Re-construction
154	358+280	Pipe culvert dia 1.2m	New
155	358+480	Pipe culvert dia 1.2m	Re-construction
156	358+720	Pipe culvert dia 1.2m	New
157	358+960	Pipe culvert dia 1.2m	New
158	359+100	Pipe culvert dia 1.2m	Re-construction
159	359+310	Pipe culvert dia 1.2m	Re-construction
160	359+510	Pipe culvert dia 1.2m	New
161	359+620	Pipe culvert dia 1.2m	Re-construction
162	359+810	Pipe culvert dia 1.2m	Re-construction
163	359+960	Pipe culvert dia 1.2m	Re-construction
164	360+090	Pipe culvert dia 1.2m	New
165	360+230	Pipe culvert dia 1.2m	Re-construction
166	360+430	Pipe culvert dia 1.2m	Re-construction
167	360+550	Pipe culvert dia 1.2m	New
168	360+650	Pipe culvert dia 1.2m	Re-construction
169	360+920	Pipe culvert dia 1.2m	Re-construction
170	360+980	Pipe culvert dia 1.2m	New
171	361+100	Pipe culvert dia 1.2m	New
172	361+210	Pipe culvert dia 1.2m	Re-construction
173	361+380	Pipe culvert dia 1.2m	Re-construction
174	361+460	Pipe culvert dia 1.2m	Re-construction
175	361+610	Pipe culvert dia 1.2m	Re-construction
176	361+770	Pipe culvert dia 1.2m	Re-construction
177	361+910	Pipe culvert dia 1.2m	New
178	361+970	Pipe culvert dia 1.2m	Re-construction
179	362+050	Box culvert 2mx2m	Re-construction
180	362+105	Pipe culvert dia 1.2m	New
181	362+250	Box culvert 2mx2m	New
182	362+360	Pipe culvert dia 1.2m	Re-construction
183	362+620	Pipe culvert dia 1.2m	Re-construction
184	362+730	Pipe culvert dia 1.2m	New
185	362+970	Pipe culvert dia 1.2m	Re-construction
186	363+055	Pipe culvert dia 1.2m	Re-construction
187	363+070	Box culvert 2mx2m	Re-construction
188	363+170	Box culvert 2mx2m	Re-construction
189	363+300	Pipe culvert dia 1.2m	New
190	363+390	Pipe culvert dia 1.2m	Re-construction
191	363+620	Pipe culvert dia 1.2m	Re-construction
192	363+720	Pipe culvert dia 1.2m	Re-construction
193	363+920	Pipe culvert dia 1.2m	Re-construction
194	364+020	Pipe culvert dia 1.2m	Re-construction
195	364+260	Pipe culvert dia 1.2m	Re-construction
196	364+390	Box Culvert3mx3m	Re-construction
197	364+530	Box culvert 2mx2m	Re-construction
198	364+670	Pipe culvert dia 1.2m	Re-construction
199	364+850	Pipe culvert dia 1.2m	Re-construction
200	365+085	Pipe culvert dia 1.2m	Re-construction
201	365+150	Pipe culvert dia 1.2m	Re-construction
202	365+310	Pipe culvert dia 1.2m	Re-construction
203	365+610	Pipe culvert dia 1.2m	Re-construction
204	365+890	Pipe culvert dia 1.2m	New
205	366+010	Pipe culvert dia 1.2m	Re-construction
206	366+290	Pipe culvert dia 1.2m	Re-construction
207	366+480	Pipe culvert dia 1.2m	New
208	366+690	Pipe culvert dia 1.2m	Re-construction
209	366+980	Pipe culvert dia 1.2m	Re-construction
210	367+290	Pipe culvert dia 1.2m	New
211	367+500	Pipe culvert dia 1.2m	New
212	367+740	Pipe culvert dia 1.2m	Re-construction
213	367+860	Pipe culvert dia 1.2m	Re-construction

Package-8 / NH54

Sl. No.	Chainage (km)	Type / Opening of Culvert (m)	Remarks
214	367+940	Pipe culvert dia 1.2m	Re-construction
215	368+050	Pipe culvert dia 1.2m	New
216	368+100	Pipe culvert dia 1.2m	Re-construction
217	368+160	Box culvert 2mx2m	New
218	368+230	Pipe culvert dia 1.2m	Re-construction
219	368+350	Pipe culvert dia 1.2m	Re-construction
220	368+580	Pipe culvert dia 1.2m	Re-construction
221	368+810	Pipe culvert dia 1.2m	Re-construction
222	368+920	Pipe culvert dia 1.2m	Re-construction
223	369+100	Pipe culvert dia 1.2m	New
224	369+270	Pipe culvert dia 1.2m	Re-construction
225	369+400	Pipe culvert dia 1.2m	Re-construction
226	369+450	Pipe culvert dia 1.2m	New
227	369+700	Pipe culvert dia 1.2m	Re-construction
228	369+830	Pipe culvert dia 1.2m	Re-construction
229	369+890	Pipe culvert dia 1.2m	Re-construction
230	370+060	Pipe culvert dia 1.2m	New
231	370+300	Pipe culvert dia 1.2m	Re-construction
232	370+380	Pipe culvert dia 1.2m	New
233	370+510	Pipe culvert dia 1.2m	Re-construction
234	370+680	Pipe culvert dia 1.2m	New
235	370+900	Pipe culvert dia 1.2m	New
236	370+990	Pipe culvert dia 1.2m	Re-construction
237	371+080	Pipe culvert dia 1.2m	Re-construction
238	371+300	Pipe culvert dia 1.2m	New
239	371+390	Pipe culvert dia 1.2m	Re-construction
240	371+510	Pipe culvert dia 1.2m	Re-construction
241	371+705	Pipe culvert dia 1.2m	Re-construction
242	371+760	Pipe culvert dia 1.2m	New
243	371+860	Pipe culvert dia 1.2m	Re-construction
244	372+010	Pipe culvert dia 1.2m	Re-construction
245	372+110	Pipe culvert dia 1.2m	Re-construction
246	372+170	Pipe culvert dia 1.2m	Re-construction
247	372+390	Pipe culvert dia 1.2m	New
248	372+580	Pipe culvert dia 1.2m	Re-construction
249	372+650	Pipe culvert dia 1.2m	Re-construction
250	372+810	Pipe culvert dia 1.2m	Re-construction
251	372+880	Pipe culvert dia 1.2m	Re-construction
252	373+160	Pipe culvert dia 1.2m	New
253	373+440	Pipe culvert dia 1.2m	New
254	373+680	Pipe culvert dia 1.2m	New

Package-9 / NH51

Sl. No.	Chainage (km)	Type / Opening of Culvert (m)	Remarks
1	85+190	Pipe culvert dia 1.2m	New
2	85+410	Pipe culvert dia 1.2m	New
3	85+650	Pipe culvert dia 1.2m	New
4	85+820	Pipe culvert dia 1.2m	New
5	85+955	Pipe culvert dia 1.2m	Re-construction
6	86+590	Box Culvert 2mx2m	Re-construction
7	86+830	Pipe culvert dia 1.2m	Re-construction
8	87+220	Pipe culvert dia 1.2m	Re-construction
9	87+420	Pipe culvert dia 1.2m	New
10	87+585	Pipe culvert dia 1.2m	Re-construction
11	87+860	Pipe culvert dia 1.2m	Re-construction
12	87+900	Box Culvert 2mx2m	Re-construction
13	88+010	Pipe culvert dia 1.2m	Re-construction
14	88+290	Pipe culvert dia 1.2m	New
15	88+490	Pipe culvert dia 1.2m	Re-construction
16	88+550	Pipe culvert dia 1.2m	Re-construction
17	88+650	Pipe culvert dia 1.2m	Re-construction
18	88+860	Pipe culvert dia 1.2m	New
19	89+050	Box Culvert 2mx2m	New
20	89+220	Pipe culvert dia 1.2m	New
21	89+510	Pipe culvert dia 1.2m	New
22	89+710	Pipe culvert dia 1.2m	Re-construction
23	89+740	Pipe culvert dia 1.2m	Re-construction
24	89+930	Pipe culvert dia 1.2m	New
25	90+190	Pipe culvert dia 1.2m	Re-construction
26	90+405	Box Culvert 2mx2m	Re-construction
27	90+570	Pipe culvert dia 1.2m	Re-construction
28	90+740	Pipe culvert dia 1.2m	Re-construction
29	90+880	Box Culvert 2mx2m	New
30	90+940	Box Culvert 2mx2m	Re-construction
31	91+260	Pipe culvert dia 1.2m	New
32	91+630	Pipe culvert dia 1.2m	New
33	91+860	Pipe culvert dia 1.2m	New
34	92+120	Pipe culvert dia 1.2m	Re-construction
35	92+220	Pipe culvert dia 1.2m	Re-construction
36	92+610	Pipe culvert dia 1.2m	Re-construction
37	92+780	Pipe culvert dia 1.2m	New
38	92+940	Pipe culvert dia 1.2m	Re-construction
39	93+095	Box culvert 2mx2m	Re-construction
40	93+160	Pipe culvert dia 1.2m	Re-construction
41	93+340	Pipe culvert dia 1.2m	New
42	93+470	Box Culvert 2mx2m	Re-construction
43	93+510	Pipe culvert dia 1.2m	New
44	93+630	Box Culvert 2mx2m	Re-construction
45	93+850	Pipe culvert dia 1.2m	Re-construction
46	93+880	Pipe culvert dia 1.2m	Re-construction
47	94+160	Pipe culvert dia 1.2m	New
Tura Town Area			
48	101+090	Pipe culvert dia 1.2m	New
49	101+280	Pipe culvert dia 1.2m	Re-construction
50	101+380	Pipe culvert dia 1.2m	Re-construction
51	101+530	Pipe culvert dia 1.2m	New
52	101+740	Pipe culvert dia 1.2m	New
53	101+780	Pipe culvert dia 1.2m	Re-construction
54	102+080	Pipe culvert dia 1.2m	Re-construction
55	102+270	Pipe culvert dia 1.2m	Re-construction
56	102+350	Pipe culvert dia 1.2m	Re-construction
57	102+530	Pipe culvert dia 1.2m	New
58	102+730	Pipe culvert dia 1.2m	New
59	102+830	Pipe culvert dia 1.2m	Re-construction
60	102+900	Pipe culvert dia 1.2m	Re-construction
61	103+035	Pipe culvert dia 1.2m	Re-construction
62	103+110	Pipe culvert dia 1.2m	New
63	103+400	Pipe culvert dia 1.2m	Re-construction
64	103+600	Pipe culvert dia 1.2m	Re-construction
65	103+680	Pipe culvert dia 1.2m	Re-construction
66	103+810	Pipe culvert dia 1.2m	Re-construction
67	103+900	Pipe culvert dia 1.2m	Re-construction
68	103+940	Pipe culvert dia 1.2m	Re-construction

Package-9 / NH51

Sl. No.	Chainage (km)	Type / Opening of Culvert (m)	Remarks
69	104+200	Pipe culvert dia 1.2m	New
70	104+460	Pipe culvert dia 1.2m	Re-construction
71	104+580	Pipe culvert dia 1.2m	Re-construction
72	104+870	Pipe culvert dia 1.2m	New
73	105+180	Pipe culvert dia 1.2m	New
74	105+420	Pipe culvert dia 1.2m	Re-construction
75	105+590	Pipe culvert dia 1.2m	Re-construction
76	105+755	Pipe culvert dia 1.2m	New
77	105+860	Pipe culvert dia 1.2m	Re-construction
78	105+960	Pipe culvert dia 1.2m	Re-construction
79	106+070	Pipe culvert dia 1.2m	Re-construction
80	106+225	Pipe culvert dia 1.2m	Re-construction
81	106+460	Pipe culvert dia 1.2m	New
82	106+580	Pipe culvert dia 1.2m	Re-construction
83	106+800	Pipe culvert dia 1.2m	Re-construction
84	106+905	Pipe culvert dia 1.2m	Re-construction
85	107+090	Pipe culvert dia 1.2m	New
86	107+470	Pipe culvert dia 1.2m	Re-construction
87	107+625	Pipe culvert dia 1.2m	Re-construction
88	107+705	Pipe culvert dia 1.2m	Re-construction
89	107+990	Pipe culvert dia 1.2m	Re-construction
90	108+165	Pipe culvert dia 1.2m	Re-construction
91	108+430	Pipe culvert dia 1.2m	Re-construction
92	108+690	Pipe culvert dia 1.2m	Re-construction
93	108+960	Pipe culvert dia 1.2m	New
94	109+210	Pipe culvert dia 1.2m	New
95	109+410	Pipe culvert dia 1.2m	New
96	109+620	Pipe culvert dia 1.2m	New
97	109+770	Pipe culvert dia 1.2m	Re-construction
98	109+960	Pipe culvert dia 1.2m	New
99	110+070	Pipe culvert dia 1.2m	New
100	110+250	Pipe culvert dia 1.2m	New
101	110+540	Pipe culvert dia 1.2m	New
102	110+740	Pipe culvert dia 1.2m	New
103	110+910	Pipe culvert dia 1.2m	New
104	111+055	Pipe culvert dia 1.2m	Re-construction
105	111+350	Pipe culvert dia 1.2m	New
106	111+500	Pipe culvert dia 1.2m	New
107	111+750	Pipe culvert dia 1.2m	New
108	112+040	Pipe culvert dia 1.2m	New
109	112+140	Pipe culvert dia 1.2m	New
110	112+415	Pipe culvert dia 1.2m	Re-construction
111	112+510	Pipe culvert dia 1.2m	Re-construction
112	112+855	Pipe culvert dia 1.2m	Re-construction
113	112+960	Pipe culvert dia 1.2m	New
114	113+200	Pipe culvert dia 1.2m	Re-construction
115	113+310	Pipe culvert dia 1.2m	Re-construction
116	113+390	Pipe culvert dia 1.2m	Re-construction
117	113+480	Pipe culvert dia 1.2m	Re-construction
118	113+680	Pipe culvert dia 1.2m	Re-construction
119	113+930	Pipe culvert dia 1.2m	Re-construction
120	113+995	Pipe culvert dia 1.2m	Re-construction
121	114+030	Pipe culvert dia 1.2m	Re-construction
122	114+125	Pipe culvert dia 1.2m	Re-construction
123	114+230	Pipe culvert dia 1.2m	Re-construction
124	114+290	Pipe culvert dia 1.2m	Re-construction
125	114+500	Pipe culvert dia 1.2m	Re-construction
126	114+630	Pipe culvert dia 1.2m	Re-construction
127	114+940	Pipe culvert dia 1.2m	New
128	115+115	Pipe culvert dia 1.2m	Re-construction
129	115+320	Pipe culvert dia 1.2m	Re-construction
130	115+390	Pipe culvert dia 1.2m	Re-construction
131	115+535	Pipe culvert dia 1.2m	Re-construction
132	115+690	Pipe culvert dia 1.2m	Re-construction
133	115+770	Pipe culvert dia 1.2m	Re-construction
134	115+830	Pipe culvert dia 1.2m	Re-construction

Package-9 / NH51

Sl. No.	Chainage (km)	Type / Opening of Culvert (m)	Remarks
135	116+150	Pipe culvert dia 1.2m	New
136	116+310	Pipe culvert dia 1.2m	Re-construction
137	116+520	Pipe culvert dia 1.2m	Re-construction
138	116+660	Pipe culvert dia 1.2m	Re-construction
139	116+725	Pipe culvert dia 1.2m	Re-construction
140	116+830	Pipe culvert dia 1.2m	Re-construction
141	116+940	Pipe culvert dia 1.2m	Re-construction
142	117+045	Pipe culvert dia 1.2m	Re-construction
143	117+110	Pipe culvert dia 1.2m	Re-construction
144	117+180	Pipe culvert dia 1.2m	Re-construction
145	117+285	Pipe culvert dia 1.2m	Re-construction
146	117+365	Pipe culvert dia 1.2m	Re-construction
147	117+445	Pipe culvert dia 1.2m	Re-construction
148	117+570	Pipe culvert dia 1.2m	Re-construction
149	117+630	Pipe culvert dia 1.2m	Re-construction
150	117+690	Pipe culvert dia 1.2m	Re-construction
151	117+790	Pipe culvert dia 1.2m	Re-construction
152	117+885	Pipe culvert dia 1.2m	Re-construction
153	118+120	Pipe culvert dia 1.2m	New
154	118+320	Pipe culvert dia 1.2m	Re-construction
155	118+385	Pipe culvert dia 1.2m	Re-construction
156	118+500	Pipe culvert dia 1.2m	Re-construction
157	118+750	Pipe culvert dia 1.2m	Re-construction
158	118+890	Pipe culvert dia 1.2m	Re-construction
159	119+040	Pipe culvert dia 1.2m	New
160	119+280	Pipe culvert dia 1.2m	New
161	119+560	Pipe culvert dia 1.2m	Re-construction
162	119+710	Pipe culvert dia 1.2m	Re-construction
163	119+800	Pipe culvert dia 1.2m	Re-construction
164	119+870	Pipe culvert dia 1.2m	Re-construction
165	120+060	Pipe culvert dia 1.2m	New
166	120+250	Pipe culvert dia 1.2m	New
167	120+440	Pipe culvert dia 1.2m	New
168	120+520	Pipe culvert dia 1.2m	Re-construction
169	120+610	Pipe culvert dia 1.2m	New
170	120+760	Pipe culvert dia 1.2m	Re-construction
171	120+855	Pipe culvert dia 1.2m	Re-construction
172	120+990	Pipe culvert dia 1.2m	Re-construction
173	121+180	Pipe culvert dia 1.2m	Re-construction
174	121+300	Pipe culvert dia 1.2m	Re-construction
175	121+560	Pipe culvert dia 1.2m	New
176	121+800	Pipe culvert dia 1.2m	New
177	122+020	Pipe culvert dia 1.2m	New
178	122+195	Pipe culvert dia 1.2m	Re-construction
179	122+280	Pipe culvert dia 1.2m	Re-construction
180	122+320	Pipe culvert dia 1.2m	Re-construction
181	122+555	Pipe culvert dia 1.2m	Re-construction
182	122+620	Pipe culvert dia 1.2m	Re-construction
183	122+895	Pipe culvert dia 1.2m	Re-construction
184	122+995	Pipe culvert dia 1.2m	Re-construction
185	123+055	Pipe culvert dia 1.2m	Re-construction
186	123+160	Pipe culvert dia 1.2m	Re-construction
187	123+385	Pipe culvert dia 1.2m	Re-construction
188	123+480	Pipe culvert dia 1.2m	Re-construction
189	123+520	Pipe culvert dia 1.2m	Re-construction
190	123+585	Pipe culvert dia 1.2m	Re-construction
191	123+730	Pipe culvert dia 1.2m	Re-construction
192	123+890	Pipe culvert dia 1.2m	Re-construction
193	123+980	Pipe culvert dia 1.2m	Re-construction
194	124+040	Pipe culvert dia 1.2m	Re-construction
195	124+075	Pipe culvert dia 1.2m	Re-construction
196	124+165	Pipe culvert dia 1.2m	Re-construction
197	124+250	Pipe culvert dia 1.2m	Re-construction
198	124+315	Pipe culvert dia 1.2m	Re-construction
199	124+420	Pipe culvert dia 1.2m	Re-construction
200	124+670	Pipe culvert dia 1.2m	Re-construction
201	124+720	Pipe culvert dia 1.2m	Re-construction
202	124+880	Pipe culvert dia 1.2m	Re-construction
203	124+970	Pipe culvert dia 1.2m	Re-construction
204	125+030	Pipe culvert dia 1.2m	Re-construction
205	125+120	Pipe culvert dia 1.2m	Re-construction

Package-9 / NH51

Sl. No.	Chainage (km)	Type / Opening of Culvert (m)	Remarks
206	125+200	Pipe culvert dia 1.2m	Re-construction
207	125+270	Pipe culvert dia 1.2m	Re-construction
208	125+310	Pipe culvert dia 1.2m	Re-construction
209	125+390	Pipe culvert dia 1.2m	Re-construction
210	125+470	Pipe culvert dia 1.2m	Re-construction
211	125+540	Pipe culvert dia 1.2m	Re-construction
212	125+640	Pipe culvert dia 1.2m	Re-construction
213	125+780	Pipe culvert dia 1.2m	Re-construction
214	125+970	Pipe culvert dia 1.2m	Re-construction
215	126+170	Pipe culvert dia 1.2m	Re-construction
216	126+455	Pipe culvert dia 1.2m	Re-construction
217	126+575	Pipe culvert dia 1.2m	Re-construction
218	126+650	Pipe culvert dia 1.2m	Re-construction
219	126+690	Pipe culvert dia 1.2m	Re-construction
220	126+880	Pipe culvert dia 1.2m	Re-construction
221	127+040	Pipe culvert dia 1.2m	Re-construction
222	127+170	Pipe culvert dia 1.2m	Re-construction
223	127+285	Pipe culvert dia 1.2m	Re-construction
224	127+520	Pipe culvert dia 1.2m	Re-construction
225	127+660	Pipe culvert dia 1.2m	Re-construction
226	127+890	Pipe culvert dia 1.2m	Re-construction
227	128+050	Pipe culvert dia 1.2m	Re-construction
228	128+130	Pipe culvert dia 1.2m	New
229	128+265	Pipe culvert dia 1.2m	Re-construction
230	128+430	Pipe culvert dia 1.2m	Re-construction
231	128+515	Pipe culvert dia 1.2m	Re-construction
232	128+820	Pipe culvert dia 1.2m	Re-construction
233	128+940	Pipe culvert dia 1.2m	Re-construction
234	129+120	Pipe culvert dia 1.2m	Re-construction
235	129+420	Pipe culvert dia 1.2m	New
236	129+720	Pipe culvert dia 1.2m	New
237	129+980	Pipe culvert dia 1.2m	New
238	130+210	Pipe culvert dia 1.2m	New
239	130+380	Pipe culvert dia 1.2m	Re-construction
240	130+680	Pipe culvert dia 1.2m	New
241	130+850	Pipe culvert dia 1.2m	New
242	131+040	Pipe culvert dia 1.2m	New
243	131+250	Pipe culvert dia 1.2m	New
244	131+440	Pipe culvert dia 1.2m	New
245	131+580	Pipe culvert dia 1.2m	New
246	131+820	Pipe culvert dia 1.2m	Re-construction
247	132+100	Pipe culvert dia 1.2m	New
248	132+300	Pipe culvert dia 1.2m	New
249	132+430	Pipe culvert dia 1.2m	New
250	132+620	Pipe culvert dia 1.2m	New
251	132+820	Pipe culvert dia 1.2m	New
252	133+040	Pipe culvert dia 1.2m	New
253	133+220	Pipe culvert dia 1.2m	New
254	133+410	Pipe culvert dia 1.2m	New
255	133+640	Pipe culvert dia 1.2m	Re-construction
256	133+850	Pipe culvert dia 1.2m	New
257	133+990	Pipe culvert dia 1.2m	New
258	134+090	Pipe culvert dia 1.2m	New
259	134+250	Pipe culvert dia 1.2m	New
260	134+480	Pipe culvert dia 1.2m	New
261	134+710	Pipe culvert dia 1.2m	Re-construction
262	134+920	Pipe culvert dia 1.2m	New
263	135+220	Pipe culvert dia 1.2m	New
264	135+380	Pipe culvert dia 1.2m	New
265	135+510	Pipe culvert dia 1.2m	Re-construction
266	135+700	Pipe culvert dia 1.2m	New
267	135+940	Pipe culvert dia 1.2m	Re-construction
268	136+150	Pipe culvert dia 1.2m	Re-construction
269	136+200	Pipe culvert dia 1.2m	Re-construction
270	136+400	Pipe culvert dia 1.2m	New
271	136+550	Pipe culvert dia 1.2m	Re-construction
272	136+850	Pipe culvert dia 1.2m	Re-construction
273	137+140	Pipe culvert dia 1.2m	New
274	137+340	Pipe culvert dia 1.2m	New
275	137+550	Pipe culvert dia 1.2m	Re-construction
276	137+700	Pipe culvert dia 1.2m	New

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Sl. No.	Chainage (km)	Type / Opening of Culvert (m)	Remarks
277	137+940	Pipe culvert dia 1.2m	Re-construction
278	138+165	Box Culvert 2mx2m	Re-construction
279	138+310	Pipe culvert dia 1.2m	Re-construction
280	138+500	Pipe culvert dia 1.2m	Re-construction
281	138+610	Pipe culvert dia 1.2m	Re-construction
282	138+760	Pipe culvert dia 1.2m	Re-construction
283	138+920	Pipe culvert dia 1.2m	Re-construction
284	138+960	Pipe culvert dia 1.2m	Re-construction
285	139+050	Pipe culvert dia 1.2m	Re-construction
286	139+250	Pipe culvert dia 1.2m	New
287	139+440	Pipe culvert dia 1.2m	Re-construction
288	139+700	Pipe culvert dia 1.2m	Re-construction
289	139+925	Box Culvert 2mx2m	Re-construction
290	140+210	Pipe culvert dia 1.2m	Re-construction
291	140+450	Pipe culvert dia 1.2m	New
292	140+910	Pipe culvert dia 1.2m	New
293	141+200	Pipe culvert dia 1.2m	New
294	141+350	Pipe culvert dia 1.2m	New
295	141+500	Pipe culvert dia 1.2m	New
296	141+660	Pipe culvert dia 1.2m	New
297	141+830	Pipe culvert dia 1.2m	New
298	142+040	Pipe culvert dia 1.2m	New
299	142+150	Pipe culvert dia 1.2m	Re-construction
300	142+320	Pipe culvert dia 1.2m	New
301	142+680	Pipe culvert dia 1.2m	New
302	142+880	Pipe culvert dia 1.2m	New
303	143+050	Pipe culvert dia 1.2m	New
304	143+220	Pipe culvert dia 1.2m	New