

ROAD DEVELOPMENT AUTHORITY
MINISTRY OF HIGHWAYS AND ROAD DEVELOPMENT
THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA

**THE DETAILED DESIGN STUDY
ON
THE OUTER CIRCULAR HIGHWAY
TO
THE CITY OF COLOMBO**

**FINAL REPORT
(FOR NORTHERN SECTION 1)
DRAFT TENDER DOCUMENTS
VOLUME IV : BILL OF QUANTITIES
VOLUME V : DATA PROVIDED BY EMPLOYER**

7 of 10

February 2008

JAPAN INTERNATIONAL COOPERATION AGENCY

Oriental Consultants Company Limited

Pacific Consultants International

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VOLUME IV BILL OF QUANTITIES

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A. Preamble

1. The Bill of Quantities shall be read in conjunction with the Instructions to Bidders, General Conditions, Conditions of Particular Application, Technical Specifications, and Drawings.
2. The quantities given in the Bill of Quantities are estimated and provisional, and are given to provide a common basis for bidding. The Contractor should not use the estimated quantities for the purposes of ordering materials.
3. The basis of payment will be the actual quantities of work ordered and carried out, as measured by the Contractor and verified by the Engineer and valued at the rates and prices tendered in the priced Bill of Quantities, where applicable, and otherwise at such rates and prices as the Engineer may fix within the terms of the Contract.
4. The rates and prices tendered in the priced Bill of Quantities shall, except insofar as it is otherwise provided under the Contract, include all Contractor's Plant, labour, supervision, materials, erection, maintenance, testing, insurance, over heads, profit, taxes and duties, together with all general risks, liabilities and obligations set out or implied in the Contract.
5. The rates and prices shall be quoted entirely in Sri Lankan Rupee and Cents. The percentage for foreign currency requirements, included in said rates and prices, shall be as indicated in the Appendix to Bid, see Instructions to Bidders, Clause 15.
6. A rate or price shall be entered against each item in the Bill of Quantities, whether quantities are stated or not. The cost of items against which the Contractor has failed to enter a rate or price shall deemed to be covered by other rates and prices entered in the Bill of Quantities.
7. The whole cost of complying with the provisions of the Contract shall be included in the items provided in the priced Bill of Quantities, and where no items are provided the cost shall be deemed to be distributed among the rates and prices entered for the related Items of Work.
8. General directions and descriptions of work and materials are not necessarily repeated or summarised in the Bill of Quantities. References to the relevant sections of the contract documentation shall be made before entering rates or prices against each item in the Bill of Quantities.
9. Provisional Sums included and so designated in the Bill of Quantities shall be expended in whole or in part at the direction and discretion of the Engineer in accordance with Sub-Clause 52(4) and Clause 58 of Part I General Conditions.
10. The method of measurement of completed work for payment shall be in accordance with the relevant Method of Measurement Clauses contained in the Specification (including, if applicable, any Special Provisions and/or other Specification Appendices.
11. Errors will be corrected by the Employer for any arithmetic errors pursuant to Clause 29 of the Instructions to Bidders.
12. Rock is defined as all materials, which, in the opinion of the Engineer, require blasting, or the use of metal wedges and sledgehammers, or the use of compressed air drilling for its removal, and which cannot be extracted by ripping with a tractor of at least 400 hp, with a single rear mounted heavy-duty ripper.
13. The units of measurement shown in the Bill of Quantities are metric units. Abbreviations used are as follows:

Unit	Abbreviation	Unit	Abbreviation
Millimetre	mm	Metric Tonne	t
Linear Metre	m	Lump Sum	LS
Square Millimetre	mm ² or sq. mm	Provisional Sum	PS
Square Metre	m ² or sq. m	Number, Each	nr
Hectare	ha	Hour	hr
Cubic Metre	m ³ or cu. m	Week	wk
Litre	lit	Month	mth
Kilogram	kg		

14. The contingencies included in the Contract Price may be used by the Employer for approved payments to the Contractor from additional work for which payment is due to the Contractor arising out of the performance of the Contract. The Contractor shall have no entitlement to any contingency amount 'per se'.

BILL OF QUANTITIES

B. Daywork Schedule

General

1. Reference should be made to Sub-Clause 52.4 of Part I of the General Conditions. Work shall not be executed on a daywork basis except by written order of the Engineer. Bidders shall enter basic rates for daywork items in the Schedules. These rates shall apply to any quantity of daywork ordered by the Engineer. Nominal quantities have been indicated against each item of daywork, and the extended total for daywork shall be carried forward to the Summary of Bills of Quantities. Unless otherwise adjusted, payments for daywork shall be subject to price adjustment in accordance with the provisions in the Conditions of Contract.

Daywork Labour

2. In calculating payments due to the Contractor for the execution of dayworks, the hours for labour will be reckoned from the time of arrival of the labour at the job site to execute the particular item of daywork to the time of departure from the job site, but excluding meal breaks and rest periods. Only the time of classes of labour directly doing work ordered by the Engineer and are competent to perform such work will be measured. The time of gangers (charge hands) actually doing work with the gangs will also be measured but not the time of foremen or other supervisory personnel.
3. The Contractor shall be entitled to payment in respect of the total time that labour is employed on daywork, calculated at the basis rates entered by it in the "SCHEDULE OF DAYWORK RATES: LABOUR" The rates for labour shall be deemed to cover all costs to the Contractor including (but not limited to) the amount of wages paid to such labour, transportation time, overtime, subsistence allowances, and any sums paid to or on behalf of such labour for social benefits in accordance with (Country of Borrower) law, as well as Contractor's profit, overheads, superintendence, liabilities and insurance and allowance to labour, timekeeping and clerical and office work, the use of consumable stores, water, lighting and power; the use and repair of staging, scaffolding, workshops and stores, portable power tools, manual plant and tools; supervision by the Contractor's staff, foremen and other supervisory personnel; and charges incidental to the foregoing.

Daywork Materials

4. The Contractor shall be entitled to payment in respect of materials used for daywork (except for materials for which the cost is included in the percentage addition to labour costs as detailed heretofore), at the rates entered by him in the "SCHEDULE OF DAYWORK RATES: MATERIALS" and shall be deemed to include overhead charges and profit as follows:
 - a) The rates for materials shall be calculated on the basis of the invoiced price, freight, insurance, handling expenses, damage, losses, etc., and shall provide for delivery to store for stockpiling at the Site.
 - b) The cost of hauling materials for use on work ordered to be carried out as daywork from the store or stockpile on the Site to the place where it is to be used will be paid in accordance with the terms for Labour and Constructional Plant in this Schedule.

Daywork Constructional Plant

5. The Contractor shall be entitled to payments in respect of Construction equipment employed on daywork at the basic rental rates entered by him in the "SCHEDULE OF DAYWORK RATES: CONTRACTOR'S PLANT". The said rates shall be deemed to include due and complete allowance for depreciation, interest, indemnity and insurance, repairs, maintenance, supplies, fuel, lubricants, and other consumables, and all overhead profit and administrative costs related to the use of such equipment. The cost of drivers, operators and assistants will be paid for separately as described under the section on Daywork Labour.
6. In calculating the payment due to the Contractor for Contractor's Plant employed on daywork, only the actual number of working hours will be eligible for payment, except that where applicable and agreed with the Engineer, the travelling time from the part of the Site where the Contractor's Plant was located when ordered by the Engineer to be employed on daywork and the time for return journey thereto shall be included for payment.

SUMMARY OF BILLS OF QUANTITIES

Note : Section 1 to 10 Exclude 15% VAT	Amount Rs
SECTION 100 PRELIMINARIES	
SECTION 200 EARTHWORKS	
SECTION 300 SUB-BASE AND BASE COURSE	
SECTION 400 PAVEMENT	
SECTION 500 STRUCTURES	
SECTION 600 DRAINAGES	
SECTION 700 INCIDENTALS	
SECTION 800 FACILITIES	
Sub-Total of Sections (100 - 800)	
SECTION 900 DAYWORK	
SECTION 1000 PROVISIONAL SUMS	373,531,675
Sub- Total of Section (900 - 1000)	
Total of section (100 - 1000)	
CONTINGENCIES	
Add 7 % of Total of Section for Physical Contingencies {Section (100 - 1000) x 7%}	
Add 3 % of Total of Section for Price Escalation {Section (100 - 1000) x 3%}	
Contract Price Carried to Form of Bid	

SECTION 100- PRELIMINARIES

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
	Offices and Laboratory for the Engineer				
	Fixed Charges for Offices and Laboratory for the Engineer				
102.1 (1)	Main Office: Provide and Erect	l.s.	1		
102.1 (2)	Portable Office: Provide and Erect	l.s.	1		
102.1 (3)	Provide & Equip Accomodation for Engineer - Type A (4 houses)	mtl	144		
102.1 (4)	Provide & Equip Accomodation for Engineer - Type B (6 houses)	mtl	216		
102.1 (5)	Furnish and Equip for Engineer's Office (Main & Portable Office)	PS	1	12,100,000	12,100,000
102.1 (6)	Main Office: Dimantle and Remove	l.s.	1		
102.1 (7)	Portable Office: Dimantle and Remove	l.s.	1		
102.1 (8)	Mat. Testing Laboratory: Provide and Erect	l.s.	1		
102.1 (9)	Mat. Testing Laboratory: Furnish and Equip	PS	1	22,000,000	22,000,000
102.1 (10)	Mat. Testing Laboratory: Dismantle and Remove	l.s.	1		
102.1 (11)	Provide Survey Equipment	PS	1	11,000,000	11,000,000
102.1 (12)	Provide Electrical Power Supply: CEB connection	l.s.	1		
102.1 (13)	Provide Electrical Power Supply: Standby Generator	l.s.	1		
102.1 (14)	Provide Water Supply: Domestic Water	l.s.	1		
102.1 (15)	Provide Water Supply: Potable Water	l.s.	1		
102.1 (16)	Provide Access Roads	l.s.	1		
102.1 (17)	Miscellaneous of Section 102.1 (Fixed Charges)	PS	1	1,100,000	1,100,000
102.1 (18)	Mark-up on Item 102.1 (17)	%	1		
	Time-Related charge for Office and Laboratory for the Engineer				
102.2 (1)	Service and Maintenance: Main Office	mtl	36		
102.2 (2)	Service and Maintenance: Portable Office	mtl	36		
102.2 (3)	Service and Maintain Accomodation for Engineer - Type A	mtl	144		
102.2 (4)	Service and Maintain Accomodation for Engineer - Type B	mtl	216		
102.2 (5)	Service and Maintenance: Engineer's Laboratory	mtl	36		
102.2 (6)	Maintenance of Survey Equipment	mtl	36		
102.2 (7)	Service and Maintenance: Electrical Power: CEB	mtl	36		
102.2 (8)	Operation Electrical Power: Standby Generator	mtl	36		
102.2 (9)	Maintain Access Roads	mtl	36		
102.2 (10)	Miscellaneous of Section 102.2 Fixed Charges)	PS	1	550,000	550,000
102.2 (11)	Mark-up on Item 102.2 (10)	%	1		
	Contractor's Site Estabilishment				
	Fixed harges for Contractor's Estabilishment				
103.1 (1)	Establish Office	l.s.	1		
103.1 (2)	Establish Housing	l.s.	1		
103.1 (3)	Establish Workshop	l.s.	1		
103.1 (4)	Establish Stores	l.s.	1		
103.1 (5)	Establish Precasting Yard	l.s.	1		
103.1 (6)	Establish Asphalt Planif applicable)	l.s.	1		
103.1 (7)	Establish Crusher Planif applicable)	l.s.	1		
103.1 (8)	Establish Concrete Batching Planif applicable)	l.s.	1		
103.1 (9)	Install Electrical Power Supply	l.s.	1		
103.1 (10)	Install Water Supply	l.s.	1		
103.1 (11)	Provide Access Road	l.s.	1		
103.1 (12)	Testing Laboratory for the Contactor	l.s.	1		
103.1 (13)	Testing laboratory Equipment for the .Contractor	l.s.	1		
103.1 (14)	Removal of Site Estbilishment for the Contractor and Reinstatement of Land	l.s.	1		
103.1 (15)	Miscellaneous of Section 103.1 (Fixed Charges)	PS	1	1,100,000	1,100,000
103.1 (16)	Mark-up on Item 103.1 (15)	%	1		
	Time-Related charge for Contractor's Estabilishment				
103.2 (1)	Maintain Office	mtl	36		
103.2 (2)	Maintain Housing	mtl	36		
103.2 (3)	Maintain Workshop	mtl	36		
103.2 (4)	Maintain Stores	mtl	36		
103.2 (5)	Maintain Precasting Yard	mtl	36		
103.2 (6)	Maintain Asphalt Planif applicable)	mtl	30		

SECTION 100- PRELIMINARIES

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
103.2 (7)	Maintain Crusher Plant (if applicable)	nth	30		
103.2 (8)	Maintain Concrete Batching Plant (if applicable)	nth	30		
103.2 (9)	Maintain Electrical Power Supply	nth	36		
103.2 (10)	Maintain Water Supply	nth	36		
103.2 (11)	Maintain Access Road	nth	36		
103.2 (12)	Maintenance of Testing Laboratory	nth	36		
103.2 (13)	Miscellaneous of Section 103.2 (Fixed Charges)	PS	1	1,100,000	1,100,000
103.2 (14)	Mark-up on Item 103.2 (13)	%	1		
	Staff for the Engineer				
	Time-Related charge for Staff for the Engineer				
104.1 (1)	Survey Assistant (3 Nos.)	Man-mth	108		
104.1 (2)	Laboratory Technician (2 Nos.)	Man-mth	72		
104.1 (3)	Draughtsman	Man-mth	36		
104.1 (4)	House Keeper	Man-mth	36		
104.1 (5)	Office Aide	Man-mth	36		
104.1 (6)	Labourer	Man-mth	36		
	Vehicles for the Engineer				
	Fixed charges for Vehicles for the Engineer				
	Supply Vehicle:				
105.1 (1)	Vehicle Type A	Vehicle	1		
105.1 (2)	Vehicle Type B	Vehicle	9		
105.1 (3)	Vehicle Type C	Vehicle	2		
105.1 (4)	Vehicle Type D	Vehicle	5		
105.1 (5)	MoterC ycle (125cc)	nr.	8		
	Time-Related charge for Vehicles for the Engineer				
	Operate Vehicle Type A:				
105.2 (1)	From 0 to 40,000km (Operate vehicle type A)	Kilometer	40,000		
105.2 (2)	From 40,001 to 80,000km (Operate vehicle type A)	Kilometer	40,000		
105.2 (3)	From 80,001 to 120,000km (Operate vehicle type A)	Kilometer	40,000		
105.2 (4)	Over 120,000km (Operate vehicle type A)	Kilometer	40,000		
	Operate Vehicle Type B:				
105.2 (5)	From 0 to 360,000km (Operate vehicle type B: 40,000x9)	Kilometer	360,000		
105.2 (6)	From 360,001 to 720,000km (Operate vehicle type B)	Kilometer	360,000		
105.2 (7)	From 720,001 to 1,080,000km (Operate vehicle type B)	Kilometer	360,000		
105.2 (8)	Over 1,080,000km (Operate vehicle type B)	Kilometer	360,000		
	Operate Vehicle Type C:				
105.2 (9)	From 0 to 80,000km (Operate vehicle type C: 40,000x2)	Kilometer	80,000		
105.2 (10)	From 80,001 to 160,000km (Operate vehicle type C)	Kilometer	80,000		
105.2 (11)	From 160,001 to 240,000km (Operate vehicle type C)	Kilometer	80,000		
105.2 (12)	Over 240,000km (Operate vehicle type C)	Kilometer	80,000		
	Operate Vehicle Type D:				
105.2 (13)	From 0 to 200,000km (Operate vehicle type D: 40,000x5)	Kilometer	200,000		
105.2 (14)	From 200,001 to 400,000km (Operate vehicle type D)	Kilometer	200,000		
105.2 (15)	From 400,001 to 600,000km (Operate vehicle type D)	Kilometer	200,000		
105.2 (16)	Over 600,000km (Operate vehicle type D)	Kilometer	200,000		
	Operate Moter Cycle (125cc):				
105.2 (17)	From 0 to 240,000km (Operate moter cycle 125cc: 30,000x8)	Kilometer	240,000		
105.2 (18)	From 240,001 to 480,000km (Operate moter cycle 125cc)	Kilometer	240,000		
105.2 (19)	From 480,001 to 720,000km (Operate moter cycle 125cc)	Kilometer	240,000		
105.2 (20)	Over 720,000 km (Operate moter cycle 125cc)	Kilometer	240,000		
105.2 (21)	Provide Driver for Vehicle Type A (1 Nose)	Man-mth	36		
105.2 (22)	Provide Driver for Vehicle Type B (9 Nose)	Man-mth	324		
105.2 (23)	Provide Driver for Vehicle Type C (2 Nose)	Man-mth	72		
105.2 (24)	Provide Driver for Vehicle Type D (5 Nose)	Man-mth	180		
105.2 (25)	Overtime - Driver for Vehicle Type A	hr.	3,240		
105.2 (26)	Overtime - Driver for Vehicle Type B	hr.	29,160		
105.2 (27)	Overtime - Driver for Vehicle Type C	hr.	6,480		

SECTION 100- PRELIMINARIES

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
105.2 (28)	Overtime - Driver for Vehicle Type D	hr.	16,200		
105.2 (29)	Miscellaneous of Section 105.2 (Fixed charge)	PS	1	2,750,000	2,750,000
105.2 (30)	Mark-up on Item 105.2 (29)	%	10		
	Traffic Safety and Control				
106 (1)	Traffic Safety and Control	nth	36		
	Temporary Access and maintenance				
107 (1)	Temporary Access and Maintenance	l.s.	1		
107 (2)	Maintain Traffic and Existing Roads	nth	36		
	Project Signboard				
108 (1)	Project Signboard	nr.	3		
	Monthly Report				
109 (1)	Monthly Report including Photo, VCD	nth	36		
	General Obligation				
	Fixed charges for General Obligation				
110.1 (1)	Formation of Contract Agreement	l.s.	1		
110.1 (2)	Performance Security	l.s.	1		
110.1 (3)	Bank Guarantee for Advance Payment	l.s.	1		
110.1 (4)	Professional Indemnity Insurance for Contractor's Alternative Design for Bridges (if applicable)	l.s.	1		
110.1 (5)	Scheduling Software	l.s.	1		
110.1 (6)	Programme of Work	l.s.	1		
110.1 (7)	Utilities Survey	l.s.	1		
110.1 (9)	Clearance of Site on Completion	l.s.	1		
110.1 (10)	Setting-out	l.s.	1		
110.1 (11)	Compliance with Statutes and Regulations	l.s.	1		
110.1 (12)	Royalties	l.s.	1		
110.1 (13)	Transport of Contractor's Equipment of Temporary Works	l.s.	1		
110.1 (14)	Head Office Charges	l.s.	1		
110.1 (15)	Site Office Charges	l.s.	1		
110.1 (16)	Charges not Otherwise Itemised	l.s.	1		
	Time-Related charge for General Obligation				
110.2 (1)	Scheduling Software	l.s.	1		
110.2 (2)	Revisions and Updating of Programme	l.s.	1		
110.2 (3)	Cash Flow Estimates	l.s.	1		
110.2 (4)	Project Dialy	nth	36		
110.2 (5)	Contractor's Superintendence	l.s.	1		
110.2 (6)	Contractor's Employees	l.s.	1		
110.2 (7)	Coordination with Utilities Agencies	l.s.	1		
110.2 (8)	Professional Indemnity Insurance	l.s.	1		
110.2 (9)	Insurance of the Works	l.s.	1		
110.2 (10)	Insurance of Contractor's Equipment	l.s.	1		
110.2 (11)	Third Party Insurance	l.s.	1		
110.2 (12)	Workmen's Accident Insurance	l.s.	1		
110.2 (13)	Head Office Charges	l.s.	1		
110.2 (14)	Site Office Charges	l.s.	1		
110.2 (15)	Charges not Otherwise Itemised	l.s.	1		
	Contractor's Drawings				
113 (1)	Contractor's Drawings	ls	1		
	Safety, Security and Protection of the Environment				
114 (1)	Project Safety and Security	nth	36		
	Detailed Design				
120 (1)	Detailed Design for Steel Bridges (incl. alternative design, if applicable)	ls	1		
120 (2)	Detailed Design for Concrete Bridges (incl. alternative design, if applicable)	ls	1		
Total of Section 100 - Preliminaries (Transfer to Summary of Bills of Quantities)					

SECTION 200- EARTHWORKS

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
	Clearing & Grubbing				
201 (1)	Clearing & Grubbing	sq.m.	134,015		
	Removal				
201 (2)	Removal of Trees 300mm to 1000mm in Girth	nr.	1,610		
201 (3)	Removal of Trees 1000mm to 2000mm in Girth	nr.	179		
201 (4)	Removal of Trees Girth Exceeding 2000mm	nr.	0		
201 (5)	Removal of Stumps and Roots of Previously Felled Trees 300mm to 1000mm in Girth	nr.	161		
201 (6)	Removal of Stumps and Roots of Previously Felled Trees 1000mm to 2000mm in Girth	nr.	18		
201 (7)	Removal of Stumps and Roots of Previously Felled Trees Girth Exceeding 2000mm	nr.	0		
	Removal of Existing structures				
202 (1)	Removal of Existing Concrete Structures	cu.m.	35		
202 (2)	Removal of Existing Masonry Structures	cu.m.	83		
202 (3)	Removal of Existing Building - Floor Area	sq. m.	26,584		
202 (4)	Removal of Existing Pavement	sq. m.	17,016		
202 (5)	Cut of Existing Pavement	m	329		
	Excavation				
203 (1)	Excavation-Classified Material for Reuse (Excavation/Loading/Transport)	cu.m.	568,790		
203 (2)	Excavation-Soft Rock for Reuse (Excavation/Loading/Transport)	cu.m.	33,118		
203 (3)	Excavation-Hard Rock for Reuse (Excavation/Loading/Transport)	cu.m.	5,060		
203 (4)	Excavation-Unsuitable Material for Desposal (Excavation/Loading/Transport/Placing&Spreading)	cu.m.	6,352		
203 (4)-1	Excavation of Slips or Slides	cu.m.	1,000		
	Fill and Slope Formation				
203 (5)	Fill for Road-bed of Embankment - Using excavated Soil in Other Part (Placing and Spreading/Compaction)	cu.m.	568,790		
203 (6)	Fill for Road-bed of Embankment - Using excavated Soft Rock in Other Part (Placing and Spreading/Compaction)	cu.m.	33,118		
203 (7)	Fill for Road-bed of Embankment - Using excavated Hard Rock in Other Part (Placing and Spreading/Compaction)	cu.m.	5,060		
203 (8)	Fill for Road-bed of Embankment - Using Borrow Material (Excavation/Loading/Transport/Placing&Spreading/Compaction)	cu.m.	654,666		
203 (9)	Fill for Soft Soil Excavated Place - Using Quarry Material (Loading/Transport/Placing&Spreading/Compaction)	cu.m.	6,352		
203 (10)	Slope Formation - Cut Slope	sq.m.	41,246		
203 (11)	Slope Formation - Filling Slope	sq.m.	152,940		
203 (12)	Filling Road Bed by Selected Material (Excavation/Loading/Transport/Placing&Spreading/Compaction)	cu.m.	38,215		
203 (13)	Filling Shoulder by Man Power (Excavation/Loading/Transport/Placing&Spreading/Compaction)	cu.m.	8,545		
	Soil improvement				
204 (1)	Geotextile (Tensile Strength 100/50)	sq.m.	1,940		
204 (2)	Geotextile (Tensile Strength 200/50)	sq.m.	50,375		
204 (3)	Geotextile (Tensile Strength 300/50)	sq.m.	128,561		
204 (4)	Geotextile (Tensile Strength 400/50)	sq.m.	62,568		
204 (5)	Geotextile (Tensile Strength 600/50)	sq.m.	0		
204 (6)	Geotextile (Tensile Strength 800/100)	sq.m.	0		
204 (7)	Band Drain	m	532,164		
204 (8)	Compacted Sandy Soil (Excavation/Loading/Transportation/Placing & Spreading/Compaction)	cu.m.	62,701		
204 (8)-1	Pioneer Layer (Excavation/Loading/Transportation/Placing & Spreading)	cu.m.	62,701		
204 (9)	Gravel Mat (Excavation/Loading/Transportation/Placing & Spreading/Compaction)	cu.m.	120,474		
204 (10)	Gravel Compaction Pile	m	382,236		
204 (11)	Instrumentation, Monitoring and Testing	l.s.	1		
204 (12)	Preloading	cu.m.	151,859		
205 (1)	Propetry Condition Survey	kilometer	10		
Total of Section 200 - Earthworks (Transfer to Summary of Bills of Quantities)					

SECTION 300- SUB-BASE AND BASE COURSE

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
	Sub-base course				
301 (1)	Sub Base Course	cu.m.	46,765		
	Aggregate Road Base				
302 (1)	Aggregate Road Base	cu.m.	55,950		
Total of Section 300 - Sub-base and Base Courses (Transfer to Summary of Bills of Quantities)					

SECTION 400- PAVEMENT

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
	Prime Coat and Tack Coat				
402 (1)	Prime Coat	ltr.	299,847		
403 (1)	Tack Coat	itr.	88,640		
	Surface Dressing				
404 (1)	Double Bituminous Surface	sq.m.	6,515		
404 (2)	Single Bituminous Surface	sq.m.	10,713		
	Asphaltic Concrete Surfacing				
406 (1)	Asphaltic Concrete Binder Course	t	42,267		
406 (2)	Asphaltic Concrete Wearing Course	t	18,312		
Total of Section 400 - Pavement (Transfer to Summary of Bills of Quantities)					

SECTION 500- STRUCTURE (V1 BRIDGE)

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
	Excavation, Backfill for structures and Rubble Mound				
501 (1)	Excavation - Classified material for re-use	cu.m.	67,745		
501 (4)	Excavation - Soft Rock for re-use	cu.m.	0		
501 (7)	Excavation - Unsuitable Material for disposal	cu.m.	0		
501 (10)	Structure Backfill	cu.m.	54,833		
501 (30)	Rubble Foundation	cu.m.	381		
	Piling				
502 (2)	Bored Pile - 1500mm dia.	m	1,073		
502 (3)	Sonic Logging Test for Pile Integrity	nr.	88		
502 (4)	Static Load Test of Pile	nr.	1		
	Concrete				
503 (1)	Concrete Grade 15 for Leveling Concrete	cu.m.	190		
503 (2)	Concrete Grade 30 for Abutment, Pier	cu.m.	8,706		
503 (5)	Concrete Grade 30 for Approach Slab	cu.m.	267		
503 (12)	Concrete Grade 40 for Approach Slab	cu.m.	0		
503 (11)	Concrete Grade 40 for Abutment, Pier	cu.m.	0		
503 (13)	Concrete Grade 35 for Cross Beam of PC-I Girder	cu.m.	0		
503 (14)	Concrete Grade 40 for Cross Beam of PC-I Girder	cu.m.	0		
503 (15)	Concrete Grade 35 for Deck Slab	cu.m.	2,223		
503 (16)	Concrete Grade 40 for Deck Slab	cu.m.	0		
503 (4)	Concrete Grade 30 for Parapet, Sidewalk, Kerb	cu.m.	218		
503 (17)	Concrete Grade 40 for Parapet, Sidewalk, Kerb	cu.m.	0		
	Reinforcement				
504 (1)	High Yield steel bar Grade 460	t	1,389		
	Fabrication of PC-I Girder				
505 (1)	PC Girder Fabrication - 14.000m long	nr.	0		
505 (2)	PC Girder Fabrication - 15.500m long	nr.	0		
505 (3)	PC Girder Fabrication - 16.000m long	nr.	0		
505 (4)	PC Girder Fabrication - 16.500m long	nr.	0		
505 (5)	PC Girder Fabrication - 17.600m long	nr.	0		
505 (6)	PC Girder Fabrication - 18.000m long	nr.	0		
505 (7)	PC Girder Fabrication - 21.000m long	nr.	0		
505 (8)	PC Girder Fabrication - 22.000m long	nr.	0		
505 (9)	PC Girder Fabrication - 22.500m long	nr.	0		
505 (10)	PC Girder Fabrication - 25.000m long	nr.	0		
505 (11)	PC Girder Fabrication - 29.500m long	nr.	0		
505 (12)	PC Girder Fabrication - 35.000m long	nr.	0		
505 (13)	PC Girder Fabrication - 35.500m long	nr.	0		
505 (14)	PC Girder Fabrication - 35.750m long	nr.	0		
	Erection of PC-I Girder				
505 (15)	PC Girder Erection - 14.000m long	nr.	0		
505 (16)	PC Girder Erection - 15.500m long	nr.	0		
505 (17)	PC Girder Erection - 16.000m long	nr.	0		
505 (18)	PC Girder Erection - 16.500m long	nr.	0		
505 (19)	PC Girder Erection - 17.600m long	nr.	0		
505 (20)	PC Girder Erection - 18.000m long	nr.	0		
505 (21)	PC Girder Erection - 21.000m long	nr.	0		
505 (22)	PC Girder Erection - 22.000m long	nr.	0		
505 (23)	PC Girder Erection - 22.500m long	nr.	0		
505 (24)	PC Girder Erection - 25.000m long	nr.	0		
505 (25)	PC Girder Erection - 29.500m long	nr.	0		
505 (26)	PC Girder Erection -35.000 m long	nr.	0		
505 (27)	PC Girder Erection - 35.500 m long	nr.	0		
505 (28)	PC Girder Erection - 35.750 m long	nr.	0		
505 (29)	PC Girder Erection - 35.500m long by Erection Girder	nr.	0		
505 (29)-1	PC Girder Erection - 35.000m long by Erection Girder	nr.	0		
505 (29)-2	PC Girder Erection - 29.500m long by Erection Girder	nr.	0		

SECTION 500- STRUCTURE (V1 BRIDGE)

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
505 (29)-3	PC Girder Erection - 25.000m long by Erection Girder	nr.	0		
505 (29)-4	PC Girder Erection - 22.500m long by Erection Girder	nr.	0		
505 (29)-5	PC Girder Erection -22.000m long by Erection Girder	nr.	0		
505 (29)-6	PC Girder Erection - 21.000m long by Erection Girder	nr.	0		
	Pre-stressing Strand				
505 (30)	Pre-stressing strand 1S21.8 for Cross Beam of I Girder	kg	0		
	Steel Work				
507 (1)	Fabrication for Steel-I Girder	t	2,218		
507 (2)	Fabrication for Steel-Box Girder	t	0		
507 (3)	Trial Erection for Steel-I Girder	t	2,218		
507 (4)	Trial Erection for Steel-Box Girder	t	0		
507 (5)	Permanent Erection for Steel-I Girder	t	2,218		
507 (6)	Permanent Erection for Steel-Box Girder	t	0		
508 (1)	Painting (Exterior, t=300 microns)	sq.m.	35,890		
508 (2)	Painting (Interior of Box Girders, t=200 microns)	sq.m.	0		
508 (3)	Thermal Spray for Contact Surface	sq.m.	2,260		
508 (4)	Painting for Exterior Surface of Contact Surface (t=300 microns)	sq.m.	35,151		
508 (5)	Painting for Interior Surface of Contact Surface (t=200 microns)	sq.m.	0		
	Expansion Joint				
510 (1)	Expansion Joint Type-Asphaltic Plug	m	0		
510 (2)	Expansion Joint Elastomeric Type for 50mm Gap	m	32		
510 (3)	Expansion Joint Elastomeric Type for 75mm Gap	m	0		
510 (4)	Expansion Joint Elastomeric Type for 100mm Gap	m	74		
	Elastomeric Bearing Pad				
511 (1)	Bearing for I - Girder (Fixed - 560x310x44)	nr.	0		
511 (2)	Bearing for I - Girder (Fixed - 360x260x36)	nr.	0		
511 (3)	Bearing for I - Girder (Fixed - 410x310x40)	nr.	0		
511 (4)	Bearing for I - Girder (Free - 560x360x56)	nr.	0		
511 (5)	Bearing for I - Girder (Free - 560x360x62)	nr.	0		
511 (6)	Bearing for I - Girder (Free - 410x310x50)	nr.	0		
511 (7)	Bearing for I - Girder (Free - 560x310x56)	nr.	0		
511 (8)	Elastomeric enclosed by steel plates type 800kN, Mov.	nr.	8		
511 (9)	Elastomeric enclosed by steel plates type 1,250kN, Fix.	nr.	8		
511 (10)	Elastomeric enclosed by steel plates type 1,250kN, Mov.	nr.	8		
511 (11)	Elastomeric enclosed by steel plates type 3,500kN, Fix.	nr.	8		
511 (12)	Elastomeric enclosed by steel plates type 2,000kN, Mov.	nr.	0		
511 (13)	Elastomeric enclosed by steel plates type 4,000kN, Fix.	nr.	0		
	Miscellaneous				
513 (1)	RC Panel for I Girder Slab	sq.m.	4,270		
513 (2)	RC Panel for Side Walk of Overpass Bridge	sq.m.	0		
513 (3)	Bridge Catch Basin	nr.	59		
513 (4)	Bridge Drainage Pipe PVC 200 mm dia.	m	1,098		
513 (5)	Painting for Parapet & Kerb	sq.m.	0		
513 (6)	Bridge Mesh Fence (Type-1) for Overpass Bridges	m	0		
513 (7)	Bridge Mesh Fence (Type-2) for Highway Bridges	m	216		
513 (8)	Bridge Raile for Overpass Bridges	m	0		
513 (9)	Bridge Mesh Fence (Type-3) before Highway Bridges	m	42		
513 (10)	Safety Net between Highway Bridges	sq.m.	0		
513 (11)	Bridge Name Plate	nr.	2		
513 (12)	Bridge Pavement	t	1,267		
513 (13)	Precast Concrete Barrier	nr.	0		
513 (23)	Stopper's Bar and Cap (Approach Slab)	nr.	112		
513 (30)	Gabion Work	cu.m.	0		
Total of Section 500 - Structure (V1 Bridge) (Transfer to Summary of Bills of Quantities)					

SECTION 500- STRUCTURE (V2 BRIDGE)

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
Excavation, Backfill for structures and Rubble Mound					
501 (1)	Excavation - Classified material for re-use	cu.m.	46,769		
501 (4)	Excavation - Soft Rock for re-use	cu.m.	0		
501 (7)	Excavation - Unsuitable Material for disposal	0	0		
501 (10)	Structure Backfill	cu.m.	24,783		
501 (30)	Rubble Foundation	cu.m.	250		
Piling					
502 (2)	Bored Pile - 1500mm dia.	m	1,485		
502 (3)	Sonic Logging Test for Pile Integrity	nr.	116		
502 (4)	Static Load Test of Pile	nr.	1		
Concrete					
503 (1)	Concrete Grade 15 for Leveling Concrete	cu.m.	126		
503 (2)	Concrete Grade 30 for Abutment, Pier	cu.m.	5,815		
503 (5)	Concrete Grade 30 for Approach Slab	cu.m.	198		
503 (12)	Concrete Grade 40 for Approach Slab	cu.m.	0		
503 (11)	Concrete Grade 40 for Abutment, Pier	cu.m.	0		
503 (13)	Concrete Grade 35 for Cross Beam of PC-I Girder	cu.m.	466		
503 (14)	Concrete Grade 40 for Cross Beam of PC-I Girder	cu.m.	0		
503 (15)	Concrete Grade 35 for Deck Slab	cu.m.	1,531		
503 (16)	Concrete Grade 40 for Deck Slab	cu.m.	0		
503 (4)	Concrete Grade 30 for Parapet, Sidewalk, Kerb	cu.m.	457		
503 (17)	Concrete Grade 40 for Parapet, Sidewalk, Kerb	cu.m.	0		
Reinforcement					
504 (1)	High Yield steel bar Grade 460	t	1,475		
Fabrication of PC-I Girder					
505 (1)	PC Girder Fabrication - 14.000m long	nr.	0		
505 (2)	PC Girder Fabrication - 15.500m long	nr.	0		
505 (3)	PC Girder Fabrication - 16.000m long	nr.	0		
505 (4)	PC Girder Fabrication - 16.500m long	nr.	0		
505 (5)	PC Girder Fabrication - 17.600m long	nr.	0		
505 (6)	PC Girder Fabrication - 18.000m long	nr.	0		
505 (7)	PC Girder Fabrication - 21.000m long	nr.	0		
505 (8)	PC Girder Fabrication - 22.000m long	nr.	0		
505 (9)	PC Girder Fabrication - 22.500m long	nr.	0		
505 (10)	PC Girder Fabrication - 25.000m long	nr.	0		
505 (11)	PC Girder Fabrication - 29.500m long	nr.	0		
505 (12)	PC Girder Fabrication - 35.000m long	nr.	108		
505 (13)	PC Girder Fabrication - 35.500m long	nr.	0		
505 (14)	PC Girder Fabrication - 35.750m long	nr.	0		
Erection of PC-I Girder					
505 (15)	PC Girder Erection - 14.000m long	nr.	0		
505 (16)	PC Girder Erection - 15.500m long	nr.	0		
505 (17)	PC Girder Erection - 16.000m long	nr.	0		
505 (18)	PC Girder Erection - 16.500m long	nr.	0		
505 (19)	PC Girder Erection - 17.600m long	nr.	0		
505 (20)	PC Girder Erection - 18.000m long	nr.	0		
505 (21)	PC Girder Erection - 21.000m long	nr.	0		
505 (22)	PC Girder Erection - 22.000m long	nr.	0		
505 (23)	PC Girder Erection - 22.500m long	nr.	0		
505 (24)	PC Girder Erection - 25.000m long	nr.	0		
505 (25)	PC Girder Erection - 29.500m long	nr.	0		
505 (26)	PC Girder Erection -35.000 m long	nr.	0		
505 (27)	PC Girder Erection - 35.500 m long	nr.	0		
505 (28)	PC Girder Erection - 35.750 m long	nr.	0		
505 (29)	PC Girder Erection - 35.500m long by Erection Girder	nr.	0		
505 (29)-1	PC Girder Erection - 35.000m long by Erection Girder	nr.	108		
505 (29)-2	PC Girder Erection - 29.500m long by Erection Girder	nr.	0		

SECTION 500- STRUCTURE (V2 BRIDGE)

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
505 (29)-3	PC Girder Erection - 25.000m long by Erection Girder	nr.	0		
505 (29)-4	PC Girder Erection - 22.500m long by Erection Girder	nr.	0		
505 (29)-5	PC Girder Erection -22.000m long by Erection Girder	nr.	0		
505 (29)-6	PC Girder Erection - 21.000m long by Erection Girder	nr.	0		
	Pre-stressing Strand				
505 (30)	Pre-stressing strand 1S21.8 for Cross Beam of I Girder	kg	8,309		
	Steel Work				
507 (1)	Fabrication for Steel-I Girder	t	0		
507 (2)	Fabrication for Steel-Box Girder	t	0		
507 (3)	Trial Erection for Steel-I Girder	t	0		
507 (4)	Trial Erection for Steel-Box Girder	t	0		
507 (5)	Permanent Erection for Steel-I Girder	t	0		
507 (6)	Permanent Erection for Steel-Box Girder	t	0		
508 (1)	Painting (Exterior, t=300 microns)	sq.m.	0		
508 (2)	Painting (Interior of Box Girders, t=200 microns)	sq.m.	0		
508 (3)	Thermal Spray for Contact Surface	sq.m.	0		
508 (4)	Painting for Exterior Surface of Contact Surface (t=300 microns)	sq.m.	0		
508 (5)	Painting for Interior Surface of Contact Surface (t=200 microns)	sq.m.	0		
	Expansion Joint				
510 (1)	Expansion Joint Type-Asphaltic Plug	m	94		
510 (2)	Expansion Joint Elastomeric Type for 50mm Gap	m	0		
510 (3)	Expansion Joint Elastomeric Type for 75mm Gap	m	0		
510 (4)	Expansion Joint Elastomeric Type for 100mm Gap	m	0		
	Elastomeric Bearing Pad				
511 (1)	Bearing for I - Girder (Fixed - 560x310x44)	nr.	144		
511 (2)	Bearing for I - Girder (Fixed - 360x260x36)	nr.	0		
511 (3)	Bearing for I - Girder (Fixed - 410x310x40)	nr.	0		
511 (4)	Bearing for I - Girder (Free - 560x360x56)	nr.	0		
511 (5)	Bearing for I - Girder (Free - 560x360x62)	nr.	72		
511 (6)	Bearing for I - Girder (Free - 410x310x50)	nr.	0		
511 (7)	Bearing for I - Girder (Free - 560x310x56)	nr.	0		
511 (8)	Elastomeric enclosed by steel plates type 800kN, Mov.	nr.	0		
511 (9)	Elastomeric enclosed by steel plates type 1,250kN, Fix.	nr.	0		
511 (10)	Elastomeric enclosed by steel plates type 1,250kN, Mov.	nr.	0		
511 (11)	Elastomeric enclosed by steel plates type 3,500kN, Fix.	nr.	0		
511 (12)	Elastomeric enclosed by steel plates type 2,000kN, Mov.	nr.	0		
511 (13)	Elastomeric enclosed by steel plates type 4,000kN, Fix.	nr.	0		
	Miscellaneous				
513 (1)	RC Panel for I Girder Slab	sq.m.	3,941		
513 (2)	RC Panel for Side Walk of Overpass Bridge	sq.m.	0		
513 (3)	Bridge Catch Basin	nr.	57		
513 (4)	Bridge Drainage Pipe PVC 200 mm dia.	m	1,042		
513 (5)	Painting for Parapet & Kerb	sq.m.	0		
513 (6)	Bridge Mesh Fence (Type-1) for Overpass Bridges	m	0		
513 (7)	Bridge Mesh Fence (Type-2) for Highway Bridges	m	0		
513 (8)	Bridge Raile for Overpass Bridges	m	0		
513 (9)	Bridge Mesh Fence (Type-3) before Highway Bridges	m	40		
513 (10)	Safety Net between Highway Bridges	sq.m.	0		
513 (11)	Bridge Name Plate	nr.	2		
513 (12)	Bridge Pavement	t	854		
513 (13)	Precast Concrete Barrier	nr.	0		
513 (23)	Stopper's Bar and Cap (Approach Slab)	nr.	78		
513 (30)	Gabion Work	cu.m.	0		
Total of Section 500 - Structure (V2 Bridge) (Transfer to Summary of Bills of Quantities)					

SECTION 500- STRUCTURE (V3 BRIDGE)

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
Excavation, Backfill for structures and Rubble Mound					
501 (1)	Excavation - Classified material for re-use	cu.m.	52,291		
501 (4)	Excavation - Soft Rock for re-use	cu.m.	0		
501 (7)	Excavation - Unsuitable Material for disposal	0	0		
501 (10)	Structure Backfill	cu.m.	29,508		
501 (30)	Rubble Foundation	cu.m.	311		
Piling					
502 (2)	Bored Pile - 1500mm dia.	m	2,146		
502 (3)	Sonic Logging Test for Pile Integrity	nr.	146		
502 (4)	Static Load Test of Pile	nr.	1		
Concrete					
503 (1)	Concrete Grade 15 for Leveling Concrete	cu.m.	156		
503 (2)	Concrete Grade 30 for Abutment, Pier	cu.m.	7,241		
503 (5)	Concrete Grade 30 for Approach Slab	cu.m.	196		
503 (12)	Concrete Grade 40 for Approach Slab	cu.m.	0		
503 (11)	Concrete Grade 40 for Abutment, Pier	cu.m.	0		
503 (13)	Concrete Grade 35 for Cross Beam of PC-I Girder	cu.m.	210		
503 (14)	Concrete Grade 40 for Cross Beam of PC-I Girder	cu.m.	0		
503 (15)	Concrete Grade 35 for Deck Slab	cu.m.	2,029		
503 (16)	Concrete Grade 40 for Deck Slab	cu.m.	0		
503 (4)	Concrete Grade 30 for Parapet, Sidewalk, Kerb	cu.m.	283		
503 (17)	Concrete Grade 40 for Parapet, Sidewalk, Kerb	cu.m.	0		
Reinforcement					
504 (1)	High Yield steel bar Grade 460	t	1,215		
Fabrication of PC-I Girder					
505 (1)	PC Girder Fabrication - 14.000m long	nr.	0		
505 (2)	PC Girder Fabrication - 15.500m long	nr.	0		
505 (3)	PC Girder Fabrication - 16.000m long	nr.	0		
505 (4)	PC Girder Fabrication - 16.500m long	nr.	0		
505 (5)	PC Girder Fabrication - 17.600m long	nr.	0		
505 (6)	PC Girder Fabrication - 18.000m long	nr.	0		
505 (7)	PC Girder Fabrication - 21.000m long	nr.	0		
505 (8)	PC Girder Fabrication - 22.000m long	nr.	0		
505 (9)	PC Girder Fabrication - 22.500m long	nr.	0		
505 (10)	PC Girder Fabrication - 25.000m long	nr.	0		
505 (11)	PC Girder Fabrication - 29.500m long	nr.	0		
505 (12)	PC Girder Fabrication - 35.000m long	nr.	144		
505 (13)	PC Girder Fabrication - 35.500m long	nr.	0		
505 (14)	PC Girder Fabrication - 35.750m long	nr.	0		
Erection of PC-I Girder					
505 (15)	PC Girder Erection - 14.000m long	nr.	0		
505 (16)	PC Girder Erection - 15.500m long	nr.	0		
505 (17)	PC Girder Erection - 16.000m long	nr.	0		
505 (18)	PC Girder Erection - 16.500m long	nr.	0		
505 (19)	PC Girder Erection - 17.600m long	nr.	0		
505 (20)	PC Girder Erection - 18.000m long	nr.	0		
505 (21)	PC Girder Erection - 21.000m long	nr.	0		
505 (22)	PC Girder Erection - 22.000m long	nr.	0		
505 (23)	PC Girder Erection - 22.500m long	nr.	0		
505 (24)	PC Girder Erection - 25.000m long	nr.	0		
505 (25)	PC Girder Erection - 29.500m long	nr.	0		
505 (26)	PC Girder Erection -35.000 m long	nr.	0		
505 (27)	PC Girder Erection - 35.500 m long	nr.	0		
505 (28)	PC Girder Erection - 35.750 m long	nr.	0		
505 (29)	PC Girder Erection - 35.500m long by Erection Girder	nr.	0		
505 (29)-1	PC Girder Erection - 35.000m long by Erection Girder	nr.	144		
505 (29)-2	PC Girder Erection - 29.500m long by Erection Girder	nr.	0		

SECTION 500- STRUCTURE (V3 BRIDGE)

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
505 (29)-3	PC Girder Erection - 25.000m long by Erection Girder	nr.	0		
505 (29)-4	PC Girder Erection - 22.500m long by Erection Girder	nr.	0		
505 (29)-5	PC Girder Erection -22.000m long by Erection Girder	nr.	0		
505 (29)-6	PC Girder Erection - 21.000m long by Erection Girder	nr.	0		
	Pre-stressing Strand				
505 (30)	Pre-stressing strand 1S21.8 for Cross Beam of I Girder	kg	8,724		
	Steel Work				
507 (1)	Fabrication for Steel-I Girder	t	0		
507 (2)	Fabrication for Steel-Box Girder	t	0		
507 (3)	Trial Erection for Steel-I Girder	t	0		
507 (4)	Trial Erection for Steel-Box Girder	t	0		
507 (5)	Permanent Erection for Steel-I Girder	t	0		
507 (6)	Permanent Erection for Steel-Box Girder	t	0		
508 (1)	Painting (Exterior, t=300 microns)	sq.m.	0		
508 (2)	Painting (Interior of Box Girders, t=200 microns)	sq.m.	0		
508 (3)	Thermal Spray for Contact Surface	sq.m.	0		
508 (4)	Painting for Exterior Surface of Contact Surface (t=300 microns)	sq.m.	0		
508 (5)	Painting for Interior Surface of Contact Surface (t=200 microns)	sq.m.	0		
	Expansion Joint				
510 (1)	Expansion Joint Type-Asphaltic Plug	m	131		
510 (2)	Expansion Joint Elastomeric Type for 50mm Gap	m	0		
510 (3)	Expansion Joint Elastomeric Type for 75mm Gap	m	0		
510 (4)	Expansion Joint Elastomeric Type for 100mm Gap	m	0		
	Elastomeric Bearing Pad				
511 (1)	Bearing for I - Girder (Fixed - 560x310x44)	nr.	192		
511 (2)	Bearing for I - Girder (Fixed - 360x260x36)	nr.	0		
511 (3)	Bearing for I - Girder (Fixed - 410x310x40)	nr.	0		
511 (4)	Bearing for I - Girder (Free - 560x360x56)	nr.	0		
511 (5)	Bearing for I - Girder (Free - 560x360x62)	nr.	96		
511 (6)	Bearing for I - Girder (Free - 410x310x50)	nr.	0		
511 (7)	Bearing for I - Girder (Free - 560x310x56)	nr.	0		
511 (8)	Elastomeric enclosed by steel plates type 800kN, Mov.	nr.	0		
511 (9)	Elastomeric enclosed by steel plates type 1,250kN, Fix.	nr.	0		
511 (10)	Elastomeric enclosed by steel plates type 1,250kN, Mov.	nr.	0		
511 (11)	Elastomeric enclosed by steel plates type 3,500kN, Fix.	nr.	0		
511 (12)	Elastomeric enclosed by steel plates type 2,000kN, Mov.	nr.	0		
511 (13)	Elastomeric enclosed by steel plates type 4,000kN, Fix.	nr.	0		
	Miscellaneous				
513 (1)	RC Panel for I Girder Slab	sq.m.	2,574		
513 (2)	RC Panel for Side Walk of Overpass Bridge	sq.m.	0		
513 (3)	Bridge Catch Basin	nr.	57		
513 (4)	Bridge Drainage Pipe PVC 200 mm dia.	m	1,094		
513 (5)	Painting for Parapet & Kerb	sq.m.	0		
513 (6)	Bridge Mesh Fence (Type-1) for Overpass Bridges	m	0		
513 (7)	Bridge Mesh Fence (Type-2) for Highway Bridges	m	0		
513 (8)	Bridge Raile for Overpass Bridges	m	0		
513 (9)	Bridge Mesh Fence (Type-3) before Highway Bridges	m	42		
513 (10)	Safety Net between Highway Bridges	sq.m.	0		
513 (11)	Bridge Name Plate	nr.	2		
513 (12)	Bridge Pavement	t	1,131		
513 (13)	Precast Concrete Barrier	nr.	0		
513 (23)	Stopper's Bar and Cap (Approach Slab)	nr.	78		
513 (30)	Gabion Work	cu.m.	0		
Total of Section 500 - Structure (V3 Bridge) (Transfer to Summary of Bills of Quantities)					

SECTION 500- STRUCTURE (V4 BRIDGE)

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
	Excavation, Backfill for structures and Rubble Mound				
501 (1)	Excavation - Classified material for re-use	cu.m.	20,548		
501 (4)	Excavation - Soft Rock for re-use	cu.m.	0		
501 (7)	Excavation - Unsuitable Material for disposal	0	0		
501 (10)	Structure Backfill	cu.m.	24,068		
501 (30)	Rubble Foundation	cu.m.	233		
	Piling				
502 (2)	Bored Pile - 1500mm dia.	m	1,445		
502 (3)	Sonic Logging Test for Pile Integrity	nr.	94		
502 (4)	Static Load Test of Pile	nr.	1		
	Concrete				
503 (1)	Concrete Grade 15 for Leveling Concrete	cu.m.	117		
503 (2)	Concrete Grade 30 for Abutment, Pier	cu.m.	0		
503 (5)	Concrete Grade 30 for Approach Slab	cu.m.	0		
503 (12)	Concrete Grade 40 for Approach Slab	cu.m.	100		
503 (11)	Concrete Grade 40 for Abutment, Pier	cu.m.	5,240		
503 (13)	Concrete Grade 35 for Cross Beam of PC-I Girder	cu.m.	0		
503 (14)	Concrete Grade 40 for Cross Beam of PC-I Girder	cu.m.	414		
503 (15)	Concrete Grade 35 for Deck Slab	cu.m.	0		
503 (16)	Concrete Grade 40 for Deck Slab	cu.m.	1,336		
503 (4)	Concrete Grade 30 for Parapet, Sidewalk, Kerb	cu.m.	0		
503 (17)	Concrete Grade 40 for Parapet, Sidewalk, Kerb	cu.m.	384		
	Reinforcement				
504 (1)	High Yield steel bar Grade 460	t	1,293		
	Fabrication of PC-I Girder				
505 (1)	PC Girder Fabrication - 14.000m long	nr.	0		
505 (2)	PC Girder Fabrication - 15.500m long	nr.	0		
505 (3)	PC Girder Fabrication - 16.000m long	nr.	0		
505 (4)	PC Girder Fabrication - 16.500m long	nr.	0		
505 (5)	PC Girder Fabrication - 17.600m long	nr.	0		
505 (6)	PC Girder Fabrication - 18.000m long	nr.	0		
505 (7)	PC Girder Fabrication - 21.000m long	nr.	0		
505 (8)	PC Girder Fabrication - 22.000m long	nr.	0		
505 (9)	PC Girder Fabrication - 22.500m long	nr.	0		
505 (10)	PC Girder Fabrication - 25.000m long	nr.	0		
505 (11)	PC Girder Fabrication - 29.500m long	nr.	12		
505 (12)	PC Girder Fabrication - 35.000m long	nr.	84		
505 (13)	PC Girder Fabrication - 35.500m long	nr.	0		
505 (14)	PC Girder Fabrication - 35.750m long	nr.	0		
	Erection of PC-I Girder				
505 (15)	PC Girder Erection - 14.000m long	nr.	0		
505 (16)	PC Girder Erection - 15.500m long	nr.	0		
505 (17)	PC Girder Erection - 16.000m long	nr.	0		
505 (18)	PC Girder Erection - 16.500m long	nr.	0		
505 (19)	PC Girder Erection - 17.600m long	nr.	0		
505 (20)	PC Girder Erection - 18.000m long	nr.	0		
505 (21)	PC Girder Erection - 21.000m long	nr.	0		
505 (22)	PC Girder Erection - 22.000m long	nr.	0		
505 (23)	PC Girder Erection - 22.500m long	nr.	0		
505 (24)	PC Girder Erection - 25.000m long	nr.	0		
505 (25)	PC Girder Erection - 29.500m long	nr.	0		
505 (26)	PC Girder Erection -35.000 m long	nr.	0		
505 (27)	PC Girder Erection - 35.500 m long	nr.	0		
505 (28)	PC Girder Erection - 35.750 m long	nr.	0		
505 (29)	PC Girder Erection - 35.500m long by Erection Girder	nr.	0		
505 (29)-1	PC Girder Erection - 35.000m long by Erection Girder	nr.	84		
505 (29)-2	PC Girder Erection - 29.500m long by Erection Girder	nr.	12		

SECTION 500- STRUCTURE (V4 BRIDGE)

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
505 (29)-3	PC Girder Erection - 25.000m long by Erection Girder	nr.	0		
505 (29)-4	PC Girder Erection - 22.500m long by Erection Girder	nr.	0		
505 (29)-5	PC Girder Erection -22.000m long by Erection Girder	nr.	0		
505 (29)-6	PC Girder Erection - 21.000m long by Erection Girder	nr.	0		
	Pre-stressing Strand				
505 (30)	Pre-stressing strand 1S21.8 for Cross Beam of I Girder	kg	7,553		
	Steel Work				
507 (1)	Fabrication for Steel-I Girder	t	0		
507 (2)	Fabrication for Steel-Box Girder	t	0		
507 (3)	Trial Erection for Steel-I Girder	t	0		
507 (4)	Trial Erection for Steel-Box Girder	t	0		
507 (5)	Permanent Erection for Steel-I Girder	t	0		
507 (6)	Permanent Erection for Steel-Box Girder	t	0		
508 (1)	Painting (Exterior, t=300 microns)	sq.m.	0		
508 (2)	Painting (Interior of Box Girders, t=200 microns)	sq.m.	0		
508 (3)	Thermal Spray for Contact Surface	sq.m.	0		
508 (4)	Painting for Exterior Surface of Contact Surface (t=300 microns)	sq.m.	0		
508 (5)	Painting for Interior Surface of Contact Surface (t=200 microns)	sq.m.	0		
	Expansion Joint				
510 (1)	Expansion Joint Type-Asphaltic Plug	m	94		
510 (2)	Expansion Joint Elastomeric Type for 50mm Gap	m	0		
510 (3)	Expansion Joint Elastomeric Type for 75mm Gap	m	0		
510 (4)	Expansion Joint Elastomeric Type for 100mm Gap	m	0		
	Elastomeric Bearing Pad				
511 (1)	Bearing for I - Girder (Fixed - 560x310x44)	nr.	144		
511 (2)	Bearing for I - Girder (Fixed - 360x260x36)	nr.	0		
511 (3)	Bearing for I - Girder (Fixed - 410x310x40)	nr.	0		
511 (4)	Bearing for I - Girder (Free - 560x360x56)	nr.	0		
511 (5)	Bearing for I - Girder (Free - 560x360x62)	nr.	68		
511 (6)	Bearing for I - Girder (Free - 410x310x50)	nr.	0		
511 (7)	Bearing for I - Girder (Free - 560x310x56)	nr.	0		
511 (8)	Elastomeric enclosed by steel plates type 800kN, Mov.	nr.	0		
511 (9)	Elastomeric enclosed by steel plates type 1,250kN, Fix.	nr.	0		
511 (10)	Elastomeric enclosed by steel plates type 1,250kN, Mov.	nr.	0		
511 (11)	Elastomeric enclosed by steel plates type 3,500kN, Fix.	nr.	0		
511 (12)	Elastomeric enclosed by steel plates type 2,000kN, Mov.	nr.	0		
511 (13)	Elastomeric enclosed by steel plates type 4,000kN, Fix.	nr.	0		
	Miscellaneous				
513 (1)	RC Panel for I Girder Slab	sq.m.	3,432		
513 (2)	RC Panel for Side Walk of Overpass Bridge	sq.m.	0		
513 (3)	Bridge Catch Basin	nr.	50		
513 (4)	Bridge Drainage Pipe PVC 200 mm dia.	m	897		
513 (5)	Painting for Parapet & Kerb	sq.m.	0		
513 (6)	Bridge Mesh Fence (Type-1) for Overpass Bridges	m	0		
513 (7)	Bridge Mesh Fence (Type-2) for Highway Bridges	m	42		
513 (8)	Bridge Raile for Overpass Bridges	m	0		
513 (9)	Bridge Mesh Fence (Type-3) before Highway Bridges	m	20		
513 (10)	Safety Net between Highway Bridges	sq.m.	0		
513 (11)	Bridge Name Plate	nr.	2		
513 (12)	Bridge Pavement	t	744		
513 (13)	Precast Concrete Barrier	nr.	0		
513 (23)	Stopper's Bar and Cap (Approach Slab)	nr.	39		
513 (30)	Gabion Work	cu.m.	0		
Total of Section 500 - Structure (V4 Bridge) (Transfer to Summary of Bills of Quantities)					

SECTION 500- STRUCTURE (V5 BRIDGE)

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
Excavation, Backfill for structures and Rubble Mound					
501 (1)	Excavation - Classified material for re-use	cu.m.	13,666		
501 (4)	Excavation - Soft Rock for re-use	cu.m.	0		
501 (7)	Excavation - Unsuitable Material for disposal	0	0		
501 (10)	Structure Backfill	cu.m.	4,715		
501 (30)	Rubble Foundation	cu.m.	30		
Piling					
502 (2)	Bored Pile - 1500mm dia.	m	216		
502 (3)	Sonic Logging Test for Pile Integrity	nr.	14		
502 (4)	Static Load Test of Pile	nr.	0		
Concrete					
503 (1)	Concrete Grade 15 for Leveling Concrete	cu.m.	15		
503 (2)	Concrete Grade 30 for Abutment, Pier	cu.m.	681		
503 (5)	Concrete Grade 30 for Approach Slab	cu.m.	48		
503 (12)	Concrete Grade 40 for Approach Slab	cu.m.	0		
503 (11)	Concrete Grade 40 for Abutment, Pier	cu.m.	0		
503 (13)	Concrete Grade 35 for Cross Beam of PC-I Girder	cu.m.	0		
503 (14)	Concrete Grade 40 for Cross Beam of PC-I Girder	cu.m.	0		
503 (15)	Concrete Grade 35 for Deck Slab	cu.m.	213		
503 (16)	Concrete Grade 40 for Deck Slab	cu.m.	0		
503 (4)	Concrete Grade 30 for Parapet, Sidewalk, Kerb	cu.m.	88		
503 (17)	Concrete Grade 40 for Parapet, Sidewalk, Kerb	cu.m.	0		
Reinforcement					
504 (1)	High Yield steel bar Grade 460	t	133		
Fabrication of PC-I Girder					
505 (1)	PC Girder Fabrication - 14.000m long	nr.	0		
505 (2)	PC Girder Fabrication - 15.500m long	nr.	0		
505 (3)	PC Girder Fabrication - 16.000m long	nr.	0		
505 (4)	PC Girder Fabrication - 16.500m long	nr.	0		
505 (5)	PC Girder Fabrication - 17.600m long	nr.	0		
505 (6)	PC Girder Fabrication - 18.000m long	nr.	0		
505 (7)	PC Girder Fabrication - 21.000m long	nr.	0		
505 (8)	PC Girder Fabrication - 22.000m long	nr.	0		
505 (9)	PC Girder Fabrication - 22.500m long	nr.	0		
505 (10)	PC Girder Fabrication - 25.000m long	nr.	0		
505 (11)	PC Girder Fabrication - 29.500m long	nr.	0		
505 (12)	PC Girder Fabrication - 35.000m long	nr.	0		
505 (13)	PC Girder Fabrication - 35.500m long	nr.	0		
505 (14)	PC Girder Fabrication - 35.750m long	nr.	0		
Erection of PC-I Girder					
505 (15)	PC Girder Erection - 14.000m long	nr.	0		
505 (16)	PC Girder Erection - 15.500m long	nr.	0		
505 (17)	PC Girder Erection - 16.000m long	nr.	0		
505 (18)	PC Girder Erection - 16.500m long	nr.	0		
505 (19)	PC Girder Erection - 17.600m long	nr.	0		
505 (20)	PC Girder Erection - 18.000m long	nr.	0		
505 (21)	PC Girder Erection - 21.000m long	nr.	0		
505 (22)	PC Girder Erection - 22.000m long	nr.	0		
505 (23)	PC Girder Erection - 22.500m long	nr.	0		
505 (24)	PC Girder Erection - 25.000m long	nr.	0		
505 (25)	PC Girder Erection - 29.500m long	nr.	0		
505 (26)	PC Girder Erection -35.000 m long	nr.	0		
505 (27)	PC Girder Erection - 35.500 m long	nr.	0		
505 (28)	PC Girder Erection - 35.750 m long	nr.	0		
505 (29)	PC Girder Erection - 35.500m long by Erection Girder	nr.	0		
505 (29)-1	PC Girder Erection - 35.000m long by Erection Girder	nr.	0		
505 (29)-2	PC Girder Erection - 29.500m long by Erection Girder	nr.	0		

SECTION 500- STRUCTURE (V5 BRIDGE)

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
505 (29)-3	PC Girder Erection - 25.000m long by Erection Girder	nr.	0		
505 (29)-4	PC Girder Erection - 22.500m long by Erection Girder	nr.	0		
505 (29)-5	PC Girder Erection -22.000m long by Erection Girder	nr.	0		
505 (29)-6	PC Girder Erection - 21.000m long by Erection Girder	nr.	0		
	Pre-stressing Strand				
505 (30)	Pre-stressing strand 1S21.8 for Cross Beam of I Girder	kg	0		
	Steel Work				
507 (1)	Fabrication for Steel-I Girder	t	0		
507 (2)	Fabrication for Steel-Box Girder	t	310		
507 (3)	Trial Erection for Steel-I Girder	t	0		
507 (4)	Trial Erection for Steel-Box Girder	t	310		
507 (5)	Permanent Erection for Steel-I Girder	t	0		
507 (6)	Permanent Erection for Steel-Box Girder	t	310		
508 (1)	Painting (Exterior, t=300 microns)	sq.m.	4,708		
508 (2)	Painting (Interior of Box Girders, t=200 microns)	sq.m.	2,893		
508 (3)	Thermal Spray for Contact Surface	sq.m.	199		
508 (4)	Painting for Exterior Surface of Contact Surface (t=300 microns)	sq.m.	2,014		
508 (5)	Painting for Interior Surface of Contact Surface (t=200 microns)	sq.m.	2,893		
	Expansion Joint				
510 (1)	Expansion Joint Type-Asphaltic Plug	m	0		
510 (2)	Expansion Joint Elastomeric Type for 50mm Gap	m	0		
510 (3)	Expansion Joint Elastomeric Type for 75mm Gap	m	16		
510 (4)	Expansion Joint Elastomeric Type for 100mm Gap	m	0		
	Elastomeric Bearing Pad				
511 (1)	Bearing for I - Girder (Fixed - 560x310x44)	nr.	0		
511 (2)	Bearing for I - Girder (Fixed - 360x260x36)	nr.	0		
511 (3)	Bearing for I - Girder (Fixed - 410x310x40)	nr.	0		
511 (4)	Bearing for I - Girder (Free - 560x360x56)	nr.	0		
511 (5)	Bearing for I - Girder (Free - 560x360x62)	nr.	0		
511 (6)	Bearing for I - Girder (Free - 410x310x50)	nr.	0		
511 (7)	Bearing for I - Girder (Free - 560x310x56)	nr.	0		
511 (8)	Elastomeric enclosed by steel plates type 800kN, Mov.	nr.	0		
511 (9)	Elastomeric enclosed by steel plates type 1,250kN, Fix.	nr.	0		
511 (10)	Elastomeric enclosed by steel plates type 1,250kN, Mov.	nr.	0		
511 (11)	Elastomeric enclosed by steel plates type 3,500kN, Fix.	nr.	0		
511 (12)	Elastomeric enclosed by steel plates type 2,000kN, Mov.	nr.	4		
511 (13)	Elastomeric enclosed by steel plates type 4,000kN, Fix.	nr.	4		
	Miscellaneous				
513 (1)	RC Panel for I Girder Slab	sq.m.	550		
513 (2)	RC Panel for Side Walk of Overpass Bridge	sq.m.	0		
513 (3)	Bridge Catch Basin	nr.	15		
513 (4)	Bridge Drainage Pipe PVC 200 mm dia.	m	255		
513 (5)	Painting for Parapet & Kerb	sq.m.	0		
513 (6)	Bridge Mesh Fence (Type-1) for Overpass Bridges	m	0		
513 (7)	Bridge Mesh Fence (Type-2) for Highway Bridges	m	0		
513 (8)	Bridge Raile for Overpass Bridges	m	0		
513 (9)	Bridge Mesh Fence (Type-3) before Highway Bridges	m	0		
513 (10)	Safety Net between Highway Bridges	sq.m.	0		
513 (11)	Bridge Name Plate	nr.	2		
513 (12)	Bridge Pavement	t	115		
513 (13)	Precast Concrete Barrier	nr.	0		
513 (23)	Stopper's Bar and Cap (Approach Slab)	nr.	10		
513 (30)	Gabion Work	cu.m.	0		
Total of Section 500 - Structure (V5 Bridge) (Transfer to Summary of Bills of Quantities)					

SECTION 500- STRUCTURE (V6 BRIDGE)

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
	Excavation, Backfill for structures and Rubble Mound				
501 (1)	Excavation - Classified material for re-use	cu.m.	1,314		
501 (4)	Excavation - Soft Rock for re-use	cu.m.	0		
501 (7)	Excavation - Unsuitable Material for disposal	0	0		
501 (10)	Structure Backfill	cu.m.	1,243		
501 (30)	Rubble Foundation	cu.m.	11		
	Piling				
502 (2)	Bored Pile - 1500mm dia.	m	23		
502 (3)	Sonic Logging Test for Pile Integrity	nr.	2		
502 (4)	Static Load Test of Pile	nr.	0		
	Concrete				
503 (1)	Concrete Grade 15 for Leveling Concrete	cu.m.	5		
503 (2)	Concrete Grade 30 for Abutment, Pier	cu.m.	190		
503 (5)	Concrete Grade 30 for Approach Slab	cu.m.	0		
503 (12)	Concrete Grade 40 for Approach Slab	cu.m.	0		
503 (11)	Concrete Grade 40 for Abutment, Pier	cu.m.	0		
503 (13)	Concrete Grade 35 for Cross Beam of PC-I Girder	cu.m.	0		
503 (14)	Concrete Grade 40 for Cross Beam of PC-I Girder	cu.m.	0		
503 (15)	Concrete Grade 35 for Deck Slab	cu.m.	221		
503 (16)	Concrete Grade 40 for Deck Slab	cu.m.	0		
503 (4)	Concrete Grade 30 for Parapet, Sidewalk, Kerb	cu.m.	85		
503 (17)	Concrete Grade 40 for Parapet, Sidewalk, Kerb	cu.m.	0		
	Reinforcement				
504 (1)	High Yield steel bar Grade 460	t	73		
	Fabrication of PC-I Girder				
505 (1)	PC Girder Fabrication - 14.000m long	nr.	0		
505 (2)	PC Girder Fabrication - 15.500m long	nr.	0		
505 (3)	PC Girder Fabrication - 16.000m long	nr.	0		
505 (4)	PC Girder Fabrication - 16.500m long	nr.	0		
505 (5)	PC Girder Fabrication - 17.600m long	nr.	0		
505 (6)	PC Girder Fabrication - 18.000m long	nr.	0		
505 (7)	PC Girder Fabrication - 21.000m long	nr.	0		
505 (8)	PC Girder Fabrication - 22.000m long	nr.	0		
505 (9)	PC Girder Fabrication - 22.500m long	nr.	0		
505 (10)	PC Girder Fabrication - 25.000m long	nr.	0		
505 (11)	PC Girder Fabrication - 29.500m long	nr.	0		
505 (12)	PC Girder Fabrication - 35.000m long	nr.	0		
505 (13)	PC Girder Fabrication - 35.500m long	nr.	0		
505 (14)	PC Girder Fabrication - 35.750m long	nr.	0		
	Erection of PC-I Girder				
505 (15)	PC Girder Erection - 14.000m long	nr.	0		
505 (16)	PC Girder Erection - 15.500m long	nr.	0		
505 (17)	PC Girder Erection - 16.000m long	nr.	0		
505 (18)	PC Girder Erection - 16.500m long	nr.	0		
505 (19)	PC Girder Erection - 17.600m long	nr.	0		
505 (20)	PC Girder Erection - 18.000m long	nr.	0		
505 (21)	PC Girder Erection - 21.000m long	nr.	0		
505 (22)	PC Girder Erection - 22.000m long	nr.	0		
505 (23)	PC Girder Erection - 22.500m long	nr.	0		
505 (24)	PC Girder Erection - 25.000m long	nr.	0		
505 (25)	PC Girder Erection - 29.500m long	nr.	0		
505 (26)	PC Girder Erection -35.000 m long	nr.	0		
505 (27)	PC Girder Erection - 35.500 m long	nr.	0		
505 (28)	PC Girder Erection - 35.750 m long	nr.	0		
505 (29)	PC Girder Erection - 35.500m long by Erection Girder	nr.	0		
505 (29)-1	PC Girder Erection - 35.000m long by Erection Girder	nr.	0		
505 (29)-2	PC Girder Erection - 29.500m long by Erection Girder	nr.	0		

SECTION 500- STRUCTURE (V6 BRIDGE)

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
505 (29)-3	PC Girder Erection - 25.000m long by Erection Girder	nr.	0		
505 (29)-4	PC Girder Erection - 22.500m long by Erection Girder	nr.	0		
505 (29)-5	PC Girder Erection -22.000m long by Erection Girder	nr.	0		
505 (29)-6	PC Girder Erection - 21.000m long by Erection Girder	nr.	0		
	Pre-stressing Strand				
505 (30)	Pre-stressing strand 1S21.8 for Cross Beam of I Girder	kg	0		
	Steel Work				
507 (1)	Fabrication for Steel-I Girder	t	0		
507 (2)	Fabrication for Steel-Box Girder	t	312		
507 (3)	Trial Erection for Steel-I Girder	t	0		
507 (4)	Trial Erection for Steel-Box Girder	t	312		
507 (5)	Permanent Erection for Steel-I Girder	t	0		
507 (6)	Permanent Erection for Steel-Box Girder	t	312		
508 (1)	Painting (Exterior, t=300 microns)	sq.m.	4,790		
508 (2)	Painting (Interior of Box Girders, t=200 microns)	sq.m.	3,019		
508 (3)	Thermal Spray for Contact Surface	sq.m.	191		
508 (4)	Painting for Exterior Surface of Contact Surface (t=300 microns)	sq.m.	1,962		
508 (5)	Painting for Interior Surface of Contact Surface (t=200 microns)	sq.m.	3,019		
	Expansion Joint				
510 (1)	Expansion Joint Type-Asphaltic Plug	m	0		
510 (2)	Expansion Joint Elastomeric Type for 50mm Gap	m	0		
510 (3)	Expansion Joint Elastomeric Type for 75mm Gap	m	17		
510 (4)	Expansion Joint Elastomeric Type for 100mm Gap	m	0		
	Elastomeric Bearing Pad				
511 (1)	Bearing for I - Girder (Fixed - 560x310x44)	nr.	0		
511 (2)	Bearing for I - Girder (Fixed - 360x260x36)	nr.	0		
511 (3)	Bearing for I - Girder (Fixed - 410x310x40)	nr.	0		
511 (4)	Bearing for I - Girder (Free - 560x360x56)	nr.	0		
511 (5)	Bearing for I - Girder (Free - 560x360x62)	nr.	0		
511 (6)	Bearing for I - Girder (Free - 410x310x50)	nr.	0		
511 (7)	Bearing for I - Girder (Free - 560x310x56)	nr.	0		
511 (8)	Elastomeric enclosed by steel plates type 800kN, Mov.	nr.	0		
511 (9)	Elastomeric enclosed by steel plates type 1,250kN, Fix.	nr.	0		
511 (10)	Elastomeric enclosed by steel plates type 1,250kN, Mov.	nr.	0		
511 (11)	Elastomeric enclosed by steel plates type 3,500kN, Fix.	nr.	0		
511 (12)	Elastomeric enclosed by steel plates type 2,000kN, Mov.	nr.	4		
511 (13)	Elastomeric enclosed by steel plates type 4,000kN, Fix.	nr.	4		
	Miscellaneous				
513 (1)	RC Panel for I Girder Slab	sq.m.	511		
513 (2)	RC Panel for Side Walk of Overpass Bridge	sq.m.	0		
513 (3)	Bridge Catch Basin	nr.	15		
513 (4)	Bridge Drainage Pipe PVC 200 mm dia.	m	254		
513 (5)	Painting for Parapet & Kerb	sq.m.	0		
513 (6)	Bridge Mesh Fence (Type-1) for Overpass Bridges	m	0		
513 (7)	Bridge Mesh Fence (Type-2) for Highway Bridges	m	0		
513 (8)	Bridge Raile for Overpass Bridges	m	0		
513 (9)	Bridge Mesh Fence (Type-3) before Highway Bridges	m	0		
513 (10)	Safety Net between Highway Bridges	sq.m.	0		
513 (11)	Bridge Name Plate	nr.	2		
513 (12)	Bridge Pavement	t	119		
513 (13)	Precast Concrete Barrier	nr.	0		
513 (23)	Stopper's Bar and Cap (Approach Slab)	nr.	0		
513 (30)	Gabion Work	cu.m.	0		
Total of Section 500 - Structure (V6 Bridge) (Transfer to Summary of Bills of Quantities)					

SECTION 500- STRUCTURE (V7 BRIDGE)

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
	Excavation, Backfill for structures and Rubble Mound				
501 (1)	Excavation - Classified material for re-use	cu.m.	2,347		
501 (4)	Excavation - Soft Rock for re-use	cu.m.	0		
501 (7)	Excavation - Unsuitable Material for disposal	0	0		
501 (10)	Structure Backfill	cu.m.	3,492		
501 (30)	Rubble Foundation	cu.m.	41		
	Piling				
502 (2)	Bored Pile - 1500mm dia.	m	21		
502 (3)	Sonic Logging Test for Pile Integrity	nr.	14		
502 (4)	Static Load Test of Pile	nr.	0		
	Concrete				
503 (1)	Concrete Grade 15 for Leveling Concrete	cu.m.	20		
503 (2)	Concrete Grade 30 for Abutment, Pier	cu.m.	736		
503 (5)	Concrete Grade 30 for Approach Slab	cu.m.	48		
503 (12)	Concrete Grade 40 for Approach Slab	cu.m.	0		
503 (11)	Concrete Grade 40 for Abutment, Pier	cu.m.	0		
503 (13)	Concrete Grade 35 for Cross Beam of PC-I Girder	cu.m.	0		
503 (14)	Concrete Grade 40 for Cross Beam of PC-I Girder	cu.m.	0		
503 (15)	Concrete Grade 35 for Deck Slab	cu.m.	225		
503 (16)	Concrete Grade 40 for Deck Slab	cu.m.	0		
503 (4)	Concrete Grade 30 for Parapet, Sidewalk, Kerb	cu.m.	84		
503 (17)	Concrete Grade 40 for Parapet, Sidewalk, Kerb	cu.m.	0		
	Reinforcement				
504 (1)	High Yield steel bar Grade 460	t	140		
	Fabrication of PC-I Girder				
505 (1)	PC Girder Fabrication - 14.000m long	nr.	0		
505 (2)	PC Girder Fabrication - 15.500m long	nr.	0		
505 (3)	PC Girder Fabrication - 16.000m long	nr.	0		
505 (4)	PC Girder Fabrication - 16.500m long	nr.	0		
505 (5)	PC Girder Fabrication - 17.600m long	nr.	0		
505 (6)	PC Girder Fabrication - 18.000m long	nr.	0		
505 (7)	PC Girder Fabrication - 21.000m long	nr.	0		
505 (8)	PC Girder Fabrication - 22.000m long	nr.	0		
505 (9)	PC Girder Fabrication - 22.500m long	nr.	0		
505 (10)	PC Girder Fabrication - 25.000m long	nr.	0		
505 (11)	PC Girder Fabrication - 29.500m long	nr.	0		
505 (12)	PC Girder Fabrication - 35.000m long	nr.	0		
505 (13)	PC Girder Fabrication - 35.500m long	nr.	0		
505 (14)	PC Girder Fabrication - 35.750m long	nr.	0		
	Erection of PC-I Girder				
505 (15)	PC Girder Erection - 14.000m long	nr.	0		
505 (16)	PC Girder Erection - 15.500m long	nr.	0		
505 (17)	PC Girder Erection - 16.000m long	nr.	0		
505 (18)	PC Girder Erection - 16.500m long	nr.	0		
505 (19)	PC Girder Erection - 17.600m long	nr.	0		
505 (20)	PC Girder Erection - 18.000m long	nr.	0		
505 (21)	PC Girder Erection - 21.000m long	nr.	0		
505 (22)	PC Girder Erection - 22.000m long	nr.	0		
505 (23)	PC Girder Erection - 22.500m long	nr.	0		
505 (24)	PC Girder Erection - 25.000m long	nr.	0		
505 (25)	PC Girder Erection - 29.500m long	nr.	0		
505 (26)	PC Girder Erection -35.000 m long	nr.	0		
505 (27)	PC Girder Erection - 35.500 m long	nr.	0		
505 (28)	PC Girder Erection - 35.750 m long	nr.	0		
505 (29)	PC Girder Erection - 35.500m long by Erection Girder	nr.	0		
505 (29)-1	PC Girder Erection - 35.000m long by Erection Girder	nr.	0		
505 (29)-2	PC Girder Erection - 29.500m long by Erection Girder	nr.	0		

SECTION 500- STRUCTURE (V7 BRIDGE)

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
505 (29)-3	PC Girder Erection - 25.000m long by Erection Girder	nr.	0		
505 (29)-4	PC Girder Erection - 22.500m long by Erection Girder	nr.	0		
505 (29)-5	PC Girder Erection -22.000m long by Erection Girder	nr.	0		
505 (29)-6	PC Girder Erection - 21.000m long by Erection Girder	nr.	0		
	Pre-stressing Strand				
505 (30)	Pre-stressing strand 1S21.8 for Cross Beam of I Girder	kg	0		
	Steel Work				
507 (1)	Fabrication for Steel-I Girder	t	0		
507 (2)	Fabrication for Steel-Box Girder	t	314		
507 (3)	Trial Erection for Steel-I Girder	t	0		
507 (4)	Trial Erection for Steel-Box Girder	t	314		
507 (5)	Permanent Erection for Steel-I Girder	t	0		
507 (6)	Permanent Erection for Steel-Box Girder	t	314		
508 (1)	Painting (Exterior, t=300 microns)	sq.m.	4,793		
508 (2)	Painting (Interior of Box Girders, t=200 microns)	sq.m.	2,967		
508 (3)	Thermal Spray for Contact Surface	sq.m.	215		
508 (4)	Painting for Exterior Surface of Contact Surface (t=300 microns)	sq.m.	2,041		
508 (5)	Painting for Interior Surface of Contact Surface (t=200 microns)	sq.m.	2,967		
	Expansion Joint				
510 (1)	Expansion Joint Type-Asphaltic Plug	m	0		
510 (2)	Expansion Joint Elastomeric Type for 50mm Gap	m	0		
510 (3)	Expansion Joint Elastomeric Type for 75mm Gap	m	14		
510 (4)	Expansion Joint Elastomeric Type for 100mm Gap	m	0		
	Elastomeric Bearing Pad				
511 (1)	Bearing for I - Girder (Fixed - 560x310x44)	nr.	0		
511 (2)	Bearing for I - Girder (Fixed - 360x260x36)	nr.	0		
511 (3)	Bearing for I - Girder (Fixed - 410x310x40)	nr.	0		
511 (4)	Bearing for I - Girder (Free - 560x360x56)	nr.	0		
511 (5)	Bearing for I - Girder (Free - 560x360x62)	nr.	0		
511 (6)	Bearing for I - Girder (Free - 410x310x50)	nr.	0		
511 (7)	Bearing for I - Girder (Free - 560x310x56)	nr.	0		
511 (8)	Elastomeric enclosed by steel plates type 800kN, Mov.	nr.	0		
511 (9)	Elastomeric enclosed by steel plates type 1,250kN, Fix.	nr.	0		
511 (10)	Elastomeric enclosed by steel plates type 1,250kN, Mov.	nr.	0		
511 (11)	Elastomeric enclosed by steel plates type 3,500kN, Fix.	nr.	0		
511 (12)	Elastomeric enclosed by steel plates type 2,000kN, Mov.	nr.	4		
511 (13)	Elastomeric enclosed by steel plates type 4,000kN, Fix.	nr.	4		
	Miscellaneous				
513 (1)	RC Panel for I Girder Slab	sq.m.	522		
513 (2)	RC Panel for Side Walk of Overpass Bridge	sq.m.	0		
513 (3)	Bridge Catch Basin	nr.	15		
513 (4)	Bridge Drainage Pipe PVC 200 mm dia.	m	256		
513 (5)	Painting for Parapet & Kerb	sq.m.	0		
513 (6)	Bridge Mesh Fence (Type-1) for Overpass Bridges	m	0		
513 (7)	Bridge Mesh Fence (Type-2) for Highway Bridges	m	0		
513 (8)	Bridge Raile for Overpass Bridges	m	0		
513 (9)	Bridge Mesh Fence (Type-3) before Highway Bridges	m	0		
513 (10)	Safety Net between Highway Bridges	sq.m.	0		
513 (11)	Bridge Name Plate	nr.	2		
513 (12)	Bridge Pavement	t	122		
513 (13)	Precast Concrete Barrier	nr.	0		
513 (23)	Stopper's Bar and Cap (Approach Slab)	nr.	10		
513 (30)	Gabion Work	cu.m.	0		
Total of Section 500 - Structure (V7 Bridge) (Transfer to Summary of Bills of Quantities)					

SECTION 500- STRUCTURE (V8 BRIDGE)

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
	Excavation, Backfill for structures and Rubble Mound				
501 (1)	Excavation - Classified material for re-use	cu.m.	1,314		
501 (4)	Excavation - Soft Rock for re-use	cu.m.	0		
501 (7)	Excavation - Unsuitable Material for disposal	0	0		
501 (10)	Structure Backfill	cu.m.	1,243		
501 (30)	Rubble Foundation	cu.m.	11		
	Pilling				
502 (2)	Bored Pile - 1500mm dia.	m	21		
502 (3)	Sonic Logging Test for Pile Integrity	nr.	4		
502 (4)	Static Load Test of Pile	nr.	0		
	Concrete				
503 (1)	Concrete Grade 15 for Leveling Concrete	cu.m.	5		
503 (2)	Concrete Grade 30 for Abutment, Pier	cu.m.	189		
503 (5)	Concrete Grade 30 for Approach Slab	cu.m.	0		
503 (12)	Concrete Grade 40 for Approach Slab	cu.m.	0		
503 (11)	Concrete Grade 40 for Abutment, Pier	cu.m.	0		
503 (13)	Concrete Grade 35 for Cross Beam of PC-I Girder	cu.m.	0		
503 (14)	Concrete Grade 40 for Cross Beam of PC-I Girder	cu.m.	0		
503 (15)	Concrete Grade 35 for Deck Slab	cu.m.	240		
503 (16)	Concrete Grade 40 for Deck Slab	cu.m.	0		
503 (4)	Concrete Grade 30 for Parapet, Sidewalk, Kerb	cu.m.	93		
503 (17)	Concrete Grade 40 for Parapet, Sidewalk, Kerb	cu.m.	0		
	Reinforcement				
504 (1)	High Yield steel bar Grade 460	t	78		
	Fabrication of PC-I Girder				
505 (1)	PC Girder Fabrication - 14.000m long	nr.	0		
505 (2)	PC Girder Fabrication - 15.500m long	nr.	0		
505 (3)	PC Girder Fabrication - 16.000m long	nr.	0		
505 (4)	PC Girder Fabrication - 16.500m long	nr.	0		
505 (5)	PC Girder Fabrication - 17.600m long	nr.	0		
505 (6)	PC Girder Fabrication - 18.000m long	nr.	0		
505 (7)	PC Girder Fabrication - 21.000m long	nr.	0		
505 (8)	PC Girder Fabrication - 22.000m long	nr.	0		
505 (9)	PC Girder Fabrication - 22.500m long	nr.	0		
505 (10)	PC Girder Fabrication - 25.000m long	nr.	0		
505 (11)	PC Girder Fabrication - 29.500m long	nr.	0		
505 (12)	PC Girder Fabrication - 35.000m long	nr.	0		
505 (13)	PC Girder Fabrication - 35.500m long	nr.	0		
505 (14)	PC Girder Fabrication - 35.750m long	nr.	0		
	Erection of PC-I Girder				
505 (15)	PC Girder Erection - 14.000m long	nr.	0		
505 (16)	PC Girder Erection - 15.500m long	nr.	0		
505 (17)	PC Girder Erection - 16.000m long	nr.	0		
505 (18)	PC Girder Erection - 16.500m long	nr.	0		
505 (19)	PC Girder Erection - 17.600m long	nr.	0		
505 (20)	PC Girder Erection - 18.000m long	nr.	0		
505 (21)	PC Girder Erection - 21.000m long	nr.	0		
505 (22)	PC Girder Erection - 22.000m long	nr.	0		
505 (23)	PC Girder Erection - 22.500m long	nr.	0		
505 (24)	PC Girder Erection - 25.000m long	nr.	0		
505 (25)	PC Girder Erection - 29.500m long	nr.	0		
505 (26)	PC Girder Erection -35.000 m long	nr.	0		
505 (27)	PC Girder Erection - 35.500 m long	nr.	0		
505 (28)	PC Girder Erection - 35.750 m long	nr.	0		
505 (29)	PC Girder Erection - 35.500m long by Erection Girder	nr.	0		
505 (29)-1	PC Girder Erection - 35.000m long by Erection Girder	nr.	0		
505 (29)-2	PC Girder Erection - 29.500m long by Erection Girder	nr.	0		

SECTION 500- STRUCTURE (V8 BRIDGE)

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
505 (29)-3	PC Girder Erection - 25.000m long by Erection Girder	nr.	0		
505 (29)-4	PC Girder Erection - 22.500m long by Erection Girder	nr.	0		
505 (29)-5	PC Girder Erection -22.000m long by Erection Girder	nr.	0		
505 (29)-6	PC Girder Erection - 21.000m long by Erection Girder	nr.	0		
	Pre-stressing Strand				
505 (30)	Pre-stressing strand 1S21.8 for Cross Beam of I Girder	kg	0		
	Steel Work				
507 (1)	Fabrication for Steel-I Girder	t	0		
507 (2)	Fabrication for Steel-Box Girder	t	364		
507 (3)	Trial Erection for Steel-I Girder	t	0		
507 (4)	Trial Erection for Steel-Box Girder	t	364		
507 (5)	Permanent Erection for Steel-I Girder	t	0		
507 (6)	Permanent Erection for Steel-Box Girder	t	364		
508 (1)	Painting (Exterior, t=300 microns)	sq.m.	5,559		
508 (2)	Painting (Interior of Box Girders, t=200 microns)	sq.m.	3,557		
508 (3)	Thermal Spray for Contact Surface	sq.m.	254		
508 (4)	Painting for Exterior Surface of Contact Surface (t=300 microns)	sq.m.	2,256		
508 (5)	Painting for Interior Surface of Contact Surface (t=200 microns)	sq.m.	3,557		
	Expansion Joint				
510 (1)	Expansion Joint Type-Asphaltic Plug	m	0		
510 (2)	Expansion Joint Elastomeric Type for 50mm Gap	m	0		
510 (3)	Expansion Joint Elastomeric Type for 75mm Gap	m	14		
510 (4)	Expansion Joint Elastomeric Type for 100mm Gap	m	0		
	Elastomeric Bearing Pad				
511 (1)	Bearing for I - Girder (Fixed - 560x310x44)	nr.	0		
511 (2)	Bearing for I - Girder (Fixed - 360x260x36)	nr.	0		
511 (3)	Bearing for I - Girder (Fixed - 410x310x40)	nr.	0		
511 (4)	Bearing for I - Girder (Free - 560x360x56)	nr.	0		
511 (5)	Bearing for I - Girder (Free - 560x360x62)	nr.	0		
511 (6)	Bearing for I - Girder (Free - 410x310x50)	nr.	0		
511 (7)	Bearing for I - Girder (Free - 560x310x56)	nr.	0		
511 (8)	Elastomeric enclosed by steel plates type 800kN, Mov.	nr.	0		
511 (9)	Elastomeric enclosed by steel plates type 1,250kN, Fix.	nr.	0		
511 (10)	Elastomeric enclosed by steel plates type 1,250kN, Mov.	nr.	0		
511 (11)	Elastomeric enclosed by steel plates type 3,500kN, Fix.	nr.	0		
511 (12)	Elastomeric enclosed by steel plates type 2,000kN, Mov.	nr.	4		
511 (13)	Elastomeric enclosed by steel plates type 4,000kN, Fix.	nr.	4		
	Miscellaneous				
513 (1)	RC Panel for I Girder Slab	sq.m.	520		
513 (2)	RC Panel for Side Walk of Overpass Bridge	sq.m.	0		
513 (3)	Bridge Catch Basin	nr.	17		
513 (4)	Bridge Drainage Pipe PVC 200 mm dia.	m	289		
513 (5)	Painting for Parapet & Kerb	sq.m.	0		
513 (6)	Bridge Mesh Fence (Type-1) for Overpass Bridges	m	0		
513 (7)	Bridge Mesh Fence (Type-2) for Highway Bridges	m	0		
513 (8)	Bridge Raile for Overpass Bridges	m	0		
513 (9)	Bridge Mesh Fence (Type-3) before Highway Bridges	m	0		
513 (10)	Safety Net between Highway Bridges	sq.m.	0		
513 (11)	Bridge Name Plate	nr.	2		
513 (12)	Bridge Pavement	t	137		
513 (13)	Precast Concrete Barrier	nr.	0		
513 (23)	Stopper's Bar and Cap (Approach Slab)	nr.	0		
513 (30)	Gabion Work	cu.m.	0		
Total of Section 500 - Structure (V8 Bridge) (Transfer to Summary of Bills of Quantities)					

SECTION 500- STRUCTURE (V9 BRIDGE)

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
	Excavation, Backfill for structures and Rubble Mound				
501 (1)	Excavation - Classified material for re-use	cu.m.	2,776		
501 (4)	Excavation - Soft Rock for re-use	cu.m.	0		
501 (7)	Excavation - Unsuitable Material for disposal	0	0		
501 (10)	Structure Backfill	cu.m.	2,821		
501 (30)	Rubble Foundation	cu.m.	17		
	Piling				
502 (2)	Bored Pile - 1500mm dia.	m	147		
502 (3)	Sonic Logging Test for Pile Integrity	nr.	10		
502 (4)	Static Load Test of Pile	nr.	0		
	Concrete				
503 (1)	Concrete Grade 15 for Leveling Concrete	cu.m.	11		
503 (2)	Concrete Grade 30 for Abutment, Pier	cu.m.	0		
503 (5)	Concrete Grade 30 for Approach Slab	cu.m.	0		
503 (12)	Concrete Grade 40 for Approach Slab	cu.m.	32		
503 (11)	Concrete Grade 40 for Abutment, Pier	cu.m.	563		
503 (13)	Concrete Grade 35 for Cross Beam of PC-I Girder	cu.m.	0		
503 (14)	Concrete Grade 40 for Cross Beam of PC-I Girder	cu.m.	20		
503 (15)	Concrete Grade 35 for Deck Slab	cu.m.	0		
503 (16)	Concrete Grade 40 for Deck Slab	cu.m.	273		
503 (4)	Concrete Grade 30 for Parapet, Sidewalk, Kerb	cu.m.	0		
503 (17)	Concrete Grade 40 for Parapet, Sidewalk, Kerb	cu.m.	118		
	Reinforcement				
504 (1)	High Yield steel bar Grade 460	t	245		
	Fabrication of PC-I Girder				
505 (1)	PC Girder Fabrication - 14.000m long	nr.	0		
505 (2)	PC Girder Fabrication - 15.500m long	nr.	0		
505 (3)	PC Girder Fabrication - 16.000m long	nr.	0		
505 (4)	PC Girder Fabrication - 16.500m long	nr.	0		
505 (5)	PC Girder Fabrication - 17.600m long	nr.	0		
505 (6)	PC Girder Fabrication - 18.000m long	nr.	0		
505 (7)	PC Girder Fabrication - 21.000m long	nr.	0		
505 (8)	PC Girder Fabrication - 22.000m long	nr.	0		
505 (9)	PC Girder Fabrication - 22.500m long	nr.	0		
505 (10)	PC Girder Fabrication - 25.000m long	nr.	10		
505 (11)	PC Girder Fabrication - 29.500m long	nr.	0		
505 (12)	PC Girder Fabrication - 35.000m long	nr.	12		
505 (13)	PC Girder Fabrication - 35.500m long	nr.	0		
505 (14)	PC Girder Fabrication - 35.750m long	nr.	0		
	Erection of PC-I Girder				
505 (15)	PC Girder Erection - 14.000m long	nr.	0		
505 (16)	PC Girder Erection - 15.500m long	nr.	0		
505 (17)	PC Girder Erection - 16.000m long	nr.	0		
505 (18)	PC Girder Erection - 16.500m long	nr.	0		
505 (19)	PC Girder Erection - 17.600m long	nr.	0		
505 (20)	PC Girder Erection - 18.000m long	nr.	0		
505 (21)	PC Girder Erection - 21.000m long	nr.	0		
505 (22)	PC Girder Erection - 22.000m long	nr.	0		
505 (23)	PC Girder Erection - 22.500m long	nr.	0		
505 (24)	PC Girder Erection - 25.000m long	nr.	10		
505 (25)	PC Girder Erection - 29.500m long	nr.	0		
505 (26)	PC Girder Erection -35.000 m long	nr.	12		
505 (27)	PC Girder Erection - 35.500 m long	nr.	0		
505 (28)	PC Girder Erection - 35.750 m long	nr.	0		
505 (29)	PC Girder Erection - 35.500m long by Erection Girder	nr.	0		
505 (29)-1	PC Girder Erection - 35.000m long by Erection Girder	nr.	0		
505 (29)-2	PC Girder Erection - 29.500m long by Erection Girder	nr.	0		

SECTION 500- STRUCTURE (V9 BRIDGE)

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
505 (29)-3	PC Girder Erection - 25.000m long by Erection Girder	nr.	0		
505 (29)-4	PC Girder Erection - 22.500m long by Erection Girder	nr.	0		
505 (29)-5	PC Girder Erection -22.000m long by Erection Girder	nr.	0		
505 (29)-6	PC Girder Erection - 21.000m long by Erection Girder	nr.	0		
	Pre-stressing Strand				
505 (30)	Pre-stressing strand 1S21.8 for Cross Beam of I Girder	kg	482		
	Steel Work				
507 (1)	Fabrication for Steel-I Girder	t	0		
507 (2)	Fabrication for Steel-Box Girder	t	0		
507 (3)	Trial Erection for Steel-I Girder	t	0		
507 (4)	Trial Erection for Steel-Box Girder	t	0		
507 (5)	Permanent Erection for Steel-I Girder	t	0		
507 (6)	Permanent Erection for Steel-Box Girder	t	0		
508 (1)	Painting (Exterior, t=300 microns)	sq.m.	0		
508 (2)	Painting (Interior of Box Girders, t=200 microns)	sq.m.	0		
508 (3)	Thermal Spray for Contact Surface	sq.m.	0		
508 (4)	Painting for Exterior Surface of Contact Surface (t=300 microns)	sq.m.	0		
508 (5)	Painting for Interior Surface of Contact Surface (t=200 microns)	sq.m.	0		
	Expansion Joint				
510 (1)	Expansion Joint Type-Asphaltic Plug	m	8		
510 (2)	Expansion Joint Elastomeric Type for 50mm Gap	m	0		
510 (3)	Expansion Joint Elastomeric Type for 75mm Gap	m	0		
510 (4)	Expansion Joint Elastomeric Type for 100mm Gap	m	0		
	Elastomeric Bearing Pad				
511 (1)	Bearing for I - Girder (Fixed - 560x310x44)	nr.	40		
511 (2)	Bearing for I - Girder (Fixed - 410x310x40)	nr.	0		
511 (3)	Bearing for I - Girder (Fixed - 410x310x40)	nr.	0		
511 (4)	Bearing for I - Girder (Fixed - 810x660x111)	nr.	0		
511 (5)	Bearing for I - Girder (Free - 360x260x44)	nr.	0		
511 (6)	Bearing for I - Girder (Free - 410x310x50)	nr.	0		
511 (7)	Bearing for I - Girder (Free - 560x310x56)	nr.	0		
511 (8)	Elastomeric enclosed by steel plates type 800kN, Mov.	nr.	0		
511 (9)	Elastomeric enclosed by steel plates type 1,250kN, Fix.	nr.	0		
511 (10)	Elastomeric enclosed by steel plates type 1,250kN, Mov.	nr.	0		
511 (11)	Elastomeric enclosed by steel plates type 3,500kN, Fix.	nr.	0		
511 (12)	Elastomeric enclosed by steel plates type 2,000kN, Mov.	nr.	0		
511 (13)	Elastomeric enclosed by steel plates type 4,000kN, Fix.	nr.	0		
	Miscellaneous				
513 (1)	RC Panel for I Girder Slab	sq.m.	664		
513 (2)	RC Panel for Side Walk of Overpass Bridge	sq.m.	0		
513 (3)	Bridge Catch Basin	nr.	19		
513 (4)	Bridge Drainage Pipe PVC 200 mm dia.	m	280		
513 (5)	Painting for Parapet & Kerb	sq.m.	0		
513 (6)	Bridge Mesh Fence (Type-1) for Overpass Bridges	m	0		
513 (7)	Bridge Mesh Fence (Type-2) for Highway Bridges	m	0		
513 (8)	Bridge Raile for Overpass Bridges	m	0		
513 (9)	Bridge Mesh Fence (Type-3) before Highway Bridges	m	0		
513 (10)	Safety Net between Highway Bridges	sq.m.	0		
513 (11)	Bridge Name Plate	nr.	2		
513 (12)	Bridge Pavement	t	153		
513 (13)	Precast Concrete Barrier	nr.	0		
513 (23)	Stopper's Bar and Cap (Approach Slab)	nr.	13		
513 (30)	Gabion Work	cu.m.	0		
Total of Section 500 - Structure (V9 Bridge) (Transfer to Summary of Bills of Quantities)					

SECTION 500- STRUCTURE (V10 BRIDGE)

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
	Excavation, Backfill for structures and Rubble Mound				
501 (1)	Excavation - Classified material for re-use	cu.m.	3,375		
501 (4)	Excavation - Soft Rock for re-use	cu.m.	0		
501 (7)	Excavation - Unsuitable Material for disposal	0	0		
501 (10)	Structure Backfill	cu.m.	3,445		
501 (30)	Rubble Foundation	cu.m.	23		
	Piling				
502 (2)	Bored Pile - 1500mm dia.	m	206		
502 (3)	Sonic Logging Test for Pile Integrity	nr.	14		
502 (4)	Static Load Test of Pile	nr.	0		
	Concrete				
503 (1)	Concrete Grade 15 for Leveling Concrete	cu.m.	15		
503 (2)	Concrete Grade 30 for Abutment, Pier	cu.m.	0		
503 (5)	Concrete Grade 30 for Approach Slab	cu.m.	0		
503 (12)	Concrete Grade 40 for Approach Slab	cu.m.	32		
503 (11)	Concrete Grade 40 for Abutment, Pier	cu.m.	741		
503 (13)	Concrete Grade 35 for Cross Beam of PC-I Girder	cu.m.	0		
503 (14)	Concrete Grade 40 for Cross Beam of PC-I Girder	cu.m.	24		
503 (15)	Concrete Grade 35 for Deck Slab	cu.m.	0		
503 (16)	Concrete Grade 40 for Deck Slab	cu.m.	401		
503 (4)	Concrete Grade 30 for Parapet, Sidewalk, Kerb	cu.m.	0		
503 (17)	Concrete Grade 40 for Parapet, Sidewalk, Kerb	cu.m.	168		
	Reinforcement				
504 (1)	High Yield steel bar Grade 460	t	330		
	Fabrication of PC-I Girder				
505 (1)	PC Girder Fabrication - 14.000m long	nr.	0		
505 (2)	PC Girder Fabrication - 15.500m long	nr.	0		
505 (3)	PC Girder Fabrication - 16.000m long	nr.	0		
505 (4)	PC Girder Fabrication - 16.500m long	nr.	0		
505 (5)	PC Girder Fabrication - 17.600m long	nr.	0		
505 (6)	PC Girder Fabrication - 18.000m long	nr.	0		
505 (7)	PC Girder Fabrication - 21.000m long	nr.	0		
505 (8)	PC Girder Fabrication - 22.000m long	nr.	0		
505 (9)	PC Girder Fabrication - 22.500m long	nr.	0		
505 (10)	PC Girder Fabrication - 25.000m long	nr.	0		
505 (11)	PC Girder Fabrication - 29.500m long	nr.	19		
505 (12)	PC Girder Fabrication - 35.000m long	nr.	12		
505 (13)	PC Girder Fabrication - 35.500m long	nr.	0		
505 (14)	PC Girder Fabrication - 35.750m long	nr.	0		
	Erection of PC-I Girder				
505 (15)	PC Girder Erection - 14.000m long	nr.	0		
505 (16)	PC Girder Erection - 15.500m long	nr.	0		
505 (17)	PC Girder Erection - 16.000m long	nr.	0		
505 (18)	PC Girder Erection - 16.500m long	nr.	0		
505 (19)	PC Girder Erection - 17.600m long	nr.	0		
505 (20)	PC Girder Erection - 18.000m long	nr.	0		
505 (21)	PC Girder Erection - 21.000m long	nr.	0		
505 (22)	PC Girder Erection - 22.000m long	nr.	0		
505 (23)	PC Girder Erection - 22.500m long	nr.	0		
505 (24)	PC Girder Erection - 25.000m long	nr.	0		
505 (25)	PC Girder Erection - 29.500m long	nr.	19		
505 (26)	PC Girder Erection -35.000 m long	nr.	12		
505 (27)	PC Girder Erection - 35.500 m long	nr.	0		
505 (28)	PC Girder Erection - 35.750 m long	nr.	0		
505 (29)	PC Girder Erection - 35.500m long by Erection Girder	nr.	0		
505 (29)-1	PC Girder Erection - 35.000m long by Erection Girder	nr.	0		
505 (29)-2	PC Girder Erection - 29.500m long by Erection Girder	nr.	0		

SECTION 500- STRUCTURE (V10 BRIDGE)

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
505 (29)-3	PC Girder Erection - 25.000m long by Erection Girder	nr.	0		
505 (29)-4	PC Girder Erection - 22.500m long by Erection Girder	nr.	0		
505 (29)-5	PC Girder Erection -22.000m long by Erection Girder	nr.	0		
505 (29)-6	PC Girder Erection - 21.000m long by Erection Girder	nr.	0		
	Pre-stressing Strand				
505 (30)	Pre-stressing strand 1S21.8 for Cross Beam of I Girder	kg	549		
	Steel Work				
507 (1)	Fabrication for Steel-I Girder	t	0		
507 (2)	Fabrication for Steel-Box Girder	t	0		
507 (3)	Trial Erection for Steel-I Girder	t	0		
507 (4)	Trial Erection for Steel-Box Girder	t	0		
507 (5)	Permanent Erection for Steel-I Girder	t	0		
507 (6)	Permanent Erection for Steel-Box Girder	t	0		
508 (1)	Painting (Exterior, t=300 microns)	sq.m.	0		
508 (2)	Painting (Interior of Box Girders, t=200 microns)	sq.m.	0		
508 (3)	Thermal Spray for Contact Surface	sq.m.	0		
508 (4)	Painting for Exterior Surface of Contact Surface (t=300 microns)	sq.m.	0		
508 (5)	Painting for Interior Surface of Contact Surface (t=200 microns)	sq.m.	0		
	Expansion Joint				
510 (1)	Expansion Joint Type-Asphaltic Plug	m	8		
510 (2)	Expansion Joint Elastomeric Type for 50mm Gap	m	0		
510 (3)	Expansion Joint Elastomeric Type for 75mm Gap	m	0		
510 (4)	Expansion Joint Elastomeric Type for 100mm Gap	m	0		
	Elastomeric Bearing Pad				
511 (1)	Bearing for I - Girder (Fixed - 560x310x44)	nr.	56		
511 (2)	Bearing for I - Girder (Fixed - 360x260x36)	nr.	0		
511 (3)	Bearing for I - Girder (Fixed - 410x310x40)	nr.	0		
511 (4)	Bearing for I - Girder (Free - 560x360x56)	nr.	0		
511 (5)	Bearing for I - Girder (Free - 560x360x62)	nr.	0		
511 (6)	Bearing for I - Girder (Free - 410x310x50)	nr.	0		
511 (7)	Bearing for I - Girder (Free - 560x310x56)	nr.	0		
511 (8)	Elastomeric enclosed by steel plates type 800kN, Mov.	nr.	0		
511 (9)	Elastomeric enclosed by steel plates type 1,250kN, Fix.	nr.	0		
511 (10)	Elastomeric enclosed by steel plates type 1,250kN, Mov.	nr.	0		
511 (11)	Elastomeric enclosed by steel plates type 3,500kN, Fix.	nr.	0		
511 (12)	Elastomeric enclosed by steel plates type 2,000kN, Mov.	nr.	0		
511 (13)	Elastomeric enclosed by steel plates type 4,000kN, Fix.	nr.	0		
	Miscellaneous				
513 (1)	RC Panel for I Girder Slab	sq.m.	986		
513 (2)	RC Panel for Side Walk of Overpass Bridge	sq.m.	0		
513 (3)	Bridge Catch Basin	nr.	25		
513 (4)	Bridge Drainage Pipe PVC 200 mm dia.	m	390		
513 (5)	Painting for Parapet & Kerb	sq.m.	0		
513 (6)	Bridge Mesh Fence (Type-1) for Overpass Bridges	m	0		
513 (7)	Bridge Mesh Fence (Type-2) for Highway Bridges	m	0		
513 (8)	Bridge Raile for Overpass Bridges	m	0		
513 (9)	Bridge Mesh Fence (Type-3) before Highway Bridges	m	0		
513 (10)	Safety Net between Highway Bridges	sq.m.	0		
513 (11)	Bridge Name Plate	nr.	2		
513 (12)	Bridge Pavement	t	243		
513 (13)	Precast Concrete Barrier	nr.	0		
513 (23)	Stopper's Bar and Cap (Approach Slab)	nr.	13		
513 (30)	Gabion Work	cu.m.	0		
Total of Section 500 - Structure (V10 Bridge) (Transfer to Summary of Bills of Quantities)					

SECTION 500- STRUCTURE (KELANI RIVER BRIDGE)

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
	Excavation, Backfill for structures and Rubble Mound				
501 (1)	Excavation - Classified material for re-use	cu.m.	26,055		
501 (4)	Excavation - Soft Rock for re-use	cu.m.	0		
501 (7)	Excavation - Unsuitable Material for disposal	cu.m.	8,125		
501 (10)	Structure Backfill	cu.m.	19,290		
501 (30)	Rubble Foundation	cu.m.	511		
	Piling				
502 (2)	Bored Pile - 1500mm dia.	m	2,268		
502 (3)	Sonic Logging Test for Pile Integrity	nr.	138		
502 (4)	Static Load Test of Pile	nr.	1		
	Concrete				
503 (1)	Concrete Grade 15 for Leveling Concrete	cu.m.	243		
503 (2)	Concrete Grade 30 for Abutment, Pier	cu.m.	0		
503 (5)	Concrete Grade 30 for Approach Slab	cu.m.	0		
503 (12)	Concrete Grade 40 for Approach Slab	cu.m.	93		
503 (11)	Concrete Grade 40 for Abutment, Pier	cu.m.	9,771		
503 (13)	Concrete Grade 35 for Cross Beam of PC-I Girder	cu.m.	0		
503 (14)	Concrete Grade 40 for Cross Beam of PC-I Girder	cu.m.	469		
503 (15)	Concrete Grade 35 for Deck Slab	cu.m.	0		
503 (16)	Concrete Grade 40 for Deck Slab	cu.m.	1,692		
503 (4)	Concrete Grade 30 for Parapet, Sidewalk, Kerb	cu.m.	0		
503 (17)	Concrete Grade 40 for Parapet, Sidewalk, Kerb	cu.m.	438		
	Reinforcement				
504 (1)	High Yield steel bar Grade 460	t	1,546		
	Fabrication of PC-I Girder				
505 (1)	PC Girder Fabrication - 14.000m long	nr.	0		
505 (2)	PC Girder Fabrication - 15.500m long	nr.	0		
505 (3)	PC Girder Fabrication - 16.000m long	nr.	0		
505 (4)	PC Girder Fabrication - 16.500m long	nr.	0		
505 (5)	PC Girder Fabrication - 17.600m long	nr.	0		
505 (6)	PC Girder Fabrication - 18.000m long	nr.	0		
505 (7)	PC Girder Fabrication - 21.000m long	nr.	0		
505 (8)	PC Girder Fabrication - 22.000m long	nr.	0		
505 (9)	PC Girder Fabrication - 22.500m long	nr.	0		
505 (10)	PC Girder Fabrication - 25.000m long	nr.	0		
505 (11)	PC Girder Fabrication - 29.500m long	nr.	0		
505 (12)	PC Girder Fabrication - 35.000m long	nr.	0		
505 (13)	PC Girder Fabrication - 35.500m long	nr.	120		
505 (14)	PC Girder Fabrication - 35.750m long	nr.	0		
	Erection of PC-I Girder				
505 (15)	PC Girder Erection - 14.000m long	nr.	0		
505 (16)	PC Girder Erection - 15.500m long	nr.	0		
505 (17)	PC Girder Erection - 16.000m long	nr.	0		
505 (18)	PC Girder Erection - 16.500m long	nr.	0		
505 (19)	PC Girder Erection - 17.600m long	nr.	0		
505 (20)	PC Girder Erection - 18.000m long	nr.	0		
505 (21)	PC Girder Erection - 21.000m long	nr.	0		
505 (22)	PC Girder Erection - 22.000m long	nr.	0		
505 (23)	PC Girder Erection - 22.500m long	nr.	0		
505 (24)	PC Girder Erection - 25.000m long	nr.	0		
505 (25)	PC Girder Erection - 29.500m long	nr.	0		
505 (26)	PC Girder Erection -35.000 m long	nr.	0		
505 (27)	PC Girder Erection - 35.500 m long	nr.	0		
505 (28)	PC Girder Erection - 35.750 m long	nr.	0		
505 (29)	PC Girder Erection - 35.500m long by Erection Girder	nr.	120		
505 (29)-1	PC Girder Erection - 35.000m long by Erection Girder	nr.	0		
505 (29)-2	PC Girder Erection - 29.500m long by Erection Girder	nr.	0		

SECTION 500- STRUCTURE (KELANI RIVER BRIDGE)

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
505 (29)-3	PC Girder Erection - 25.000m long by Erection Girder	nr.	0		
505 (29)-4	PC Girder Erection - 22.500m long by Erection Girder	nr.	0		
505 (29)-5	PC Girder Erection -22.000m long by Erection Girder	nr.	0		
505 (29)-6	PC Girder Erection - 21.000m long by Erection Girder	nr.	0		
	Pre-stressing Strand				
505 (30)	Pre-stressing strand 1S21.8 for Cross Beam of I Girder	kg	6,005		
	Steel Work				
507 (1)	Fabrication for Steel-I Girder	t	0		
507 (2)	Fabrication for Steel-Box Girder	t	0		
507 (3)	Trial Erection for Steel-I Girder	t	0		
507 (4)	Trial Erection for Steel-Box Girder	t	0		
507 (5)	Permanent Erection for Steel-I Girder	t	0		
507 (6)	Permanent Erection for Steel-Box Girder	t	0		
508 (1)	Painting (Exterior, t=300 microns)	sq.m.	0		
508 (2)	Painting (Interior of Box Girders, t=200 microns)	sq.m.	0		
508 (3)	Thermal Spray for Contact Surface	sq.m.	0		
508 (4)	Painting for Exterior Surface of Contact Surface (t=300 microns)	sq.m.	0		
508 (5)	Painting for Interior Surface of Contact Surface (t=200 microns)	sq.m.	0		
	Expansion Joint				
510 (1)	Expansion Joint Type-Asphaltic Plug	m	86		
510 (2)	Expansion Joint Elastomeric Type for 50mm Gap	m	0		
510 (3)	Expansion Joint Elastomeric Type for 75mm Gap	m	0		
510 (4)	Expansion Joint Elastomeric Type for 100mm Gap	m	0		
	Elastomeric Bearing Pad				
511 (1)	Bearing for I - Girder (Fixed - 560x310x44)	nr.	168		
511 (2)	Bearing for I - Girder (Fixed - 360x260x36)	nr.	0		
511 (3)	Bearing for I - Girder (Fixed - 410x310x40)	nr.	0		
511 (4)	Bearing for I - Girder (Free - 560x360x56)	nr.	0		
511 (5)	Bearing for I - Girder (Free - 560x360x62)	nr.	84		
511 (6)	Bearing for I - Girder (Free - 410x310x50)	nr.	0		
511 (7)	Bearing for I - Girder (Free - 560x310x56)	nr.	0		
511 (8)	Elastomeric enclosed by steel plates type 800kN, Mov.	nr.	0		
511 (9)	Elastomeric enclosed by steel plates type 1,250kN, Fix.	nr.	0		
511 (10)	Elastomeric enclosed by steel plates type 1,250kN, Mov.	nr.	0		
511 (11)	Elastomeric enclosed by steel plates type 3,500kN, Fix.	nr.	0		
511 (12)	Elastomeric enclosed by steel plates type 2,000kN, Mov.	nr.	0		
511 (13)	Elastomeric enclosed by steel plates type 4,000kN, Fix.	nr.	0		
	Miscellaneous				
513 (1)	RC Panel for I Girder Slab	sq.m.	4,085		
513 (2)	RC Panel for Side Walk of Overpass Bridge	sq.m.	0		
513 (3)	Bridge Catch Basin	nr.	63		
513 (4)	Bridge Drainage Pipe PVC 200 mm dia.	m	858		
513 (5)	Painting for Parapet & Kerb	sq.m.	0		
513 (6)	Bridge Mesh Fence (Type-1) for Overpass Bridges	m	0		
513 (7)	Bridge Mesh Fence (Type-2) for Highway Bridges	m	710		
513 (8)	Bridge Raile for Overpass Bridges	m	0		
513 (9)	Bridge Mesh Fence (Type-3) before Highway Bridges	m	20		
513 (10)	Safety Net between Highway Bridges	sq.m.	0		
513 (11)	Bridge Name Plate	nr.	2		
513 (12)	Bridge Pavement	t	971		
513 (13)	Precast Concrete Barrier	nr.	0		
513 (23)	Stopper's Bar and Cap (Approach Slab)	nr.	26		
513 (30)	Gabion Work	cu.m.	3,665		
Total of Section 500 - Structure (H9 Bridge) (Transfer to Summary of Bills of Quantities)					

SECTION 500- STRUCTURE (O8 BRIDGE)

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
	Excavation, Backfill for structures and Rubble Mound				
501 (1)	Excavation - Classified material for re-use	cu.m.	1,792		
501 (4)	Excavation - Soft Rock for re-use	cu.m.	0		
501 (7)	Excavation - Unsuitable Material for disposal	0	0		
501 (10)	Structure Backfill	cu.m.	6,552		
501 (30)	Rubble Foundation	cu.m.	52		
	Piling				
502 (2)	Bored Pile - 1500mm dia.	m	255		
502 (3)	Sonic Logging Test for Pile Integrity	nr.	15		
502 (4)	Static Load Test of Pile	nr.	1		
	Concrete				
503 (1)	Concrete Grade 15 for Leveling Concrete	cu.m.	25		
503 (2)	Concrete Grade 30 for Abutment, Pier	cu.m.	622		
503 (5)	Concrete Grade 30 for Approach Slab	cu.m.	46		
503 (12)	Concrete Grade 40 for Approach Slab	cu.m.	0		
503 (11)	Concrete Grade 40 for Abutment, Pier	cu.m.	0		
503 (13)	Concrete Grade 35 for Cross Beam of PC-I Girder	cu.m.	33		
503 (14)	Concrete Grade 40 for Cross Beam of PC-I Girder	cu.m.	0		
503 (15)	Concrete Grade 35 for Deck Slab	cu.m.	91		
503 (16)	Concrete Grade 40 for Deck Slab	cu.m.	0		
503 (4)	Concrete Grade 30 for Parapet, Sidewalk, Kerb	cu.m.	44		
503 (17)	Concrete Grade 40 for Parapet, Sidewalk, Kerb	cu.m.	0		
	Reinforcement				
504 (1)	High Yield steel bar Grade 460	t	82		
	Fabrication of PC-I Girder				
505 (1)	PC Girder Fabrication - 14.000m long	nr.	0		
505 (2)	PC Girder Fabrication - 15.500m long	nr.	0		
505 (3)	PC Girder Fabrication - 16.000m long	nr.	0		
505 (4)	PC Girder Fabrication - 16.500m long	nr.	0		
505 (5)	PC Girder Fabrication - 17.600m long	nr.	0		
505 (6)	PC Girder Fabrication - 18.000m long	nr.	0		
505 (7)	PC Girder Fabrication - 21.000m long	nr.	12		
505 (8)	PC Girder Fabrication - 22.000m long	nr.	0		
505 (9)	PC Girder Fabrication - 22.500m long	nr.	0		
505 (10)	PC Girder Fabrication - 25.000m long	nr.	0		
505 (11)	PC Girder Fabrication - 29.500m long	nr.	0		
505 (12)	PC Girder Fabrication - 35.000m long	nr.	0		
505 (13)	PC Girder Fabrication - 35.500m long	nr.	0		
505 (14)	PC Girder Fabrication - 35.750m long	nr.	0		
	Erection of PC-I Girder				
505 (15)	PC Girder Erection - 14.000m long	nr.	0		
505 (16)	PC Girder Erection - 15.500m long	nr.	0		
505 (17)	PC Girder Erection - 16.000m long	nr.	0		
505 (18)	PC Girder Erection - 16.500m long	nr.	0		
505 (19)	PC Girder Erection - 17.600m long	nr.	0		
505 (20)	PC Girder Erection - 18.000m long	nr.	0		
505 (21)	PC Girder Erection - 21.000m long	nr.	12		
505 (22)	PC Girder Erection - 22.000m long	nr.	0		
505 (23)	PC Girder Erection - 22.500m long	nr.	0		
505 (24)	PC Girder Erection - 25.000m long	nr.	0		
505 (25)	PC Girder Erection - 29.500m long	nr.	0		
505 (26)	PC Girder Erection -35.000 m long	nr.	0		
505 (27)	PC Girder Erection - 35.500 m long	nr.	0		
505 (28)	PC Girder Erection - 35.750 m long	nr.	0		
505 (29)	PC Girder Erection - 35.500m long by Erection Girder	nr.	0		
505 (29)-1	PC Girder Erection - 35.000m long by Erection Girder	nr.	0		
505 (29)-2	PC Girder Erection - 29.500m long by Erection Girder	nr.	0		

SECTION 500- STRUCTURE (O8 BRIDGE)

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
505 (29)-3	PC Girder Erection - 25.000m long by Erection Girder	nr.	0		
505 (29)-4	PC Girder Erection - 22.500m long by Erection Girder	nr.	0		
505 (29)-5	PC Girder Erection -22.000m long by Erection Girder	nr.	0		
505 (29)-6	PC Girder Erection - 21.000m long by Erection Girder	nr.	0		
	Pre-stressing Strand				
505 (30)	Pre-stressing strand 1S21.8 for Cross Beam of I Girder	kg	568		
	Steel Work				
507 (1)	Fabrication for Steel-I Girder	t	0		
507 (2)	Fabrication for Steel-Box Girder	t	0		
507 (3)	Trial Erection for Steel-I Girder	t	0		
507 (4)	Trial Erection for Steel-Box Girder	t	0		
507 (5)	Permanent Erection for Steel-I Girder	t	0		
507 (6)	Permanent Erection for Steel-Box Girder	t	0		
508 (1)	Painting (Exterior, t=300 microns)	sq.m.	0		
508 (2)	Painting (Interior of Box Girders, t=200 microns)	sq.m.	0		
508 (3)	Thermal Spray for Contact Surface	sq.m.	0		
508 (4)	Painting for Exterior Surface of Contact Surface (t=300 microns)	sq.m.	0		
508 (5)	Painting for Interior Surface of Contact Surface (t=200 microns)	sq.m.	0		
	Expansion Joint				
510 (1)	Expansion Joint Type-Asphaltic Plug	m	22		
510 (2)	Expansion Joint Elastomeric Type for 50mm Gap	m	0		
510 (3)	Expansion Joint Elastomeric Type for 75mm Gap	m	0		
510 (4)	Expansion Joint Elastomeric Type for 100mm Gap	m	0		
	Elastomeric Bearing Pad				
511 (1)	Bearing for I - Girder (Fixed - 560x310x44)	nr.	0		
511 (2)	Bearing for I - Girder (Fixed - 360x260x36)	nr.	12		
511 (3)	Bearing for I - Girder (Fixed - 410x310x40)	nr.	0		
511 (4)	Bearing for I - Girder (Free - 560x360x56)	nr.	0		
511 (5)	Bearing for I - Girder (Free - 560x360x62)	nr.	0		
511 (6)	Bearing for I - Girder (Free - 410x310x50)	nr.	12		
511 (7)	Bearing for I - Girder (Free - 560x310x56)	nr.	0		
511 (8)	Elastomeric enclosed by steel plates type 800kN, Mov.	nr.	0		
511 (9)	Elastomeric enclosed by steel plates type 1,250kN, Fix.	nr.	0		
511 (10)	Elastomeric enclosed by steel plates type 1,250kN, Mov.	nr.	0		
511 (11)	Elastomeric enclosed by steel plates type 3,500kN, Fix.	nr.	0		
511 (12)	Elastomeric enclosed by steel plates type 2,000kN, Mov.	nr.	0		
511 (13)	Elastomeric enclosed by steel plates type 4,000kN, Fix.	nr.	0		
	Concrete Retaining Wall				
513 (1)	RC Panel for I Girder Slab	sq.m.	261		
513 (2)	RC Panel for Side Walk of Overpass Bridge	sq.m.	78		
513 (3)	Bridge Catch Basin	nr.	8		
513 (4)	Bridge Drainage Pipe PVC 200 mm dia.	m	139		
513 (5)	Painting for Parapet & Kerb	sq.m.	0		
513 (6)	Bridge Mesh Fence (Type-1) for Overpass Bridges	m	105		
513 (7)	Bridge Mesh Fence (Type-2) for Highway Bridges	m	0		
513 (8)	Bridge Raile for Overpass Bridges	m	105		
513 (9)	Bridge Mesh Fence (Type-3) before Highway Bridges	m	0		
513 (10)	Safety Net between Highway Bridges	sq.m.	0		
513 (11)	Bridge Name Plate	nr.	2		
513 (12)	Bridge Pavement	t	35		
513 (13)	Precast Concrete Barrier	nr.	0		
513 (23)	Stopper's Bar and Cap (Approach Slab)	nr.	18		
513 (30)	Gabion Work	cu.m.	0		
Total of Section 500 - Structure (O8 Bridge) (Transfer to Summary of Bills of Quantities)					

SECTION 500- STRUCTURE (O9 BRIDGE)

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
	Excavation, Backfill for structures and Rubble Mound				
501 (1)	Excavation - Classified material for re-use	cu.m.	1,416		
501 (4)	Excavation - Soft Rock for re-use	cu.m.	0		
501 (7)	Excavation - Unsuitable Material for disposal	0	0		
501 (10)	Structure Backfill	cu.m.	11,915		
501 (30)	Rubble Foundation	cu.m.	104		
	Piling				
502 (2)	Bored Pile - 1500mm dia.	m	408		
502 (3)	Sonic Logging Test for Pile Integrity	nr.	24		
502 (4)	Static Load Test of Pile	nr.	1		
	Concrete				
503 (1)	Concrete Grade 15 for Leveling Concrete	cu.m.	50		
503 (2)	Concrete Grade 30 for Abutment, Pier	cu.m.	1,649		
503 (5)	Concrete Grade 30 for Approach Slab	cu.m.	66		
503 (12)	Concrete Grade 40 for Approach Slab	cu.m.	0		
503 (11)	Concrete Grade 40 for Abutment, Pier	cu.m.	0		
503 (13)	Concrete Grade 35 for Cross Beam of PC-I Girder	cu.m.	40		
503 (14)	Concrete Grade 40 for Cross Beam of PC-I Girder	cu.m.	0		
503 (15)	Concrete Grade 35 for Deck Slab	cu.m.	138		
503 (16)	Concrete Grade 40 for Deck Slab	cu.m.	0		
503 (4)	Concrete Grade 30 for Parapet, Sidewalk, Kerb	cu.m.	35		
503 (17)	Concrete Grade 40 for Parapet, Sidewalk, Kerb	cu.m.	0		
	Reinforcement				
504 (1)	High Yield steel bar Grade 460	t	175		
	Fabrication of PC-I Girder				
505 (1)	PC Girder Fabrication - 14.000m long	nr.	0		
505 (2)	PC Girder Fabrication - 15.500m long	nr.	0		
505 (3)	PC Girder Fabrication - 16.000m long	nr.	0		
505 (4)	PC Girder Fabrication - 16.500m long	nr.	0		
505 (5)	PC Girder Fabrication - 17.600m long	nr.	0		
505 (6)	PC Girder Fabrication - 18.000m long	nr.	0		
505 (7)	PC Girder Fabrication - 21.000m long	nr.	0		
505 (8)	PC Girder Fabrication - 22.000m long	nr.	0		
505 (9)	PC Girder Fabrication - 22.500m long	nr.	0		
505 (10)	PC Girder Fabrication - 25.000m long	nr.	16		
505 (11)	PC Girder Fabrication - 29.500m long	nr.	0		
505 (12)	PC Girder Fabrication - 35.000m long	nr.	0		
505 (13)	PC Girder Fabrication - 35.500m long	nr.	0		
505 (14)	PC Girder Fabrication - 35.750m long	nr.	0		
	Erection of PC-I Girder				
505 (15)	PC Girder Erection - 14.000m long	nr.	0		
505 (16)	PC Girder Erection - 15.500m long	nr.	0		
505 (17)	PC Girder Erection - 16.000m long	nr.	0		
505 (18)	PC Girder Erection - 16.500m long	nr.	0		
505 (19)	PC Girder Erection - 17.600m long	nr.	0		
505 (20)	PC Girder Erection - 18.000m long	nr.	0		
505 (21)	PC Girder Erection - 21.000m long	nr.	0		
505 (22)	PC Girder Erection - 22.000m long	nr.	0		
505 (23)	PC Girder Erection - 22.500m long	nr.	0		
505 (24)	PC Girder Erection - 25.000m long	nr.	16		
505 (25)	PC Girder Erection - 29.500m long	nr.	0		
505 (26)	PC Girder Erection -35.000 m long	nr.	0		
505 (27)	PC Girder Erection - 35.500 m long	nr.	0		
505 (28)	PC Girder Erection - 35.750 m long	nr.	0		
505 (29)	PC Girder Erection - 35.500m long by Erection Girder	nr.	0		
505 (29)-1	PC Girder Erection - 35.000m long by Erection Girder	nr.	0		
505 (29)-2	PC Girder Erection - 29.500m long by Erection Girder	nr.	0		

SECTION 500- STRUCTURE (O9 BRIDGE)

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
505 (29)-3	PC Girder Erection - 25.000m long by Erection Girder	nr.	0		
505 (29)-4	PC Girder Erection - 22.500m long by Erection Girder	nr.	0		
505 (29)-5	PC Girder Erection -22.000m long by Erection Girder	nr.	0		
505 (29)-6	PC Girder Erection - 21.000m long by Erection Girder	nr.	0		
	Pre-stressing Strand				
505 (30)	Pre-stressing strand 1S21.8 for Cross Beam of I Girder	kg	650		
	Steel Work				
507 (1)	Fabrication for Steel-I Girder	t	0		
507 (2)	Fabrication for Steel-Box Girder	t	0		
507 (3)	Trial Erection for Steel-I Girder	t	0		
507 (4)	Trial Erection for Steel-Box Girder	t	0		
507 (5)	Permanent Erection for Steel-I Girder	t	0		
507 (6)	Permanent Erection for Steel-Box Girder	t	0		
508 (1)	Painting (Exterior, t=300 microns)	sq.m.	0		
508 (2)	Painting (Interior of Box Girders, t=200 microns)	sq.m.	0		
508 (3)	Thermal Spray for Contact Surface	sq.m.	0		
508 (4)	Painting for Exterior Surface of Contact Surface (t=300 microns)	sq.m.	0		
508 (5)	Painting for Interior Surface of Contact Surface (t=200 microns)	sq.m.	0		
	Expansion Joint				
510 (1)	Expansion Joint Type-Asphaltic Plug	m	28		
510 (2)	Expansion Joint Elastomeric Type for 50mm Gap	m	0		
510 (3)	Expansion Joint Elastomeric Type for 75mm Gap	m	0		
510 (4)	Expansion Joint Elastomeric Type for 100mm Gap	m	0		
	Elastomeric Bearing Pad				
511 (1)	Bearing for I - Girder (Fixed - 560x310x44)	nr.	0		
511 (2)	Bearing for I - Girder (Fixed - 360x260x36)	nr.	0		
511 (3)	Bearing for I - Girder (Fixed - 410x310x40)	nr.	16		
511 (4)	Bearing for I - Girder (Free - 560x360x56)	nr.	0		
511 (5)	Bearing for I - Girder (Free - 560x360x62)	nr.	0		
511 (6)	Bearing for I - Girder (Free - 410x310x50)	nr.	0		
511 (7)	Bearing for I - Girder (Free - 560x310x56)	nr.	16		
511 (8)	Elastomeric enclosed by steel plates type 800kN, Mov.	nr.	0		
511 (9)	Elastomeric enclosed by steel plates type 1,250kN, Fix.	nr.	0		
511 (10)	Elastomeric enclosed by steel plates type 1,250kN, Mov.	nr.	0		
511 (11)	Elastomeric enclosed by steel plates type 3,500kN, Fix.	nr.	0		
511 (12)	Elastomeric enclosed by steel plates type 2,000kN, Mov.	nr.	0		
511 (13)	Elastomeric enclosed by steel plates type 4,000kN, Fix.	nr.	0		
	Miscellaneous				
513 (1)	RC Panel for I Girder Slab	sq.m.	354		
513 (2)	RC Panel for Side Walk of Overpass Bridge	sq.m.	75		
513 (3)	Bridge Catch Basin	nr.	8		
513 (4)	Bridge Drainage Pipe PVC 200 mm dia.	m	167		
513 (5)	Painting for Parapet & Kerb	sq.m.	0		
513 (6)	Bridge Mesh Fence (Type-1) for Overpass Bridges	m	120		
513 (7)	Bridge Mesh Fence (Type-2) for Highway Bridges	m	0		
513 (8)	Bridge Raile for Overpass Bridges	m	120		
513 (9)	Bridge Mesh Fence (Type-3) before Highway Bridges	m	0		
513 (10)	Safety Net between Highway Bridges	sq.m.	0		
513 (11)	Bridge Name Plate	nr.	2		
513 (12)	Bridge Pavement	t	60		
513 (13)	Precast Concrete Barrier	nr.	0		
513 (23)	Stopper's Bar and Cap (Approach Slab)	nr.	28		
513 (30)	Gabion Work	cu.m.	0		
Total of Section 500 - Structure (O9 Bridge) (Transfer to Summary of Bills of Quantities)					

SECTION 500- STRUCTURE (O10 BRIDGE)

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
Excavation, Backfill for structures and Rubble Mound					
501 (1)	Excavation - Classified material for re-use	cu.m.	1,352		
501 (4)	Excavation - Soft Rock for re-use	cu.m.	0		
501 (7)	Excavation - Unsuitable Material for disposal	0	0		
501 (10)	Structure Backfill	cu.m.	6,837		
501 (30)	Rubble Foundation	cu.m.	93		
Piling					
502 (2)	Bored Pile - 1500mm dia.	m	0		
502 (3)	Sonic Logging Test for Pile Integrity	nr.	0		
502 (4)	Static Load Test of Pile	nr.	0		
Concrete					
503 (1)	Concrete Grade 15 for Leveling Concrete	cu.m.	44		
503 (2)	Concrete Grade 30 for Abutment, Pier	cu.m.	844		
503 (5)	Concrete Grade 30 for Approach Slab	cu.m.	66		
503 (12)	Concrete Grade 40 for Approach Slab	cu.m.	0		
503 (11)	Concrete Grade 40 for Abutment, Pier	cu.m.	0		
503 (13)	Concrete Grade 35 for Cross Beam of PC-I Girder	cu.m.	37		
503 (14)	Concrete Grade 40 for Cross Beam of PC-I Girder	cu.m.	0		
503 (15)	Concrete Grade 35 for Deck Slab	cu.m.	122		
503 (16)	Concrete Grade 40 for Deck Slab	cu.m.	0		
503 (4)	Concrete Grade 30 for Parapet, Sidewalk, Kerb	cu.m.	45		
503 (17)	Concrete Grade 40 for Parapet, Sidewalk, Kerb	cu.m.	0		
Reinforcement					
504 (1)	High Yield steel bar Grade 460	t	125		
Fabrication of PC-I Girder					
505 (1)	PC Girder Fabrication - 14.000m long	nr.	0		
505 (2)	PC Girder Fabrication - 15.500m long	nr.	0		
505 (3)	PC Girder Fabrication - 16.000m long	nr.	0		
505 (4)	PC Girder Fabrication - 16.500m long	nr.	0		
505 (5)	PC Girder Fabrication - 17.600m long	nr.	0		
505 (6)	PC Girder Fabrication - 18.000m long	nr.	0		
505 (7)	PC Girder Fabrication - 21.000m long	nr.	0		
505 (8)	PC Girder Fabrication - 22.000m long	nr.	16		
505 (9)	PC Girder Fabrication - 22.500m long	nr.	0		
505 (10)	PC Girder Fabrication - 25.000m long	nr.	0		
505 (11)	PC Girder Fabrication - 29.500m long	nr.	0		
505 (12)	PC Girder Fabrication - 35.000m long	nr.	0		
505 (13)	PC Girder Fabrication - 35.500m long	nr.	0		
505 (14)	PC Girder Fabrication - 35.750m long	nr.	0		
Erection of PC-I Girder					
505 (15)	PC Girder Erection - 14.000m long	nr.	0		
505 (16)	PC Girder Erection - 15.500m long	nr.	0		
505 (17)	PC Girder Erection - 16.000m long	nr.	0		
505 (18)	PC Girder Erection - 16.500m long	nr.	0		
505 (19)	PC Girder Erection - 17.600m long	nr.	0		
505 (20)	PC Girder Erection - 18.000m long	nr.	0		
505 (21)	PC Girder Erection - 21.000m long	nr.	0		
505 (22)	PC Girder Erection - 22.000m long	nr.	16		
505 (23)	PC Girder Erection - 22.500m long	nr.	0		
505 (24)	PC Girder Erection - 25.000m long	nr.	0		
505 (25)	PC Girder Erection - 29.500m long	nr.	0		
505 (26)	PC Girder Erection -35.000 m long	nr.	0		
505 (27)	PC Girder Erection - 35.500 m long	nr.	0		
505 (28)	PC Girder Erection - 35.750 m long	nr.	0		
505 (29)	PC Girder Erection - 35.500m long by Erection Girder	nr.	0		
505 (29)-1	PC Girder Erection - 35.000m long by Erection Girder	nr.	0		
505 (29)-2	PC Girder Erection - 29.500m long by Erection Girder	nr.	0		

SECTION 500- STRUCTURE (O10 BRIDGE)

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
505 (29)-3	PC Girder Erection - 25.000m long by Erection Girder	nr.	0		
505 (29)-4	PC Girder Erection - 22.500m long by Erection Girder	nr.	0		
505 (29)-5	PC Girder Erection -22.000m long by Erection Girder	nr.	0		
505 (29)-6	PC Girder Erection - 21.000m long by Erection Girder	nr.	0		
	Pre-stressing Strand				
505 (30)	Pre-stressing strand 1S21.8 for Cross Beam of I Girder	kg	733		
	Steel Work				
507 (1)	Fabrication for Steel-I Girder	t	0		
507 (2)	Fabrication for Steel-Box Girder	t	0		
507 (3)	Trial Erection for Steel-I Girder	t	0		
507 (4)	Trial Erection for Steel-Box Girder	t	0		
507 (5)	Permanent Erection for Steel-I Girder	t	0		
507 (6)	Permanent Erection for Steel-Box Girder	t	0		
508 (1)	Painting (Exterior, t=300 microns)	sq.m.	0		
508 (2)	Painting (Interior of Box Girders, t=200 microns)	sq.m.	0		
508 (3)	Thermal Spray for Contact Surface	sq.m.	0		
508 (4)	Painting for Exterior Surface of Contact Surface (t=300 microns)	sq.m.	0		
508 (5)	Painting for Interior Surface of Contact Surface (t=200 microns)	sq.m.	0		
	Expansion Joint				
510 (1)	Expansion Joint Type-Asphaltic Plug	m	28		
510 (2)	Expansion Joint Elastomeric Type for 50mm Gap	m	0		
510 (3)	Expansion Joint Elastomeric Type for 75mm Gap	m	0		
510 (4)	Expansion Joint Elastomeric Type for 100mm Gap	m	0		
	Elastomeric Bearing Pad				
511 (1)	Bearing for I - Girder (Fixed - 560x310x44)	nr.	0		
511 (2)	Bearing for I - Girder (Fixed - 360x260x36)	nr.	16		
511 (3)	Bearing for I - Girder (Fixed - 410x310x40)	nr.	0		
511 (4)	Bearing for I - Girder (Free - 560x360x56)	nr.	0		
511 (5)	Bearing for I - Girder (Free - 56x360x62)	nr.	0		
511 (6)	Bearing for I - Girder (Free - 410x310x50)	nr.	16		
511 (7)	Bearing for I - Girder (Free - 560x310x56)	nr.	0		
511 (8)	Elastomeric enclosed by steel plates type 800kN, Mov.	nr.	0		
511 (9)	Elastomeric enclosed by steel plates type 1,250kN, Fix.	nr.	0		
511 (10)	Elastomeric enclosed by steel plates type 1,250kN, Mov.	nr.	0		
511 (11)	Elastomeric enclosed by steel plates type 3,500kN, Fix.	nr.	0		
511 (12)	Elastomeric enclosed by steel plates type 2,000kN, Mov.	nr.	0		
511 (13)	Elastomeric enclosed by steel plates type 4,000kN, Fix.	nr.	0		
	Miscellaneous				
513 (1)	RC Panel for I Girder Slab	sq.m.	314		
513 (2)	RC Panel for Side Walk of Overpass Bridge	sq.m.	80		
513 (3)	Bridge Catch Basin	nr.	8		
513 (4)	Bridge Drainage Pipe PVC 200 mm dia.	m	151		
513 (5)	Painting for Parapet & Kerb	sq.m.	0		
513 (6)	Bridge Mesh Fence (Type-1) for Overpass Bridges	m	110		
513 (7)	Bridge Mesh Fence (Type-2) for Highway Bridges	m	0		
513 (8)	Bridge Raile for Overpass Bridges	m	110		
513 (9)	Bridge Mesh Fence (Type-3) before Highway Bridges	m	0		
513 (10)	Safety Net between Highway Bridges	sq.m.	0		
513 (11)	Bridge Name Plate	nr.	2		
513 (12)	Bridge Pavement	t	53		
513 (13)	Precast Concrete Barrier	nr.	0		
513 (23)	Stopper's Bar and Cap (Approach Slab)	nr.	26		
513 (30)	Gabion Work	cu.m.	0		
Total of Section 500 - Structure (O10 Bridge) (Transfer to Summary of Bills of Quantities)					

SECTION 500- STRUCTURE (O11 BRIDGE)

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
	Excavation, Backfill for structures and Rubble Mound				
501 (1)	Excavation - Classified material for re-use	cu.m.	3,204		
501 (4)	Excavation - Soft Rock for re-use	cu.m.	0		
501 (7)	Excavation - Unsuitable Material for disposal	0	0		
501 (10)	Structure Backfill	cu.m.	8,931		
501 (30)	Rubble Foundation	cu.m.	156		
	Piling				
502 (2)	Bored Pile - 1500mm dia.	m	0		
502 (3)	Sonic Logging Test for Pile Integrity	nr.	0		
502 (4)	Static Load Test of Pile	nr.	0		
	Concrete				
503 (1)	Concrete Grade 15 for Leveling Concrete	cu.m.	74		
503 (2)	Concrete Grade 30 for Abutment, Pier	cu.m.	1,284		
503 (5)	Concrete Grade 30 for Approach Slab	cu.m.	119		
503 (12)	Concrete Grade 40 for Approach Slab	cu.m.	0		
503 (11)	Concrete Grade 40 for Abutment, Pier	cu.m.	0		
503 (13)	Concrete Grade 35 for Cross Beam of PC-I Girder	cu.m.	58		
503 (14)	Concrete Grade 40 for Cross Beam of PC-I Girder	cu.m.	0		
503 (15)	Concrete Grade 35 for Deck Slab	cu.m.	198		
503 (16)	Concrete Grade 40 for Deck Slab	cu.m.	0		
503 (4)	Concrete Grade 30 for Parapet, Sidewalk, Kerb	cu.m.	37		
503 (17)	Concrete Grade 40 for Parapet, Sidewalk, Kerb	cu.m.	0		
	Reinforcement				
504 (1)	High Yield steel bar Grade 460	t	171		
	Fabrication of PC-I Girder				
505 (1)	PC Girder Fabrication - 14.000m long	nr.	0		
505 (2)	PC Girder Fabrication - 15.500m long	nr.	0		
505 (3)	PC Girder Fabrication - 16.000m long	nr.	0		
505 (4)	PC Girder Fabrication - 16.500m long	nr.	0		
505 (5)	PC Girder Fabrication - 17.600m long	nr.	0		
505 (6)	PC Girder Fabrication - 18.000m long	nr.	0		
505 (7)	PC Girder Fabrication - 21.000m long	nr.	0		
505 (8)	PC Girder Fabrication - 22.000m long	nr.	0		
505 (9)	PC Girder Fabrication - 22.500m long	nr.	26		
505 (10)	PC Girder Fabrication - 25.000m long	nr.	0		
505 (11)	PC Girder Fabrication - 29.500m long	nr.	0		
505 (12)	PC Girder Fabrication - 35.000m long	nr.	0		
505 (13)	PC Girder Fabrication - 35.500m long	nr.	0		
505 (14)	PC Girder Fabrication - 35.750m long	nr.	0		
	Erection of PC-I Girder				
505 (15)	PC Girder Erection - 14.000m long	nr.	0		
505 (16)	PC Girder Erection - 15.500m long	nr.	0		
505 (17)	PC Girder Erection - 16.000m long	nr.	0		
505 (18)	PC Girder Erection - 16.500m long	nr.	0		
505 (19)	PC Girder Erection - 17.600m long	nr.	0		
505 (20)	PC Girder Erection - 18.000m long	nr.	0		
505 (21)	PC Girder Erection - 21.000m long	nr.	0		
505 (22)	PC Girder Erection - 22.000m long	nr.	0		
505 (23)	PC Girder Erection - 22.500m long	nr.	26		
505 (24)	PC Girder Erection - 25.000m long	nr.	0		
505 (25)	PC Girder Erection - 29.500m long	nr.	0		
505 (26)	PC Girder Erection -35.000 m long	nr.	0		
505 (27)	PC Girder Erection - 35.500 m long	nr.	0		
505 (28)	PC Girder Erection - 35.750 m long	nr.	0		
505 (29)	PC Girder Erection - 35.500m long by Erection Girder	nr.	0		
505 (29)-1	PC Girder Erection - 35.000m long by Erection Girder	nr.	0		
505 (29)-2	PC Girder Erection - 29.500m long by Erection Girder	nr.	0		

SECTION 500- STRUCTURE (O11 BRIDGE)

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
505 (29)-3	PC Girder Erection - 25.000m long by Erection Girder	nr.	0		
505 (29)-4	PC Girder Erection - 22.500m long by Erection Girder	nr.	0		
505 (29)-5	PC Girder Erection -22.000m long by Erection Girder	nr.	0		
505 (29)-6	PC Girder Erection - 21.000m long by Erection Girder	nr.	0		
	Pre-stressing Strand				
505 (30)	Pre-stressing strand 1S21.8 for Cross Beam of I Girder	kg	1,295		
	Steel Work				
507 (1)	Fabrication for Steel-I Girder	t	0		
507 (2)	Fabrication for Steel-Box Girder	t	0		
507 (3)	Trial Erection for Steel-I Girder	t	0		
507 (4)	Trial Erection for Steel-Box Girder	t	0		
507 (5)	Permanent Erection for Steel-I Girder	t	0		
507 (6)	Permanent Erection for Steel-Box Girder	t	0		
508 (1)	Painting (Exterior, t=300 microns)	sq.m.	0		
508 (2)	Painting (Interior of Box Girders, t=200 microns)	sq.m.	0		
508 (3)	Thermal Spray for Contact Surface	sq.m.	0		
508 (4)	Painting for Exterior Surface of Contact Surface (t=300 microns)	sq.m.	0		
508 (5)	Painting for Interior Surface of Contact Surface (t=200 microns)	sq.m.	0		
	Expansion Joint				
510 (1)	Expansion Joint Type-Asphaltic Plug	m	47		
510 (2)	Expansion Joint Elastomeric Type for 50mm Gap	m	0		
510 (3)	Expansion Joint Elastomeric Type for 75mm Gap	m	0		
510 (4)	Expansion Joint Elastomeric Type for 100mm Gap	m	0		
	Elastomeric Bearing Pad				
511 (1)	Bearing for I - Girder (Fixed - 560x310x44)	nr.	0		
511 (2)	Bearing for I - Girder (Fixed - 360x260x36)	nr.	26		
511 (3)	Bearing for I - Girder (Fixed - 410x310x40)	nr.	0		
511 (4)	Bearing for I - Girder (Free - 560x660x56)	nr.	0		
511 (5)	Bearing for I - Girder (Free - 550x360x62)	nr.	0		
511 (6)	Bearing for I - Girder (Free - 410x310x50)	nr.	26		
511 (7)	Bearing for I - Girder (Free - 560x310x56)	nr.	0		
511 (8)	Elastomeric enclosed by steel plates type 800kN, Mov.	nr.	0		
511 (9)	Elastomeric enclosed by steel plates type 1,250kN, Fix.	nr.	0		
511 (10)	Elastomeric enclosed by steel plates type 1,250kN, Mov.	nr.	0		
511 (11)	Elastomeric enclosed by steel plates type 3,500kN, Fix.	nr.	0		
511 (12)	Elastomeric enclosed by steel plates type 2,000kN, Mov.	nr.	0		
511 (13)	Elastomeric enclosed by steel plates type 4,000kN, Fix.	nr.	0		
	Miscellaneous				
513 (1)	RC Panel for I Girder Slab	sq.m.	545		
513 (2)	RC Panel for Side Walk of Overpass Bridge	sq.m.	82		
513 (3)	Bridge Catch Basin	nr.	8		
513 (4)	Bridge Drainage Pipe PVC 200 mm dia.	m	173		
513 (5)	Painting for Parapet & Kerb	sq.m.	0		
513 (6)	Bridge Mesh Fence (Type-1) for Overpass Bridges	m	119		
513 (7)	Bridge Mesh Fence (Type-2) for Highway Bridges	m	0		
513 (8)	Bridge Raile for Overpass Bridges	m	119		
513 (9)	Bridge Mesh Fence (Type-3) before Highway Bridges	m	0		
513 (10)	Safety Net between Highway Bridges	sq.m.	0		
513 (11)	Bridge Name Plate	nr.	2		
513 (12)	Bridge Pavement	t	92		
513 (13)	Precast Concrete Barrier	nr.	0		
513 (23)	Stopper's Bar and Cap (Approach Slab)	nr.	48		
513 (30)	Gabion Work	cu.m.	0		
Total of Section 500 - Structure (O11 Bridge) (Transfer to Summary of Bills of Quantities)					

SECTION 500- STRUCTURE (O12 BRIDGE)

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
Excavation, Backfill for structures and Rubble Mound					
501 (1)	Excavation - Classified material for re-use	cu.m.	1,689		
501 (4)	Excavation - Soft Rock for re-use	cu.m.	0		
501 (7)	Excavation - Unsuitable Material for disposal	0	0		
501 (10)	Structure Backfill	cu.m.	5,636		
501 (30)	Rubble Foundation	cu.m.	55		
Piling					
502 (2)	Bored Pile - 1500mm dia.	m	255		
502 (3)	Sonic Logging Test for Pile Integrity	nr.	15		
502 (4)	Static Load Test of Pile	nr.	1		
Concrete					
503 (1)	Concrete Grade 15 for Leveling Concrete	cu.m.	26		
503 (2)	Concrete Grade 30 for Abutment, Pier	cu.m.	637		
503 (5)	Concrete Grade 30 for Approach Slab	cu.m.	46		
503 (12)	Concrete Grade 40 for Approach Slab	cu.m.	0		
503 (11)	Concrete Grade 40 for Abutment, Pier	cu.m.	0		
503 (13)	Concrete Grade 35 for Cross Beam of PC-I Girder	cu.m.	32		
503 (14)	Concrete Grade 40 for Cross Beam of PC-I Girder	cu.m.	0		
503 (15)	Concrete Grade 35 for Deck Slab	cu.m.	97		
503 (16)	Concrete Grade 40 for Deck Slab	cu.m.	0		
503 (4)	Concrete Grade 30 for Parapet, Sidewalk, Kerb	cu.m.	32		
503 (17)	Concrete Grade 40 for Parapet, Sidewalk, Kerb	cu.m.	0		
Reinforcement					
504 (1)	High Yield steel bar Grade 460	t	83		
Fabrication of PC-I Girder					
505 (1)	PC Girder Fabrication - 14.000m long	nr.	0		
505 (2)	PC Girder Fabrication - 15.500m long	nr.	0		
505 (3)	PC Girder Fabrication - 16.000m long	nr.	0		
505 (4)	PC Girder Fabrication - 16.500m long	nr.	0		
505 (5)	PC Girder Fabrication - 17.600m long	nr.	0		
505 (6)	PC Girder Fabrication - 18.000m long	nr.	0		
505 (7)	PC Girder Fabrication - 21.000m long	nr.	0		
505 (8)	PC Girder Fabrication - 22.000m long	nr.	0		
505 (9)	PC Girder Fabrication - 22.500m long	nr.	12		
505 (10)	PC Girder Fabrication - 25.000m long	nr.	0		
505 (11)	PC Girder Fabrication - 29.500m long	nr.	0		
505 (12)	PC Girder Fabrication - 35.000m long	nr.	0		
505 (13)	PC Girder Fabrication - 35.500m long	nr.	0		
505 (14)	PC Girder Fabrication - 35.750m long	nr.	0		
Erection of PC-I Girder					
505 (15)	PC Girder Erection - 14.000m long	nr.	0		
505 (16)	PC Girder Erection - 15.500m long	nr.	0		
505 (17)	PC Girder Erection - 16.000m long	nr.	0		
505 (18)	PC Girder Erection - 16.500m long	nr.	0		
505 (19)	PC Girder Erection - 17.600m long	nr.	0		
505 (20)	PC Girder Erection - 18.000m long	nr.	0		
505 (21)	PC Girder Erection - 21.000m long	nr.	0		
505 (22)	PC Girder Erection - 22.000m long	nr.	0		
505 (23)	PC Girder Erection - 22.500m long	nr.	12		
505 (24)	PC Girder Erection - 25.000m long	nr.	0		
505 (25)	PC Girder Erection - 29.500m long	nr.	0		
505 (26)	PC Girder Erection -35.000 m long	nr.	0		
505 (27)	PC Girder Erection - 35.500 m long	nr.	0		
505 (28)	PC Girder Erection - 35.750 m long	nr.	0		
505 (29)	PC Girder Erection - 35.500m long by Erection Girder	nr.	0		
505 (29)-1	PC Girder Erection - 35.000m long by Erection Girder	nr.	0		
505 (29)-2	PC Girder Erection - 29.500m long by Erection Girder	nr.	0		

SECTION 500- STRUCTURE (O12 BRIDGE)

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
505 (29)-3	PC Girder Erection - 25.000m long by Erection Girder	nr.	0		
505 (29)-4	PC Girder Erection - 22.500m long by Erection Girder	nr.	0		
505 (29)-5	PC Girder Erection -22.000m long by Erection Girder	nr.	0		
505 (29)-6	PC Girder Erection - 21.000m long by Erection Girder	nr.	0		
	Pre-stressing Strand				
505 (30)	Pre-stressing strand 1S21.8 for Cross Beam of I Girder	kg	625		
	Steel Work				
507 (1)	Fabrication for Steel-I Girder	t	0		
507 (2)	Fabrication for Steel-Box Girder	t	0		
507 (3)	Trial Erection for Steel-I Girder	t	0		
507 (4)	Trial Erection for Steel-Box Girder	t	0		
507 (5)	Permanent Erection for Steel-I Girder	t	0		
507 (6)	Permanent Erection for Steel-Box Girder	t	0		
508 (1)	Painting (Exterior, t=300 microns)	sq.m.	0		
508 (2)	Painting (Interior of Box Girders, t=200 microns)	sq.m.	0		
508 (3)	Thermal Spray for Contact Surface	sq.m.	0		
508 (4)	Painting for Exterior Surface of Contact Surface (t=300 microns)	sq.m.	0		
508 (5)	Painting for Interior Surface of Contact Surface (t=200 microns)	sq.m.	0		
	Expansion Joint				
510 (1)	Expansion Joint Type-Asphaltic Plug	m	23		
510 (2)	Expansion Joint Elastomeric Type for 50mm Gap	m	0		
510 (3)	Expansion Joint Elastomeric Type for 75mm Gap	m	0		
510 (4)	Expansion Joint Elastomeric Type for 100mm Gap	m	0		
	Elastomeric Bearing Pad				
511 (1)	Bearing for I - Girder (Fixed - 560x310x44)	nr.	0		
511 (2)	Bearing for I - Girder (Fixed - 360x260x36)	nr.	12		
511 (3)	Bearing for I - Girder (Fixed - 410x310x40)	nr.	0		
511 (4)	Bearing for I - Girder (Free - 560x360x56)	nr.	0		
511 (5)	Bearing for I - Girder (Free - 560x360x62)	nr.	0		
511 (6)	Bearing for I - Girder (Free - 410x310x50)	nr.	12		
511 (7)	Bearing for I - Girder (Free - 560x310x56)	nr.	0		
511 (8)	Elastomeric enclosed by steel plates type 800kN, Mov.	nr.	0		
511 (9)	Elastomeric enclosed by steel plates type 1,250kN, Fix.	nr.	0		
511 (10)	Elastomeric enclosed by steel plates type 1,250kN, Mov.	nr.	0		
511 (11)	Elastomeric enclosed by steel plates type 3,500kN, Fix.	nr.	0		
511 (12)	Elastomeric enclosed by steel plates type 2,000kN, Mov.	nr.	0		
511 (13)	Elastomeric enclosed by steel plates type 4,000kN, Fix.	nr.	0		
	Miscellaneous				
513 (1)	RC Panel for I Girder Slab	sq.m.	272		
513 (2)	RC Panel for Side Walk of Overpass Bridge	sq.m.	69		
513 (3)	Bridge Catch Basin	nr.	8		
513 (4)	Bridge Drainage Pipe PVC 200 mm dia.	m	148		
513 (5)	Painting for Parapet & Kerb	sq.m.	0		
513 (6)	Bridge Mesh Fence (Type-1) for Overpass Bridges	m	100		
513 (7)	Bridge Mesh Fence (Type-2) for Highway Bridges	m	0		
513 (8)	Bridge Raile for Overpass Bridges	m	100		
513 (9)	Bridge Mesh Fence (Type-3) before Highway Bridges	m	0		
513 (10)	Safety Net between Highway Bridges	sq.m.	0		
513 (11)	Bridge Name Plate	nr.	2		
513 (12)	Bridge Pavement	t	38		
513 (13)	Precast Concrete Barrier	nr.	0		
513 (23)	Stopper's Bar and Cap (Approach Slab)	nr.	18		
513 (30)	Gabion Work	cu.m.	0		
Total of Section 500 - Structure (O12 Bridge) (Transfer to Summary of Bills of Quantities)					

SECTION 500-STRUCTURE (BOX CULVERT)

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
Excavation, Backfill for structures and Rubble Mound					
501 (7)	Excavation - Unsuitable Material for disposal	cu.m.	0		
501 (10)	Structure Backfill	cu.m.	0		
501 (30)	Rubble Foundation	cu.m.	2,965		
Concrete					
503 (1)	Concrete Grade 15 (Leveling Concrete)	cu.m.	1,510		
503 (5)	Concrete Grade 30 for Approach Slab	cu.m.	1,818		
503 (9)	Concrete Grade 30 for Box Culvert	cu.m.	18,802		
Reinforcement					
504 (1)	High Yield Steel Bar Grade 460	t	2,280		
Miscellaneous					
513 (17)	Dry Stone Lining	cu.m.	5,498		
513 (12)-1	Filter Layer	sq.m.	9,817		
513 (13)-1	Clay Puddling	cu.m.	590		
513 (14)	Joint Filler	sq.m.	1,315		
513 (15)	Water Stop	m	2,249		
513 (16)	PVC Pipe 75mm dia.	m	479		
605 (1)	Gabion (2x1.2x0.5 m)	cu.m.	180		
513 (23)	Stopper's Bar and Cap	n.	846		
513 (25)	Joint filler for Approach Slab	sq.m.	534		
Total of Section 500-STRUCTURE (Box Culvert) (Transfer to Summary of Bills of Quantities)					

SECTION 500 -STRUCTURE (RETAINING WALL)

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
	Excavation, Backfill for structures and Rubble Mound				
501 (7)	Excavation - Unsuitable Material for disposal	cu.m.	0		
501 (30)	Rubble Foundation	cu.m.	625		
	Concrete				
503 (1)	Concrete Grade 15	cu.m.	313		
503 (10)	Concrete Grade 30	cu.m.	5,360		
	Reinforcement				
504 (1)	High Yield Steel Bar Grade 460	t	96		
	Dry Stone Mansory				
513 (17)	Dry Stone Masonry	cu,m	1,572		
513 (16)	PVC 75mm dia.	m	1,323		
513 (13)-1	Clay Puddling	cu,m	122		
606 (1)	Geotextile for Gabion (9.5KN/m)	sq.m.	1,954		
Total of Section 500 -STRUCTURE (Retaining Wall) (Transfer to Summary of Bills of Quantities)					

SECTION 600- DRAINAGE

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
	Pipe Culvert				
	Type P-M(B)				
601 (6)	Type P-M(B) - 450mm dia. (Class A Bedding / Pipe Type M)	m	923		
601 (7)	Type P-M(B) - 600mm dia. (Class A Bedding / Pipe Type M)	m	44		
601 (9)	Type P-M(B) - 1200mm dia. (Class A Bedding / Pipe Type M)	m	30		
	Type P-L(C-1)				
601 (31)	Type P-L(C-1) - 450mm dia. (Class C-1 Bedding / Pipe Type L)	m	22		
601 (32)	Type P-L(C-1) - 600mm dia. (Class C-1 Bedding / Pipe Type L)	m	15		
	Ditches				
602 (2)	Type DS (M)B	m	7,177		
602 (3)	Type DS (M)C	m	3,791		
602 (4)	Type DS (M)D	m	4,985		
602 (6)	Type DS (M)Gb	m	130		
602 (8)	Type DS (M)Gd	m	650		
602 (13)	Type DS (M)Gi	m	94		
602 (16)	Type DS (M)Gl	m	1,627		
602 (18)	Type DS (M)Gn	m	966		
602 (20)-2	Type DS (M)Gr	m	37		
602 (20)-3	Type DS (M)Gs	m	292		
602 (20)-4	Type DS (M)Gt	m	115		
602 (20)-5	Type DS (M)Gu	m	141		
602 (21)	Type DV(M)-E	m	1,948		
602 (27)	Type DS (C)Aa	m	2,463		
602 (29)	Type DS (C)Ac	m	895		
602 (30)	Type DS (C)Ad	m	156		
602 (32)	Type DS (C)Ba	m	46		
602 (41)	Type DS (C)E	m	848		
602 (42)	Type DS (C)F	m	1,178		
602 (45)	Type DS(C) I	m	99		
602 (45)-2	Type DS (C) K	m	79		
602 (45)-3	Type DS(C) La	m	1,037		
602 (45)-4	Type DS (C) Lb	m	34		
602 (45)-5	Type DS (C) M	m	729		
602 (45)-6	Type DS (C) N	m	621		
602 (20)-2	Type DS (M)Gr	m	37		
602 (20)-3	Type DS (M)Gs	m	292		
602 (20)-4	Type DS (M)Gt	m	115		
602 (20)-5	Type DS (M)Gu	m	141		
602 (45)-8	Type CDS(C)-L1a	nr.	5		
602 (45)-9	Type CDS(C)-L1b	nr.	4		
602 (45)-10	Type CDS(C)-H1b	nr.	5		
602 (45)-11	Type CDS(C)-H2b	nr.	6		
602 (45)-12	Type CDS(C)-H3b	nr.	3		
602 (45)-13	Type CDS(M)-L1a	nr.	8		
602 (45)-14	Type CDS(M)-L1b	nr.	2		
602 (45)-16	Type CDS(M)-L1d	nr.	4		
602 (45)-17	Type CDS(M)-H1b	nr.	1		
602 (45)-18	Type CDS(M)-H2b	nr.	2		
	Catch Basin				
602 (53)	AS - CB	m	12,676		
	Catch Basin				
603 (1)	Catch Basin Type CB-A	nr.	190		
603 (6)	Catch Basin Type CB-E	nr.	39		
603 (7)	Catch Basin Type CB-Fa	nr.	26		
603 (8)	Catch Basin Type CB-Fb	nr.	81		
603 (15)	Catch Basin Type CB-J	nr.	1		
603 (15)-1	Catch Basin Type CB-M	nr.	30		

SECTION 600- DRAINAGE

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
603 (15)-2	Catch Basin Type CB-La	nr.	8		
603 (15)-3	Catch Basin Type CB-Lb	nr.	4		
603 (15)-4	Catch Basin Type CB-Ka	nr.	14		
603 (15)-5	Catch Basin Type CB-Kb	nr.	11		
	Gabions				
605 (1)	Gabion (Box type 2x1.2x 0.5m)	cu.m.	5,296		
605 (2)	Gabion (Cylinder type ϕ 450mm, L=4.0m)	cu.m.	9,928		
	Geotextile				
606 (1)	Geotextile for Gabion (9.5KN/m)	sq.m.	43,095		
	River Relocation Work				
607 (1)	Minor Flood Protection Scheme (Rakgahawatta)	l.s.	1		
607 (2)	River Relocation	l.s.	1		
Total of Section 600 - Drainage (Transfer to Summary of Bills of Quantities)					

SECTION 700- INCIDENTALS

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
	Stone Masonry Slope Protection				
701 (1)	Slope Protection Type SM-A height not exceeding 1m	sq.m.	0		
701 (2)	Slope Protection Type SM-A height exceeding 1m not exceeding 3m	sq.m.	0		
701 (3)	Slope Protection Type SM-A height exceeding 3m	sq.m.	0		
701 (4)	Slope Protection Type SM-B height not exceeding 1m	sq.m.	0		
701 (5)	Slope Protection Type SM-B height exceeding 1m not exceeding 3m	sq.m.	0		
701 (6)	Slope Protection Type SM-B height exceeding 3 m not exceeding 5m	sq.m.	0		
701 (7)	Slope Protection Type SM-B height exceeding 5m	sq.m.	2,048		
	Greenery Works	nr.	16,020		
702 (1)	Embankment Turfing	sq.m.	130,184		
702 (2)	Grass Planting for Cut Slope	sq.m.	38,720		
702 (3)	Embankment Shrubs	nr.	58,020		
702 (4)	Cut Slope Ground Covers	nr.	5,730		
702 (5)	Interchange Palm Trees	nr.	0		
702 (6)	Interchange Foliage Plants	nr.	0		
702 (7)	Informal Hedge Trees	nr.	13,756		
702 (8)	Informal Hedge Shrubs	nr.	16,020		
	Road Furniture				
	Guard Rail	nr.	13		
703 (1)	Guard Rail (Road side) - Gr - 4.0	m	13,847		
703 (2)	Guard Rail (Road side) - Gr - 2.0	m	595		
703 (3)	Emergency Median Opening (Chain Links)	m	200		
703 (4)	Median Cable Barrier	m	0		
	Fence	nr.	2		
704 (1)	Right of Way Fence	m	15,972		
	Traffic Signs	sq.m.	13,264		
705 (1)	Traffic Sign Board - Regular Size - Round 600mm	nr.	13		
705 (1)-1	Traffic Sign Board - Regular Size - Square 600mm	nr.	25		
705 (2)	Traffic Sign Board - Regular Size - Round 900mm	nr.	25		
705 (2)-1	Traffic Sign Board - Regular Size - Square 900mm	nr.	11		
705 (3)	Traffic Sign Board - Rectangle Variable Dimension	sq.m	195		
705 (4)	Traffic Sign Board - Gantry Mounted	nr.	2		
	Road Marking	nr.	74		
706 (1)	Road Marking with Reflectorized Thermoplastic Paint	sq.m.	13,264		
	Roadside Markers	nr.	27		
707 (1)	Kilometer Post	nr.	16		
707 (2)	Culvert Markers	nr.	41		
	Delineators	nr.	60		
708 (1)	Delineator - Type I-1	nr.	214		
708 (1)-1	Delineator - Type I-2	nr.	14		
708 (2)	Delineator - Type II-1	nr.	74		
708 (2)-1	Delineator - Type II-2	nr.	283		
708 (3)	Delineator - Type III	nr.	27		
708 (4)	Delineator - Type IV	nr.	7		
708 (5)	Delineator - Type V	nr.	7		
708 (6)	Delineator - Type VI-1	nr.	60		
708 (6)-1	Delineator - Type VI-2	nr.	218		
708 (7)	Delineator - Type VII	nr.	29		
709	Kerb	0	0		
709 (1)	Concrete Kerb (125 x 255 x 900mm)	nr.	1,231		
709 (2)	Concrete Seal (Grade 30, t=100mm)	sq.m.	0		
709 (3)	Median Strip (PC-PB)	m	1,195		
709 (4)	PC-Cba Median Concrete Curve)	m	2,354		
709 (5)	PC-CBb (Median Concrete Curve with Inlet)	m	119		
711 (1)	Nose-top Concrete	cu.m.	13		
711 (2)	Kerb Work for Nose	nr.	0		
Total of Section 700 - Incidentals (Transfer to Summary of Bills of Quantities)					

SECTION 800- FACILITIES

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
Lighting Facilities					
803 (1)	Main Distribution Board (MDB)	nr.	3		
803 (2)	Lighting Distribution Boards (LDBs)	nr.	4		
803 (3)	Over-ground Junction Boxes (OGJBs)	nr.	9		
803 (4)	Pole Mounted Type Street Cut-off Lamps 250W - Single Arm	nr.	21		
803 (4)-1	Pole Mounted Type Street Semi Cut-off Lamps 250W - Single Arm	nr.	178		
803 (5)	Pole Mounted Type Street Semi Cut-off Lamps 250W - Double Arm	nr.	3		
803 (6)	Pole Mounted Type Street Semi Cut-off Lamps 70W for Bridge	nr.	71		
803 (7)	70W Luminaire for Underpasses Lighting	nr.	8		
803 (8)	4core Cu/XLPE/SWA/PVC 120sq.mm. cables	m	290		
803 (9)	4 Core Cu/XLPE/SWA/PVC 25 sq.mm cables	m	8,766		
803 (10)	4core Cu/XLPE/SWA/PVC 240 sq.mm cables	m	270		
803 (13)	4core Cu/XLPE/SWA/PVC 16sq.mm cables	m	2,808		
803 (13)-1	4core Cu/XLPE/SWA/PVC 10 sq..mm. cables	m	387		
803 (13)-2	4core Cu/XLPE/SWA/PVC 2.5 sq..mm cables	m	4,400		
803 (14)	Manholes for Power cables	nr.	33		
803 (15)	Steel Puller Boxes	nr.	71		
803 (16)	Steel cable Tray	m	300		
803 (17)	Testing and inspection of all the Distribution Boards	l.s.	1		
803 (18)	Testing of all the Operations, circuits, earthing system and Commissioning	l.s.	1		
Traffic Signal					
806 (1)	Type A Signal Post	nr.	11		
806 (3)	Type B (OCH-S Type C) Signal Post	nr.	20		
806 (4)	Type C (OCH-S Type D) Signal Post	nr.	6		
806 (5)	Manholes for Traffic Signal Cables	nr.	20		
806 (6)	Traffic Signal Control Unit	nr.	5		
806 (7)	Testing and Commissioning of Traffic Signalling System	l.s.	1		
Emergency Telephone					
807 (1)	Emergency Telephone Unit	nr.	16		
807 (2)	Telephone Cable Laying	m	8,200		
807 (3)	Manholes for Telephone Cable	nr.	80		
807 (4)	Main Distribution Frame (MDF)	nr.	2		
807 (5)	Testing and Commissioning of Emergency Telephone System	l.s.	1		
Total of Section 800 - Facilities (Transfer to Summary of Bills of Quantities)					

SECTION 900- DAYWORK

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
Schedule of Daywork Rates - Labour					
900 (1)	Foreman / Ganger	hr.	1,000		
900 (2)	Skilled Labour A	hr.	500		
900 (3)	Unskilled Labour	hr.	2,500		
900 (4)	Rebar Worker	hr.	300		
900 (5)	Concrete Worker	hr.	200		
900 (6)	Bridge Worker	hr.	100		
900 (7)	Bricklayer	hr.	100		
900 (8)	Mason	hr.	1,500		
900 (9)	Carpenter	hr.	1,000		
900 (10)	Electrician	hr.	100		
900 (11)	Mechanic	hr.	1,000		
900 (12)	Welder	hr.	100		
900 (13)	Plant Operator	hr.	500		
900 (14)	Assistant Plant Operator	hr.	500		
Subtotal of Daywork Labour - (Transfer to Total of Section 900)					
Schedule of Daywork Rates - Materials					
900 (15)	Cement OPC in Bags	t	5		
900 (16)	Bitumen 60/70	lit.	1,000		
900 (17)	Hot Mix Asphalt	t	100		
900 (18)	Cold Mix Asphalt	t	10		
900 (19)	Formwork F1 material	sq.m.	100		
900 (20)	Formwork F3/4 material	sq.m.	100		
900 (21)	Reinforcement - mild steel	t	1		
900 (22)	Reinforcement - High Tensile steel	t	2		
900 (23)	Concrete Grade 15	cu.m.	25		
900 (24)	Concrete Grade 30	cu.m.	50		
900 (25)	Concrete Grade 50	cu.m.	50		
900 (26)	Road Marking Paint	lit.	1,000		
900 (27)	Galvanised Barbed Wire	kg	100		
900 (28)	Galvanised Wire Netting - 1" size	sq.m.	100		
900 (29)	Approved invoice value of materials not listed above	PS	1		
900 (30)	10 % to be added to invoice value of materials not listed above	PS	1		
Subtotal of Daywork Material - (Transfer to Total of Section 900)					
Schedule of Daywork Rates - 3 Contractors's plant					
900 (31)	Bulldozer upto 32 t	hr.	75		
900 (32)	Bulldozer over 32t with blade or ripper	hr.	75		
900 (33)	Motor Grader 3.6 m	hr.	50		
900 (34)	Wheel Loader upto 1.5 cu.m.	hr.	50		
900 (35)	Wheel Loader over 1.5 cu.m.	hr.	25		
900 (36)	Backhoe - upto 1.0 cu.m	hr.	100		
900 (37)	Dump Truck 4.0 to 6.0 t	hr.	200		
900 (38)	Dump Truck 10t	hr.	200		
900 (39)	Cargo Truck 10 ton with crane	hr.	200		
900 (40)	Agriculture Tractor and Trailer	hr.	100		
900 (41)	Concrete Pump 100m3/hr	hr.	50		
900 (42)	Vibrating Roller - 2.5 ton	hr.	150		
900 (43)	Macadam Roller - 10 ton	hr.	150		
900 (44)	Tire Roller 8 - 20ton	hr.	100		
900 (45)	Tamping Roller 20 t	hr.	200		
900 (46)	Asphalt Sprayer 1500L	hr.	100		
900 (47)	Asphalt Paver	hr.	50		
900 (48)	Crawler Crane 50 t	hr.	50		
900 (49)	Mobile Crane 10 ton	hr.	25		
900 (50)	Concrete Vibrator	hr.	80		
900 (51)	Water Bowser 3800L	hr.	100		
900 (52)	Generator Set 100 kVA	hr.	80		

SECTION 900- DAYWORK

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
900 (53)	Jack Hammer 40kg	hr.	40		
900 (54)	Water Pump 100mm	hr.	250		
900 (55)	Air Compressor 750 CFM	hr.	250		
Subtotal of Daywork Contractor's Plants - (Transfer to Total of Section 900)					
Total of Section 900 Daywork - (Transfer to Summary of Bills of Quantities)					

SECTION 1000-PROVISIONALSUM

Item No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
1001 (1)	Stationary for EGINEER	PS	1	4,752,000	4,752,000
1001 (2)	Tests as required by the Engineer	PS	1	2,001,340	2,001,340
1001 (3)	Mobile Phone System for the Engineer	PS	1	500,335	500,335
1001 (4)	Temporary Accomdation as required by the Engineer	PS	1	2,200,000	2,200,000
1001 (5)	Temporary Vehicles as required by the Engineer	PS	1	1,320,000	1,320,000
1001 (6)	Additional Soil Investigation as required by the Engineer as per Section 1200	PS	1	3,300,000	3,300,000
1001 (7)	Existing Road Repairing as required by the Engineer	PS	1	125,400,000	125,400,000
1001 (8)	Envitonmental Monitoring	PS	1	11,000,000	11,000,000
1001 (9)	Environmental Control and Protection	PS	1	6,138,000	6,138,000
Subtotal of Item 1000 (1) to 1000 (9) - (Transfer to Total of Section 1000)					150,473,675
	<i>Permanent Diversion of Existing Utility or Service</i>				
1002 (1)	High Tension Powerlines by Ceylon Electricity Board	PS	1	156,640,000	156,640,000
1002 (2)	Water supply by NWS&DB	PS	1	22,000,000	22,000,000
1002 (3)	Telecom line by Sri lanka Telecom	PS	1	38,280,000	38,280,000
Subtotal of item 1002(1) to 1002(3) - (Transfer to total of section 1000)					216,920,000
Total of Section 1000 Provisionalsum - (Transfer to Summary of Bills of Quantities)					367,393,675

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4. Geotechnical Investigation	
▪ Summary - Test Locations	
▪ Results - Standard Penetration test (SPT)	
▪ Summary - Laboratory Tests	
5. Material Survey	
▪ Summary - Material Survey Details	
▪ Summary - Laboratory Tests of Test PIT Data	
▪ Summary - Laboratory Tests of Quarry Rock Data	
Part III	
JBIC Guidelines for confirmation of Environmental and Social Considerations, April 2002 (or later revisions)	
Part IV	
1. Environmental Impact Assessment (EIA) of Outer Circular Highway to the City of Colombo project, CEA's Approval letter, February 2001.(and the extended letter, 19 May 2004)	
2. Supplemental Environmental Impact Assessment (SEIA) of the Proposed Deviation to the Outer Circular Highway to the City of Colombo Project, (From Malambe – Athurugiriya Highway Crossing to Avissawella – Colombo Highway) 31 May 2005, CEA's Letter	
3. EIA Approval Letter for Outer Circular Highway to the City of Colombo, 15 November 2007	
4. Interim Standard on Vibration Pollution Control, 4 July 2002, CEA's letter	
Part V	
Climate Data	

PART I - SURVEY DATA

Note :

The Employer takes no responsibility for the accuracy for the data and the availability of the survey points at the commencement work of the Project.

Part I Survey Data

1. Outline of Topographic Survey in 2003-2004 and 2006

With the gradual improvement of field circumstances, the RDA contracted with the Survey Department (hereinafter referred to as the “SD”) and in 2003 they commenced the field survey of the section between 0+000 and 21+700, in accordance with the instructions of the Director/PMU, OCH and RDA Engineer.

However, several portions in the Northern Section from the Kelani River have not been completed due to some difficulties in field circumstances and the sections where the design criteria are not determined.

The section between station 9+300 and 16+500 was carried out by the SD in 2003-2004. The section between station 8+200 and 9+300, was carried out by the National Peoples’ Forum (hereinafter referred to as the NPF) in 2006-2007. There were still sections which remained unsurveyed due to objections and also new sections required due to deviation of alignment and for additional plan survey. Therefore, the supplemental topographic surveys implemented are implemented by Gamini B.Dodanwela Associates (hereinafter referred to as “the Contractor”).

Prior to the commencement of the supplemental topographic survey, the Study Team confirmed the RDA/OCH Staff members for the survey progress by the SD or NPF and their field conditions. Then, the following survey data was received from the RDA between September and December, 2006.

- (1) DATA OF GPS CONTROL POINTS, TRAVERSE POINTS AND BENCH MARKS
 - Ground Survey for the Outer Circular Highway Project (Report prepared by the SD in 2004)
 - GPS Coordinates-Survey Control Points Outer Circular Highway Project
(Letter for the Coordinates of 3 GPS points located at A-1 interchange site from the SD in December 2006)
- (2) DATA OF DRAWINGS OF PROFILES, CROSS-SECTIONS AND PLANS
 - Drawing data between section 9+300 and 16+500 (prepared by the SD in 2004)
 - Drawing data between section 8+200 and 9+300 (prepared by the NPF in 2007)

After being checked by the Study Team, the drawing data between station 9+300 and 16+500 were modified and updated by the private surveyor in 2006-2007.

2. Datum of Survey and Mapping

The survey data was conducted based on the following datum and parameters of survey and mapping.

- Datum of vertical: Mean Sea Level (M.S.L.)
- Grid System: National Coordinates System
- False Northing/Easting: +200 km South and +200 km West of Pidurutalagala
- Map Projection: Transverse Mercator
- Reference ellipsoid: Everest 1830

The parameters to be transformed from the Global Positioning System (GPS) based on the WGS-84 ellipsoid to the National Coordinates System based on the Everest 1830 ellipsoid, are specified in the SLD 95 decided by the SD. Hence, the topographic survey since the feasibility study for the project in 1998 has been based on the following transformation parameters in the SLD 95.

Table 1 Transformation Parameters

Translations (m)	Rotations
X = 2.0553	0.198003
Y = -763.5581	1.706361
Z = -87.6682	3.46612
Scale Factor = 1.0000000315	

3. Results on GPS Ground Control Points

The following coordinates have been checked or revised by the method of control traverse in 2006-2007.

Table 2.1.6 Coordinates and Elevation of GPS Control Points

No.	Coordinates		Elevation (MSL)	Remarks
	Easting (m)	Northing (m)	(m)	
B5098	110561.219	199735.382	20.169	Result of Survey Department in 2004
B5098B	110494.373	199713.723	23.935	Ditto
B5084	110593.467	198868.986	27.382	Ditto
B5084B	110520.408	198886.075	24.199	Ditto
B5083	111047.95	198022.297	33.364	Ditto
B5083B	111014.842	197936.629	31.320	Ditto
B5082	111468.846	196759.910	16.989	Ditto
B5082A	111334.831	196727.608	17.555	Ditto
B5081	111657.085	195967.51	4.041	Ditto
B5081A	111848.517	196272.661	5.152	Ditto
B5079	111986.504	194309.263	3.648	Ditto
B5079A	112067.624	194176.512	4.118	Ditto
B5079B	111944.208	194436.717	11.194	Ditto
B5080	111451.761	193250.035	5.374	Ditto
B5080B	111696.696	193286.283	5.254	Ditto
B802	111325.954	192924.119	5.734	Ditto
GPS01	110361.803	200432.460	8.615	Result of Gamini B Dodanwela Associates in 2007
GPS02	110466.171	200391.460	8.888	Ditto
GPS03	110651.942	200751.853	10.327	Ditto
GPS04	110957.876	201177.346	11.962	Ditto
GPS05'	110843.419	201298.185	17.929	Ditto (This point is not the same position as GPS05.)
GPS06	110141.084	200821.759	13.084	Result of Survey Department in 2006
GPS07	109963.494	200698.870	14.168	Ditto
GPS08	110071.299	200249.979	9.167	Ditto

Souse: Survey data checked by Gamini B Dodanwela Associates in 2007.

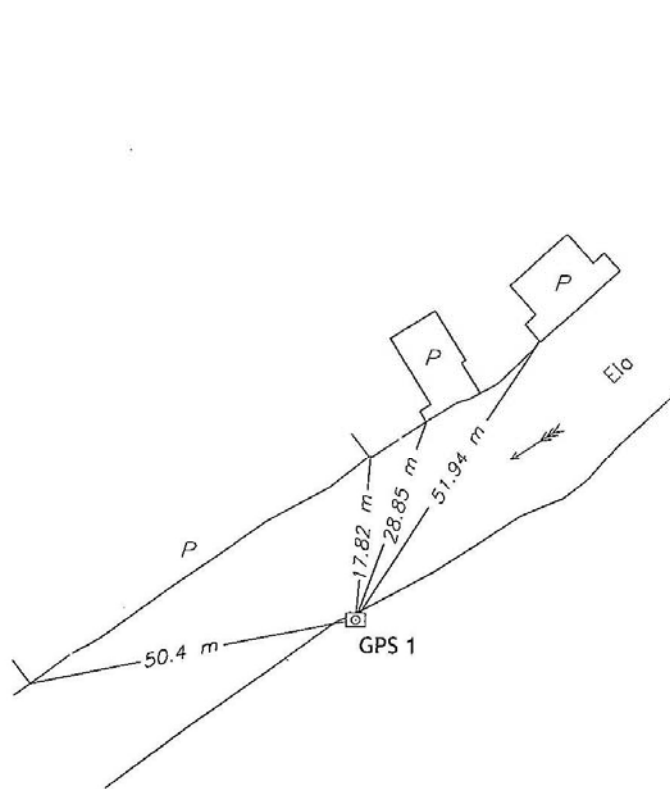
Note:

- Elevation value was measured by the direct leveling.
- Ell. Height is the value based on the Everest 1830 ellipsoid.

4. Annex

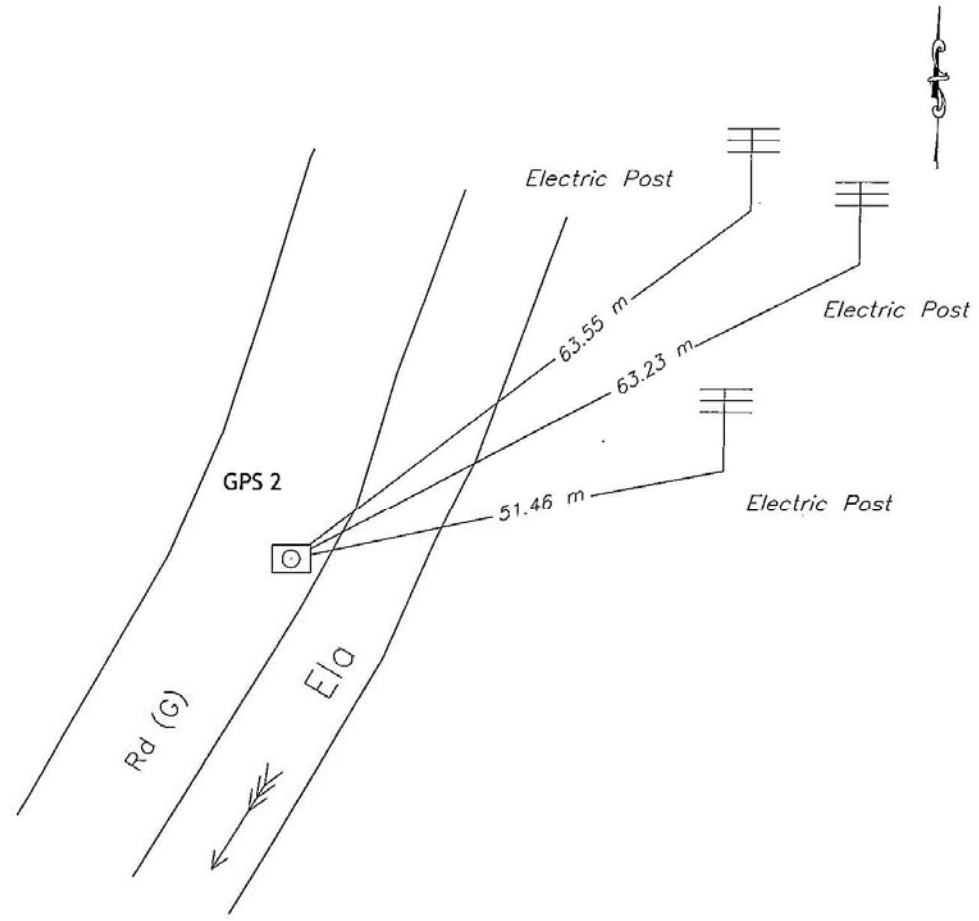
The relevant survey data, which was reported, by the SD and the Contractor are shown in the annex with location maps or sketches for each survey points.

DESCRIPTION OF GPS CONTROL POINT			POINT NO : GPS01
PROVINCE	WESTERN	DISTRICT	GAMPAHA
D.S.DIVISION	BIYAGAMA	VILLAGE	BIYAGAMA
PREPARED BY:		CHECKED BY:	
NAME	Bandula Ranatunge	NAME	K.T.C.Grero
DESIGNATION	Licensed Surveyor	DESIGNATION	Asst.S.S.
DATE	31-12-2006	DATE	31-12-2006



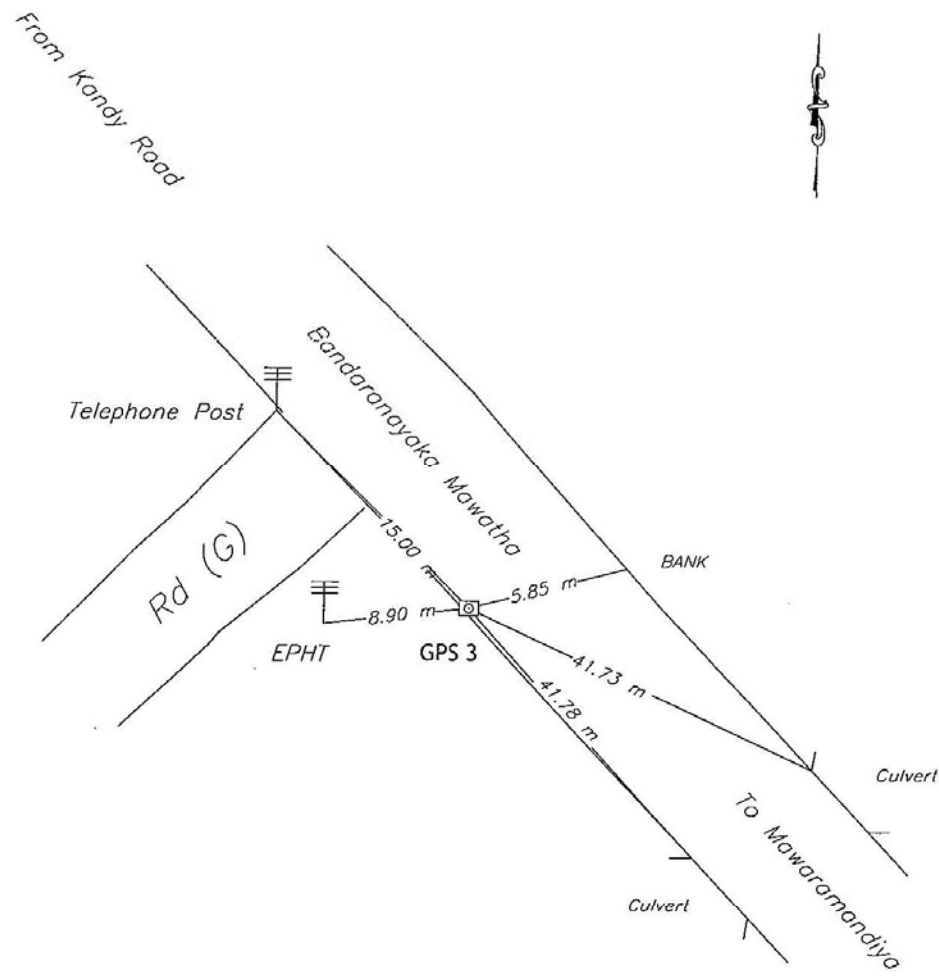
FOR GEODETIC SURVEY UNIT USE ONLY								
WGS 34 COORDINATES				NATIONAL GRID COORDINATES				
LATITUDE		LONGITUDE		ELLIPSOIDAL HEIGHT (m)	NORTHING (m)	EASTING (m)	EVEREST HEIGHT (m)	
0	'	"	0	'	"	200432.464	110361.790	8.509
REQUISITION NO:			MISSION		PROJECT			
GAM/SG/2006/292					Outer circular Heigh Way			

DESCRIPTION OF GPS CONTROL POINT			POINT NO : GPS02
PROVINCE	WESTERN	DISTRICT	GAMPAHA
D.S.DIVISION	BIYAGAMA	VILLAGE	BIYAGAMA
PREPARED BY:		CHECKED BY:	
NAME	Bandula Ranatunge	NAME	K.T.C.Grero
DESIGNATION	Licensed Surveyor	DESIGNATION	Asst.S.S.
DATE	31-12-2006	DATE	31-12-2006



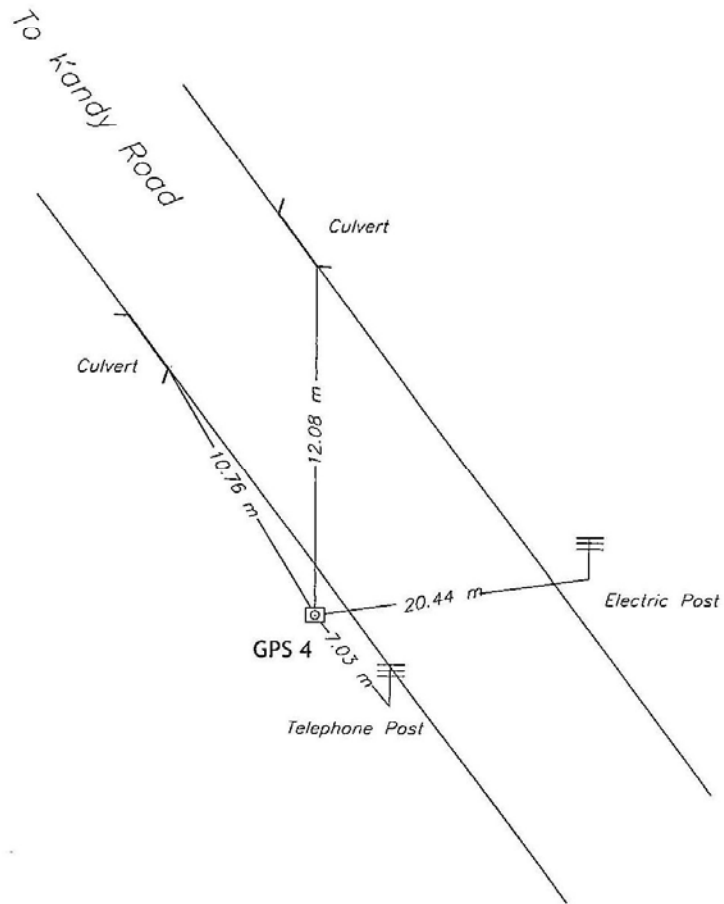
FOR GEODETIC SURVEY UNIT USE ONLY					
WGS 34 COORDINATES			NATIONAL GRID COORDINATES		
LATITUDE	LONGITUDE	ELLIPSOIDAL HEIGHT (m)	NORTHING (m)	EASTING (m)	EVEREST HEIGHT (m)
0 ° "	0 ° "		200391.453	110466.145	8.786
REQUISITION NO:		MISSION		PROJECT	
GAM/SG/2006/292				Outer circular Heigh Way	

DESCRIPTION OF GPS CONTROL POINT			POINT NO : GPS03
PROVINCE	WESTERN	DISTRICT	GAMPAHA
D.S.DIVISION	BIYAGAMA	VILLAGE	BIYAGAMA
PREPARED BY:		CHECKED BY:	
NAME	Bandula Ranatunge	NAME	K.T.C.Grero
DESIGNATION	Licensed Surveyor	DESIGNATION	Asst.S.S.
DATE	31-12-2006	DATE	31-12-2006



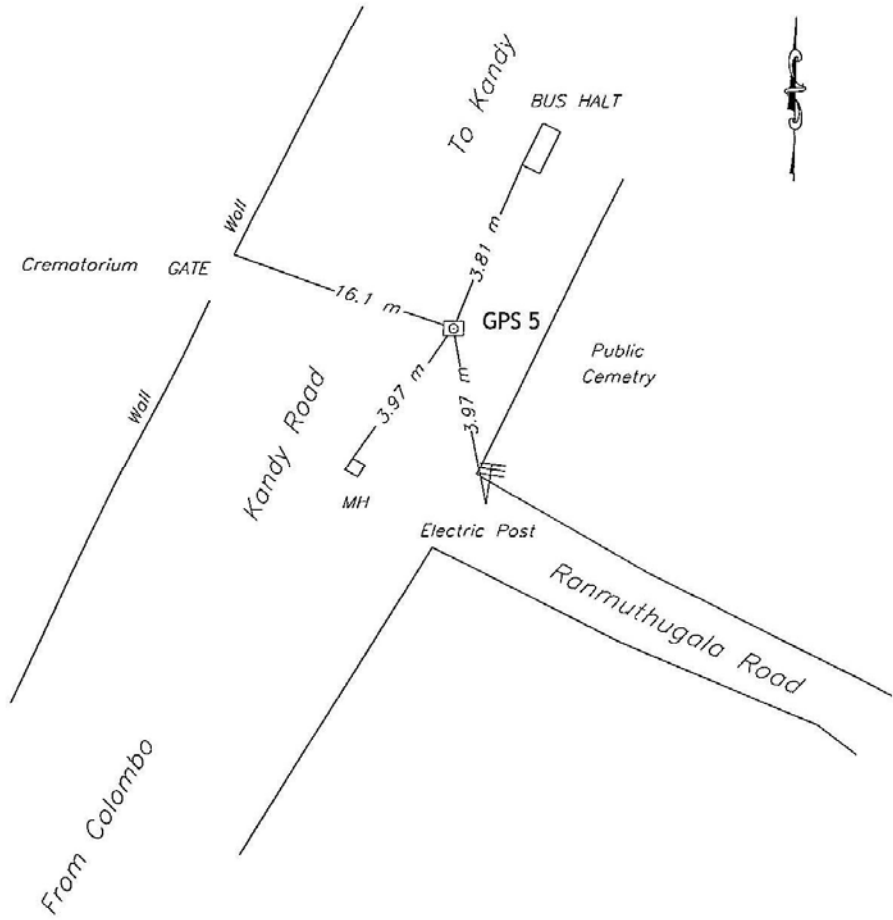
FOR GEODETIC SURVEY UNIT USE ONLY						
WGS 34 COORDINATES			NATIONAL GRID COORDINATES			
LATITUDE		LONGITUDE	ELLIPSOIDAL HEIGHT (m)	NORTHING (m)	EASTING (m)	EVEREST HEIGHT (m)
0	'	"	0	'	"	
				200751.868	110651.929	10.207
REQUISITION NO:		MISSION			PROJECT	
GAM/SG/2006/292					Outer circular Heigh Way	

DESCRIPTION OF GPS CONTROL POINT			POINT NO : GPS04
PROVINCE	WESTERN	DISTRICT	GAMPAHA
D.S.DIVISION	BIYAGAMA	VILLAGE	BIYAGAMA
PREPARED BY:		CHECKED BY:	
NAME	Bandula Ranatunge	NAME	K.T.C.Greero
DESIGNATION	Licensed Surveyor	DESIGNATION	Asst.S.S.
DATE	31-12-2006	DATE	31-12-2006



FOR GEODETIC SURVEY UNIT USE ONLY					
WGS 34 COORDINATES			NATIONAL GRID COORDINATES		
LATITUDE	LONGITUDE	ELLIPSOIDAL HEIGHT (m)	NORTHING (m)	EASTING (m)	EVEREST HEIGHT (m)
0 . "	0 . "		201177.341	110957.889	11.747
REQUISITION NO:		MISSION		PROJECT	
GAM/SG/2006/292				Outer circular Heigh Way	

DESCRIPTION OF GPS CONTROL POINT			POINT NO : GPS05
PROVINCE	WESTERN	DISTRICT	GAMPAHA
D.S.DIVISION	BIYAGAMA	VILLAGE	BIYAGAMA
PREPARED BY:		CHECKED BY:	
NAME	Bandula Ranatunge	NAME	K.T.C.Greero
DESIGNATION	Licensed Surveyor	DESIGNATION	Asst.S.S.
DATE	31-12-2006	DATE	31-12-2006

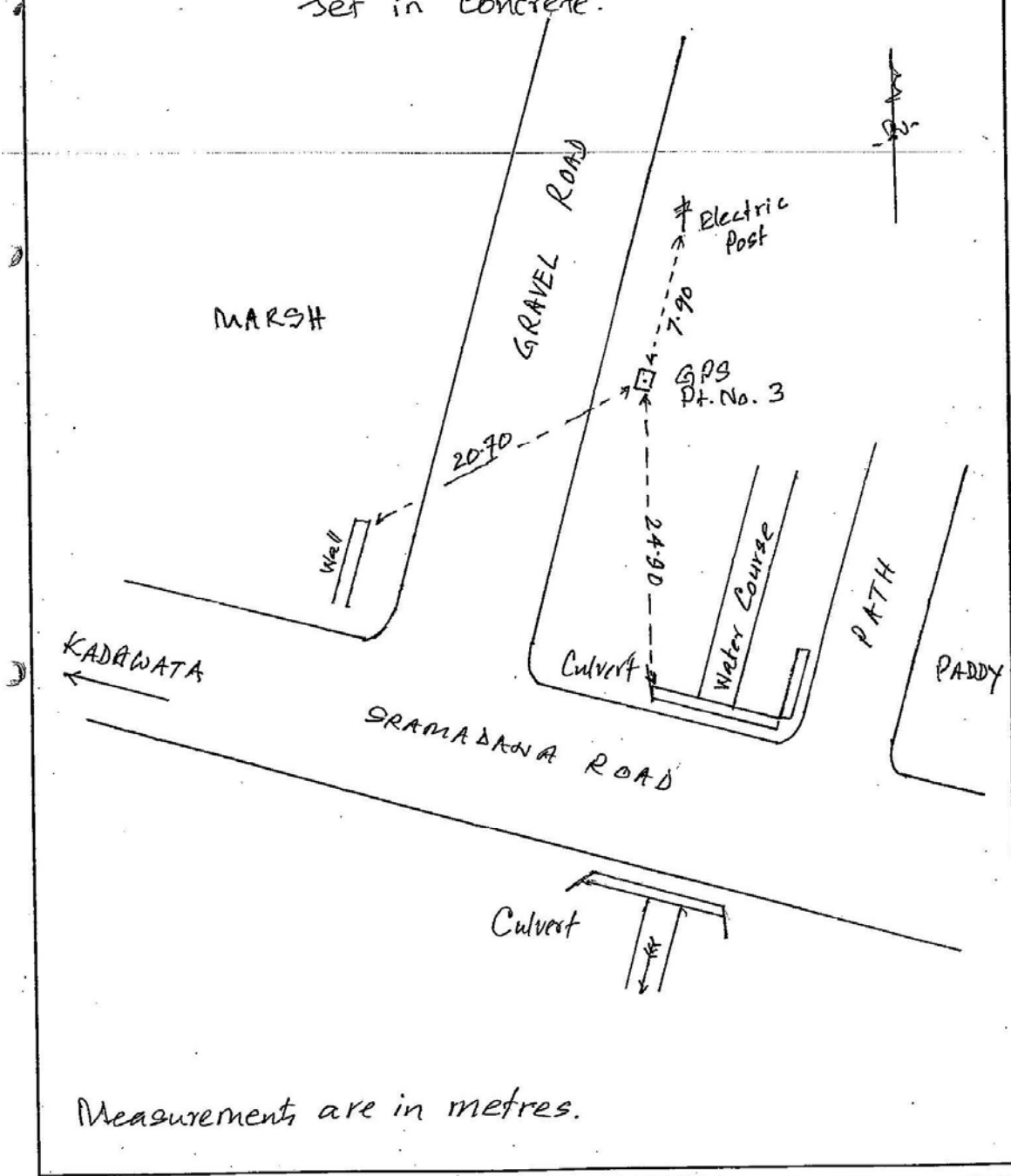


FOR GEODETIC SURVEY UNIT USE ONLY					
WGS 34 COORDINATES			NATIONAL GRID COORDINATES		
LATITUDE	LONGITUDE	ELLIPSOIDAL HEIGHT (m)	NORTHING (m)	EASTING (m)	EVEREST HEIGHT (m)
0	0		201301.680	110845.422	17.582
REQUISITION NO:		MISSION		PROJECT	
GAM/SG/2006/292				Outer circular Heigh Way	

SURVEY SKETCH SHEET

FILE NAME GPS Point No. 8 DATE 29-11-2006 PAGE Of

Description: Concrete Block with brass centre mark set in concrete.



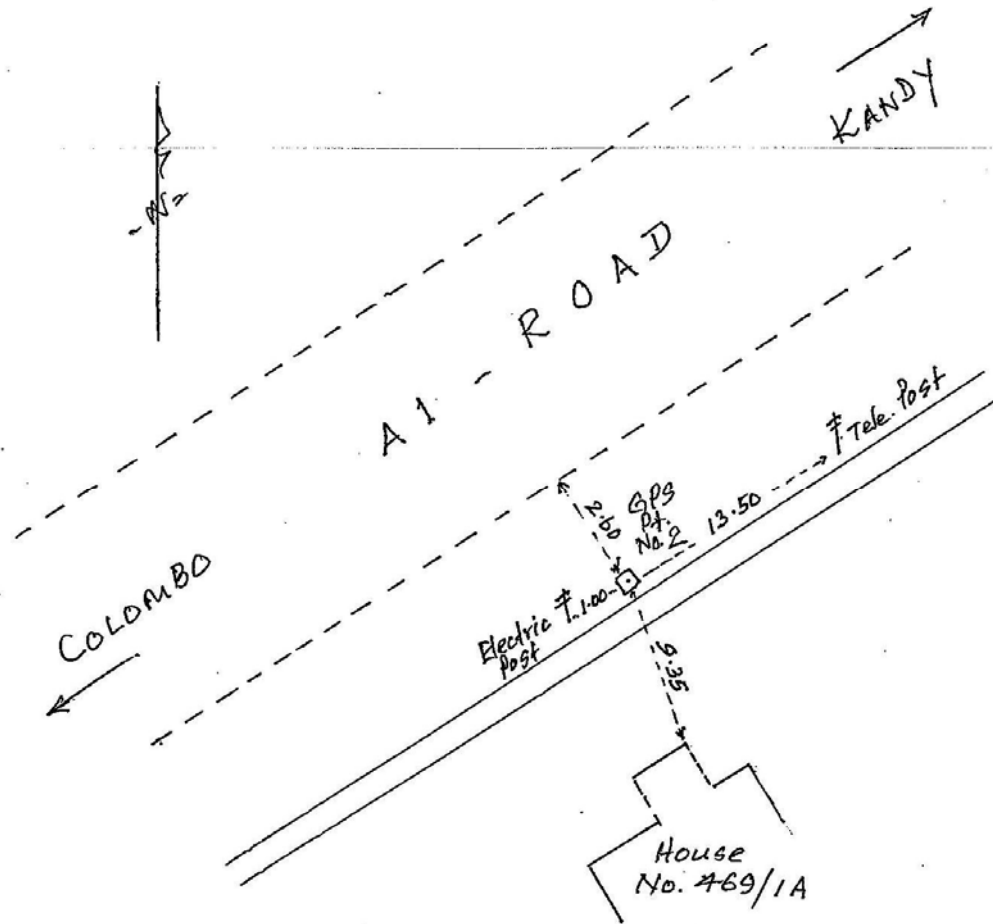
Measurements are in metres.

GAMINI B. DODANWELA, LICENSED SURVEYOR & LEVELLER

SURVEY SKETCH SHEET

FILE NAME: GPS Point No. 7 DATE: 29-11-2006 PAGE: Of

Description: Concrete Block with brass Centre Mark
Set in Concrete.



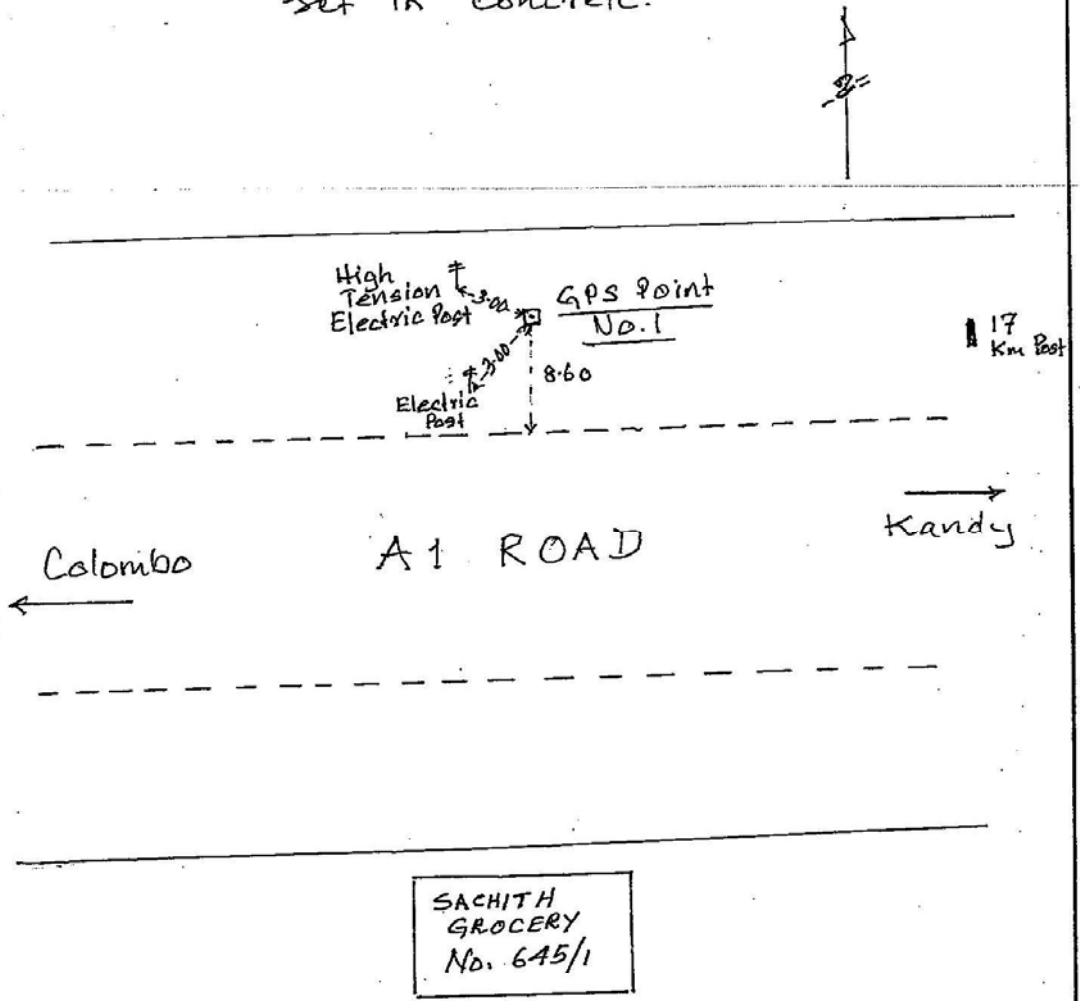
Measurements are in metres

GAMINI B. DODANWELA, LICENSED SURVEYOR & LEVELLER

SURVEY SKETCH SHEET

FILE NAME: G.P.S. Point No. 6 DATE 29-11-2006 PAGE: OF

DESCRIPTION: Concrete Block with brass centre mark
Set in concrete.



Measurements are in Metres.

PART II - GEOTECHNICAL DATA

Note :

The Employer takes no responsibility and no representation for the accuracy for the data and the quantities of the materials. The Contractor shall be responsible for sourcing all materials.

1. INTRODUCTION

This report is furnished to bidders to assist them in assessing the geotechnical and geological conditions along the road corridor. The report comprises a summary of the field and laboratory-testing program undertaken as part of the studies undertaken by the Design Consultants during the detailed design period. The results of the surveys, which were carried out by local geotechnical survey contractors under the direction of the design Consultants, are intended as purely as information to bidders to assist them in preparing their bids. The information given herein shall not in any way relieve bidders of their responsibility under the instructions to bidders of making their own independent assessment of the conditions of the site and verifying the completeness and accuracy of the data contained herein. Should the site conditions during construction prove to be different from the conditions, which may be inferred from this report, and from any of the reports referred to herein, the Contractor shall be held fully responsible for the consequences of such differences and the Employer will consider no claims on such account.

The field and laboratory investigations were undertaken by the following geotechnical investigation organizations:

- Geotechnical Investigations
 - Engineering & Laboratory Services (Pvt.) Ltd.
- Material Survey
 - Engineering & Laboratory Services (Pvt.) Ltd.

2. SCOPE OF SURVEY

(1) Geological Survey

The 147 bore holes with standard penetration test were drilled by rotary machines along the OCHNS1 being 8.3 km in length, A1 bypass road and A1 Inter Change road. Auger borings were carried out at 45 sites on the soft ground and hilly area. Vane tests were carried out at 20 sites on the soft ground.

(2) Material Survey

The 7 bore holes were drilled by rotary machine to residual soils on the existing borrow pits and natural hills. And also 7 test pits were excavated for laboratory test to get embankment materials. Geological reconnaissance was carried out for existing quarries to get rock materials and 7 rock samples were obtained for laboratory test.

3. GENERAL GEOLOGY

Geological Conditions along the Route are shown as below:

- **Sta. No. 8+200 – Sta. No. 9+000 (800m)**

On this section, there are paddy fields. Under the top soil, alluvial clay and sandy clay are distributed in about 3 meter thick underlain by completely weathered rock layer. In this completely weathered rock layer, the depth at which it has more than 50 N-value of SPT are around G.L.-5 to -10 meter. It can be firm bearing layer for structures such as bridge.

- **Sta. No. 9+000 – Sta. No. 12+660 (3,660m)**

This section is mainly located in a hilly area and small valleys. At small valleys, soft soils are deposited such as alluvial clay, sandy clay and organic clay in 2 to 5 meter thick. At each top of the hills, there are many houses along the road. These hills consist of residual soil 2 to 15 meters in thickness and completely weathered rock 4 to 20 meters in thickness. The residual soil consists of clayey sand or sandy silt and its N-value ranges from 5 to 30. The weathered rock consists of gravelly clayey soil and its N-value ranges from 10 to 50. Between Sta. No. 11+750 and Sta. No.12+080, alignment OCH is running parallel with the toe of the hill.

- **Sta. No. 12+660 – Sta. No. 14+500 (1,840m)**

This section is located mainly in a marshy area, ground level of which is about 1 to 2 meters above sea level. Very soft peat and organic clay are identified in this section. The alluvial formation consists of peat, organic clay, sandy clay is 3 to 7 meters in thickness. Over the whole section, there are organic clay and peat formation about 1 to 3 meters thick on the surface of the valley plain, and it is very soft with a high moisture content. The thickness of the layers is over 6m within a particular 300m section between Sta. No. 13+750 and Sta. No. 14+050. And also in the rainy season most of this area is soaked in the water.

- **Sta. No. 14+500 – Sta. No. 15+700 (1,200m)**

This section consists of hilly area and plain area. The altitude of hilly area composed of residual soil is about 10 to 20 meters above sea level. At the plain area between Sta. No. 14+080 and Sta. No. 15+540, very soft alluvial clay, organic clay and peat are distributed in 4 to 6 meters thick. In this particular plain section, it is also soaked in the water in the rainy season.

- **Sta. No. 15+700 – Sta. No. 16+500 (800m)**

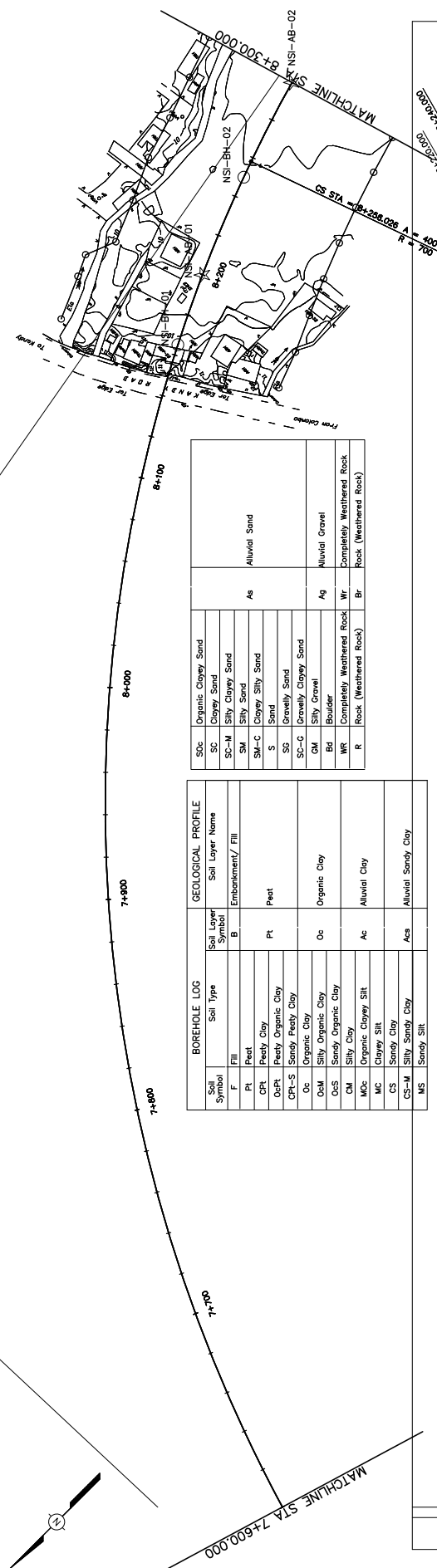
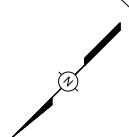
This section is located in a hilly area and plain area beside the Kelani River. Hilly area near Sta. No. 15+700 consists of residual soil and fresh rock. And the left section between Sta. No. 15+900 and Sta. No. 16+500 consists of soft organic clay, peat and alluvial clay in 5 to 10 meters thick besides the right bank of Kelani River which consists of alluvial sand and gravel layer in 6 to 17 meters thick.

GEOTECHNICAL INVESTIGATIONS

SUMMARY

TEST LOCATIONS

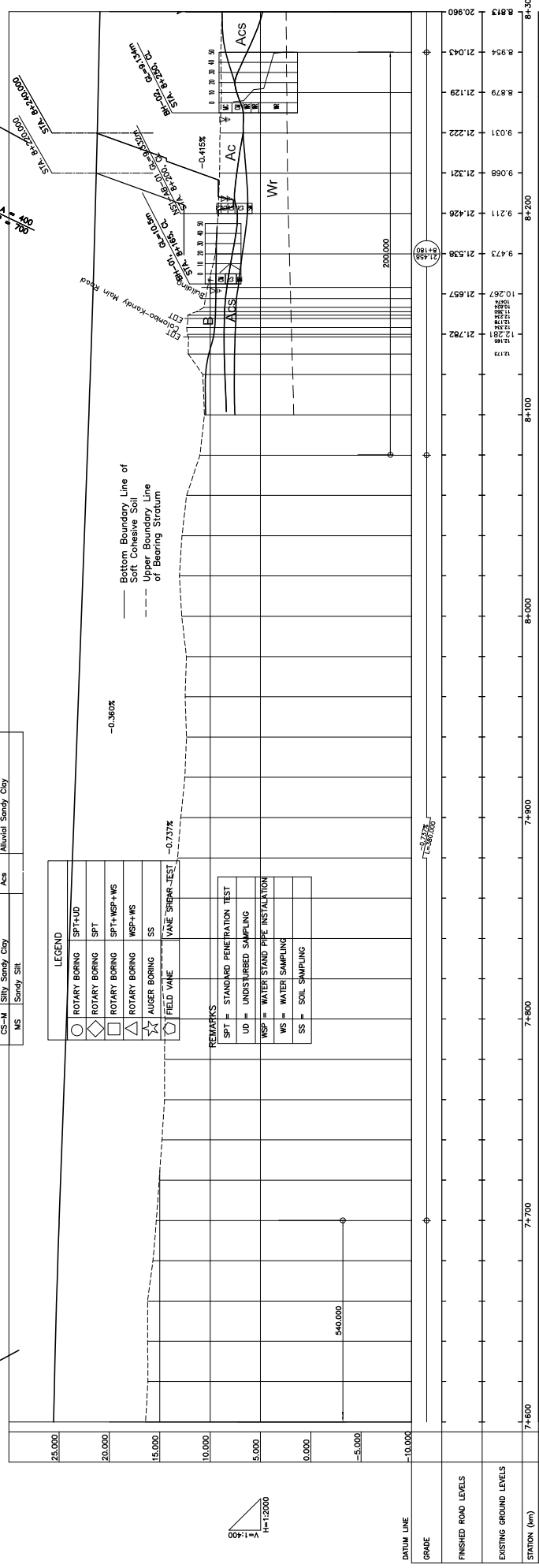
PI STA = 7+981.724



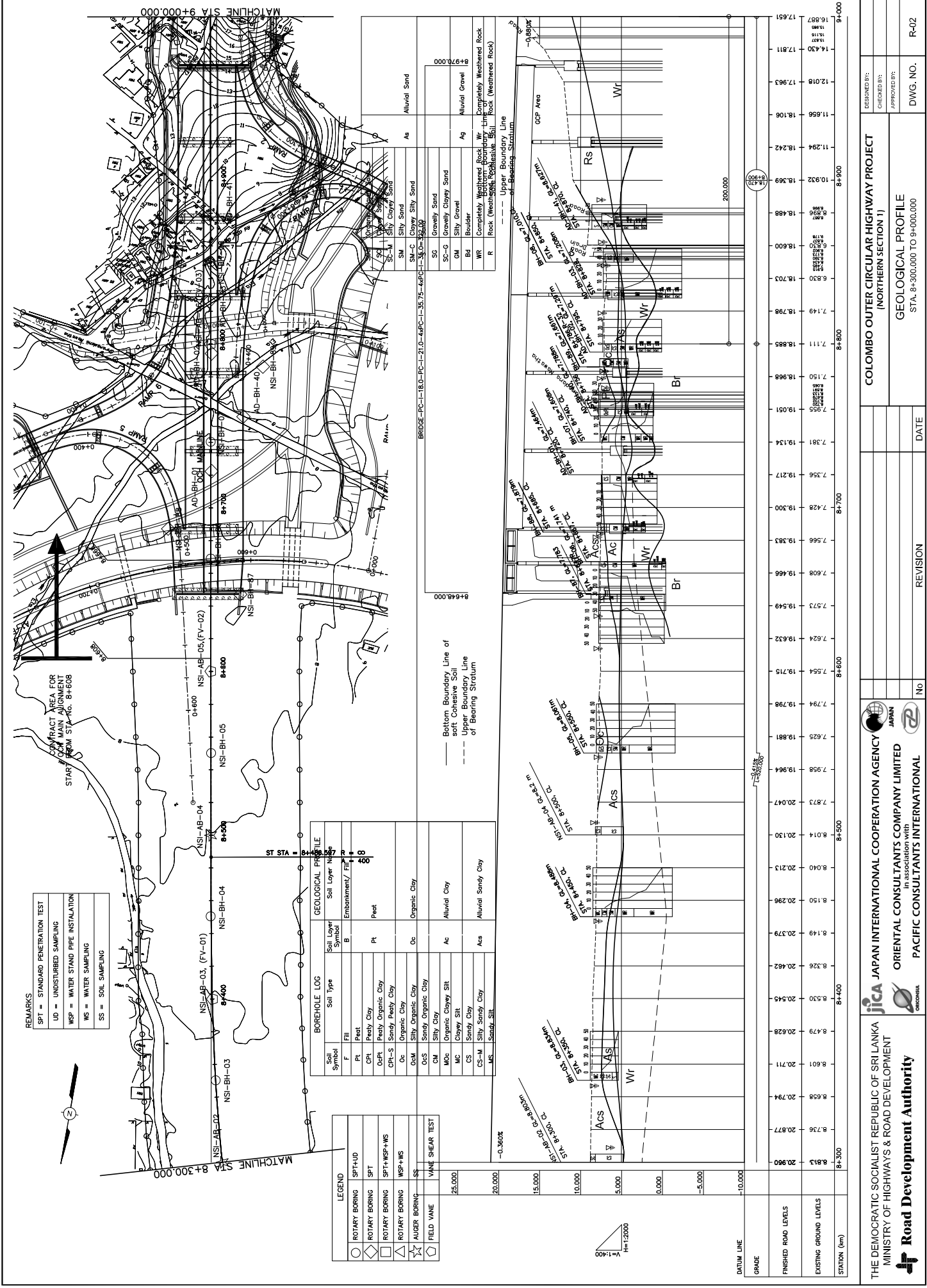
BOREHOLE LOG		GEOLOGICAL PROFILE	
Soil Symbol	Soil Type	Soil Layer Symbol	Soil Layer Name
F	Fill	B	Embankment/ Fill
Pl	Peat		
CPt	Peaty Clay	PT	Peat
CPt-S	Peaty Organic Clay		
CPt-S	Sandy Peaty Clay		
Oc	Organic Clay	Oc	Organic Clay
OCM	Silty Organic Clay		
OCs	Sandy Organic Clay		
CM	Silty Clay	Ac	Alluvial Clay
MC	Organic Clayey Silt		
MC	Clayey Silt		
CS	Sandy Clay		
CS-M	Silty Sandy Clay	Acs	Alluvial Sandy Clay
MS	Sandy Silt		
SoC	Organic Clayey Sand		
SC	Clayey Sand		
SC-M	Silty Clayey Sand	As	Alluvial Sand
SM	Silty Sand		
SM-C	Clayey Silty Sand		
S	Sand		
SC-C	Gravelly Sand		
SC-C	Gravelly Clayey Sand		
GM	Silty Gravel	Ag	Alluvial Gravel
Bd	Boulder	Wr	Completely Weathered Rock
WR	Completely Weathered Rock	Br	Rock (Weathered Rock)
R	Rock (Weathered Rock)		

LEGEND	
○	ROTARY BORING SPT+UD
◇	ROTARY BORING SPT
□	ROTARY BORING SPT+WSP+WS
△	ROTARY BORING WSP+WS
☆	AUGER BORING SS
⊠	FIELD VANE
⊞	VANE SHEAR TEST

REMARKS	
SPT	= STANDARD PENETRATION TEST
UD	= UNDISTURBED SAMPLING
WSP	= WATER STAND PIPE INSTALLATION
WS	= WATER SAMPLING
SS	= SOIL SAMPLING



		COLOMBO OUTER CIRCULAR HIGHWAY PROJECT (NORTHERN SECTION I)	
THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT Road Development Authority		GEOLOGICAL PROFILE STA. 7+600.000 TO 8+300.000	
DESIGNED BY:	CHECKED BY:	APPROVED BY:	DWG. NO. R-01
REVISION		DATE	



REMARKS

- SPT = STANDARD PENETRATION TEST
- UD = UNDISTURBED SAMPLING
- WSP = WATER STAND PIPE INSTALLATION
- WS = WATER SAMPLING
- SS = SOIL SAMPLING

BOREHOLE LOG

Soil Symbol	Soil Type	Soil Layer Symbol	Soil Layer Name
F	Fill	B	Embankment/ Fill
PT	Peat	Pt	Peat
CP1	Peaty Clay		
CP1-S	Peaty Organic Clay		
CP1-S	Sandy Peaty Clay		
Oc	Organic Clay		
Oc	Silty Organic Clay		
OS	Sandy Organic Clay		
OM	Silty Clay		
MO	Organic Clayey Silt		
MC	Clayey Silt		
CS	Sandy Clay		
CS-M	Silty Sandy Clay		
MS	Sandy Silt		
Ac	Alluvial Clay		
ACS	Alluvial Sandy Clay		

LEGEND

- ROTARY BORING SPT+UD
- ROTARY BORING SPT
- ROTARY BORING SPT+WS+WS
- ROTARY BORING SPT+WS
- AUGER BORING SS
- FIELD VANE VANE SHEAR TEST

Soil Legend

- SM Silty Sand
- SM-C Clayey Silty Sand
- SC Gravely Sand
- SC-G Gravely Clayey Sand
- GM Silty Gravel
- Bd Boulder
- WR Completely Weathered Rock (Weathered Rock)
- R Completely Weathered Rock (Weathered Rock)
- As Alluvial Sand
- Ag Alluvial Gravel

COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION I)

GEOLOGICAL PROFILE
STA. 8+300.000 TO 9+000.000

DESIGNED BY: _____
CHECKED BY: _____
APPROVED BY: _____

DATE: _____

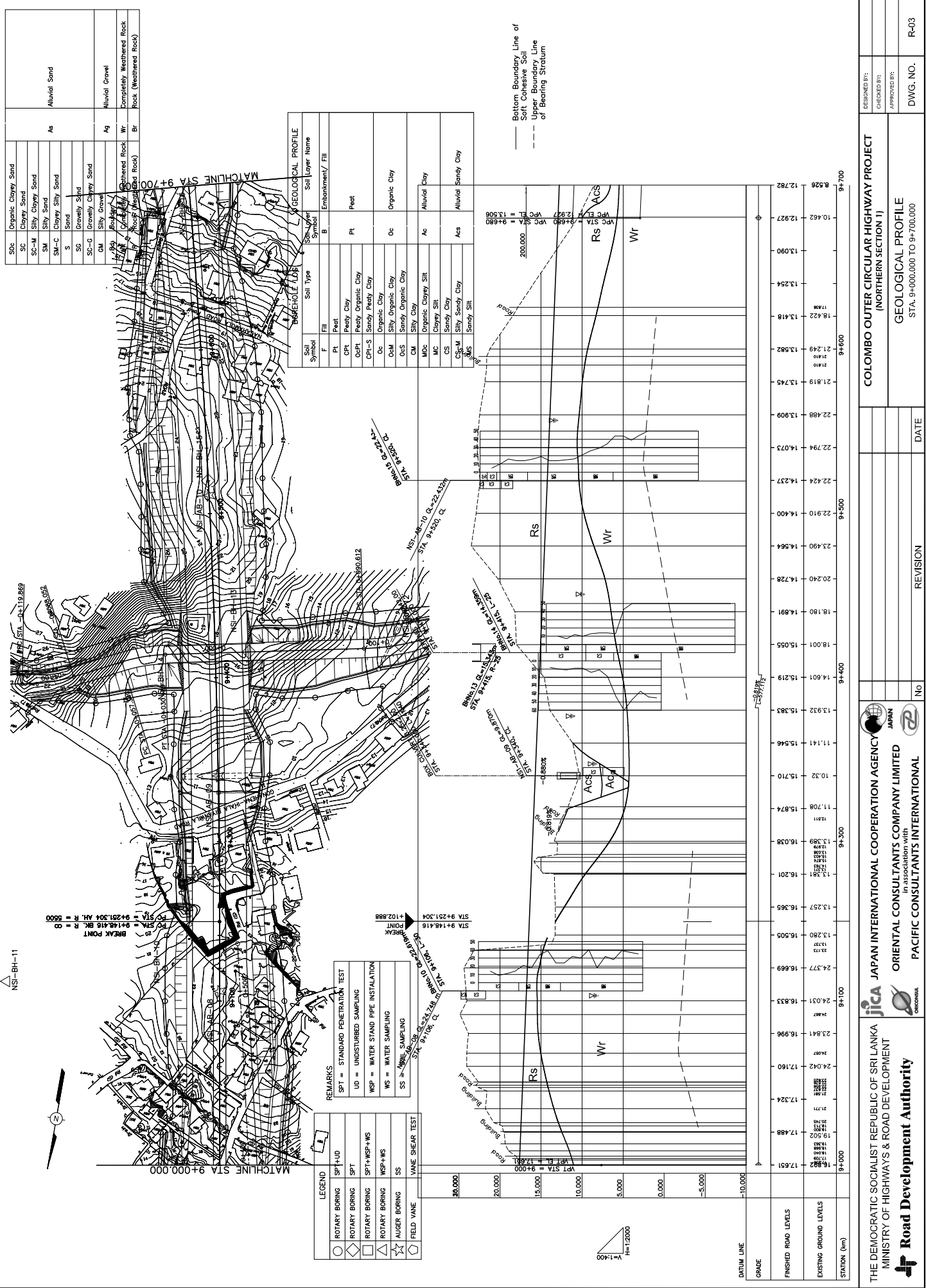
REVISION: _____

DWG. NO. R-02

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT

JICA JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

Road Development Authority



Soil Legend

SOC	Organic Clayey Sand	As	Alluvial Sand
SC	Clayey Sand		
SC-M	Silty Clayey Sand		
SM	Silty Sand		
SM-C	Clayey Silty Sand		
S	Sand		
SG	Gravelly Sand		
SC-G	Gravelly Clayey Sand		
GM	Silty Gravel		
GC	Gravelly Clay		
GS	Sandy Gravel		
AG	Alluvial Gravel		
WR	Completely Weathered Rock		
BR	Rock (Weathered Rock)		

Soil Legend (continued)

SOC	Organic Clayey Sand	As	Alluvial Sand
SC	Clayey Sand		
SC-M	Silty Clayey Sand		
SM	Silty Sand		
SM-C	Clayey Silty Sand		
S	Sand		
SG	Gravelly Sand		
SC-G	Gravelly Clayey Sand		
GM	Silty Gravel		
GC	Gravelly Clay		
GS	Sandy Gravel		
AG	Alluvial Gravel		
WR	Completely Weathered Rock		
BR	Rock (Weathered Rock)		

Soil Legend (continued)

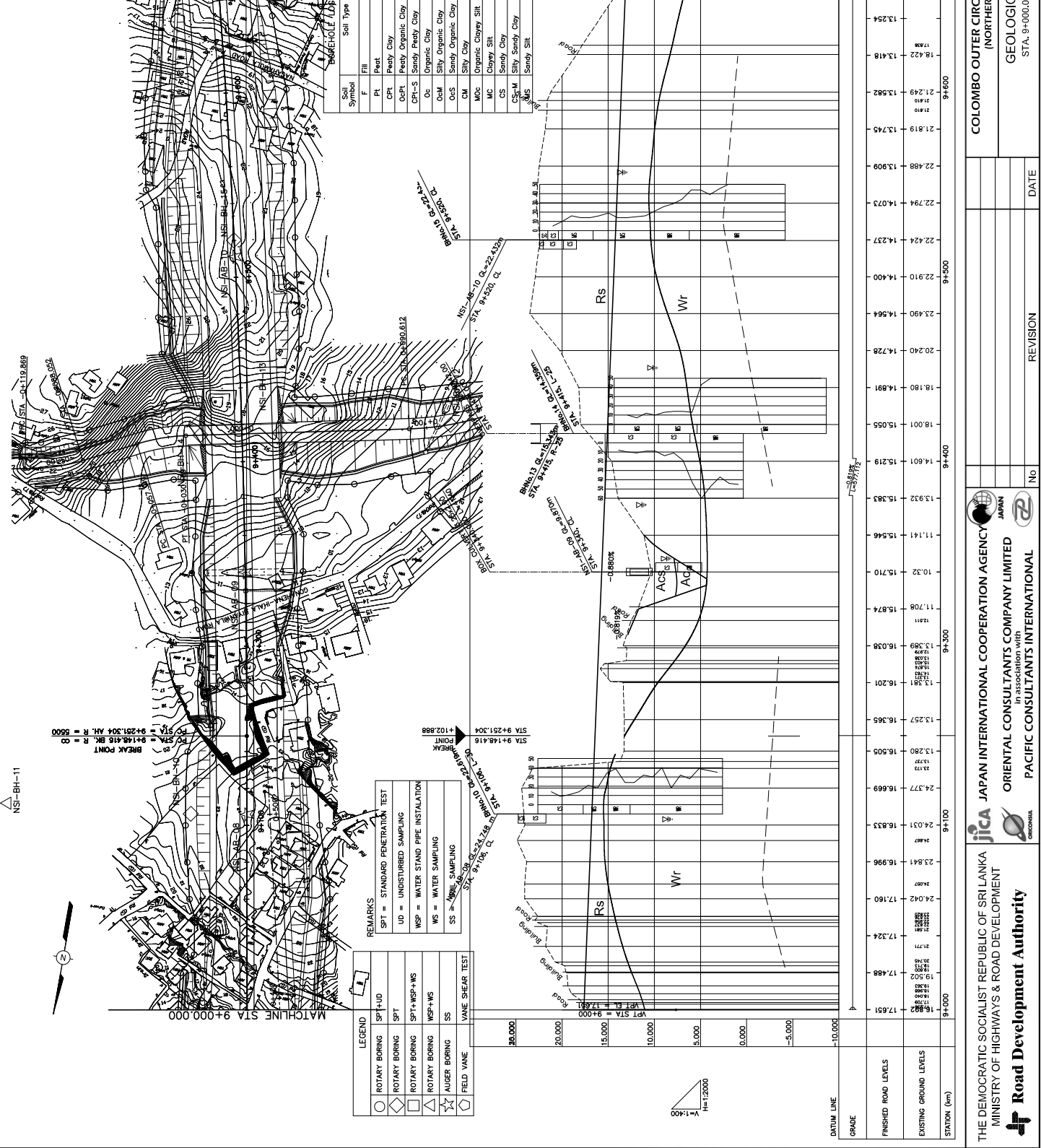
SOC	Organic Clayey Sand	As	Alluvial Sand
SC	Clayey Sand		
SC-M	Silty Clayey Sand		
SM	Silty Sand		
SM-C	Clayey Silty Sand		
S	Sand		
SG	Gravelly Sand		
SC-G	Gravelly Clayey Sand		
GM	Silty Gravel		
GC	Gravelly Clay		
GS	Sandy Gravel		
AG	Alluvial Gravel		
WR	Completely Weathered Rock		
BR	Rock (Weathered Rock)		

Soil Legend (continued)

SOC	Organic Clayey Sand	As	Alluvial Sand
SC	Clayey Sand		
SC-M	Silty Clayey Sand		
SM	Silty Sand		
SM-C	Clayey Silty Sand		
S	Sand		
SG	Gravelly Sand		
SC-G	Gravelly Clayey Sand		
GM	Silty Gravel		
GC	Gravelly Clay		
GS	Sandy Gravel		
AG	Alluvial Gravel		
WR	Completely Weathered Rock		
BR	Rock (Weathered Rock)		

Soil Legend (continued)

SOC	Organic Clayey Sand	As	Alluvial Sand
SC	Clayey Sand		
SC-M	Silty Clayey Sand		
SM	Silty Sand		
SM-C	Clayey Silty Sand		
S	Sand		
SG	Gravelly Sand		
SC-G	Gravelly Clayey Sand		
GM	Silty Gravel		
GC	Gravelly Clay		
GS	Sandy Gravel		
AG	Alluvial Gravel		
WR	Completely Weathered Rock		
BR	Rock (Weathered Rock)		



NSI-BH-11

BREAK POINT
 STA 9+148.416 BK. R = 5500
 STA 9+251.304 AH. R = 5500

REMARKS

- SPT = STANDARD PENETRATION TEST
- UD = UNDISTURBED SAMPLING
- WSP = WATER STAND PIPE INSTALLATION
- WS = WATER SAMPLING
- SS = SOIL SAMPLING

LEGEND

⊖	ROTARY BORING	SPT+UD
⊖	ROTARY BORING	SPT
⊖	ROTARY BORING	SPT+WS+WS
⊖	ROTARY BORING	WSP+WS
⊖	AUGER BORING	SS
⊖	FIELD VANE	VANE SHEAR TEST

GEOLOGICAL PROFILE

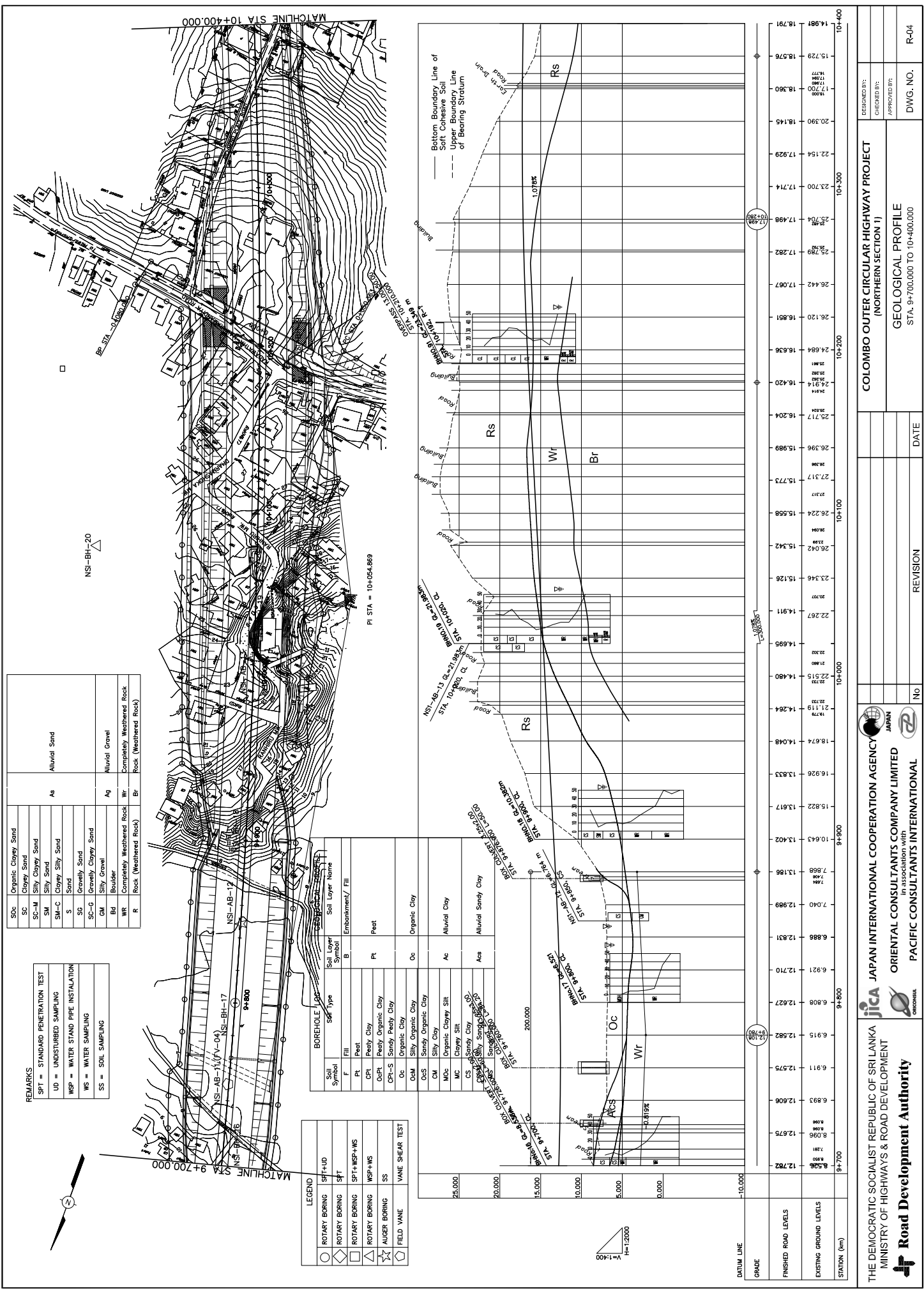
Soil Symbol	Soil Type	Soil Layer Name
F	Fill	Embankment/ Fill
PL	Peat	
CPL	Peaty Clay	
CPA	Peaty Organic Clay	
CPI-S	Sandy Peaty Clay	
Oa	Organic Clay	
OoM	Silty Organic Clay	
OoS	Sandy Organic Clay	
OM	Silty Clay	
MOC	Organic Clayey Silt	
MC	Clayey Silt	
CS	Sandy Clay	
CS-M	Silty Sandy Clay	
CS-S	Sandy Silt	
Ac	Alluvial Clay	
Acs	Alluvial Sandy Clay	

Soil Legend (continued)

SOC	Organic Clayey Sand	As	Alluvial Sand
SC	Clayey Sand		
SC-M	Silty Clayey Sand		
SM	Silty Sand		
SM-C	Clayey Silty Sand		
S	Sand		
SG	Gravelly Sand		
SC-G	Gravelly Clayey Sand		
GM	Silty Gravel		
GC	Gravelly Clay		
GS	Sandy Gravel		
AG	Alluvial Gravel		
WR	Completely Weathered Rock		
BR	Rock (Weathered Rock)		

Profile Data Table

STATION (km)	9+000	9+100	9+200	9+300	9+400	9+500	9+600	9+700
DATUM LINE	17.651	17.488	17.324	17.160	16.996	16.833	16.669	16.505
GRADE	17.651	17.488	17.324	17.160	16.996	16.833	16.669	16.505
FINISHED ROAD LEVELS	17.651	17.488	17.324	17.160	16.996	16.833	16.669	16.505
EXISTING GROUND LEVELS	17.651	17.488	17.324	17.160	16.996	16.833	16.669	16.505



SC	Organic Clayey Sand	As	Alluvial Sand
SC-M	Clayey Sand		
SM	Silty Sand		
SM-C	Clayey Silty Sand		
S	Sand		
SG	Gravelly Sand		
SC-G	Gravelly Clayey Sand		
GM	Silty Gravel	Aq	Alluvial Gravel
Bd	Boulder		
WR	Completely Weathered Rock	Wr	Completely Weathered Rock
R	Rock (Weathered Rock)	Br	Rock (Weathered Rock)

○	ROTARY BORING	SPT-U	UD	UNDISTURBED SAMPLING
□	ROTARY BORING	SPT-WSP+WS	WSP	WATER STAND PIPE INSTALLATION
△	ROTARY BORING	WSP+WS	WS	WATER SAMPLING
☆	AUGER BORING	SS		SOIL SAMPLING
◇	FIELD VANE			VANE SHEAR TEST

Soil Symbol	Soil Layer Name	Soil Layer Symbol	Embankment/ Fill
F	Fill	B	
Peet	Peat	Peet	
OP	Organic Peaty Clay	OP	
OP-L	Lean Organic Peaty Clay	OP-L	
OP-H	Heavy Organic Peaty Clay	OP-H	
OC	Organic Clay	OC	
OC-L	Lean Organic Clay	OC-L	
OC-H	Heavy Organic Clay	OC-H	
GM	Silty Clay	GM	
MC	Organic Clayey Silt	MC	
CS	Clayey Silt	CS	
CS-L	Lean Clayey Silt	CS-L	
CS-H	Heavy Clayey Silt	CS-H	
ACs	Aluvial Clayey Sand	ACs	
OC	Organic Clay	OC	
Ac	Alluvial Clay	Ac	
ACs	Alluvial Clayey Sand	ACs	

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT

Road Development Authority

JICA JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

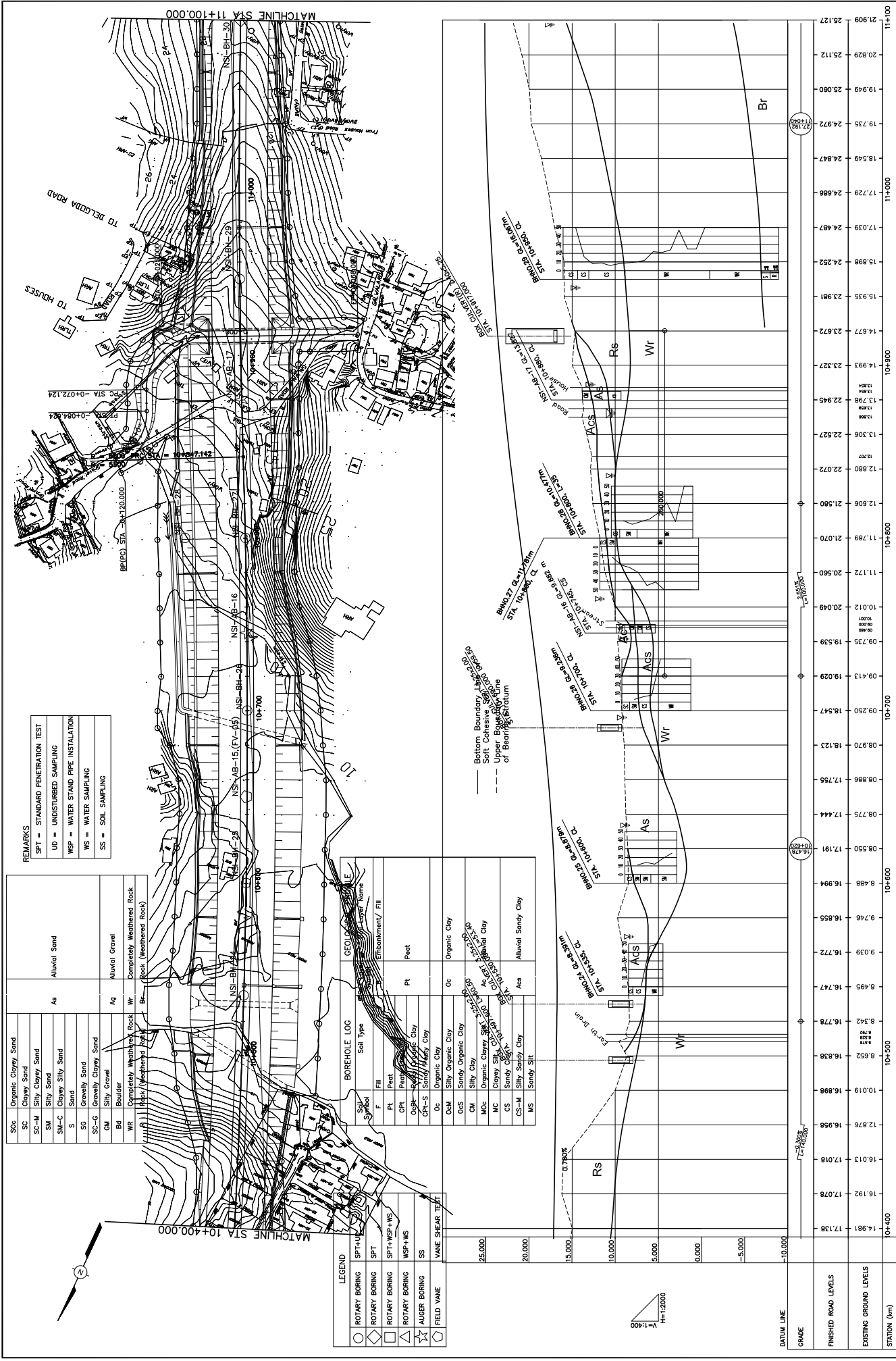
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION I)

DESIGNED BY: _____
CHECKED BY: _____
APPROVED BY: _____

GEOLOGICAL PROFILE
STA. 9+700.000 TO 10+400.000

REVISION: _____ DATE: _____

DWG. NO. R-04



THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT Road Development Authority		JICA JAPAN INTERNATIONAL COOPERATION AGENCY ORIENTAL CONSULTANTS COMPANY LIMITED <small>in association with</small> PACIFIC CONSULTANTS INTERNATIONAL	
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT (NORTHERN SECTION I) GEOLOGICAL PROFILE STA. 10+400.000 TO 11+100.000		DESIGNED BY: CHECKED BY: APPROVED BY:	DWG. NO. R-05
REVISION	DATE	NO	DATE

REMARKS

- SPT = STANDARD PENETRATION TEST
- UD = UNDISTURBED SAMPLING
- WSP = WATER STAND PIPE INSTALLATION
- WS = WATER SAMPLING
- SS = SOIL SAMPLING

SoC	Organic Clayey Sand	
SC	Clayey Sand	Alluvial Sand
SC-M	Silty Clayey Sand	
SM	Silty Sand	
SM-C	Clayey Silty Sand	
S	Sand	
SG	Gravelly Sand	
SG-G	Gravelly Clayey Sand	
GM	Silty Gravel	Alluvial Gravel
Bd	Boulder	
WR	Completely Weathered Rock	Completely Weathered Rock
	Rock (Weathered Rock)	Rock (Weathered Rock)

BOREHOLE LOG		GEOLOGICAL	
Symbol	Soil Type	Soil Name	Enbankment/Fill
F	Fill		
PK	Peat		Peat
CP	Clayey Peat		
CP-S	Sandy Peat		
Oc	Organic Clay		
Os	Sandy Organic Clay		
OM	Silty Organic Clay		
MC	Clayey Silty Organic Clay		
CS	Sandy Clay		
CS-M	Silty Sandy Clay		
MS	Sandy Silt		Alluvial Sandy Clay

LEGEND

- ROTARY BORING SPT+UD
- ◇ ROTARY BORING SPT
- ROTARY BORING SPT+WSP+WS
- △ ROTARY BORING WSP+WS
- ☆ AUGER BORING SS
- ◇ FIELD VANE

VANE SHEAR TEST

25.000

20.000

15.000

10.000

5.000

0.000

-5.000

DATUM LINE -10.000

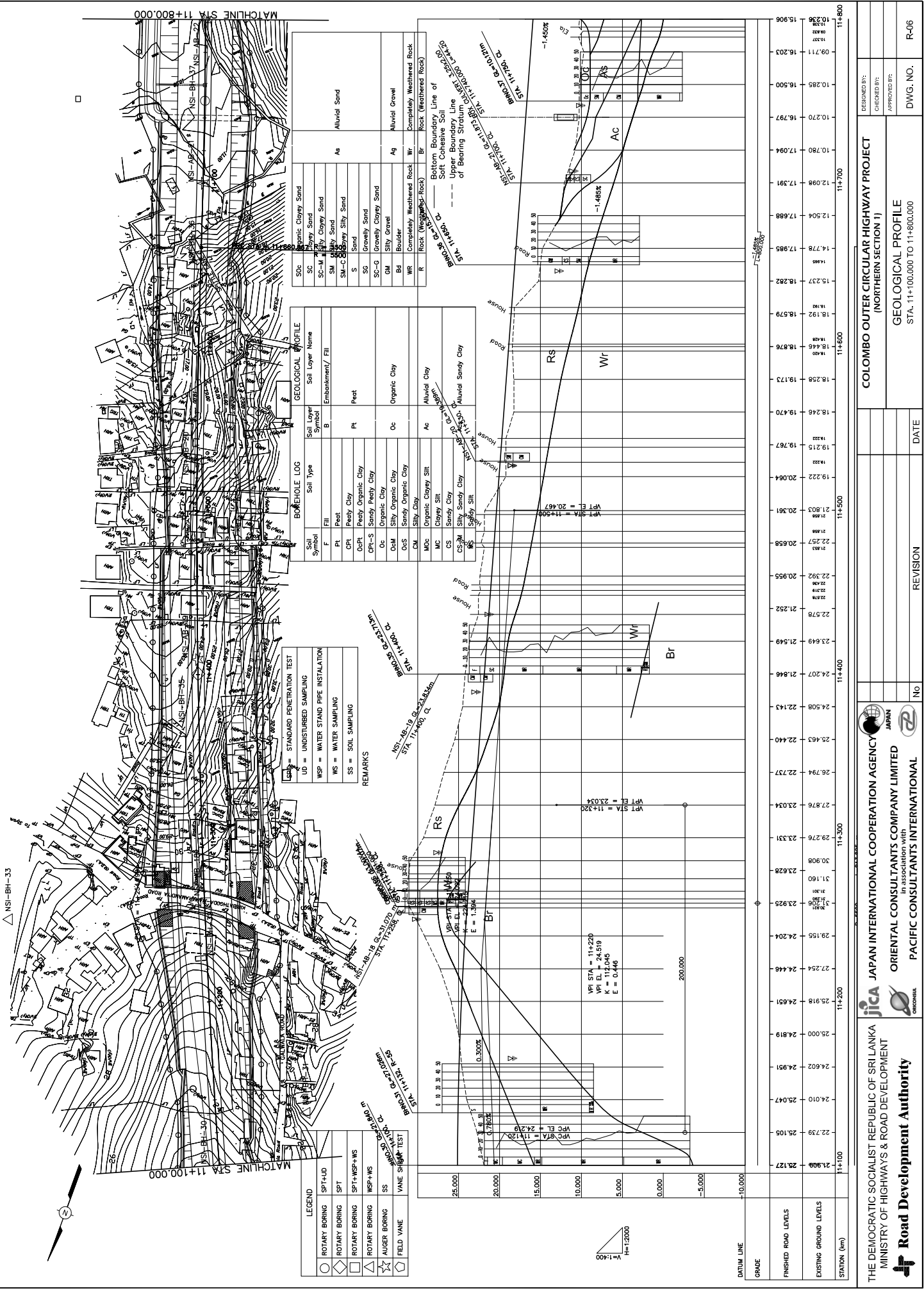
GRADE

FINISHED ROAD LEVELS

EXISTING GROUND LEVELS

STATION (km)

10+400 10+500 10+600 10+700 10+800 10+900 10+950 10+1000 11+000 11+050 11+100



DESIGNED BY:		CHECKED BY:		APPROVED BY:		
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT (NORTHERN SECTION I)						
GEOLOGICAL PROFILE STA. 11+100.000 TO 11+800.000						
				DATE	REVISION	No
				DWG. NO. R-06		

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
 MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

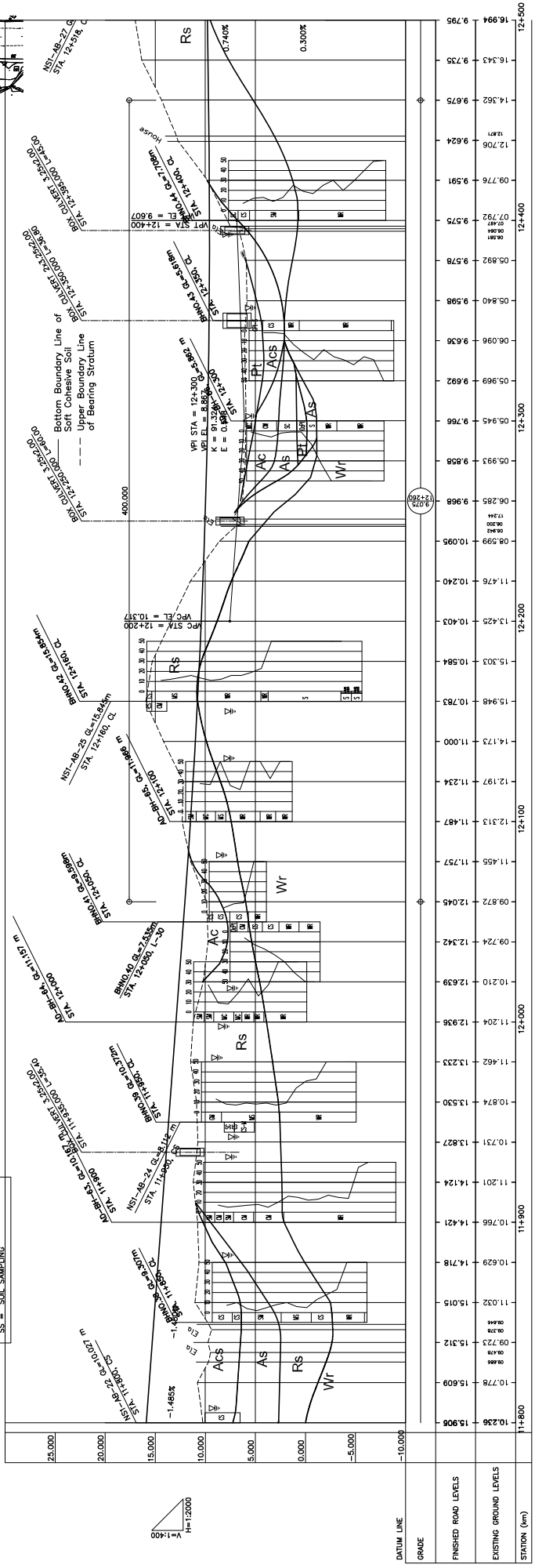
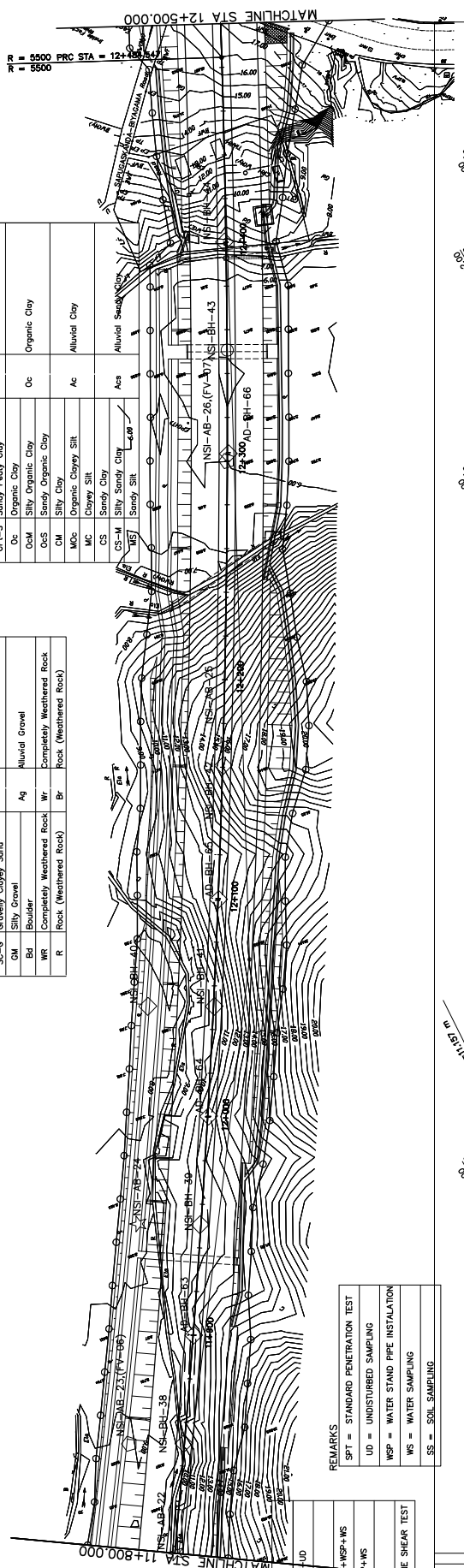
jica JAPAN INTERNATIONAL COOPERATION AGENCY
 ORIENTAL CONSULTANTS COMPANY LIMITED
 in association with
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SoC	Organic Clayey Sand
SC	Clayey Sand
SC-M	Silty Clayey Sand
SM	Silty Sand
SM-C	Clayey Silty Sand
S	Sand
SG	Gravelly Sand
SC-G	Gravelly Clayey Sand
GM	Silty Gravel
GM	Silty Gravel
Bd	Boulder
WR	Completely Weathered Rock
R	Rock (Weathered Rock)
Br	Rock (Weathered Rock)
Ag	Alluvial Gravel
As	Alluvial Sand

BOREHOLE LOG		GEOLOGICAL PROFILE	
Soil Layer Symbol	Soil Type	Soil Layer Symbol	Soil Layer Name
F	Fill	B	Embankment/ Fill
PT	Peaty Clay	PT	Peat
OP1	Peaty Organic Clay		
OP1-S	Sandy Peaty Clay		
Oc	Organic Clay	Oc	Organic Clay
OcM	Silty Organic Clay		
OcS	Sandy Organic Clay		
OM	Silty Clay		
MC	Organic Clayey Silt	Ac	Alluvial Clay
CS	Clayey Silt		
CS-M	Silty Clayey Silt	As	Alluvial Sand
MS	Sandy Silt		

LEGEND	SPT-UD
○	ROTARY BORING
◇	ROTARY BORING
□	ROTARY BORING
△	ROTARY BORING
☆	AUGER BORING
◇	FIELD VANE

REMARKS
SPT = STANDARD PENETRATION TEST
UD = UNDISTURBED SAMPLING
WSP = WATER STAND PIPE INSTALLATION
WS = WATER SAMPLING
SS = SOIL SAMPLING



THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT

Road Development Authority

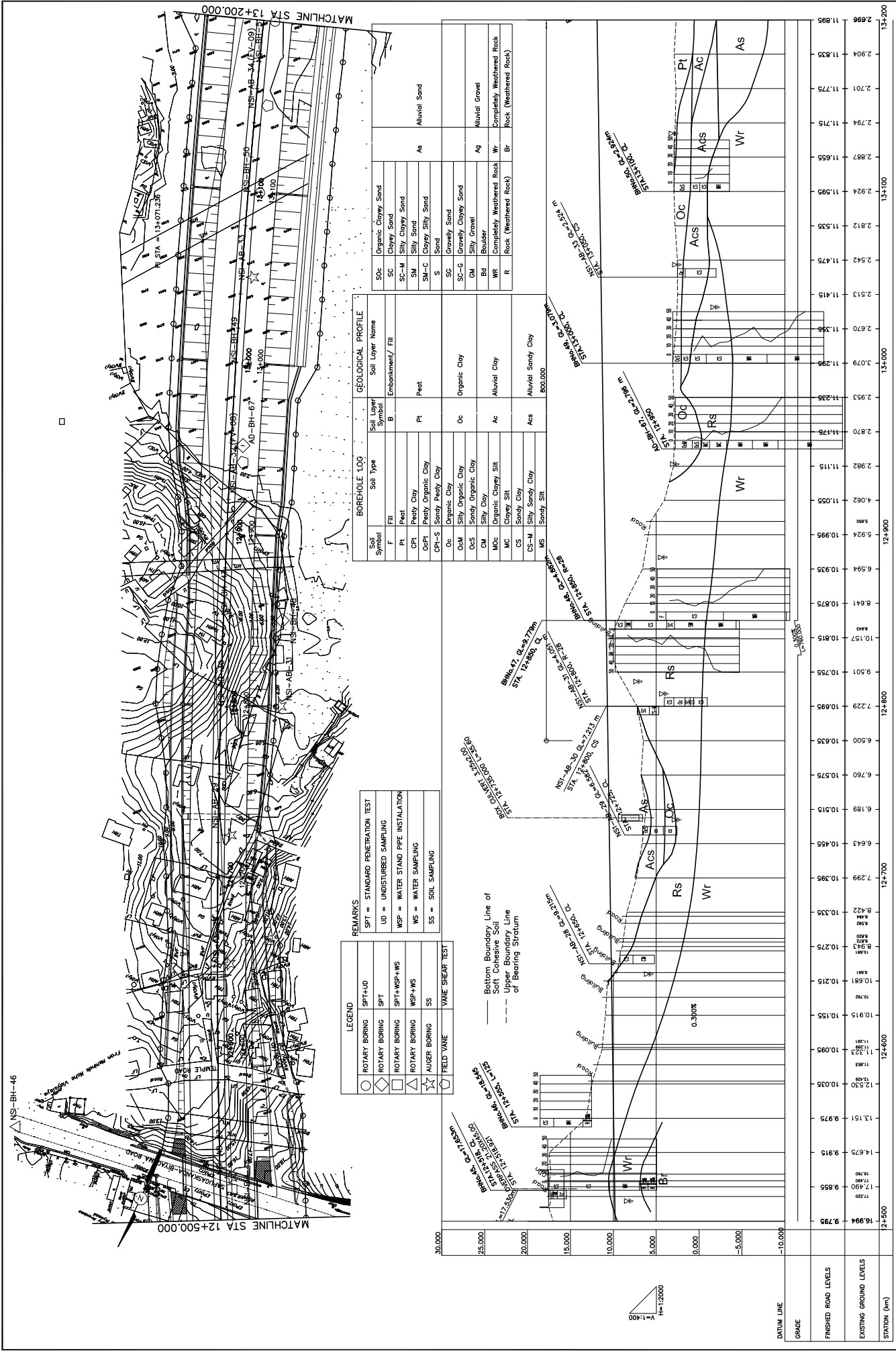
JICA JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
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PACIFIC CONSULTANTS INTERNATIONAL

COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION I)

GEOLOGICAL PROFILE
STA. 11+800.000 TO 12+500.000

DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	R-07

REVISION	DATE
No	



LEGEND	
○	ROTARY BORING
◇	SPT-HUD
○	SPT
□	ROTARY BORING
◇	SPT+MSP+WS
□	WSP
△	ROTARY BORING
◇	WSP+WS
☆	AUGER BORING
◇	SS
◇	FIELD VANE
◇	VANE SHEAR TEST

REMARKS	
SPT	= STANDARD PENETRATION TEST
UD	= UNDISTURBED SAMPLING
WSP	= WATER STAND PIPE INSTALLATION
WS	= WATER SAMPLING
SS	= SOIL SAMPLING

LEGEND	
---	Bottom Boundary Line of Upper Bearing Stratum
---	Upper Boundary Line of Bearing Stratum

BOREHOLE LOG	
Soil Symbol	Soil Type
F	Fill
Pt	Peat
OP	Organic Clay
OP-S	Sandy Peaty Clay
Oc	Organic Clay
OcM	Silty Organic Clay
OcS	Sandy Organic Clay
OM	Silty Clay
MC	Organic Clay Silty
CS	Clayey Silty
CS-M	Silty Sandy Clay
MS	Sandy Silty

GEOLOGICAL PROFILE	
Soil Layer Symbol	Soil Layer Name
B	Embankment/ Fill
Pt	Peat
Oc	Organic Clay
Ac	Alluvial Clay
ACS	Alluvial Sandy Clay

GEOLOGICAL PROFILE	
Soil Symbol	Soil Name
SC	Organic Clayey Sand
SC-M	Clayey Sand
SM	Silty Sand
SM-C	Clayey Silty Sand
S	Sand
SC-C	Grovelly Sand
GM	Silty Grovelly Sand
Bd	Boulder
WR	Completely Weathered Rock
R	Rock (Weathered Rock)

GEOLOGICAL PROFILE	
Soil Layer Symbol	Soil Layer Name
As	Alluvial Sand
Ag	Alluvial Grovelly Sand
W	Completely Weathered Rock
Br	Rock (Weathered Rock)

GEOLOGICAL PROFILE	
Soil Layer Symbol	Soil Layer Name
OC	Organic Clay
RS	Rock (Weathered Rock)
WR	Completely Weathered Rock
AS	Alluvial Sand

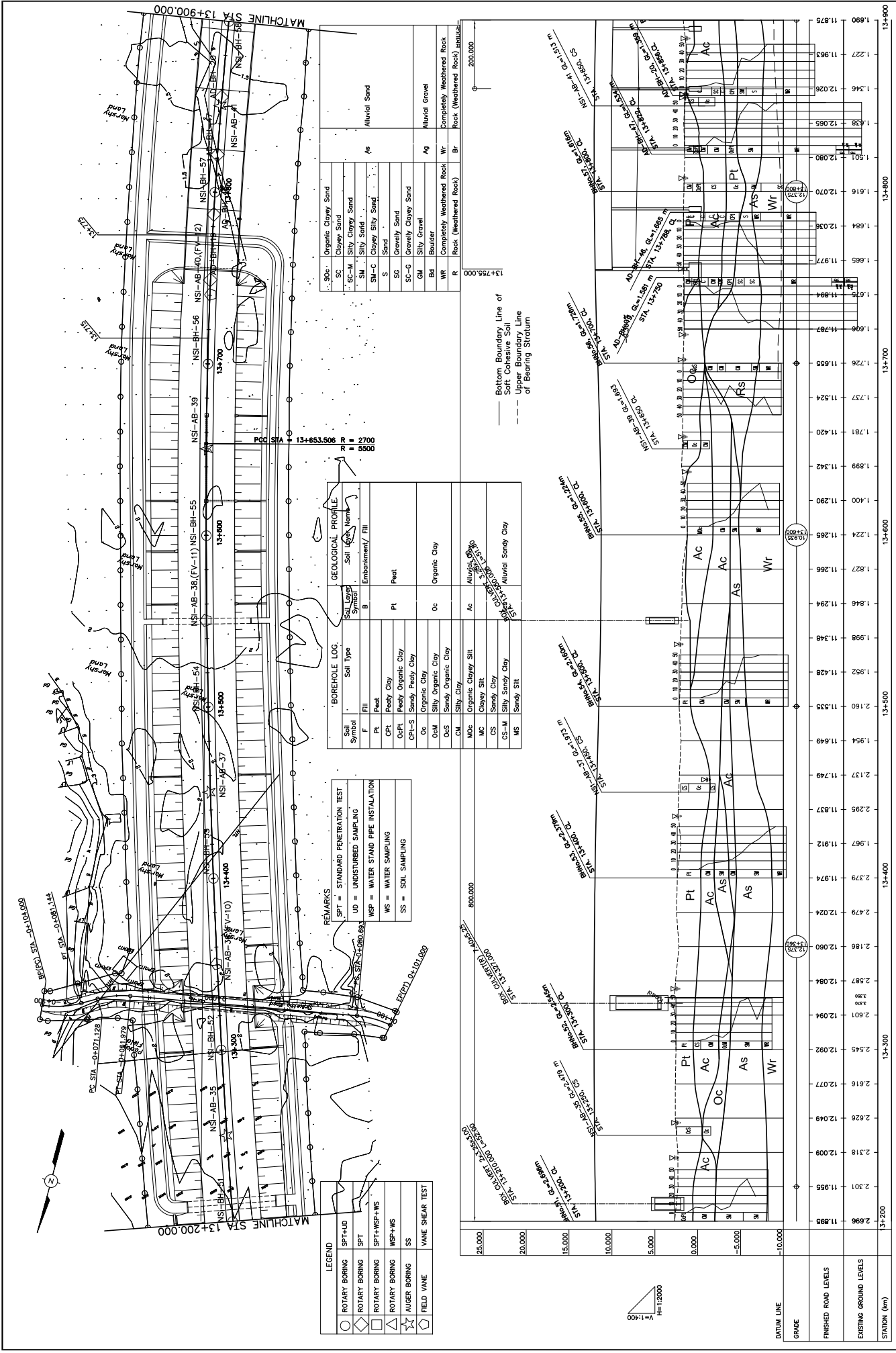
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION I)

GEOLOGICAL PROFILE
STA. 12+500.000 TO 13+200.000

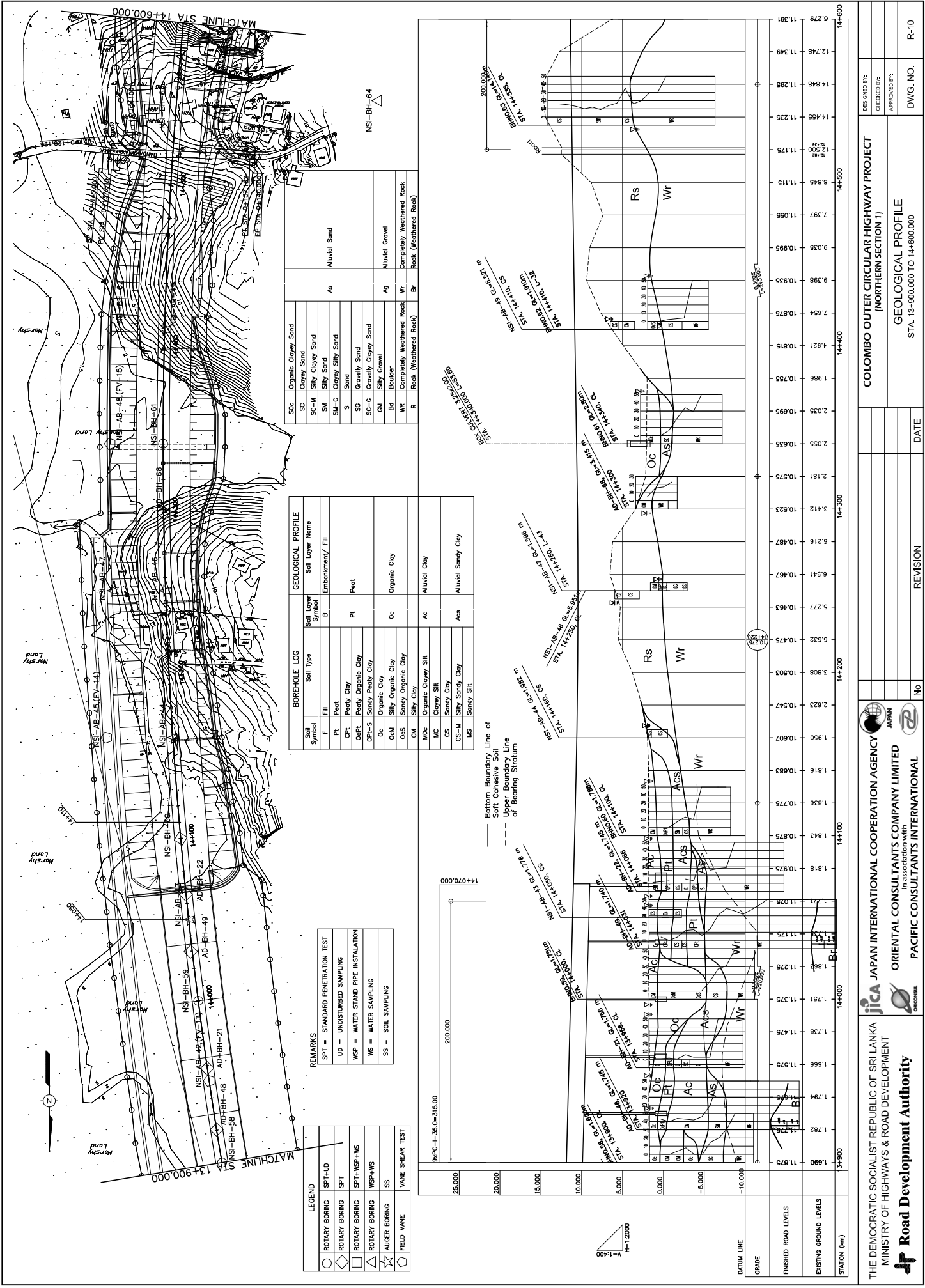
DESIGNED BY:	APPROVED BY:
CHECKED BY:	DWG. NO. R-08

REVISION	DATE
No	

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
 MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority



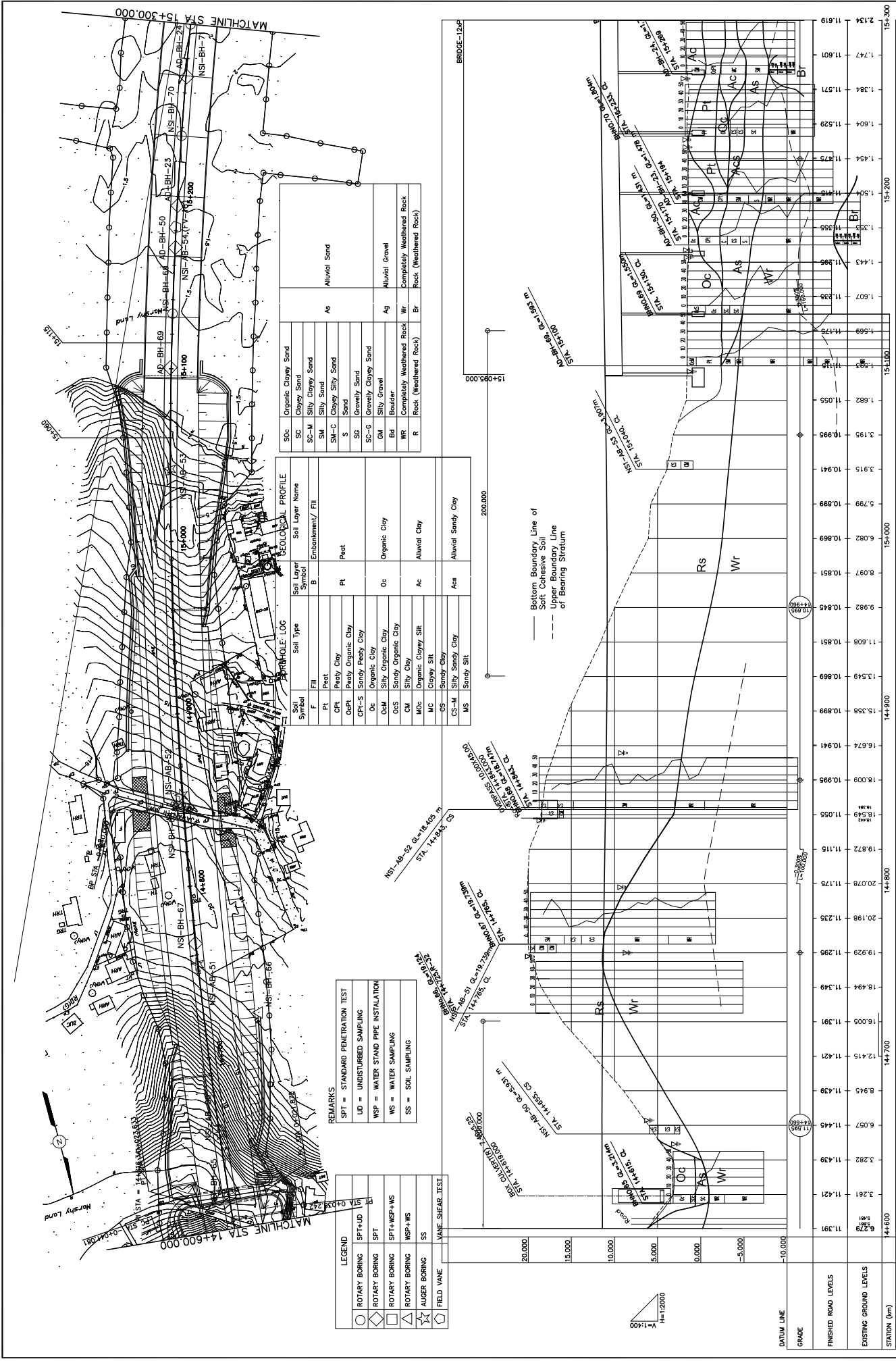
DESIGNED BY:		CHECKED BY:		APPROVED BY:	
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT (NORTHERN SECTION I)					
GEOLOGICAL PROFILE STA. 13+200.000 TO 13+900.000					
NO		REVISION		DATE	
13+200		13+300		13+400	
13+500		13+600		13+700	
13+800		13+900			
THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT Road Development Authority					
JICA JAPAN INTERNATIONAL COOPERATION AGENCY ORIENTAL CONSULTANTS COMPANY LIMITED <small>in association with</small> PACIFIC CONSULTANTS INTERNATIONAL					
DWG. NO. R-09					



DESIGNED BY:		CHECKED BY:		APPROVED BY:	
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT (NORTHERN SECTION I)				GEOLOGICAL PROFILE STA. 13+900.000 TO 14+600.000	
NO		REVISION		DATE	
				R-10	

JICA JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
 in association with
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THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority



LEGEND	
○	ROTARY BORING
◇	ROTARY BORING
□	ROTARY BORING
△	ROTARY BORING
☆	AUGER BORING
○	FIELD VANE
○	SPT
○	SPT+UD
○	SPT+WS
○	SPT+WS+MS
○	WSP
○	WSP+MS
○	SS
○	VANE SHEAR TEST

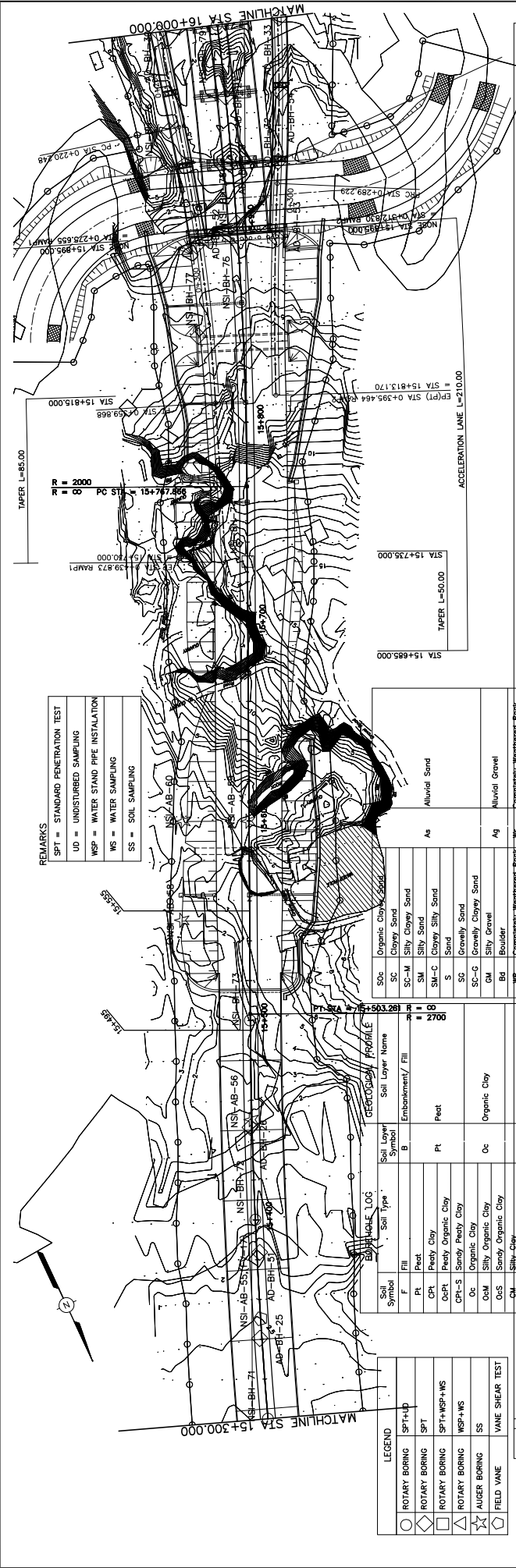
REMARKS	
SPT	= STANDARD PENETRATION TEST
UD	= UNDISTURBED SAMPLING
WSP	= WATER STAND PIPE INSTALLATION
MS	= WATER SAMPLING
SS	= SOIL SAMPLING

SOIL HOLE LOG					
Soil Symbol	Soil Type	Soil Layer Name	Soil Layer Symbol	Soil Layer Name	Soil Layer Name
F	Fill		B	Peat	Peat
CP	Peaty Clay		Pl	Peaty Organic Clay	
CP-S	Sandy Peaty Clay		Oc	Organic Clay	
OC	Organic Clay		OC	Sandy Organic Clay	
OC-S	Sandy Organic Clay		OC	Silty Organic Clay	
OC-S	Silty Organic Clay		OC	Organic Clay Silt	
MC	Clayey Silt		Ac	Alluvial Clay	
MC	Clayey Silt		Ac	Alluvial Clay	
CS	Sandy Clay		Ac	Alluvial Clay	
CS-M	Silty Sandy Clay		Ac	Alluvial Clay	
MS	Sandy Silt		Ac	Alluvial Clay	

SOIL SYMBOLS	
So	Organic Clayey Sand
SC	Clayey Sand
SC-M	Silty Clayey Sand
SM	Silty Sand
SM-C	Clayey Silty Sand
S	Sand
SC-G	Gravelly Sand
GM	Silty Gravel
Bd	Boulder
WR	Completely Weathered Rock
R	Rock (Weathered Rock)
As	Alluvial Sand
Ag	Alluvial Gravel
Br	Completely Weathered Rock
Br	Rock (Weathered Rock)

GEOLOGICAL PROFILE	
Soil Layer Name	Soil Layer Name
Embankment/ Fill	Embankment/ Fill

STATIONING	
14+600	14+700
14+800	14+900
14+900	15+000
15+000	15+100
15+100	15+200
15+200	15+300



REMARKS

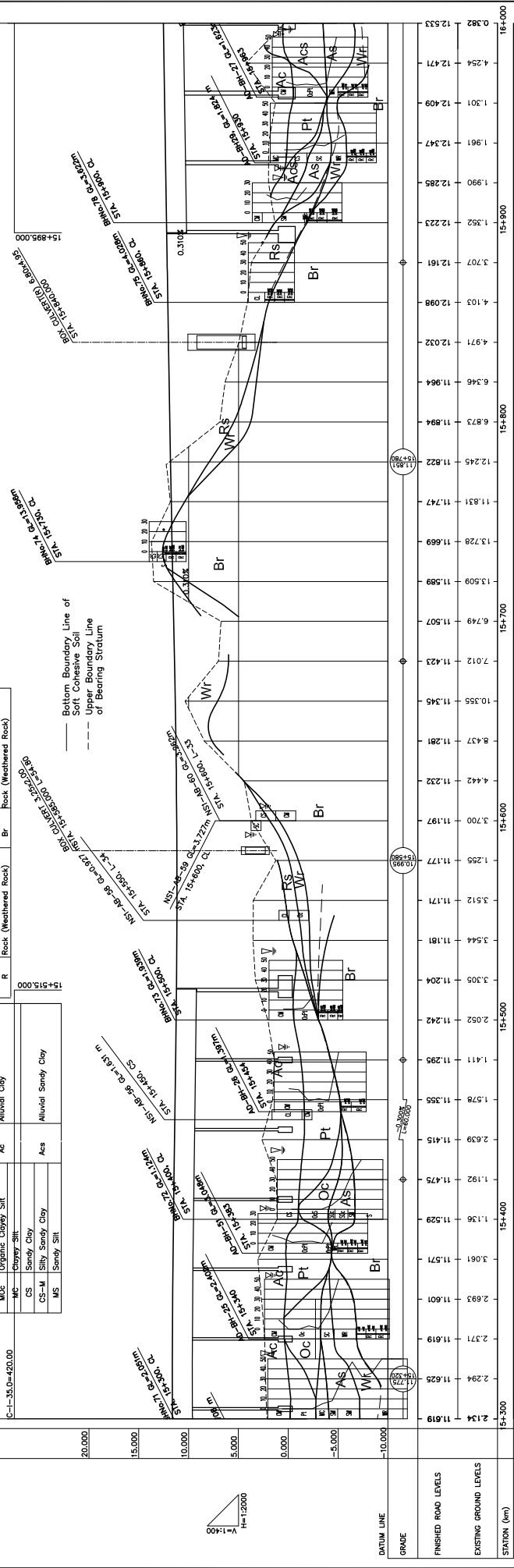
- SPT = STANDARD PENETRATION TEST
- UD = UNDISTURBED SAMPLING
- WSP = WATER STAND PIPE INSTALLATION
- WS = WATER SAMPLING
- SS = SOIL SAMPLING

LEGEND

- ROTARY BORING SPT+UD
- ◇ ROTARY BORING SPT
- ROTARY BORING SPT+WSH+WS
- △ ROTARY BORING WSP+WS
- ☆ AUGER BORING SS
- ◇ FIELD VANE VANE SHEAR TEST

SOIL LAYER LOG

Soil Layer Symbol	Soil Layer Name	Soil Layer Description	Soil Layer Symbol	Soil Layer Name	Soil Layer Description
F	Fill	Fill	B	Embankment/Fill	Embankment/Fill
Pl	Peat	Peat	Pt	Peat	Peat
CP	Peaty Clay	Peaty Organic Clay	Oc	Organic Clay	Organic Clay
Op	Peaty Organic Clay	Peaty Organic Clay	Ac	Alluvial Clay	Alluvial Clay
CP-S	Sandy Peaty Clay	Sandy Peaty Clay	Acs	Alluvial Sandy Clay	Alluvial Sandy Clay
OC	Organic Clay	Organic Clay			
OM	Silty Organic Clay	Silty Organic Clay			
OS	Sandy Organic Clay	Sandy Organic Clay			
MC	Clayey Silt	Clayey Silt			
CS	Sandy Clay	Sandy Clay			
MS	Sandy Silt	Sandy Silt			
SC	Clayey Sand	Clayey Sand			
SM	Silty Sand	Silty Sand			
SM-C	Clayey Silty Sand	Clayey Silty Sand			
S	Sand	Sand			
SC-G	Gravelly Sand	Gravelly Sand			
GM	Silty Gravel	Silty Gravel			
BG	Boulder	Boulder			
WR	Completely weathered Rock	Completely weathered Rock	Br	Rock (Weathered Rock)	Rock (Weathered Rock)
R	Rock (Weathered Rock)	Rock (Weathered Rock)			



COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION I)

DESIGNED BY: _____
CHECKED BY: _____
APPROVED BY: _____

GEOLOGICAL PROFILE
STA. 15+300.000 TO 16+000.000

DATE: _____

REVISION: _____

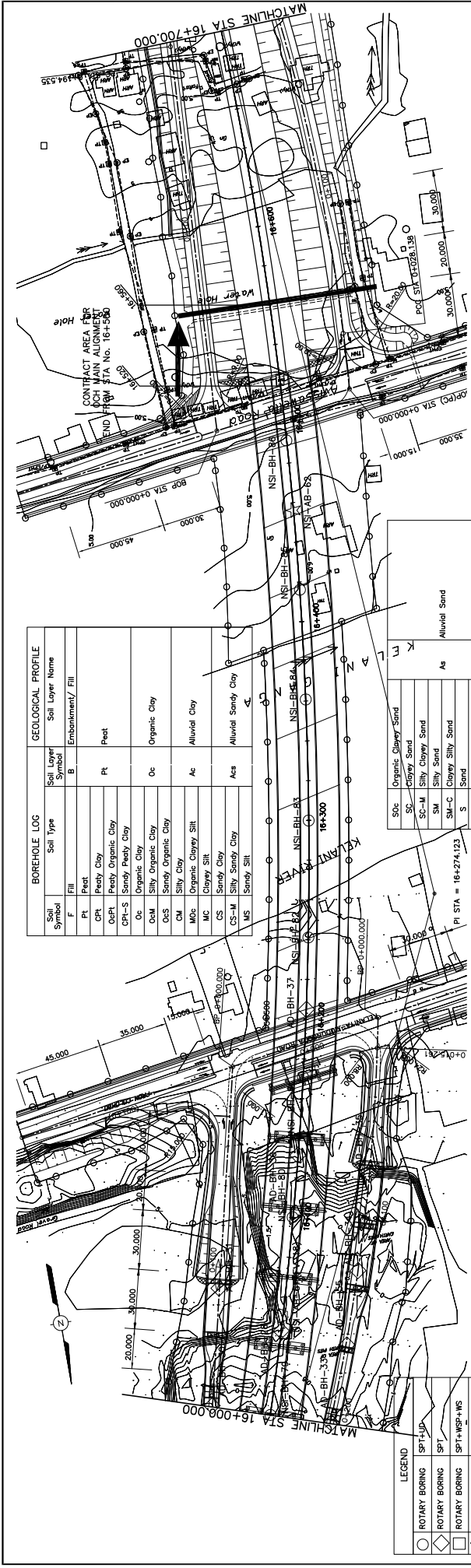
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DWG. NO. R-12

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT

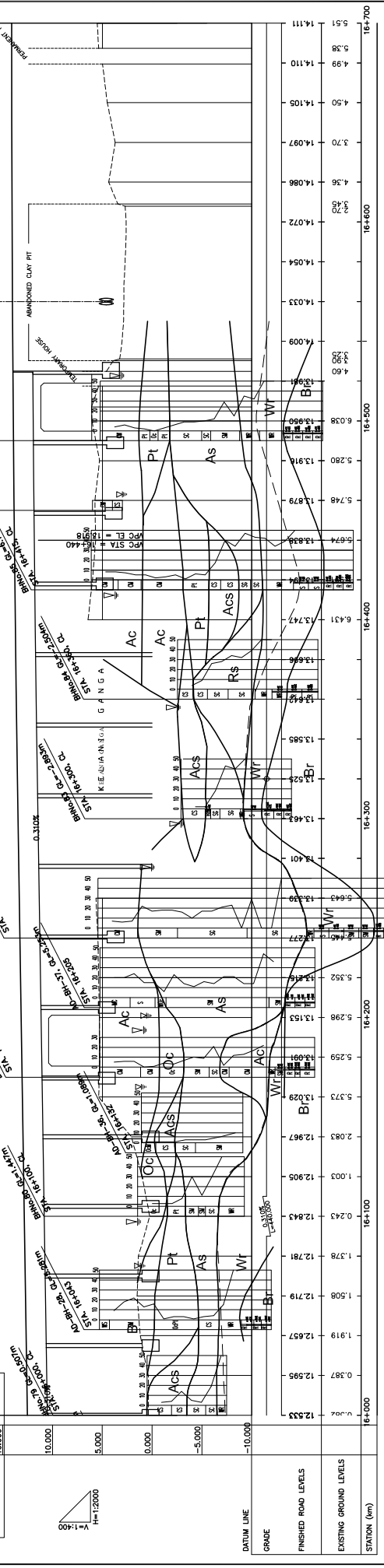
JICA JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
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PACIFIC CONSULTANTS INTERNATIONAL

Road Development Authority



Soil Symbol	Soil Type	Soil Layer Name	Soil Layer Symbol	Soil Layer Name
F	Fill	Embankment/Fill	B	Embankment/Fill
Pe	Peat	Peat	Pe	Peat
CP	Peaty Clay	Organic Clay	Oc	Organic Clay
CP-S	Peaty Silty Clay			
CP-S	Sandy Peaty Clay			
OC	Organic Clay	Alluvial Clay	Ac	Alluvial Clay
OC-S	Sandy Organic Clay			
OC-S	Sticky Organic Clay			
MC	Organic Clay Silt	Alluvial Silty Clay	As	Alluvial Silty Clay
MC	Clayey Silt			
CS	Sandy Clay			
CS-M	Silty Sandy Clay	Sandy Silt	MS	Sandy Silt
MS	Sandy Silt			
MS	Sandy Silt			

Soil Symbol	Soil Type	Soil Layer Name
SOC	Organic Clayey Sand	Alluvial Sand
SC	Clayey Sand	
SC-M	Silty Clayey Sand	
SM	Silty Sand	
SM-C	Clayey Silty Sand	
S	Sand	Alluvial Gravel
SG	Gravelly Sand	
SG-C	Gravelly Clayey Sand	
GM	Silty Gravel	
GM	Silty Gravel	
BD	Builder	Completely Weathered Rock
WR	Completely Weathered Rock	
WR	Completely Weathered Rock	
R	Rock (Weathered-Rock)	Rock (Weathered-Rock)
R	Rock (Weathered-Rock)	
R	Rock (Weathered-Rock)	



STATION (m)	16+000	16+100	16+200	16+300	16+400	16+500	16+600	16+700
FINISHED ROAD LEVELS	12.533	12.657	12.719	12.781	12.843	12.905	12.967	13.029
EXISTING GROUND LEVELS	12.533	12.657	12.719	12.781	12.843	12.905	12.967	13.029

REVISION

NO	DATE

DESIGNED BY:
 CHECKED BY:
 APPROVED BY:
 DWG. NO. R-13

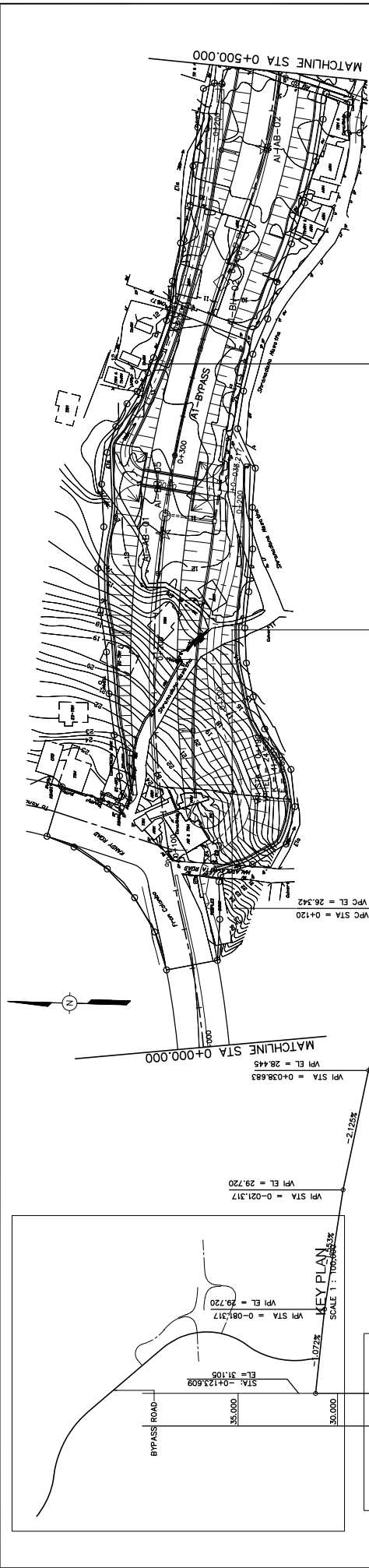
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION I)

GEOLOGICAL PROFILE
STA. 16+000.000 TO 16+700.000

THE DEMOCRATIC SOCIAL REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT

JICA JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

Road Development Authority

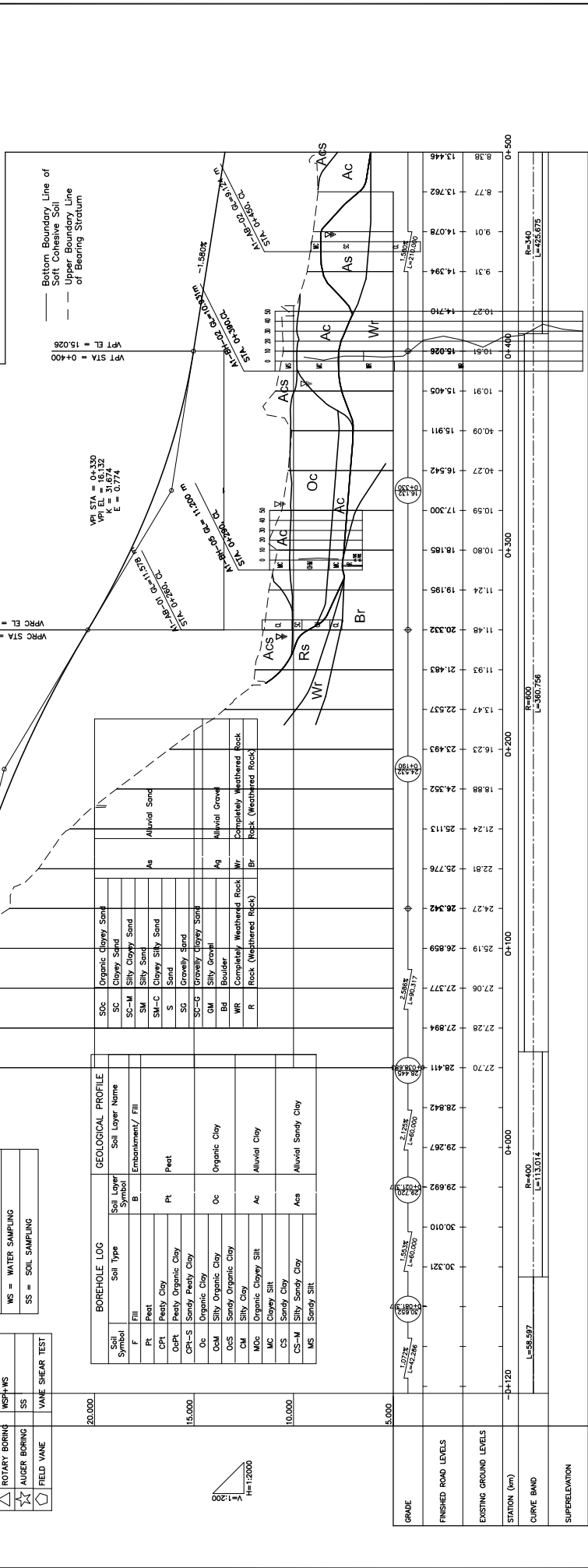


LEGEND

○	ROTARY BORING	SPT+UD
○	ROTARY BORING	SPT
□	ROTARY BORING	WS+MS
□	ROTARY BORING	WS+MS
△	ROTARY BORING	WS+MS
▽	AUGER BORING	SS
◇	FIELD VANE	VANE SHEAR TEST

REMARKS

- SPT = STANDARD PENETRATION TEST
- UD = UNDISTURBED SAMPLING
- WS = WATER SAMPLING
- SS = SOIL SAMPLING
- VNSP = WATER STAND PIPE INSTALLATION



DESIGNED BY: _____
 CHECKED BY: _____
 APPROVED BY: _____
 DWG. NO. R-14

COLombo OUTER CIRCULAR HIGHWAY PROJECT
 (NORTHERN SECTION I)

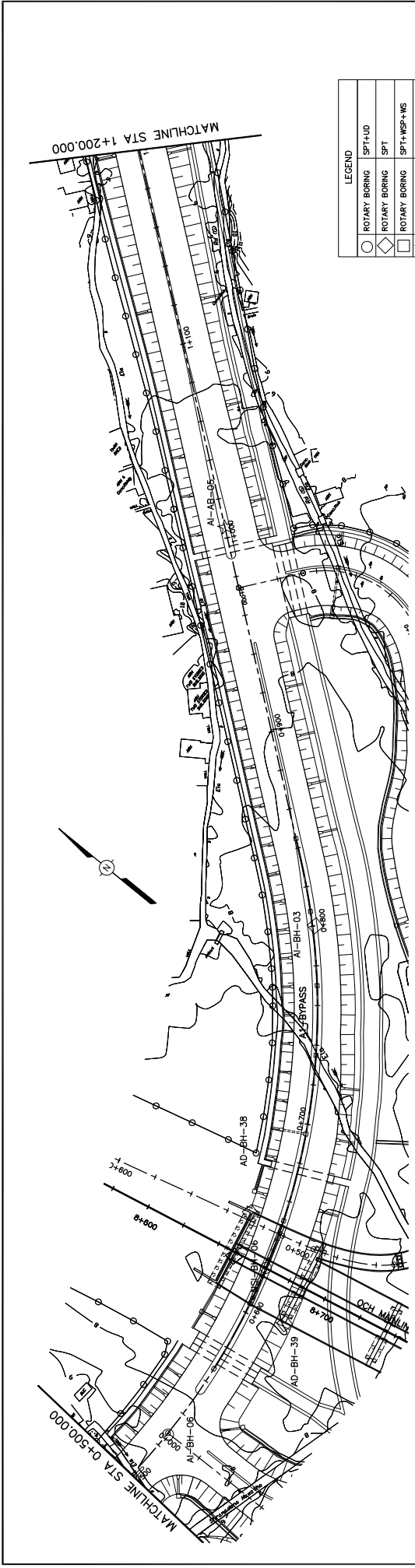
GEOLoGICAL PROFILE
 A1 BYPASS +1 (0+000 - 0+500)

NO. _____ DATE _____

REVISION _____

JICA JAPAN INTERNATIONAL COOPERATION AGENCY
 ORIENTAL CONSULTANTS COMPANY LIMITED
 in association with
 PACIFIC CONSULTANTS INTERNATIONAL

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
 MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority



LEGEND

○	ROTARY BORING	SPT+UD
◇	ROTARY BORING	SPT
□	ROTARY BORING	SPT+MS+MS
△	ROTARY BORING	MS+MS
☆	AUGER BORING	SS
◇	FIELD VANE	VANE SHEAR TEST

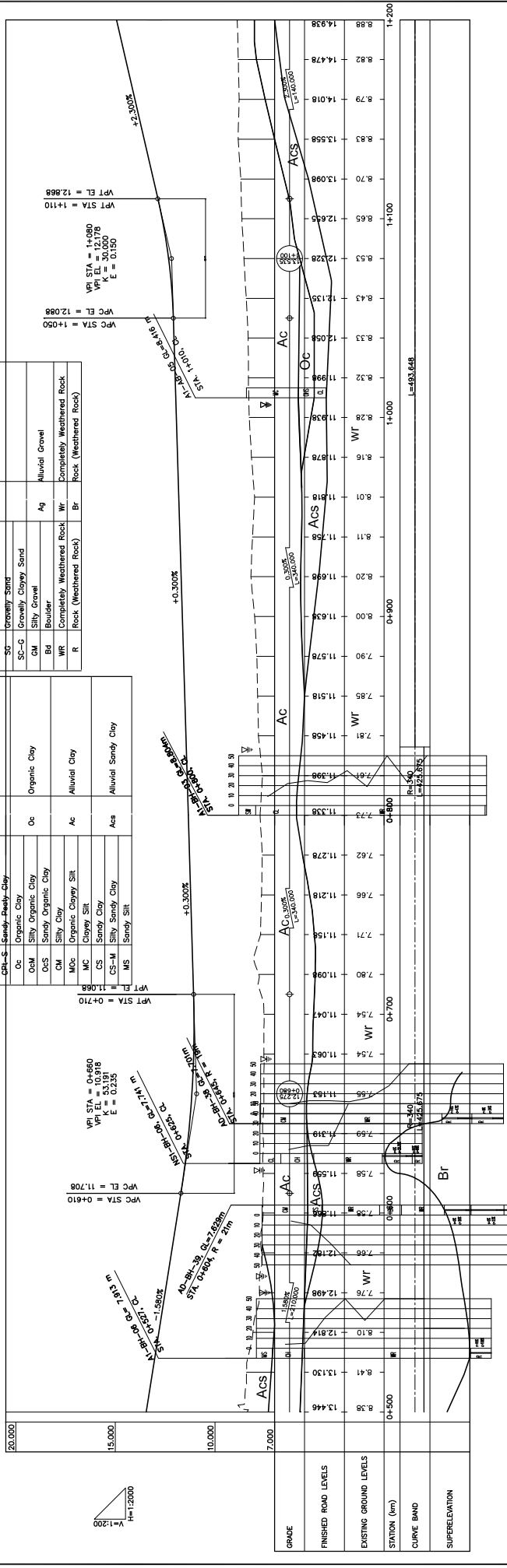
BOREHOLE LOG

Soil Symbol	Soil Type	Soil Layer Symbol	Soil Layer Name	Soil Layer Name
SC	Organic Clay	B	Embankment/ Fill	
SC-M	Silty Organic Clay	Pl	Peat	
SC-G	Grovelly Clayey Sand	Oc	Organic Clay	
Gf	Silty Grovel	Ac	Alluvial Clay	
Bd	Boulder	As	Alluvial Sand	
Wr	Completely Weathered Rock	Br	Rock (Weathered Rock)	
R	Rock (Weathered Rock)			

GEOLOGICAL PROFILE

Soil Symbol	Soil Type	Soil Layer Symbol	Soil Layer Name	Soil Layer Name
F	Fill	B	Embankment/ Fill	
Pl	Peaty Clay	Pl	Peat	
OC	Organic Clay	Oc	Organic Clay	
CS	Sandy Organic Clay	Ac	Alluvial Clay	
MS	Sandy Silt	As	Alluvial Sandy Clay	

— Bottom Boundary Line of Soft Cohesive Soil
 - - - Upper Boundary Line of Bearing Stratum



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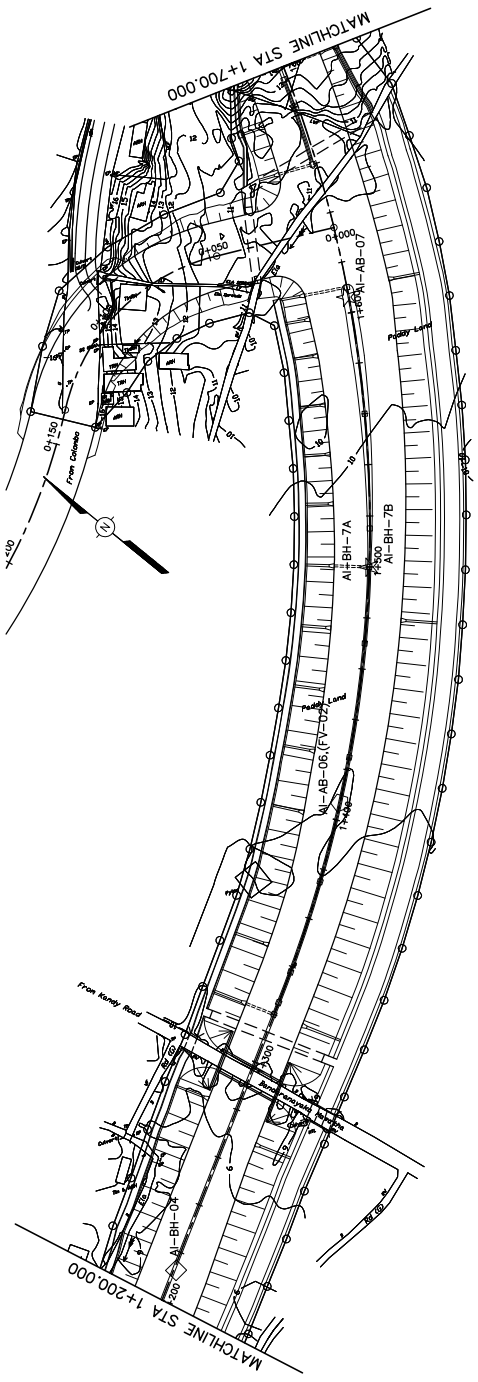
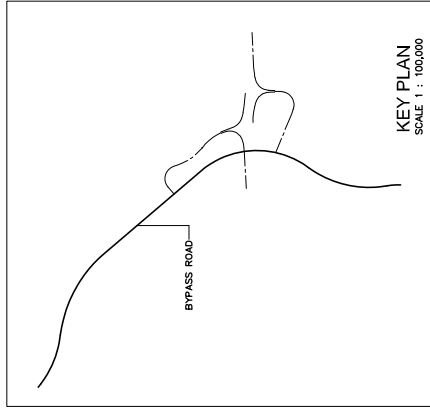
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 CHECKED BY: []
 APPROVED BY: []

COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
 (NORTHERN SECTION 1)

GEOLOGICAL PROFILE
 AT BYPASS - 2 (0+500 - 1+200)

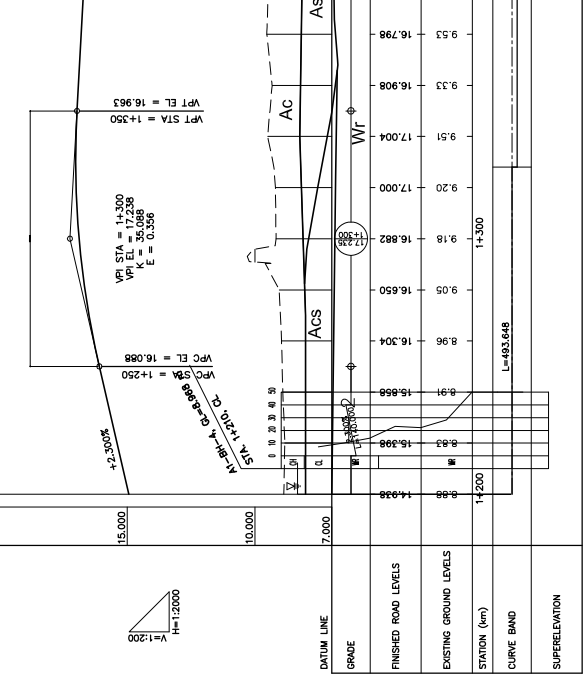
NO. [] REVISION [] DATE []

DWG. NO. R-15



BOREHOLE LOG		GEOLOGICAL PROFILE	
Soil Symbol	Soil Type	Soil Layer Symbol	Soil Layer Name
F	Fill	B	Embankment/ Fill
PT	Peaty Clay	Pl	Peat
OPt	Peaty Organic Clay		
OPt-S	Sandy Peaty Clay		
Oc	Organic Clay	Oc	Organic Clay
Ok	Shy Organic Clay		
OS	Sandy Organic Clay		
Om	Silty Clay	Ac	Alluvial Clay
MOC	Organic Clay Silt		
MC	Clayey Silt		
CS	Sandy Clay	As	Alluvial Sandy Clay
CS-M	Silty Sandy Clay		
MS	Sandy Silt		

Soil Symbol	Soil Name	Station	Soil Name	Station
SCc	Organic Clayey Sand	15.000	As	15.000
SC	Clayey Sand	15.000	As	15.000
SC-M	Silty Clayey Sand	15.000	As	15.000
SM	Silty Sand	15.000	As	15.000
SM-C	Clayey Silty Sand	15.000	As	15.000
S	Sand	15.000	As	15.000
SC-G	Gravelly Clayey Sand	15.000	Ag	15.000
Gf	Silty Gravel	15.000	Ag	15.000
Bd	Boulder	15.000	Ag	15.000
WR	Completely Weathered Rock	15.000	Br	15.000
R	Rock (Weathered Rock)	15.000	Br	15.000



LEGEND	
○	ROTARY BORING SPT+UD
◇	ROTARY BORING SPT
□	ROTARY BORING SPT+MSP+WS
△	ROTARY BORING MSP+WS
⊗	AUGER BORING SS
◇	FIELD VANE
○	VANE SHEAR TEST

REMARKS	
SPT	= STANDARD PENETRATION TEST
UD	= UNDISTURBED SAMPLING
MSP	= WATER STAND PIPE INSTALLATION
WS	= WATER SAMPLING
SS	= SOIL SAMPLING

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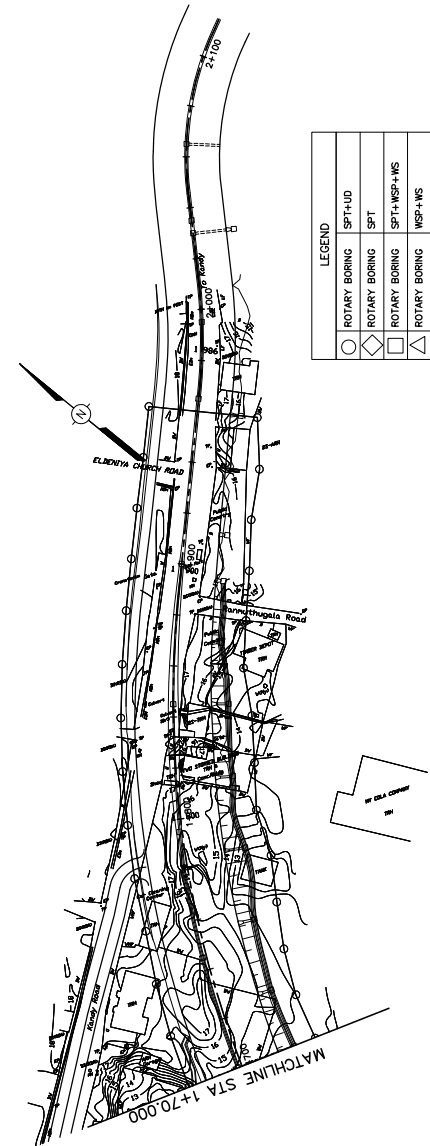
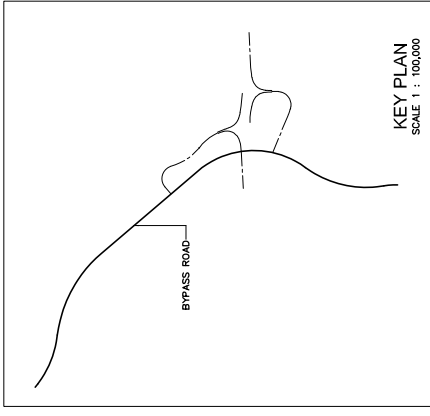
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COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
 (NORTHERN SECTION 1)

GEOLOGICAL PROFILE
 A1 BYPASS=3 (1+200 - 1+700)

NO	REVISION	DATE

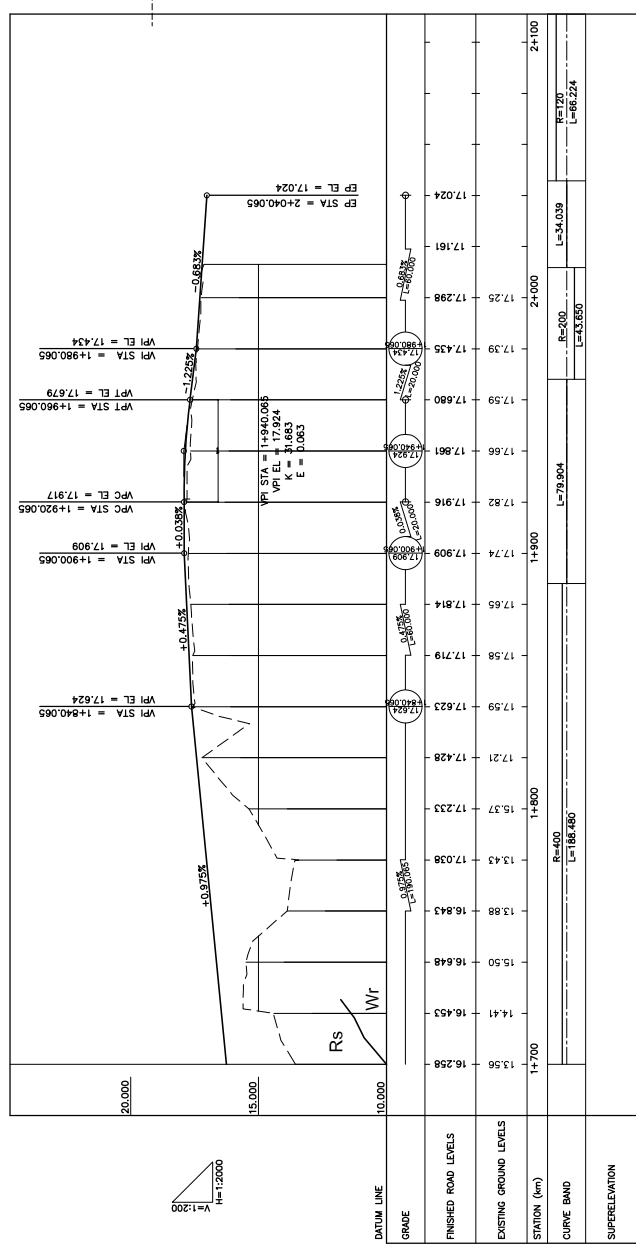
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 DWG. NO. R-16



LEGEND

○	ROTARY BORING	SPT-HUD
◇	ROTARY BORING	SPT
□	ROTARY BORING	SPT+MSP+MS
△	ROTARY BORING	WSP+MS
▽	AUGER BORING	SS
☆	FIELD VANE	VANE SHEAR TEST

— Bottom Boundary Line of Soil Cohesive Soil
 - - - Upper Boundary Line of Bearing Stratum



BOREHOLE LOG

Soil Symbol	Soil Type	Soil Layer Name	Soil Layer Name
F	Fill	Embankment/ Fill	
RL	Rect.		
OPR	Peaty Clay		Peat
OPR	Peaty Organic Clay		
OPR-S	Sandy Peaty Clay		
Oc	Organic Clay		
Ocm	Silty Organic Clay		Organic Clay
Ocs	Sandy Organic Clay		
CM	Silty Clay		
MOC	Organic Clayey Silt		Alluvial Clay
MC	Clayey Silt		
CS	Sandy Clay		
CS-M	Silty Sandy Clay		
MS	Sandy Silt		Alluvial Sandy Clay

SCc	Organic Clayey Sand	
SC	Clayey Sand	
SC-M	Silty Clayey Sand	
SM	Silty Sand	
SM-C	Clayey Silty Sand	
S	Sand	
SG	Gravelly Sand	
SC-G	Gravelly Clayey Sand	
GM	Silty Gravel	
BR	Boulder	
WR	Completely Weathered Rock	
R	Rock (Weathered Rock)	

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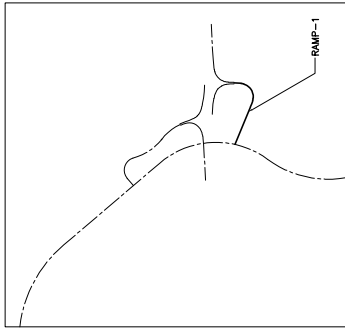
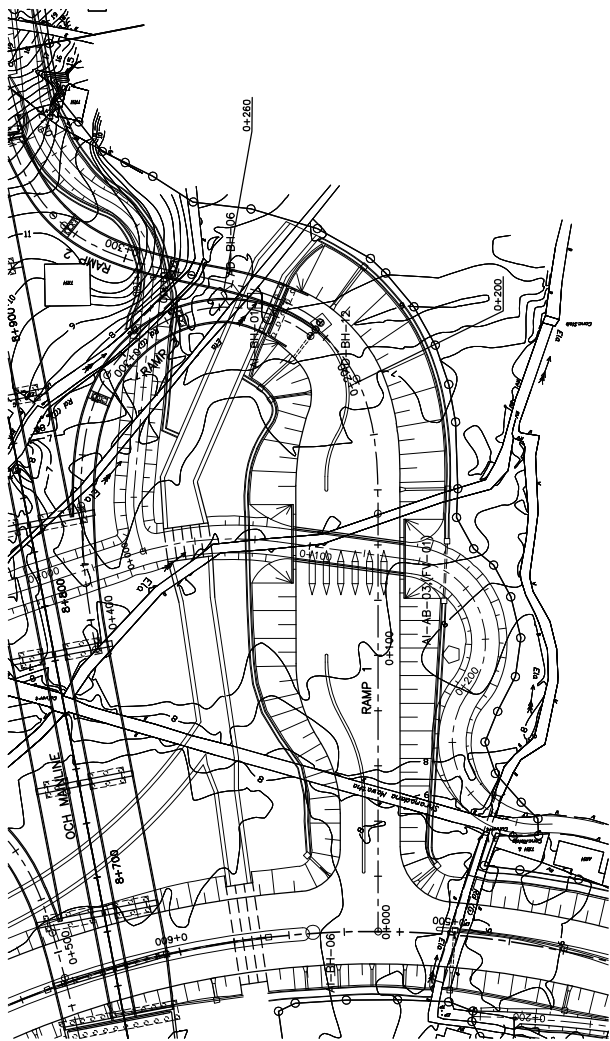
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
 (NORTHERN SECTION I)
 GEOLOGICAL PROFILE
 A4 BYPASS +4 (1+700+2+100)

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DATE: _____

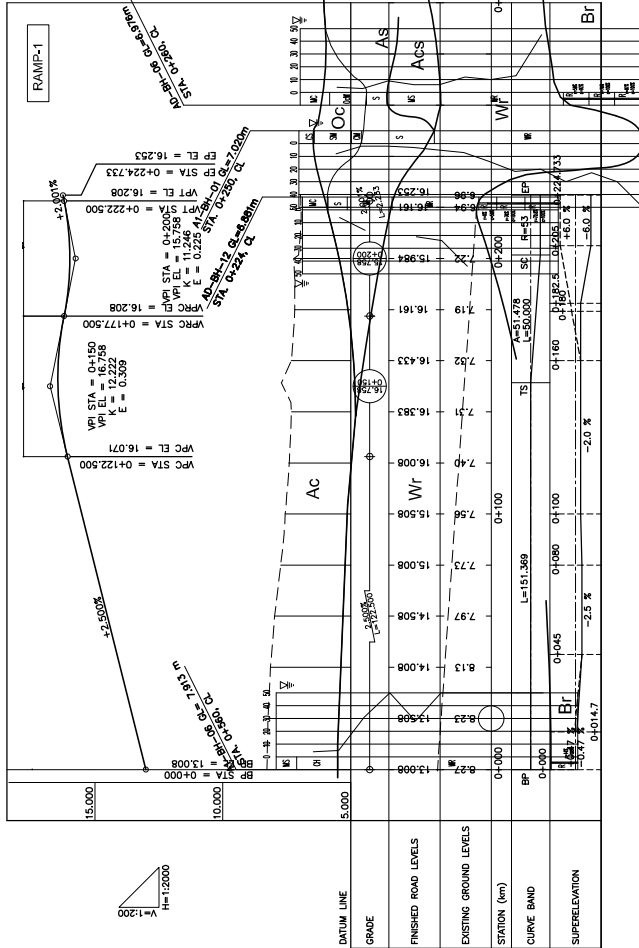
REVISION: _____

DWG. NO. R-17



LEGEND	
○	ROTARY BORING SPT+UD
◇	ROTARY BORING SPT
□	ROTARY BORING SPT+WSP+WS
△	ROTARY BORING WSP+WS
☆	AUGER BORING SS
◇	FIELD VANE VANE SHEAR TEST

REMARKS
 SPT = STANDARD PENETRATION TEST
 UD = UNDISTURBED SAMPLING
 WSP = WATER STAND PIPE INSTALLATION
 WS = WATER SAMPLING
 SS = SOIL SAMPLING



--- Bottom Boundary Line of Soft Cohesive Soil
 - - - Upper Boundary Line of Bearing Stratum

BOREHOLE LOG		GEOLOGICAL PROFILE	
Soil Symbol	Soil Type	Soil Layer Symbol	Soil Layer Name
F	Fill	B	Embankment/ Fill
PL	Peat		
CP	Peaty Clay		
CPH	Peaty Organic Clay	PL	Peat
CPH-S	Sandy Peaty Clay		
Oc	Organic Clay		
Ocm	Silty Organic Clay	Oc	Organic Clay
OCS	Sandy Organic Clay		
CM	Silty Clay		
MOC	Organic Clayey Silt	Ac	Alluvial Clay
MC	Clayey Silt		
CS	Sandy Clay		
CS-M	Silty Sandy Clay	AcS	Alluvial Sandy Clay
MS	Sandy Silt		
SC	Clayey Sand		
SCc	Organic Clayey Sand		
SC-M	Silty Clayey Sand		
SM	Silty Sand		
SM-C	Clayey Silty Sand	As	Alluvial Sand
S	Sand		
SG	Gravelly Sand		
SG-C	Gravelly Clayey Sand		
GM	Silty Gravel	Ag	Alluvial Gravel
BB	Boulder		
WR	Completely Weathered Rock	Wr	Completely Weathered Rock
R	Rock (Weathered Rock)	Br	Rock (Weathered Rock)

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COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
 (NORTHERN SECTION 1)

GEOLOGICAL PROFILE (RAMP 1)
 STA.0+000.000 TO 0+300.000

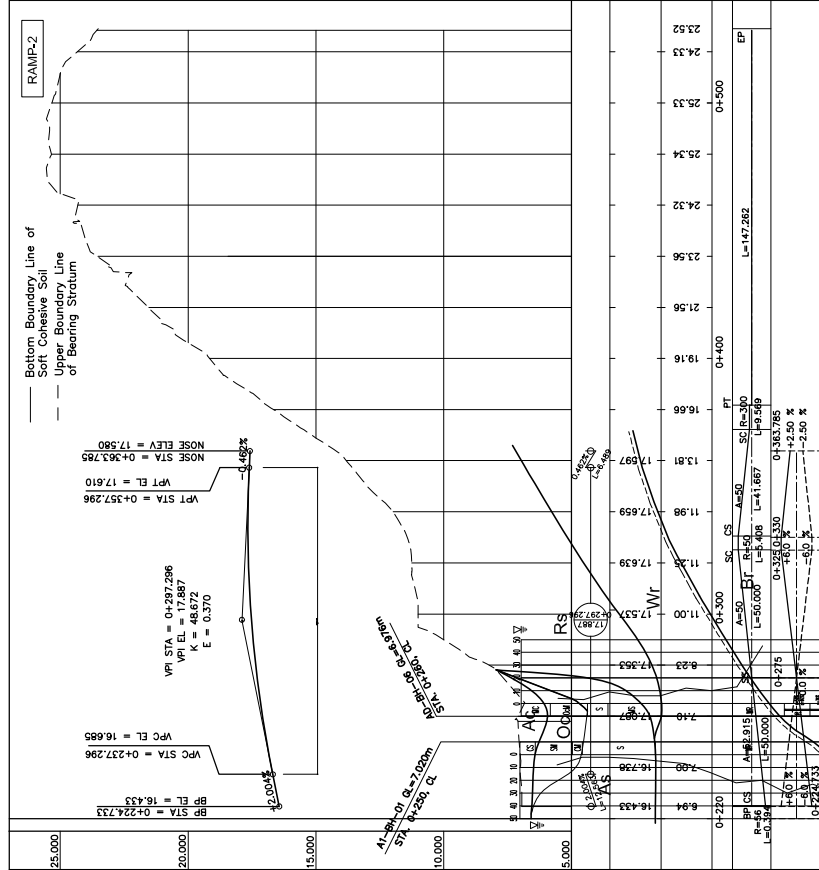
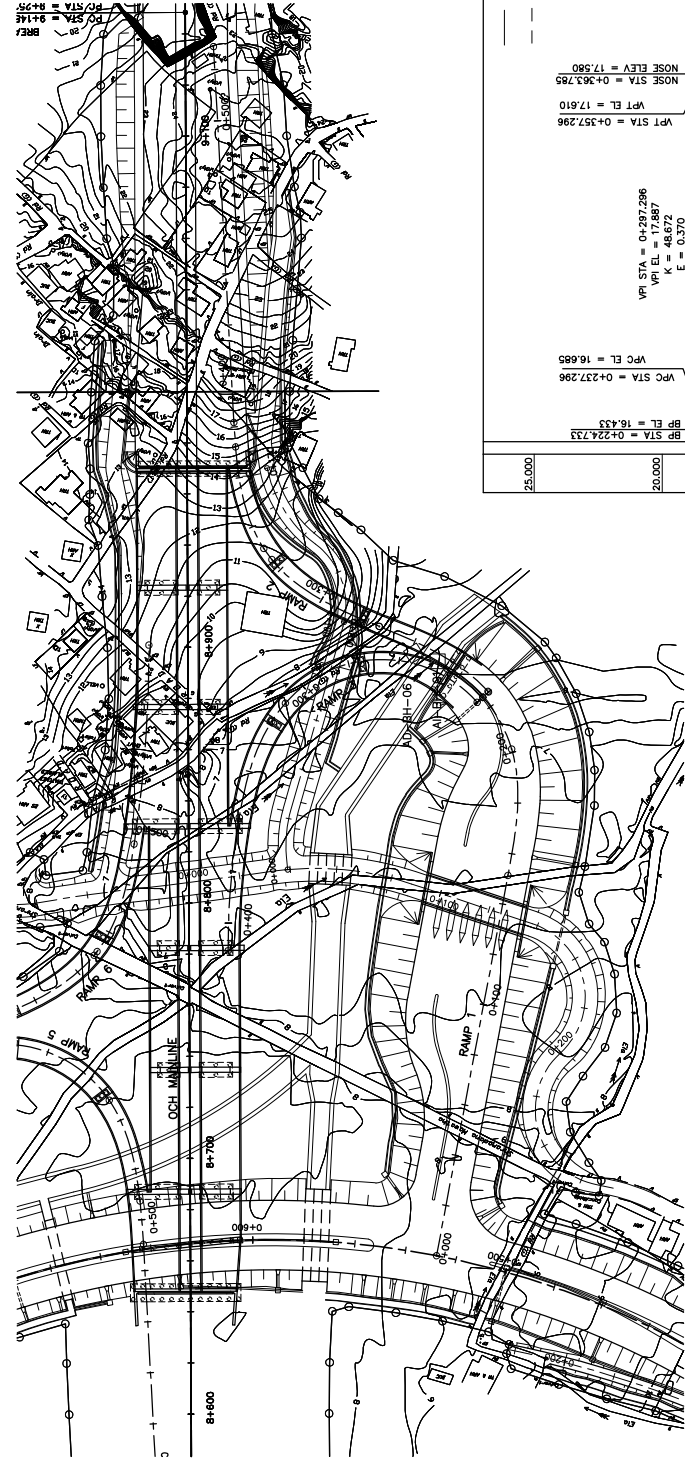
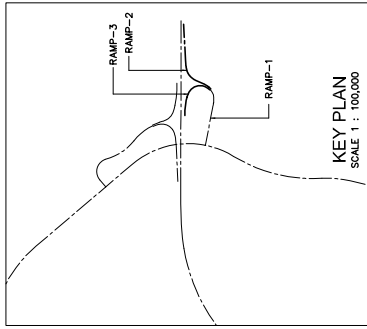
DESIGNED BY: _____
 CHECKED BY: _____
 APPROVED BY: _____

DWG. NO. R-18

DATE: _____

REVISION: _____

No. _____



LEGEND	
○	ROTARY BORING SPT+UD
◇	ROTARY BORING SPT
□	ROTARY BORING SPT+NSP+WS
△	ROTARY BORING NSP+WS
☆	AUGER BORING SS
◇	FIELD VANE
○	VANE SHEAR TEST

REMARKS
 SPT = STANDARD PENETRATION TEST
 UD = UNDISTURBED SAMPLING
 NSP = WATER STAND PIPE INSTALLATION
 WS = WATER SAMPLING
 SS = SOIL SAMPLING

BOREHOLE LOG		GEOLOGICAL PROFILE	
Soil Symbol	Soil Type	Soil Layer Name	Soil Layer Description
F	Fill	Embankment/ Fill	
Pt	Peat	Peat	
CP	Peaty Clay		
OC-P	Peaty Organic Clay		
OP-S	Sandy Peaty Clay		
Oc	Organic Clay		
OM	Silty Organic Clay		
OC-S	Sandy Organic Clay		
CM	Silty Clay		
MC	Clayey Silt		
CS	Sandy Clay		
CS-M	Silty Sandy Clay		
MS	Sandy Silt		
SC	Organic Clayey Sand		
SC-M	Silty Clayey Sand		
SM	Silty Sand		
SM-C	Clayey Silty Sand		
S	Sand		
SC	Grovelly Sand		
SC-G	Grovelly Clayey Sand		
BC	Silty Gravel		
BR	Completely Weathered Rock		
WR	Rock (Weathered Rock)		
R	Rock (Weathered Rock)		

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Road Development Authority

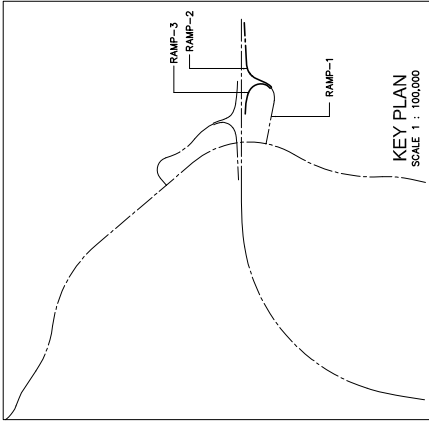
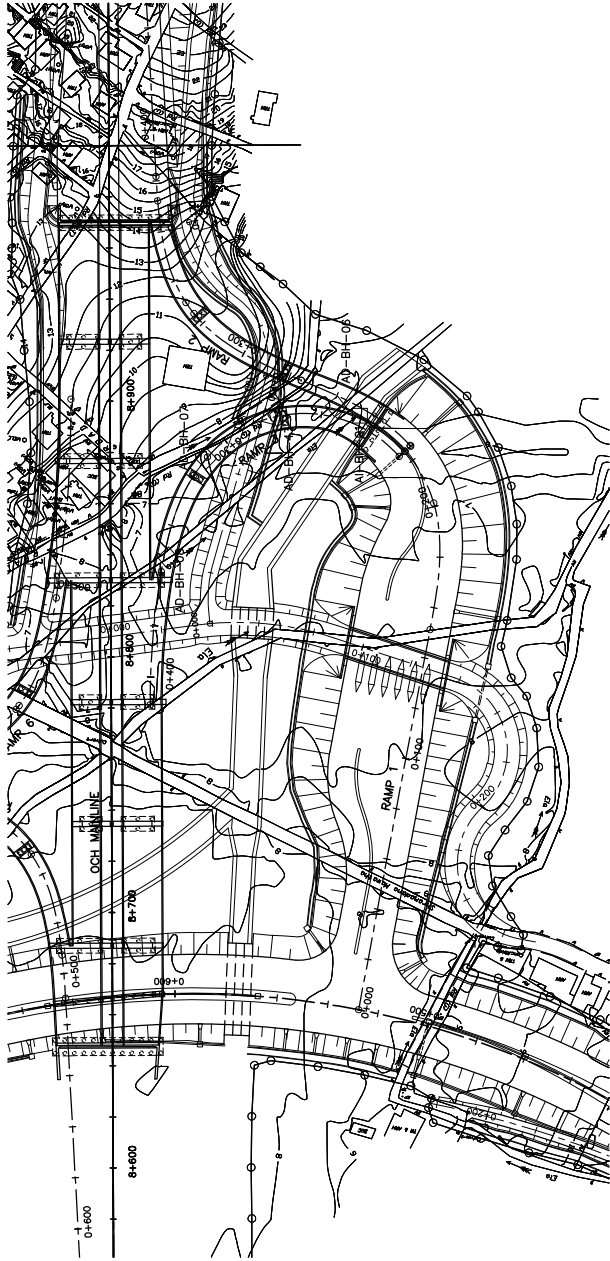
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COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
 (NORTHERN SECTION 1)
 GEOLOGICAL PROFILE (RAMP 2)
 STA. 0+000.000 TO 0+260.000

DESIGNED BY: _____
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 APPROVED BY: _____

DATE: _____
 REVISION: _____
 NO: _____

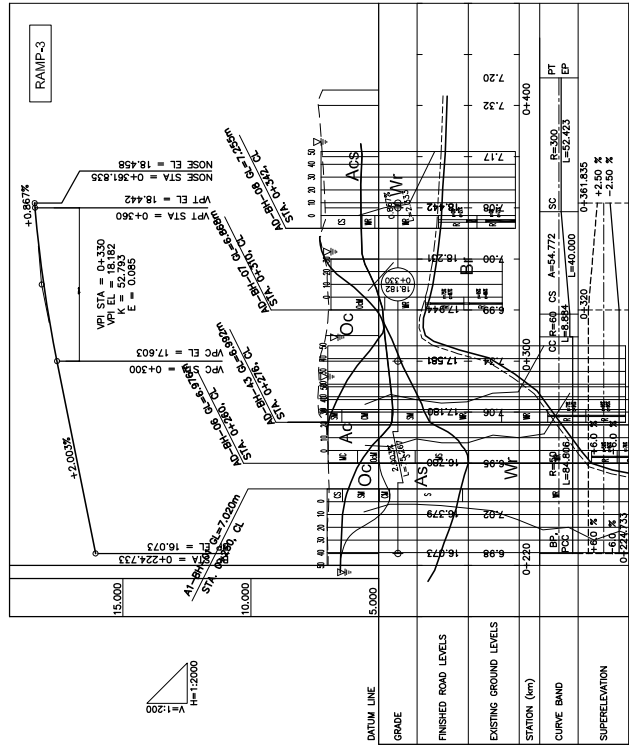
DWG. NO. R-19



--- Bottom Boundary Line of
 Soft Cohesive Soil
 --- Upper Boundary Line
 of Bearing Stratum

LEGEND	
○	ROTARY BORING
◇	ROTARY BORING
△	ROTARY BORING
☆	AUGER BORING
□	FIELD VANE
○	SPT+UD
○	SPT
□	SPT+WSP+WS
△	WSP+WS
☆	SS
□	VANE SHEAR TEST

REMARKS
 SPT = STANDARD PENETRATION TEST
 UD = UNDISTURBED SAMPLING
 WSP = WATER STAND PIPE INSTALLATION
 WS = WATER SAMPLING
 SS = SOIL SAMPLING



BOREHOLE LOG		GEOLOGICAL PROFILE	
Soil Symbol	Soil Type	Soil Layer Symbol	Soil Layer Name
F	Fill	B	Embankment/ Fill
Pl	Peat		
CP	Peaty Clay	Pl	Peat
CPA	Peaty Organic Clay		
CP-S	Sandy Peaty Clay		
Oc	Organic Clay	Oc	Organic Clay
OCu	Silty Organic Clay		
OCs	Sandy Organic Clay		
CM	Silty Clay	Ac	Alluvial Clay
MOC	Organic Clayey Silt		
CS	Sandy Clay		
CS-M	Silty Sandy Clay		
MS	Sandy Silt	As	Alluvial Sand
SOC	Organic Clayey Sand		
SC	Clayey Sand		
SC-M	Silty Clayey Sand		
SM	Silty Sand		
SM-C	Clayey Silty Sand		
S	Sand		
SG	Gravelly Sand		
SG-G	Gravelly Clayey Sand		
GM	Silty Gravel	Ag	Alluvial Gravel
Bt	Blocker	Wr	Completely Weathered Rock
R	Rock (Weathered Rock)	Br	Rock (Weathered Rock)

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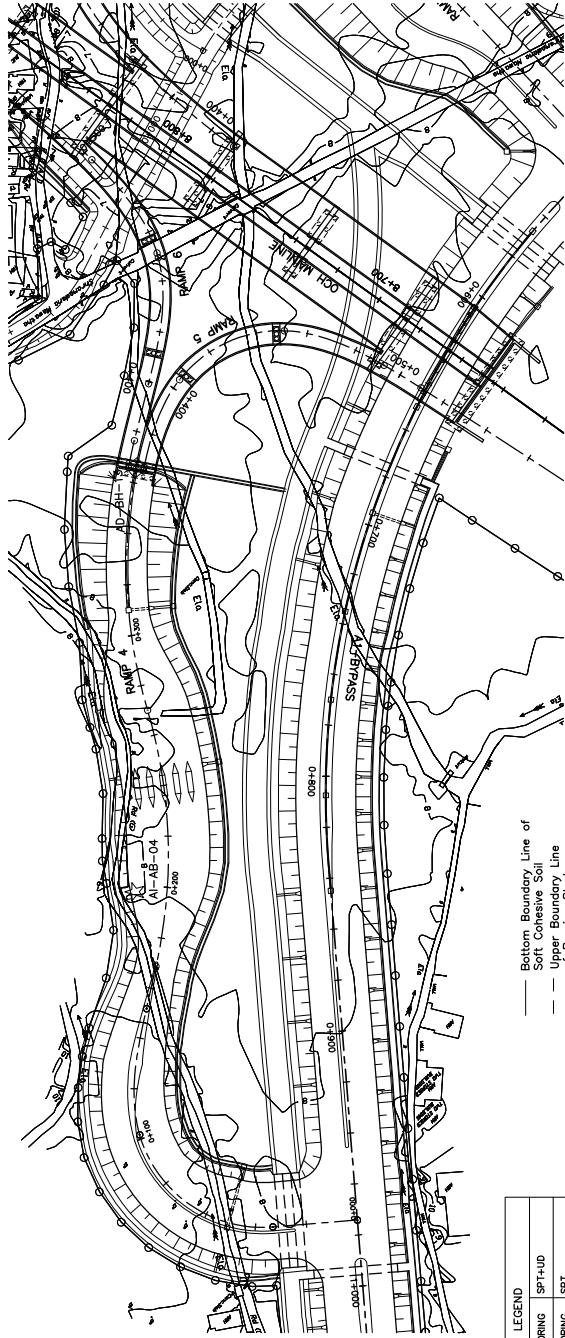
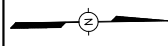
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Road Development Authority

COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
 (NORTHERN SECTION 1)
GEOLOGICAL PROFILE (RAMP 3)
 STA. 0+000.000 TO 0+200.000

NO	REVISION	DATE

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 APPROVED BY:
 DWG. NO. R-20



LEGEND

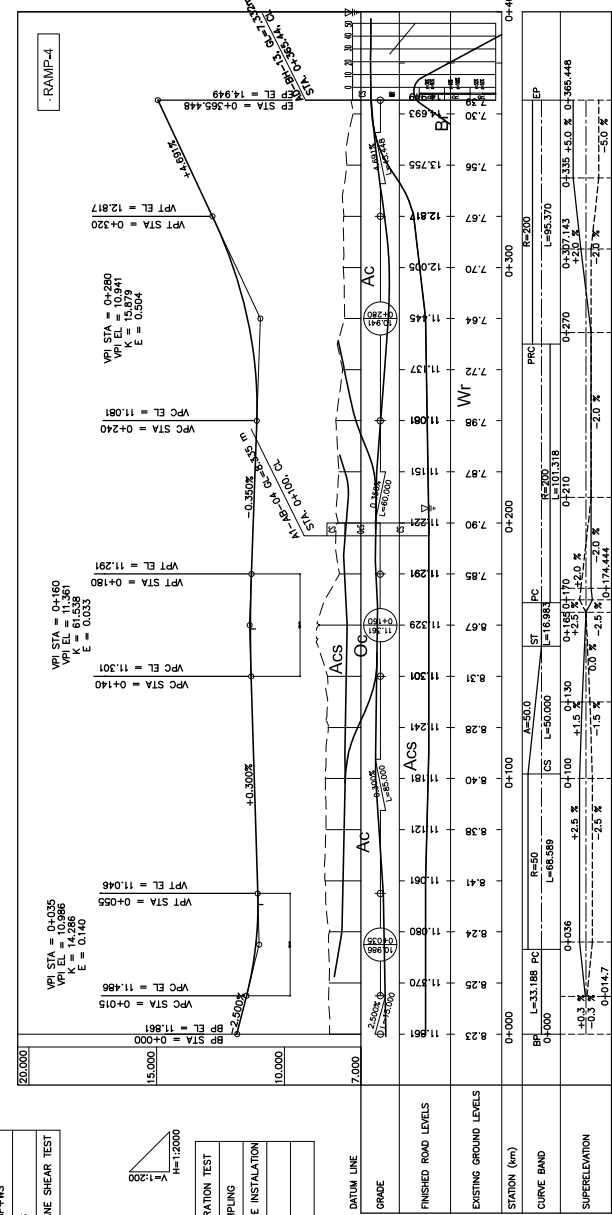
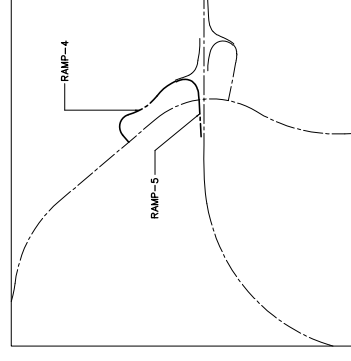
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◇	ROTARY BORING	SPT
◇	ROTARY BORING	SPT+WSP+WS
△	ROTARY BORING	WSP+WS
☆	AUGER BORING	SS
○	FIELD VANE	VANE SHEAR TEST



REMARKS

- SPT = STANDARD PENETRATION TEST
- UD = UNDISTURBED SAMPLING
- WSP = WATER STAND PIPE INSTALLATION
- WS = WATER SAMPLING
- SS = SOIL SAMPLING

KEY PLAN
SCALE 1 : 100,000



BOREHOLE LOG

Soil Symbol	Soil Type	Soil Layer Name
F	Fill	Embankment/ Fill
Pe	Peaty Clay	Peat
OC	Peaty Organic Clay	
OC-PL	Sandy Peaty Clay	
OC-PS	Sandy Peaty Clay	
OC	Organic Clay	
OC-M	Silty Organic Clay	
OC-S	Sandy Organic Clay	
OC-M	Silty Clay	
GM	Organic clayey Silt	Alluvial Clay
MC	Clayey Silt	
CS	Sandy Clay	
CS-M	Silty Sandy Clay	
MS	Sandy Silt	
Soc	Organic Clayey Sand	
SC	Clayey Sand	
SC-M	Silty Clayey Sand	
SM	Silty Sand	
SM-C	Clayey Silty Sand	
S	Sand	Alluvial Sand
SG	Gravelly Sand	
SC-G	Gravelly Clayey Sand	
GM	Silty Gravel	
Ag	Boulder	Alluvial Gravel
WR	Completely Weathered Rock	Completely Weathered Rock
R	Rock (Weathered Rock)	Rock (Weathered Rock)

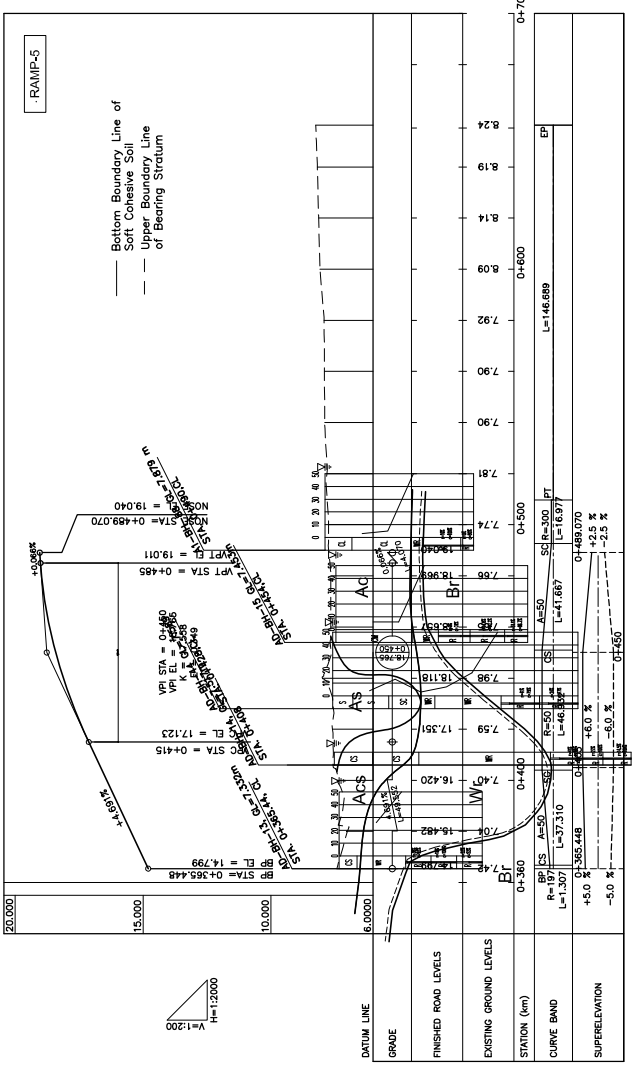
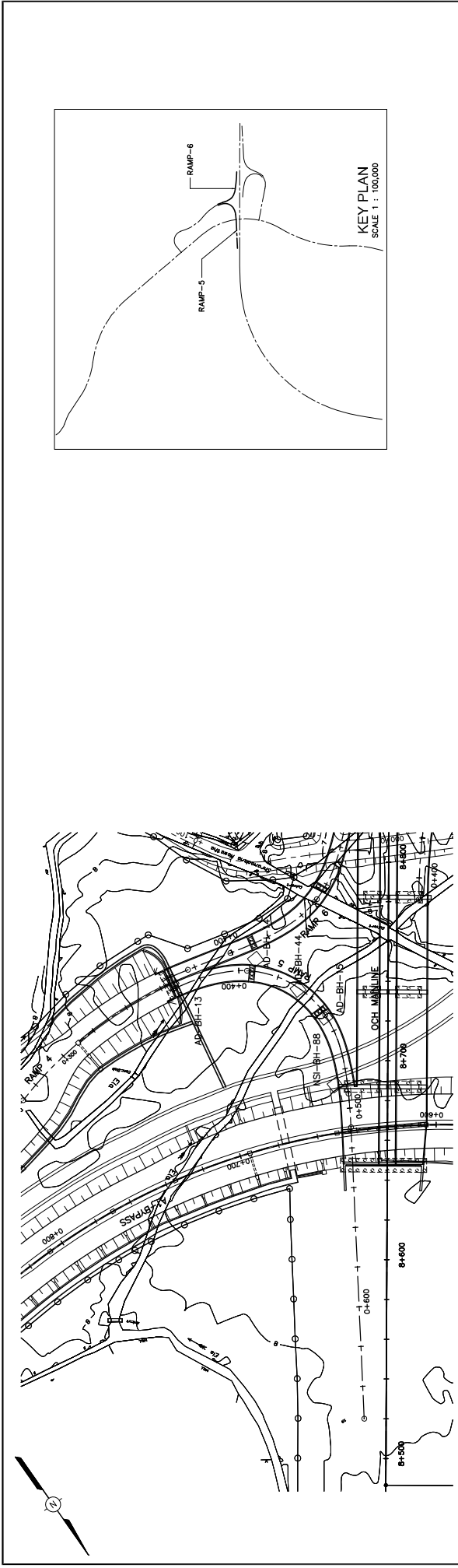
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NO	REVISION	DATE

COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION I)
GEOLOGICAL PROFILE (RAMP 4)
STA. 0+000.000 TO 0+400.000

DESIGNED BY:
CHECKED BY:
APPROVED BY:
DWG. NO. R-21



LEGEND

○	ROTARY BORING	SPT+UD
◇	ROTARY BORING	SPT
□	ROTARY BORING	SPT+NSP+WS
△	ROTARY BORING	WSP+WS
☆	AUGER BORING	SS
○	FIELD VANE	VANE SHEAR TEST

REMARKS

SPT = STANDARD PENETRATION TEST
UD = UNDISTURBED SAMPLING
WSP = WATER STAND PIPE INSTALLATION
WS = WATER SAMPLING
SS = SOIL SAMPLING

BOREHOLE LOG

Soil Symbol	Soil Type	Soil Layer Name
F	Fill	Embankment/ Fill
Pl	Peat	Peat
OPt	Pasty Organic Clay	
CPt-S	Sandy Pasty Clay	
Oc	Organic Clay	
Om	Silty Organic Clay	
Os	Sandy Organic Clay	
CM	Silty Clay	
MOC	Organic Clayey Silt	Aluvial Clay
MC	Clayey Silt	
CS	Sandy Clay	
CS-M	Silty Sandy Clay	Aluvial Sandy Clay
MS	Sandy Silt	
SOc	Organic Clayey Sand	
SC	Clayey Sand	
SC-M	Silty Clayey Sand	
SM	Silty Sand	
SM-C	Clayey Silty Sand	
S	Sand	Aluvial Sand
SG	Gravelly Sand	
SC-C	Coarsely Clayey Sand	
BM	Silty Gravel	Aluvial Gravel
Bd	Boulder	
WR	Completely Weathered Rock	Completely Weathered Rock
R	Rock (Weathered Rock)	Rock (Weathered Rock)

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
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COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION I)

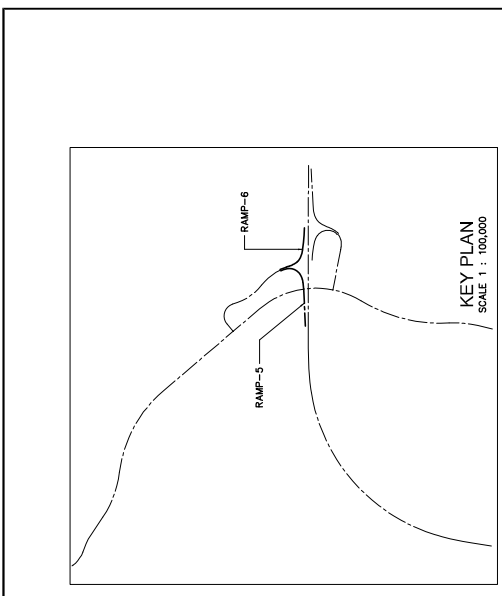
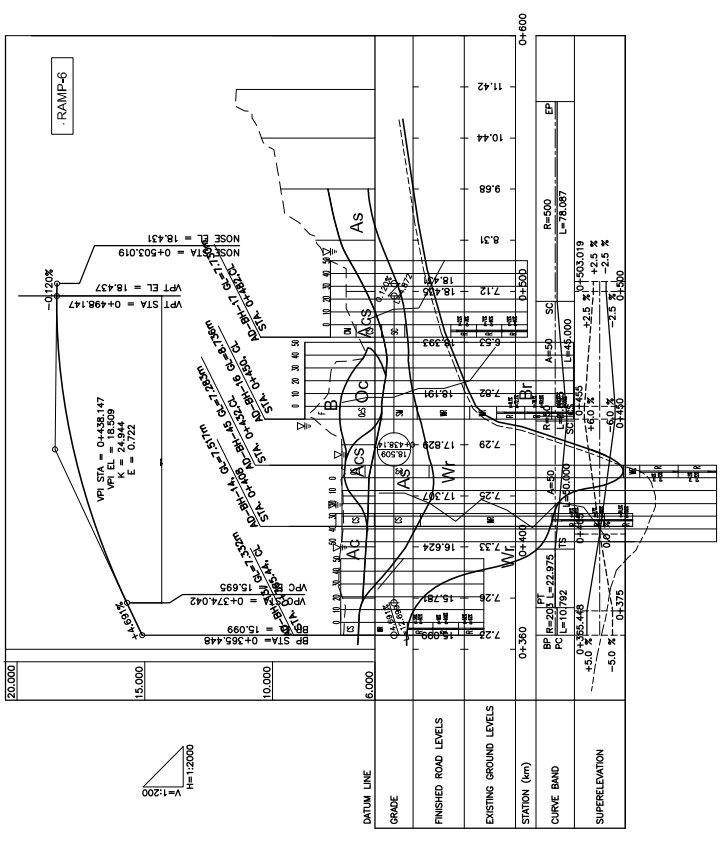
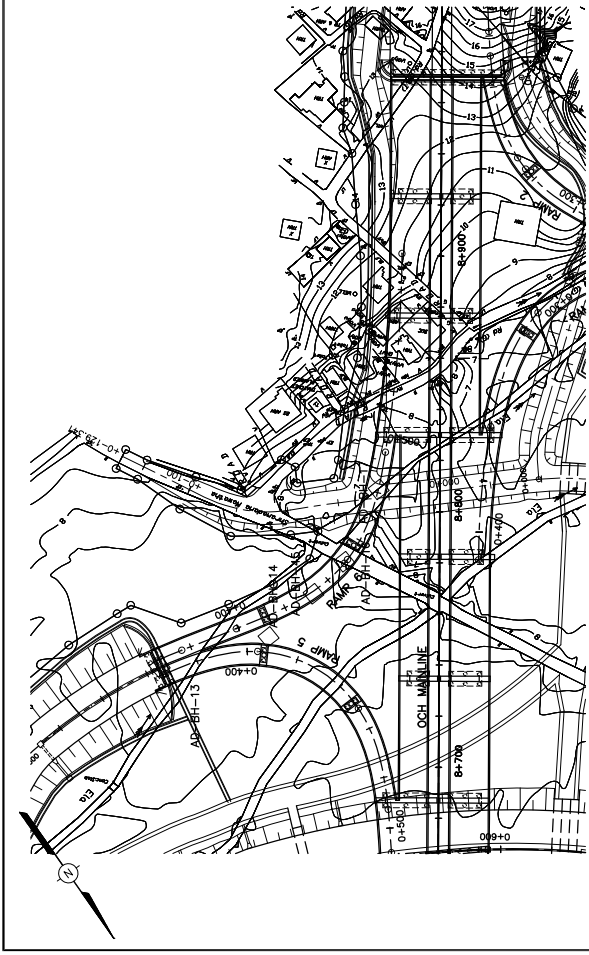
GEOLOGICAL PROFILE (RAMPS)
STA. 0+000.000 TO 0+300.000

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DATE: _____

REVISION: _____

DWG. NO. R-22



LEGEND

○	ROTARY BORING	SPT+UD
◇	ROTARY BORING	SPT
□	ROTARY BORING	SPT+MSP+WS
△	ROTARY BORING	MSP+WS
☆	AUGER BORING	SS
◇	FIELD VANE	VANE SHEAR TEST

--- Bottom Boundary, Line of Soil Cleave
 --- Upper Boundary, Line of Bearing Stratum

REMARKS

- SPT = STANDARD PENETRATION TEST
- UD = UNDISTURBED SAMPLING
- MSP = WATER STAND PIPE INSTALLATION
- WS = WATER SAMPLING
- SS = SOIL SAMPLING

BOREHOLE LOG		GEOLOGICAL PROFILE	
Soil Symbol	Soil Type	Soil Layer Symbol	Soil Layer Name
F	Fill	B	Embankment/ Fill
Pl	Peat		
CPL	Peaty Clay		
CPOL	Peaty Organic Clay		
CP+S	Sandy Peaty Clay	Pt	Peat
Oc	Organic Clay		
OCM	Silty Organic Clay	Oc	Organic Clay
OCSS	Sandy Organic Clay		
OM	Silty Clay		
MOc	Organic Clayey Silt	Ac	Alluvial Clay
MC	Clayey Silt		
CS	Sandy Clay		
CS-M	Silty Sandy Clay	AcS	Alluvial Sandy Clay
MS	Sandy Silt		
SOc	Organic Clayey Sand		
SC	Clayey Sand		
SC-M	Silty Clayey Sand		
SM	Silty Sand	As	Alluvial Sand
SM-C	Clayey Silty Sand		
S	Sand		
SG	Gravelly Sand		
SC-G	Gravelly Clayey Sand		
GM	Silty Gravel	Ag	Alluvial Gravel
Bd	Boulder		
WR	Completely Weathered Rock	Wr	Completely Weathered Rock
R	Rock (Weathered Rock)	Br	Rock (Weathered Rock)

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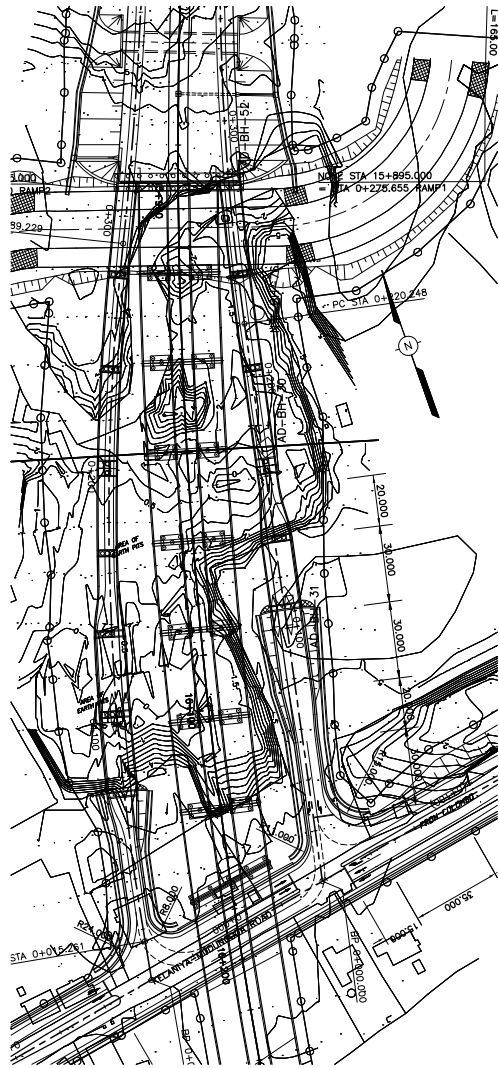
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COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
 (NORTHERN SECTION 1)

GEOLOGICAL PROFILE (RAMP 6)
 STA. 0+000.000 TO 0+300.000

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APPROVED BY:	
DWG. NO.	R-23

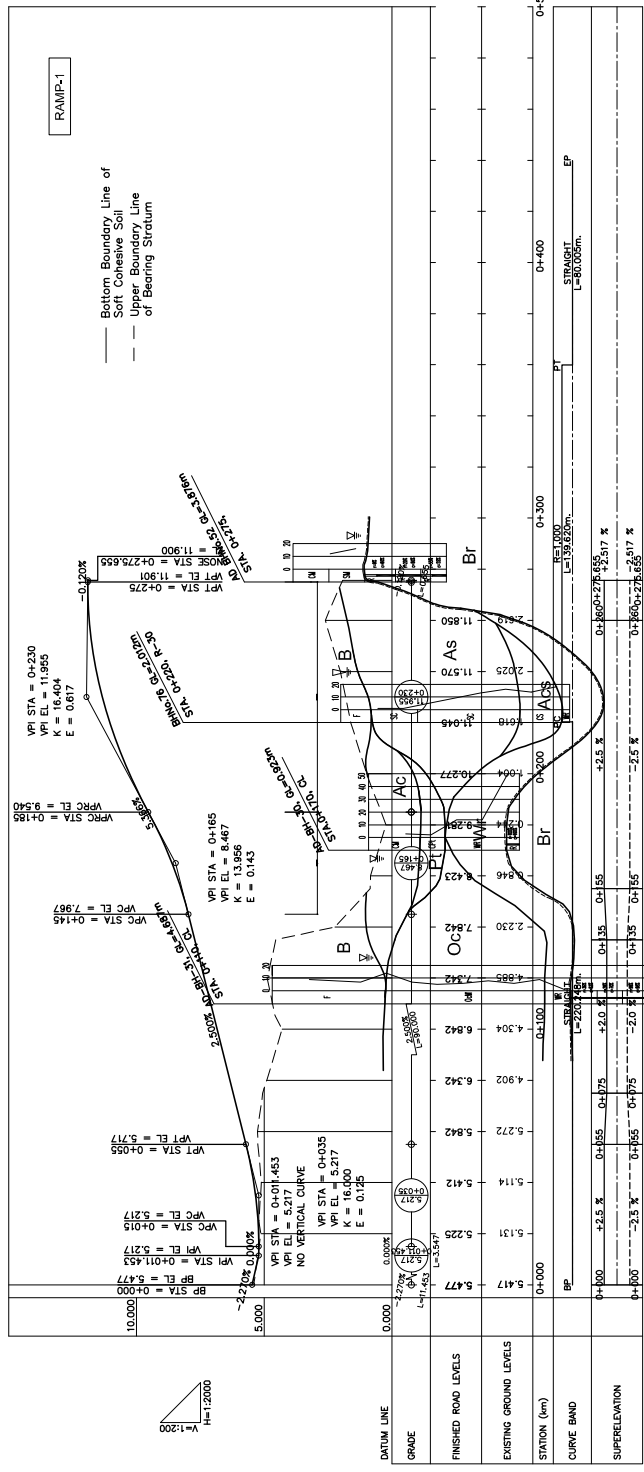
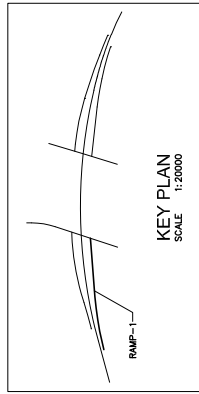
NO	REVISION	DATE
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BOREHOLE LOG		GEOLOGICAL PROFILE	
Soil Symbol	Soil Type	Soil Layer Symbol	Soil Layer Name
F	Fill	B	Embankment/ Fill
Pl	Peat		
CP	Peaty Clay	Pl	Peat
CP1	Peaty Organic Clay		
CP1-S	Sandy Peaty Clay		
OC	Organic Clay	Oc	Organic Clay
OC-M	Silty Organic Clay		
OC-S	Sandy Organic Clay		
CM	Silty Clay	Ac	Alluvial Clay
MC	Clayey Silt		
CS	Sandy Clay		
CS-M	Silty Sandy Clay	Ac	Alluvial Sandy Clay
MS	Sandy Silt		
SC	Clayey Sand		
SC-M	Silty Clayey Sand		
SM	Silty Sand	As	Alluvial Sand
SM-C	Clayey Silty Sand		
S	Sand		
SC-G	Gravelly Sand		
SC-G	Gravelly Clayey Sand		
GM	Silty Gravel	Ag	Alluvial Gravel
Bd	Boulder		
WR	Completely Weathered Rock	Wr	Completely Weathered Rock
R	Rock (Weathered Rock)	Br	Rock (Weathered Rock)

LEGEND	
○	ROTARY BORING SPT+UD
◇	ROTARY BORING SPT
□	ROTARY BORING SPT+WSP+MS
△	ROTARY BORING WSP+MS
☆	AUGER BORING SS
○	FIELD VANE VANE SHEAR TEST

REMARKS
 SPT = STANDARD PENETRATION TEST
 UD = UNDISTURBED SAMPLING
 WSP = WATER STAND PIPE INSTALLATION
 MS = WATER SAMPLING
 SS = SOIL SAMPLING



THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
 MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

JICA JAPAN INTERNATIONAL COOPERATION AGENCY
 ORIENTAL CONSULTANTS COMPANY LIMITED
 IN ASSOCIATION WITH
 PACIFIC CONSULTANTS INTERNATIONAL

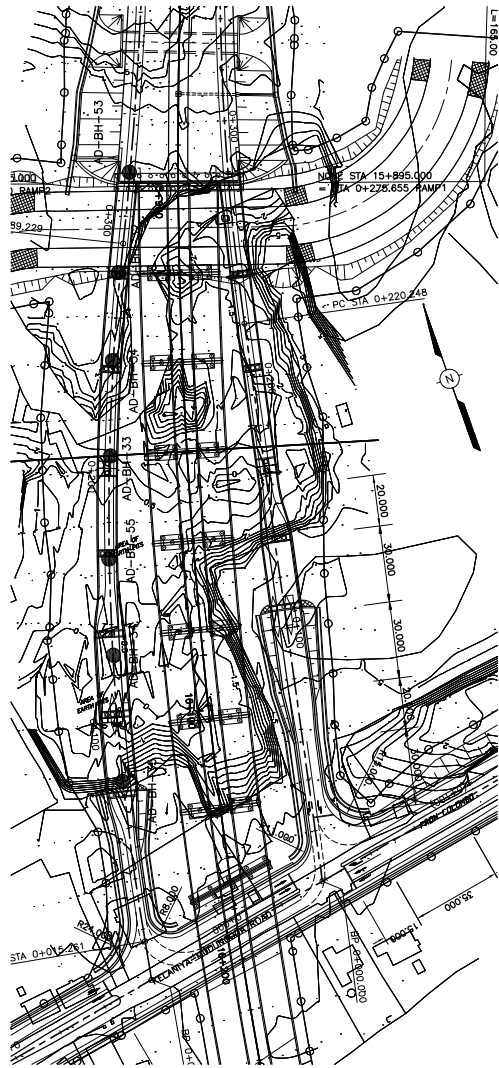
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
 (NORTHERN SECTION I)

GEOLOGICAL PROFILE
 RAMP 1 (0+000 - 0+275.655)

DESIGNED BY: _____
 CHECKED BY: _____
 APPROVED BY: _____

NO. _____ DATE _____ REVISION _____

DWG. NO. R-24

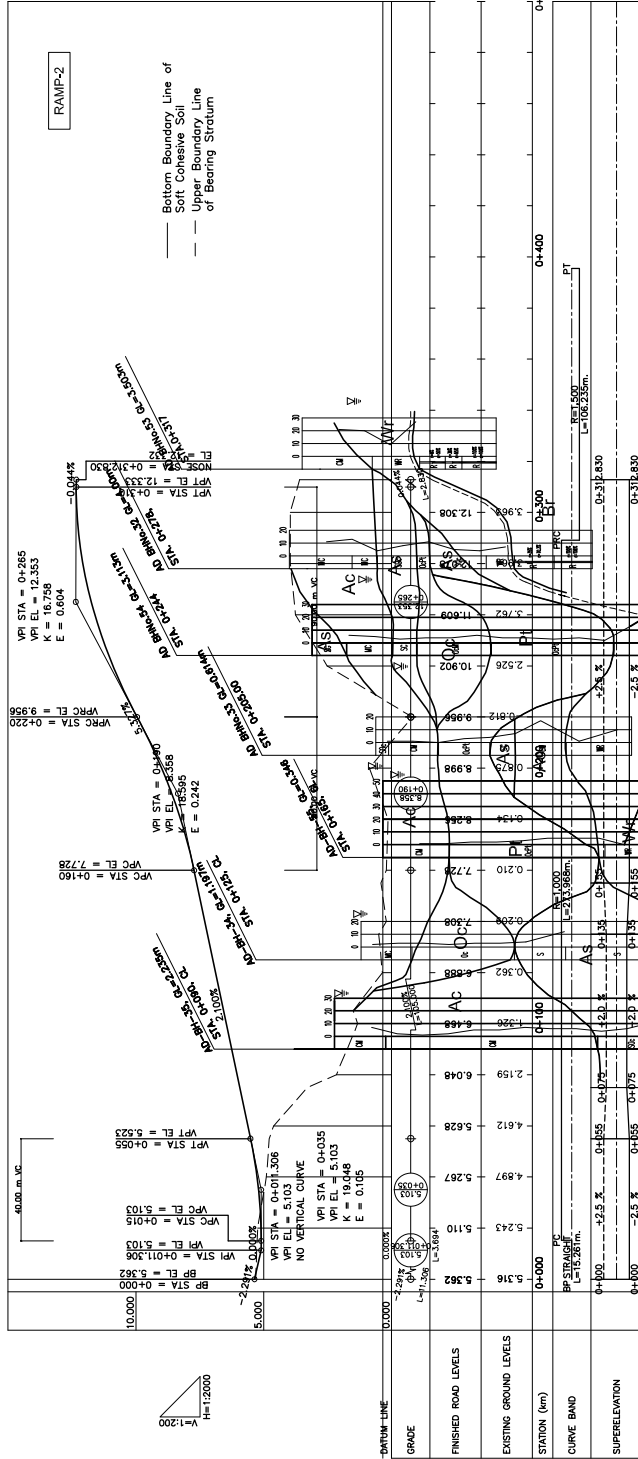
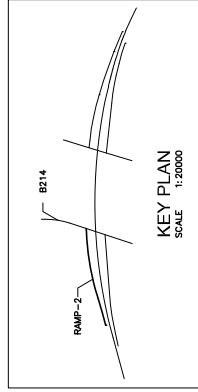


LEGEND	
○	ROTARY BORING
◇	ROTARY BORING
□	ROTARY BORING
△	ROTARY BORING
▽	ROTARY BORING
⊗	AUGER BORING
⊙	FIELD VANE
○	SPT
◇	WSP
□	WS
△	SS
▽	VANE SHEAR TEST

REMARKS	
SPT	= STANDARD PENETRATION TEST
UD	= UNDISTURBED SAMPLING
WSP	= WATER STAND PIPE INSTALLATION
WS	= WATER SAMPLING
SS	= SOIL SAMPLING

BOREHOLE LOG		GEOLOGICAL PROFILE	
Soil Symbol	Soil Type	Soil Layer Symbol	Soil Layer Name
F	Fill	B	Embankment/ Fill
PA	Peaty Clay	Pl	Peat
OPR	Peaty Organic Clay	Oc	Organic Clay
OP-S	Sandy Peaty Clay	Ac	Alluvial Clay
OC	Organic Clay	Acs	Alluvial Sandy Clay
OCM	Silty Organic Clay		
OCs	Sandy Organic Clay		
CM	Silty Clay		
MOC	Organic Clayey Silt		
MC	Clayey Silt		
CS	Sandy Clay		
CS-M	Silty Sandy Clay		
MS	Sandy Silt		

SCe	Organic Clayey Sand	As	Alluvial Sand
SC	Clayey Sand		
SC-M	Silty Clayey Sand		
SM	Silty Sand		
SM-C	Clayey Silty Sand		
S	Sand		
SG	Gravelly Sand		
SC-G	Gravelly Clayey Sand		
GM	Silty Gravel	Ag	Alluvial Gravel
Bl	Blender	Wr	Completely Weathered Rock
WR	Completely Weathered Rock	Br	Rock (Weathered Rock)
R	Rock (Weathered Rock)		



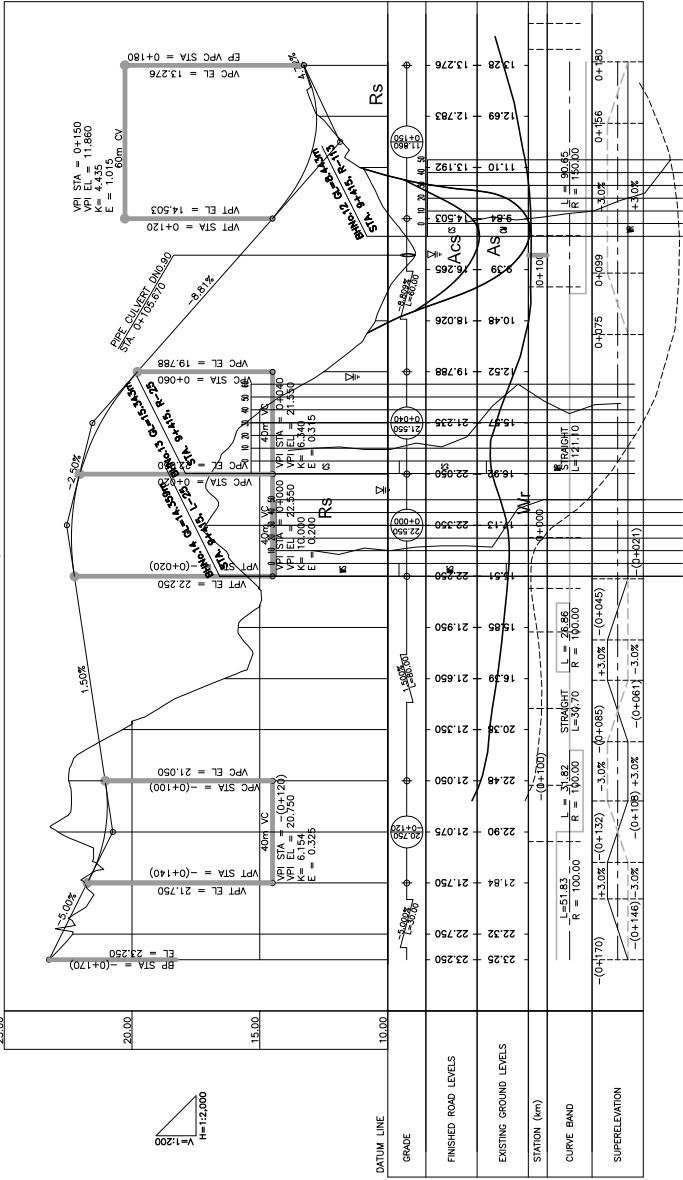
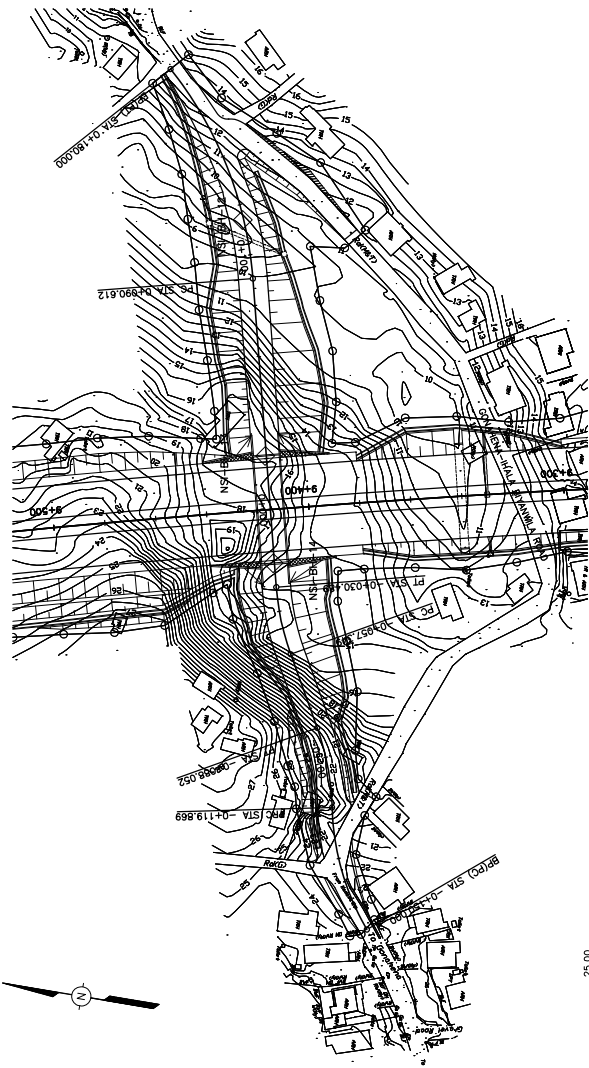
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COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
 (NORTHERN SECTION I)
 GEOLOGICAL PROFILE
 RAMP 2 (0+000 - 0+312.630)

DESIGNED BY: _____
 CHECKED BY: _____
 APPROVED BY: _____
 DWG. NO. R-25

REVISION: _____
 DATE: _____



BOREHOLE LOG		GEOLOGICAL PROFILE	
Soil Symbol	Soil Type	Soil Layer Symbol	Soil Layer Name
F	Fill	B	Embankment/ Fill
PI	Peat		
CPH	Peaty Clay	PI	Peat
OCPT	Peaty Organic Clay		
CPH-S	Sandy Peaty Clay		
Oc	Organic Clay	Oc	Organic Clay
OcM	Silty Organic Clay		
OcSS	Sandy Organic Clay		
OM	Silty Clay		
MOc	Organic Clayey Silt	Ac	Alluvial Clay
MC	Clayey Silt		
CS	Sandy Clay		
CS-M	Silty Sandy Clay	As	Alluvial Sandy Clay
MS	Sandy Silt		

SC	Organic Clayey Sand		
SC	Clayey Sand		
SC-M	Silty Clayey Sand		
SM	Silty Sand	As	Alluvial Sand
SM-C	Clayey Silty Sand		
S	Sand		
SC	Gravelly Sand		
SC-G	Gravelly Clayey Sand		
GM	Silty Gravel	Ag	Alluvial Gravel
Bg	Boulder		
WR	Completely Weathered Rock	Wr	Completely Weathered Rock
R	Rock (Weathered Rock)	Br	Rock (Weathered Rock)

LEGEND	
○	ROTARY BORING SFT-HUD
◇	ROTARY BORING SPT
□	ROTARY BORING SPT-WSP+WS
△	ROTARY BORING WSP+WS
☆	AUGER BORING SS
◇	FIELD VANE
◇	VANE SHEAR TEST

REMARKS	
SPT	= STANDARD PENETRATION TEST
UD	= UNDISTURBED SAMPLING
WSP	= WATER STAND PIPE INSTALLATION
WS	= WATER SAMPLING
SS	= SOIL SAMPLING

--- Bottom Boundary Line of Soft Cohesive Soil
 - - - - - Upper Boundary Line of Bearing Stratum

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COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
 (NORTHERN SECTION 1)

GEOLOGICAL PROFILE (APPROACH ROAD)
 UNDERPASS AT STA. - (08+415)

DESIGNED BY: _____
 CHECKED BY: _____
 APPROVED BY: _____

DWG. NO. R - 26

REVISION

NO	DATE