

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

**DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REPUBLIC OF THE PHILIPPINES**

**THE DETAILED DESIGN STUDY
ON
UPGRADING INTER-URBAN HIGHWAY SYSTEM
ALONG THE PAN-PHILIPPINE HIGHWAY
(PLARIDEL, CABANATUAN AND SAN JOSE BYPASSES)**

**VOLUME III
TECHNICAL SPECIFICATIONS**

**CABANATUAN BYPASS
CONTRACT PACKAGE IV**



December 2002

**KATAHIRA & ENGINEERS INTERNATIONAL
YACHIYO ENGINEERING CO., LTD**

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**CABANATUAN BYPASS
(STA. 121 + 600.00 – STA. 134 + 731.828)
CONTRACT PACKAGE NO. IV**

**BIDDING DOCUMENTS
(VOLUME III)**

**TECHNICAL SPECIFICATIONS
PART II – SPECIAL PROVISIONS AND OTHER
SUPPLEMENTAL SPECIFICATIONS**

TABLE OF CONTENTS

	PAGE NO.
INTRODUCTION	1
PART A - FACILITIES FOR THE ENGINEER	A-1
A.1 REQUIREMENTS	A-1
A.1.1 Offices and Laboratories for the Engineer	A-1
A.1.2 Vehicles for the Engineer	A-22
A.1.3 Assistance to the Engineer	A-23
A.1.4 Photographs	A-25
A.2 MEASUREMENT AND PAYMENT	A-26
A.2.1 Measurement	A-26
A.2.2 Payment	A-26
PART B - OTHER GENERAL REQUIREMENTS	B-1
B.1 OFFICES, SHOPS, STORES AND WORKMENS ACCOMMODATION FOR CONTRACTOR	B-1
B.2 MEDICAL ROOM AND FIRST AID FACILITIES	B-1
B.3 STIPULATIONS RELATING TO CONTRACT DOCUMENTS	B-1
B.4 QUALITY CONTROL OF MATERIALS	B-2
B.4.1 Source of Supply and Quality of Materials	B-2
B.4.2 Samples and Tests for Acceptance	B-3
B.4.3 Removed and Rejected Materials	B-3
B.4.4 Manufacturer's Certificate of Compliance	B-4
B.4.5 Handling and Storing Materials	B-4
B.4.6 Sieves for Testing	B-4
B.4.7 Revised Schedule of Minimum Test Requirements	B-4

	PAGE NO.	
B.5	TRANSPORTATION AND HANDLING	B-5
B.5.1	Description	B-5
B.5.2	Construction Requirements	B-5
B.5.2.1	Standards	B-5
B.5.2.2	Coordination with Others	B-5
B.5.2.3	Weight Limitations and Legal Requirements	B-5
B.6	FIELD ENGINEERING SERVICES	B-6
B.6.1	Description	B-6
B.6.2	Setting-Out/Staking-Out of the Work	B-6
B.6.3	Measurements for Pay Quantities	B-7
B.7	PROJECT RECORD DOCUMENTS	B-7
B.7.1	Description	B-7
B.7.2	Submittal Requirements	B-8
B.7.3	Project Record Documents	B-8
B.7.4	Project Record for Materials and Equipment	B-9
B.7.5	Update and Maintenance of the Job Set Documents	B-9
B.7.6	Final Record Documents	B-10
B.8	PROVISIONS FOR PASSAGE OF TRAFFIC	B-11
B.9	DISPOSAL OF MATERIALS OUTSIDE THE PROJECT BOUNDARIES	B-12
B.10	CLEARING/FINISHING THE SITE	B-12
B.11	MEASUREMENTS	B-13
B.11.1	Measurement of Quantities	B-13
B.11.2	Weighing Equipment	B-15
B.11.2.1	General Requirements for Weighing Equipment	B-15
B.11.2.2	Specific Requirements for Batching Scales	B-16
B.11.2.3	Measurement	B-16
B.11.2.4	Payment	B-16
B.12	PROJECT SIGN BOARD	B-17
B.13	MEASUREMENT AND PAYMENT	B-17
PART C -	EARTHWORK	C-1
ITEM 100	CLEARING AND GRUBBING	C-1
100.1	Description	C-1
100.2	Construction Requirements	C-1
100.2.1	General	C-1
100.2.2	Clearing and Grubbing	C-1
100.2.3	Individual Removal of Trees or Stumps	C-1
100.3	Method of Measurements	C-2
100.4	Basis of Payment	C-2
ITEM 101	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	C-3
101.2	Construction Requirements	C-3
101.2.2	Removal of Bridges, Culverts and Other Drainage Structures	C-3

	PAGE NO.
101.2.4	Removal of Pavement, Sidewalks, Curbs, etc. C-4
101.2.5	Removal of Existing Fence C-5
101.2.6	Removal of Existing Guardrail C-5
101.3	Method of Measurement C-5
101.4	Basis of Payment C-6
ITEM 102	EXCAVATION C-6
102.1	Description C-6
102.1.1	Roadway Excavation C-6
102.1.2	Borrow Excavation C-7
102.2	Construction Requirements C-7
102.2.1	General C-7
102.2.2	Conservation of Topsoil C-7
102.2.5	Presplitting C-7
102.2.6	Excavation of Ditches, Gutters, etc. C-7
102.2.7	Excavation of Roadbed Level C-8
102.2.8	Borrow Areas C-8
102.2.9	Removal of Unsuitable Materials C-9
102.3	Method of Measurement C-9
102.4	Basis of Payment C-9
ITEM 103	STRUCTURE EXCAVATION C-10
103.1	Description C-10
103.2	Construction Requirements C-10
103.2.2	Excavation C-10
103.2.4	Cofferdams C-11
103.3	Method of Measurement C-11
103.3.5	Basis of Payment C-11
ITEM 104	EMBANKMENT C-11
104.2	Material Requirements C-11
104.3	Construction Requirements C-12
104.3.2	Method of Construction C-12
104.3.3	Compaction C-12
104.3.5	Protection of Structures C-12
104.3.10	Foundation of Embankment on Existing Pavement C-12
104.4	Method of Measurement C-13
104.5	Basis of Payment C-13
ITEM 105	SUBGRADE PREPARATION C-13
105.3	Material Requirements C-13
105.3.3	Subgrade in Common Excavation C-13
105.3.6	Subgrade on Existing Pavement C-14
105.4	Method of Measurement C-14
105.5	Basis of Payment C-14
PART D -	SUBBASE AND BASE COURSE D-1
ITEM 200	AGGREGATE SUBBASE COURSE D-1
200.2	Material Requirements D-1
200.3	Construction Requirements D-2
200.3.3	Spreading and Compacting D-2
200.4	Method of Measurement D-2

	PAGE NO.
200.5	Basis of Payment D-2
ITEM 201	AGGREGATE BASE COURSE D-2
201.2	Material Requirements D-2
201.3	Construction Requirements D-3
201.3.3	Spreading and Compacting D-3
201.4	Method of Measurement D-3
201.5	Basis of Payment D-3
PART E	- SURFACE COURSES E-1
ITEM 300	AGGREGATE SURFACE COURSE E-1
300.1	Description E-1
300.2	Material Requirements E-1
300.3	Construction Requirements E-1
300.3.4	Surface Course Thickness and Tolerances E-1
300.4	Method of Measurement E-2
300.5	Basis of Payment E-2
ITEM 302	BITUMINOUS TACK COAT E-2
302.1	Description E-2
302.2	Material Requirements E-2
302.3	Construction Requirements E-2
302.3.1	Surface Condition E-2
302.3.2	Equipment E-3
302.3.3	Application of Bituminous Material E-3
302.4	Method of Measurement E-3
302.5	Basis of Payment E-3
ITEM 310	BITUMINOUS CONCRETE SURFACE COURSE, HOT-LAID E-3
310.1	Description E-3
310.2	Material Requirements E-4
310.4	Method of Measurement E-4
310.5	Basis of Payment E-5
ITEM 311	PORTLAND CEMENT CONCRETEPAVEMENT E-5
311.2	Material Requirements E-5
311.2.11	Proportioning, Consistency and Strength of Concrete E-5
311.3	Construction Requirements E-6
311.3.1	Quality Control of Control E-6
311.3.7	Mixing Concrete E-6
311.3.9	Placing Concrete E-6
311.3.18	Protection of Pavement E-7
311.3.21	Opening to Traffic E-7
311.3.22	Tolerance and Pavement Thickness E-7
311.4	Method of Measurement E-8
311.5	Basis of Payment E-8
PART F	- BRIDGE CONSTRUCTION F-1
ITEM 400	PILING F-1
400.1	Description F-1
400.1.1	Scope F-1

400.1.2	Test Piles	F-1
400.1.3	Static Load Test (For 1500 mm Bored Piles)	F-4
400.2	Material Requirements	F-5
400.2.3	Concrete Piles	F-5
400.2.3.1	Pre-cast Concrete Piles	F-5
400.2.3.2	Cast-in-place Concrete Bored Piles	F-5
400.2.4	Steel Shells	F-5
400.2.5	Steel Pipes	F-5
400.3	Construction Requirements	F-5
400.3.1	Location and Site Preparation	F-5
400.3.2	Determination of Pile Lengths	F-6
400.3.3	Pile Driving	F-6
400.3.6	Pre-cast Concrete Piles	F-7
400.3.7	Cast-In-Place Concrete Piles	F-7
400.3.11	Cutting of Piles	F-8
400.3.12	Defective Piles	F-9
400.3.16	Pile Records	F-9
400.3.17	Granular Fill	F-9
400.3.18	Lean Concrete	F-10
400.4	Method of Measurement	F-10
400.5	Basis of Payment	F-11
SPL ITEM 400 (23) a HIGH-STRAIN DYNAMIC TESTING		F-11
SPL 400 (23) a.1	Description	F-12
SPL 400 (23) a.2	Equipment and Materials Requirements	F-12
SPL 400 (23) a.3	Dynamic Testing Firm	F-13
SPL 400 (23) a.4	Construction Requirements	F-13
SPL 400 (23) a.5	Reporting of Results	F-14
SPL 400 (23) a.6	Method of Measurement	F-14
SPL 400 (23) a.7	Basis of Payment	F-15
SPL ITEM 400 (24) PILE INTEGRITY TEST		F-15
SPL 400 (24).1	Description	F-15
SPL 400 (24).2	Execution of the Works	F-15
SPL 400 (24).3	Method of Measurement	F-16
SPL 400 (24).4	Basis of Payment	F-16
ITEM 401 RAILINGS		F-16
401.1	Description	F-16
401.2	Material Requirements	F-16
401.4	Method of Measurement	F-16
401.5	Basis of Payment	F-17
SPL ITEM 401 (3) c BRIDGE NAME PLATE		F-17
SPL 401 (3) c.1	Description	F-17
SPL 401 (3) c.2	Material Requirements	F-17
SPL 401 (3) c.3	Construction Requirements	F-18
SPL 401 (3) c.4	Method of Measurement	F-18
SPL 401 (3) c.5	Basis of Payment	F-18
ITEM 404 REINFORCING STEEL		F-18
404.3	Construction Requirements	F-18
404.3.7	Rebar Fabrication and Installation	F-18

	PAGE NO.	
404.3.8	Bar bending, Splicing and Placing	F-18
404.4	Method of Measurement	F-19
404.5	Basis of Payment	F-19
ITEM 405	STRUCTURAL CONCRETE	F-20
405.1	Description	F-20
405.1.2	Classes and Uses of Concrete	F-20
405.2	Material Requirements	F-20
405.2.3	Coarse Aggregates	F-20
405.4	Production Requirements	F-21
405.4.1	Proportioning and Strength of Structural Concrete	F-21
405.6	Basis of Payment	F-22
ITEM 406	PRESTRESSED CONCRETE STRUCTURES	F-22
406.1	Description	F-22
406.2	Material Requirements	F-23
406.2.1	Concrete and Grout	F-23
406.2.2	Prestressing Reinforcing Steel	F-24
406.2.3	Prestressing Steel	F-24
406.2.4	Packaging, Storing and Shipping	F-24
406.2.9	Structural Steel, Bolts and Welds	F-24
406.3	Construction Requirements	F-25
406.3.7	Pre-tensioning	F-25
406.3.8	Placing of Concrete	F-25
406.3.10	Post-tensioning	F-26
406.3.13	Handling	F-27
406.4	Method of Measurement	F-28
406.5	Basis of Payment	F-28
ITEM 407	CONCRETE STRUCTURES	F-29
407.1	Description	F-29
407.2	Material Requirement	F-29
407.2 (4)	Elastomeric Bearing Pads	F-29
407.2 (8)	Expansion Joint	F-29
407.2 (11)	Bridge Drainage	F-30
407.3	Construction Requirements	F-31
407.3.1	Handling and Placing Concrete: General	F-31
407.3.10	Falsework Construction	F-31
407.3.15	Expansion Joint Installation	F-31
407.4	Method of Measurement	F-31
407.5	Basis of Payment	F-32
SPL ITEM 407 (5) c	PIER PROTECTION CONCRETE BLOCKS	F-32
SPL 407 (5) c.1	Description	F-32
SPL 407 (5) c.2	Material Requirements	F-32
SPL 407 (5) c.3	Construction Requirements	F-33
SPL 407 (5) c.4	Method of Measurement	F-33
SPL 407 (5) c.5	Basis of Payment	F-33
SPL ITEM 420 (4) c	TEMPORARY CRANEWAY	F-33
SPL 420 (4) c.1	Description	F-33
SPL 420 (4) c.2	Material Requirements	F-34
SPL 420 (4) c.3	Construction Requirements	F-34

	PAGE NO.
SPL 420 (4) c.4 Method of Measurement	F-34
SPL 420 (4) c.5 Basis of Payment	F-34
SPL ITEM 420 (5) c TEMPORARY ACCESS ROAD (CAUSEWAY)	F-34
SPL 420 (5) c.1 Description	F-34
SPL 420 (5) c.2 Material Requirements	F-35
SPL 420 (5) c.3 Construction Requirements	F-35
SPL 420 (5) c.4 Method of Measurement	F-35
SPL 420 (5) c.5 Basis of Payment	F-35
SPL ITEM 420 (6) d TEMPORARY ACCESS ROAD (CAUSEWAY)	F-36
SPL 420 (6) d.1 Description	F-36
SPL 420 (6) d.2 Material Requirements	F-36
SPL 420 (6) d.3 Construction Requirements	F-36
SPL 420 (6) d.4 Method of Measurement	F-36
SPL 420 (6) d.5 Basis of Payment	F-36
PART G - DRAINAGE AND SLOPE PROTECTION STRUCTURES	G-1
ITEM 500 PIPE CULVERTS AND STORM DRAINS	G-1
500.1 Description	G-1
500.2 Material Requirements	G-1
500.3 Construction Requirements	G-1
500.3.1 Excavation	G-1
500.4 Method of Measurement	G-2
500.5 Basis of Payment	G-2
ITEM 502 MANHOLES, INLETS AND CATCH BASINS	G-3
502.1 Description	G-3
502.2 Material Requirements	G-3
502.3 Construction Requirements	G-3
502.4 Method of Measurement	G-4
502.5 Basis of Payment	G-4
ITEM 504 RIPRAP AND GROUTED RIPRAP	G-5
504.1 Description	G-5
504.2 Material Requirements	G-5
504.2.1 Stones	G-5
504.2.2 Filter Material at Weep-hole	G-5
504.2.3 Mortar	G-6
504.3 Construction Requirements	G-6
504.3.1 Excavation	G-6
504.3.2 Placing	G-6
504.3.3 Grouting	G-6
504.4 Method of Measurement	G-6
504.5 Basis of Payment	G-6
ITEM 505 STONE MASONRY	G-7
505.1 Description	G-7
505.2 Material Requirements	G-7
505.2.1 Stone	G-7
505.2.2 Mortar	G-7
505.5 Basis of Payment	G-7

PAGE NO.

ITEM 506	HAND-LAID ROCK EMBANKMENT	G-7
506.1	Description	G-7
506.2	Material Requirements	G-8
506.4	Method of Measurement	G-8
506.5	Basis of Payment	G-8
ITEM 507	SHEET PILES	G-8
507.1	Description	G-8
507.2	Material Requirements	G-8
507.2.3	Steel Sheet Piles	G-8
507.4	Method of Measurement	G-9
507.5	Basis of Payment	G-9
ITEM 509	GABIONS	G-9
509.1	Description	G-9
509.2	Material Requirements	G-9
509.2.1	General	G-9
509.2.2	Wire	G-9
509.2.3	Rock Fill	G-10
509.4	Method of Measurement	G-10
509.5	Basis of Payment	G-10
ITEM 510	RUBBLE CONCRETE SLOPE PROTECTION	G-10
510.1	Description	G-10
510.2	Material Requirements	G-10
510.2.1	Stone	G-10
510.2.2	Concrete Class "B"	G-11
510.3	Construction Requirements	G-11
510.3.1	Preparation of Foundation Bed	G-11
510.3.2	Falsework and Formwork Construction	G-11
510.4	Method of Measurement	G-11
510.5	Basis of Payment	G-11
SPL ITEM 511	REINFORCED CONCRETE BOX CULVERT	G-11
SPL 511.1	Description	G-11
SPL 511.2	Material Requirements	G-11
SPL 511.3	Construction Requirements	G-12
SPL 511.3.1	Preparation of Foundation Bed	G-12
SPL 511.3.2	Concrete Work	G-12
SPL 511.3.3	Formworks	G-12
SPL 511.3.4	Steel Reinforcements	G-12
SPL 511.3.5	Compaction	G-12
SPL 511.4	Method of Measurement	G-12
SPL 511.5	Basis of Payment	G-13
SPL ITEM 512	WINGWALLS, HEADWALLS AND APRON	G-13
SPL 512.1	Description	G-13
SPL 512.2	Material Requirements	G-13
SPL 512.3	Construction Requirements	G-13
SPL 512.3.1	Preparation of Foundation Bed	G-13
SPL 512.3.2	Concrete Work	G-14
SPL 512.3.3	Formworks	G-14

	PAGE NO.
SPL 512.3.4 Steel Reinforcements	G-14
SPL 512.4 Method of Measurement	G-14
SPL 512.5 Basis of Payment	G-14
PART H - MISCELLANEOUS STRUCTURES	H-1
ITEM 600 CURB AND/OR GUTTER	H-1
600.5 Basis of Payment	H-1
ITEM 602 MONUMENTS, MARKERS AND GUIDE POSTS	H-1
602.5 Basis of Payment	H-1
ITEM 603 GUARDRAIL	H-1
603.4 Method of Measurement	H-1
603.5 Basis of Payment	H-1
ITEM 605 ROAD SIGN	H-1
605.1 Description	H-1
605.2 Material Requirements	H-2
605.3 Construction Requirements	H-2
605.4 Method of Measurement	H-2
605.5 Basis of Payment	H-2
ITEM 607 REFLECTIVE PAVEMENT STUDS	H-3
607.2 Material Requirements	H-3
607.2.1 Reflective Studs	H-3
607.5 Basis of Payment	H-3
ITEM 608 TOPSOIL	H-4
608.5 Basis of Payment	H-4
ITEM 610 SODDING	H-4
610.5 Basis of Payment	H-4
ITEM 611 TREE PLANTING	H-4
611.5 Basis of Payment	H-4
ITEM 612 REFLECTORIZED THERMOPLASTIC PAVEMENT MARKINGS	H-4
612.8 Thermoplastic Pavement Markings	H-4
612.9 Method of Measurement	H-6
612.10 Basis of Payment	H-6
SPL ITEM 620 STREET LIGHTING SYSTEM	H-6
SPL 620.1 Description	H-6
SPL 620.2 Material Requirements	H-7
SPL 620.2.1 General Requirements	H-7
SPL 620.2.2 Lighting Contactor Panel (Control Panel)	H-7
SPL 620.2.3 Street Lighting Poles and Luminaires	H-8
SPL 620.2.4 Fluorescent Lighting Fixture	H-9
SPL 620.2.5 Photocell Switch	H-10
SPL 620.2.6 Conduit	H-11
SPL 620.2.7 Outlet Bodies	H-11

PAGE NO.

SPL 620.2.8	Wires and Cables	H-11
SPL 620.2.9	Splices and Termination Components	H-12
SPL 620.2.10	Grounding Installation	H-12
SPL 620.2.11	Light Pole Concrete Footings	H-12
SPL 620.3	Construction Requirements	H-12
SPL 620.3.1	Codes and Regulations	H-13
SPL 620.3.2	Contractor Submittals	H-13
SPL 620.3.2.1	Manufacturer's Data	H-13
SPL 620.3.2.2	Shop Drawings	H-13
SPL 620.3.2.3	Sample	H-14
SPL 620.3.3	Installations	H-14
SPL 620.3.3.1	Service Entrance	H-14
SPL 620.3.3.2	Lighting Control Panels	H-14
SPL 620.3.3.3	Wiring Method	H-14
SPL 620.3.3.4	Conduits	H-14
SPL 620.3.3.5	Splices	H-15
SPL 620.3.3.6	Electrical Conductors and Grounding	H-15
SPL 620.3.4	Test and Guarantee	H-15
SPL 620.3.4.1	Devices Subject to Manual Operation	H-15
SPL 620.3.4.2	Test on 600 – Volt Wiring	H-15
SPL 620.3.4.3	Grounding System Test	H-16
SPL 620.4	Method of Measurement	H-16
SPL 620.5	Basis of Payment	H-16

SPL PART J - MOBILIZATION AND DEMOBILLIZATION J-1

SPL 800.1	Description	J-1
SPL 800.2	Method of Measurement	J-1
SPL 800.3	Basis of Payment	J-1

SPL PART K - PROVISIONAL SUMS K-1

SPL 900 (1) PROVISIONAL SUM FOR TRAFFIC MANAGEMENT DURING CONSTRUCTION K-1

SPL 900 (1).1	Traffic Control Devices and the Construction and its Vicinity	K-1
SPL 900 (1).1.1	General	K-1
SPL 900 (1).1.2	Flaggers	K-2
SPL 900 (1).1.3	Traffic Handling Equipment and Devices	K-2
SPL 900 (1).1.3.1	Barricades	K-2
SPL 900 (1).1.3.2	Flashing Arrow Signs	K-3
SPL 900 (1).1.3.3	Portable Delineators	K-4
SPL 900 (1).1.3.4	Portable Flashing Beacons	K-4
SPL 900 (1).1.3.5	Construction Area Signs	K-5
SPL 900 (1).1.3.5A	Stationary Mounted Signs	K-6
SPL 900 (1).1.3.5B	Portable Signs	K-7
SPL 900 (1).1.3.6	Telescoping Flag Trees	K-7
SPL 900 (1).1.3.7	Traffic Cones	K-7
SPL 900 (1).2	Measurement and Payment	K-8
SPL 900 (1).3	Basis of Payment	K-8

SPL 900 (2) PROVISIONAL SUM FOR RELOCATION K-8

	OF EXISTING UTILITIES	
SPL 900 (2).1	General	K-8
SPL 900 (2).2	Measurement and Payment	K-9
SPL 900 (2).3	Basis of Payment	K-9
SPL 900 (3)	PROVISIONAL SUM FOR GEOTECHNICAL INVESTIGATION	K-9
SPL 900 (3).1	Contractor's Responsibility for Soil Investigations	K-9
SPL 900 (3).2	Specific Soil Investigations and Tests Instructed By the Engineer	K-10
SPL 900 (3).2.1	Bridge Sites Geotechnical Investigation for Bridge Foundation Design	K-10
SPL 900 (3).2.2	Soils Investigation by Cone Penetration Test	K-11
SPL 900 (3).2.3	Borrow Material Sources Investigation	K-12
SPL 900 (3).3	Laboratory Testing	K-12
SPL 900 (3).4	Reports	K-13
SPL 900 (3).5	Basis of Payment	K-14
SPL 900 (4)	PROVISIONAL SUM FOR MAINTENANCE AND REPAIR OF EXISTING ACCESS ROAD	K-14
SPL 900 (4).1	General	K-14
SPL 900 (4).2	Basis of Payment	K-15
SPL 900 (5)	PROVISIONAL SUM FOR ENVIRONMENTAL COMPLIANCE REQUIREMENTS	K-15
SPL 900 (5).1	General	K-15
SPL 900 (5).2	Mitigation Measures to Overcome Adverse Environmental Impacts	K-16
SPL 900 (5).3	Proposals for Environmental Monitoring	K-17
SPL 900 (5).4	Environmental Impact Monitoring Procedures	K-17
SPL 900 (5).5	Environmental Monitoring Reports	K-18
SPL 900 (5).6	Basis of Payment	K-19
SPL 900 (6)	PROVISIONAL SUM FOR HEALTH AND SAFETY REQUIREMENTS	K-19
SPL 900 (6).1	General	K-19
SPL 900 (6).2	Construction Work Clothes and Protective Equipment	K-19
SPL 900 (6).3	Construction Safety Signages	K-19
SPL 900 (6).4	Basis of Payment	K-20
SPL 900 (7)	PROVISIONAL SUM FOR DAYWORK	K-20
SPL 900 (7).1	Description	K-20
SPL 900 (7).2	Method of Measurement	K-20
SPL 900 (7).3	Basis of Payment	K-20
SPL 900 (8)	PROVISIONAL SUM FOR OVERSEAS DEVELOPMENT ASSISTANCE (ODA) RECOGNITION PLATE	K-21
SPL 900 (8).1	General	K-21
SPL 900 (8).2	Basis of Payment	K-21
SPL 900 (9)	PROVISIONAL SUM FOR CONTINGENCY	K-21
SPL 900 (9).1	General	K-21
SPL 900 (9).2	Basis of Payment	K-21

**UPGRADING INTER-URBAN HIGHWAY
SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY**

**CABANATUAN BYPASS
(STA. 121 + 600.00 – STA. 134 + 731.828)
CONTRACT PACKAGE NO. IV**

BIDDING DOCUMENTS

VOLUME III

**TECHNICAL SPECIFICATIONS
(PART II – SPECIAL PROVISIONS)**

INTRODUCTION

The **Specifications** describe in detail the work to be executed, the character and quality of materials and workmanship and the special responsibilities of the Contractor that are not covered by the Conditions of Contract. It shall be read in conjunction with the Contract Drawings and the other contract documents.

The Specifications of this project comprise of the “ **General Specifications** ” (which are the “DPWH Standard Specifications for Public Works and Highways, 1995 Edition, Volume II” and its “ **Supplemental Specifications** ”, if any, adopted by the DPWH subsequent to the publication of the said Standard Specifications) as well as the “ **Special Provisions and Other Supplemental Specifications**” (which are contained in this volume, Volume III – Part II of the BIDDING DOCUMENTS). Pertinent **notes appearing in the Contract Plans or Drawings**, shall also be considered as part and parcel of the technical specifications. Such notes shall take precedence over the General Specifications and the Special Provisions. Further amendments to the Specifications and to any other Bid Documents, if necessary, shall be furnished to prequalified bidders, by means of **Supplemental Notice(s), Bid Bulletin(s) or Addenda**.

The “ **DPWH Standard Specifications** ”, **Volume II** is presented in nine (9) parts (PART A, PART B, PART C up to PART I) with each part (except for Part II), providing the specifications for certain items of work belonging to a particular “type of work” as follows:

- PART A - Facilities for the Engineer
- PART B - Other General Requirements
- PART C - Earthwork
- PART D - Subbase and Base Courses
- PART E - Surface Courses
- PART F - Bridge Construction
- PART G - Drainage and Slope Protection Structures
- PART H - Miscellaneous Structures, and
- PART I - Materials Details

PART A - Facilities for the Engineer and PART B - Other General Requirements prescribe some general requirements of the Contract in terms of “ **items of temporary works or facilities** ” required for the proper prosecution and completion of the project but which do not necessarily become integral parts of the completed project.

PART C to PART G provide the specifications of “ **items of permanent works** ” with each part covering only items belonging to the particular type of work that the “part” represents. The specifications hereunder are generally presented under five (5) distinct sections as follows:

1. Description;
2. Material Requirements;
3. Construction Requirements;
4. Method of Measurement; and
5. Basis of Payment.

PART H - Miscellaneous Structures provides the specifications of “ **items of permanent works** ” regarding structures pertinent to highways, bridges and airport-runways that may not properly be classified as belonging to any of the particular types of work represented by the earlier parts (PART C to PART G).

PART I – Material Details deals with additional and more detailed specifications of individual component materials required in the construction of the “ **items of work** ” taken up under the earlier eight (8) parts (PART A to PART H).

The “**Special Provisions**” consist of modifications in or additional specifications to the **DPWH Standard Specifications, Volume II** to adjust the latter to conditions and/or requirements peculiar to this project. Some of these modifications and additional specifications may actually be of general application but (in the absence of supplemental specifications formally adopted for the same by the DPWH subsequent to the publication of the **DPWH Standard Specifications for Public Works and Highways, 1995 Edition, Volume II**) they have been included here in the **Special Provisions**.

The “**Special Provisions**” for this project, contained in this volume (**Volume III – Part II of the Bidding Documents**), consist of modifications and additional specifications as follows:

1. Modifications in the specifications of “**standard work items** ” (under PART A to PART H of the General Specifications). These modifications are carried out without changing the “**number**” and “**name**” of each of such “**standard work items**”, together with PART I for Materials, and
2. “ **Additional or special work items** ” if any, under each of PART A to PART H, and the specifications of each, (particularly under PART F – BRIDGE CONSTRUCTION and PART H – MISCELLANEOUS STRUCTURES).

The Item Number of a “**special work item**” is distinguished by placing the symbol “**SPL**” before its designated Arabic number.

3. **PART J – MOBILIZATION AND DEMOBILIZATION**, contains the specification for a special work item designated as:

SPL 800 – Mobilization and Demobilization

4. Copy of the “Revised Schedule of Minimum Test Requirements **Governing Items of Work of the DPWH Standard Specifications for Highways, Bridges and Airports, (Volume II) per DPWH Memorandum Circular dated 25 January 1989**” is attached as **Appendix - A** of this Volume.
5. If any applicable Special Specification is lacking in this Volume, the corresponding specification in the **AASHTO Standard Specifications for Highway Bridges, Sixteenth Edition, 1996**, shall be deemed to apply.
6. **PART K – PROVISIONAL SUMS**

Each Provisional Sum shall only be used, in whole or in part, in accordance with the Engineer's instructions and the Contract shall be adjusted accordingly. Conditions of Contract, pertaining to Provisional Sums, is contained in **Sub-clause 13.5, page 38 of the FIDIC Conditions of Contract for Construction, (General Conditions)** which has been adopted by DPWH for its foreign assisted infra-structure projects.

A summary of the work items (which are provided with provisional sums), together with the provisional sum provided for each, is contained in PART K of this volume on Special Provisions.

PART A
FACILITIES FOR THE ENGINEER

PART A - FACILITIES FOR THE ENGINEER**A.1 REQUIREMENTS****A.1.1 Offices and Laboratories for the Engineer**

1. The Contractor shall provide and maintain until final completion and acceptance of the project one (1) unit combined Field Office and Laboratory building and one (1) unit Living Quarters for the Engineer to be erected on a designated government owned site and hereinafter referred to as the "Engineer's Compound". The building shall be constructed with the combination of pre-fabricated metal components and concrete, all in accordance with the standard specifications and design shown on the approved Drawings. The facilities shall be provided with all the necessary electricity, water and drainage services for twenty-four (24) hours a day, for all days of the contract period, for the exclusive use of the Engineer and his staff. The building shall be ready for occupancy and use after three (3) months from the commencement of the Works.

During the three (3) months period, while the combined Field Office and Laboratory building and the Living Quarters for the Engineer are under construction, the Contractor shall provide temporary facility on a rented building(s) conforming to all the requirements and to the satisfaction of the Engineer. The Contractor shall maintain also such temporary facilities for the Engineer for a certain period specified.

The Contractor shall obtain approval from the Engineer on the detailed layout of the Engineer's Compound before any work upon them is commenced.

Where necessary, the Engineer's Compound shall be fenced with barbed wire (or equivalent) to a height as shown on the Drawings and with necessary gates as directed. The estimated perimeter of fencing shall be determined and approved by the Engineer. When required, the ground shall be raised to a grade that will keep it completely free from flooding or to prevent inundation during rainy season. The compound shall be provided with a parking area for at least six (6) vehicles. Outside lighting around the building and parking shall be installed to the satisfaction of the Engineer and be maintained at all times. Appropriate signs shall be installed to identify the facility to public and visitors.

The Contractor shall furnish within thirty (30) calendar days after receipt of Notice to Proceed, sufficient furnitures and fixtures, and equipments and appliances specified under SCHEDULES A and B respectively, and necessary supplies and consumable stores as prescribed in SCHEDULES E and F, for use in the combined Field Office/Laboratory and Living Quarters, all as required by and to the satisfaction of the Engineer.

All furnitures and fixtures, appliances and equipment specified herein to be provided, and the laboratory testing equipment and apparatus listed under SCHEDULE C and other items to be purchased, for the use of the Engineer shall be brand new when initially furnished and shall conform with those indicated on the Drawings and/or Specifications as to kind, grades, types and sizes or as determined by the Engineer.

In the absence of potable water supply system within the area, the Contractor shall, after approval of the Engineer, construct and install a 3,000 liters capacity elevated water tank with two (2) horse power deep well pump or equivalent capacity to sufficiently supply the requirements of the Engineer's Compound. Should there be no main electric line available, the Contractor shall also provide a generator or power generating unit with enough capacity to supply the power needed.

All installations, fixtures, fittings and accessories shown are to be understood as minimum requirements only and shall not restrict the Engineer from ordering the Contractor to provide supplementary provision. In the absence of any details or specifications or provisions for the purpose of making alterations or amendments to the Pay Items, the Contractor shall seek approval of the Engineer.

A septic tank, as part of the facilities for the Engineer shall have a capacity of not less than six (6) cubic meters with two compartments. The Contractor must provide a drain field with drain tile or a leaching well with adequate capacity for the personnel and the usage of the facility for the duration of the Contract. The Contractor may propose other satisfactory method for disposing of sanitary waste that may be implemented only after written approval by the Engineer.

It shall be understood that if the Contractor cannot provide the articles as described or intends to supply equivalent substitutes, he should secure the approval of the Engineer and if such approval is granted it will be on the condition that adjustments in prices shall be affected based on the receipted invoice submitted by him.

At the completion of the Contract, the combined Field Office/Laboratory and the Living Quarters for the Engineer shall be turned-over and become property of the Government.

2. *Add the following at the end of Sub-item No. 2:*

All tests and quality control works shall be done by the Contractor's Materials Testing and Laboratory Staff under the direct supervision of the Engineer's representatives.

All tests shall normally be carried out on the Site, except that, certain special tests may subject to the approval of the Engineer, be carried out at an approved independent testing laboratory. The Contractor shall, if so approved, make all necessary arrangements for the supply and delivery of samples to, and collection of samples from such independent laboratory. Unless otherwise specified, the Contractor shall arrange for one copy of the independent testing laboratory test certificate to be delivered to the Engineer's Representative not less than three (3) days before the materials covered by the relevant test certificate are incorporated into the Works, and the test certificate shall be related to the materials from which the samples was taken.

These tests and quality control works shall be the responsibility of the Contractor. He is required to provide laboratory personnels enumerated under SCHEDULE D in order to carry out the whole tests as they are defined in the Contract or as directed by the Engineer.

The personnel appointed by the contractor shall be well experienced in the type of work to be undertaken and shall be subjected to the approval of the Engineer. They shall work full time and shall be responsible to the Engineer's Materials Supervisor for all works carried out in the Laboratory.

The Engineer shall define from the beginning of the Works, and in accordance with the specifications, all tests to be performed for each kind of materials and/or works, together with the corresponding frequencies to be used and amend or change such statement from time to time during the progress of work if deemed necessary.

3. *Delete Sub-item No. 3 in its entirety.*

4. *Modify the text of this Sub-item with the following:*

The Contractor shall provide and maintain on rental basis, one (1) base station UHF/VHF Transceiver Radio Communication System and four (4) sets of portable (Hand held) Radio Transceiver, complete with accessories for the use of the Engineer. The UHF/VHF transceiver capable of clear reception shall be installed at the location to be designated by the Engineer. One (1) operator who shall man the facility shall also be provided by the Contractor for the duration of the contract works.

The acquisition, installation at locations selected by the Engineer and securing all necessary licenses and permits of the items shall be the responsibility of the Contractor. The communication facilities shall be installed not later than thirty (30) calendar days after the receipt of the Notice to Proceed (NTP). Failure on the part of the Contractor to install such equipment within the time stipulated, the Engineer shall be entitled to take such action as he may be deemed necessary, and charge all relevant expenses to the Contractor by deducting the amount from the Contractor's monthly billing.

5. *Delete Sub-item No. 5 in its entirety.*

6. *This Sub-item is modified and supplemented as follows:*

By way of maintenance, the Contractor shall provide all the necessary personnels specified under SCHEDULE D to maintain all the facilities in good operating condition, to adequately safeguard and secure the building, equipment and property day and night, and to take care household helps, all as directed and approved by the Engineer.

PROVISIONS FOR FURNISHING FURNITURES /FIXTURES, EQUIPMENT AND APPLIANCES FOR THE COMBINED FIELD OFFICE/LABORATORY AND LIVING QUARTERS FOR THE ENGINEER

SCHEDULE A – Furnitures and Fixtures for the Combined Field Office/Laboratory and Living Quarters for the Engineer

For the Combined Field Office/Laboratory:

Description	Unit	Quantity
Executive Table, KD Tanguile, dark brown non-gloss varnish, 75 cm. x 150 cm. 3 drawers on one side and center drawer provided with locks and keys and 1/4" thick glass	Each	2
Office Table, KD Tanguile, dark brown non-gloss varnish, 60 cm. x 120 cm. 3 drawers on one side and center drawer provided with locks and keys	Each	10
Executive chairs on rollers, padded with back and arm rest to match executive table	Each	2
Swivel Chair on rollers, padded with back and arm rest to match	Each	2
Office Desks, 75 cmx150cm with 3 drawers on each side with locks and keys	Each	
Stacking chair, padded with backrest	Each	30
Drafting Table, KD Tanguile, dark brown non - gloss varnish 80 cm x 150 cm with drafting stool with padded seat of synthetic leather upholstery	Each	1
Complete set of drafting instrument, K&E of model or equivalent	Set	1
Typist Table, KD Tanguile, dark brown non - gloss varnish 60 x 100 cm. With chair padded seat of synthetic leather upholstery	Each	1

FACILITIES FOR THE ENGINEER

A

Conference Table, KD Tanguile Dark brown, non gloss varnish, 140 x 240 x 32 cm. deep with shelves	Each	1
Table for Office Copier	Each	1
Steel Filing Cabinet for Horizontal Plan, 5 drawers	Each	1
Steel Filing Cabinet, 4 drawers with lock and keys, fire resistant	Each	6
Venetian Blinds for all Windows	Lot	1
For the Living Quarters:		
Single bed, 187 cm. long by 90 cm. Wide with 10 cm. Thick foam rubber mattress	Each	3
Double deck bed with 10 cm. Thick foam rubber mattress	Each	5
Chairs, upright with padded seat and backrest	Each	27
Venetian Blinds for all Windows	Lot	1
Dining table for 8 persons, KD Tanguile, dark brown, non – gloss varnish, 6 mm. Thick glass top	Unit	1
Chairs with backrest, KD Tanguile, dark brown, non – gloss varnish	Each	8
Long sofa with padded arm and backrest synthetic leather upholstery	Each	1
Sofa lounge chairs, with padded arm and backrest, synthetic leather upholstery	Each	2
Cupboard, KD Tanguile, 122 cm. wide by 32 cm. Deep, with 5 shelves and panel doors with locks and keys, painted	Each	1

SCHEDULE B - Equipments and Appliances for the Combined Field Office/Laboratory and Living Quarters for the Engineer

For the Combined Field Office/Laboratory:

FACILITIES FOR THE ENGINEER**A**

Description	Unit	Quantity
IBM Typewriter Set III, with standard carriage or equivalent	Each	1
Electronic Calculator, Casio FX 4200 or equivalent	Each	8
Desk type calculator w/ registering type Casio or Equivalent	Each	1
Photo Copier, Sharp SF-2414, 14 CPM or equivalent	Each	1
Air Conditioning Unit, window type with timer complete with standard accessories, 2.5 hp which will operate on 220 V cycle single phase current with timer	Unit	4
ASUS P3BF/P3B-133, Intel Pentium IV 800 MHz (Slot 1) 128 MB DIMM RAM, 20 GB Quantum/Maxtor hard disk, 1.44 MB Floppy disk drive (TEAC), 52X Creative CD-ROM drive (with Infra Red), 32 MB Video Card (AGP), CMI 8738 PCI Sound Card (32 bit) or with AM/FM Sound Card, NTC 102-104 keyboard PS/2, 3 button mouse (Logitech, PS/2), 17" Color Monitor (Viewsonic), UPS with AVR (A.P.C.), Dust Cover, Mid Tower Casing with 300 watts power supply, Altec Lansing speaker with surround and Sub (latest model), 2 USB Ports, ASUS 56 kbps in V.90 Modem Riser Card, ASUS PCI-L101 Fast Ethernet LAN Card, 10BASE-T LAN Twist Pair Straight Cable 10m Length with connectors	Set	3
Plain Paper Tele/Fax Machine	Unit	1
Regular Licensed Installer CD's MS-Windows 2000 Microsoft Office 2000 included Power Point , Symantec Norton System Works 2002 included Anti-Virus software	Unit	1
External ASUS CD-RW Drive 8x Record / 4x Rewrite / 32x Read included CD Recording Software with	Unit	1

FACILITIES FOR THE ENGINEER

A

ASUS PCI-DA2200 SCSI RAID Card or equivalent ASUS Internal Drive		
LAN Hub Port for 10BASE-T Cable with 4 ports min	Unit	1
HP Scanner for A3 Size included Scan Software with SCSI Card or USB Connector (latest model)	Unit	1
HP Printer, DeskJet 1120C or higher (latest model)	Unit	1
HP Printer, Laser Jet 6L or higher (latest model)	Unit	1
Standard Computer Table	Unit	3
Magnetic whiteboard, 4' x 8' on roller stand, usable both side	Each	2
Autofocus 35 mm SLR Compact Camera with at least 35-70 mm Zoom lens or equivalent	Each	1
Electric Stand Fan, 16" diameter blade	Each	6
Fire Extinguisher, 10 lbs.	Each	2
Wall Clock	Each	1
Electric Air Pot, 3.5 liter capacity	Each	1
Manual Punching/Binding Machine IB, Master, 24 pins, Switzerland	Each	1
For the Living Quarters:		
Air-conditioning unit, window type w/ timer complete with standard access. 1.0 hp which will operate on 220 V cycle single phase current	Each	3
Refrigerator, 10 cu. ft.	Each	1
Gas stove with two (2) burner complete with hose, regulator and LPG tank	Unit	1
Electric Stand Fan, 16" diameter blade	Each	7
Fire Extinguisher, 10 lbs.	Each	2

FACILITIES FOR THE ENGINEER**A**

Wall Clock	Each	1
Electric Air Pot, 3.5 liter capacity	Each	1
Set of kitchenwares for at least 12 persons consisting of the following: Spoons, forks, knives, cups and saucers, serving plates, placemats, ash, rice plates, pitchers, kitchen knives, ash trays, bolos, casserole, frying fan, canisters	Set	1
Water Purifier/Filter System	Each	1
Petromax or approved equal for emergency use	Each	2

PROVISIONS FOR FURNISHING LABORATORY TESTING EQUIPMENT /APPARATUS**SCHEDULE C - Laboratory Testing Equipment/Apparatus**

	Description	Unit	Quantity
I.	Soil Testing Equipment		
a.)	Gradation		
3"	- 8" dia. Brass Sieve	Each	1
2"	- 8" dia. Brass Sieve	Each	1
1 1/2"	- 8" dia. Brass Sieve	Each	1
1"	- 8" dia. Brass Sieve	Each	1
3/4"	- 8" dia. Brass Sieve	Each	1
1/2"	- 8" dia. Brass Sieve	Each	1
3/8"	- 8" dia. Brass Sieve	Each	1
#4	- 8" dia. Brass Sieve	Each	1
#10	- 8" dia. Brass Sieve	Each	1
#12	- 8" dia. Brass Sieve	Each	1
#40	- 8" dia. Brass Sieve	Each	1

FACILITIES FOR THE ENGINEER**A**

#200 - 8" dia. Brass Sieve	Each	1
#200 - 8" dia. Brass Sieve	Each	1
Brass Pan 2" x 8" diameter	Each	1
Brass Cover with ring	Each	1
Brass, Wire, Sieve	Each	1
Galvanized Steel Pan, 24" x 24" x 3" with handle	Each	1
Galvanized Steel Pan, 18" x 18" x 3" with handle	Each	1
Vol. Flask with Top, 500 ml.	Each	2
Mechanical Operated Sieve Shaker	Each	1
Wash Bottle, 1000 ml.	Each	1
Triple Balance, 2610 gms., 0.10 grams sensitivity or equivalent	Each	1
Drying Pans - 12" x 12" x 3"	Each	2
Sieve Brushes	Each	2
Sample Splitter 2-1/2" chute width	Each	1
Sample Splitter 1-1/2" chute width	Each	1
Hard Bristle Brushes	Each	2
Paint Brush - 2.5	Each	2

b.) Atterberg Limits

1. Liquid Limit Test Set with counter consisting of the following:

Liquid Limit Set with spatula & grooving tool	Each	1
Graduated Cylinder, 100ml	Each	1
Evaporating Dish, 250 ml, 115mm x 45mm	Each	1

2. Plastic Limit Test Set consisting of the following:

Plastic Limit Plate	Each	1
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FACILITIES FOR THE ENGINEER**A**

Graduated Cylinder, 25 ml	Each	1
Evaporating Dish, 120 ml, 90mm x 37mm long	Each	1
Aluminum Moisture Can, 3 oz. with cover	Dozen	1
Plastic dispensing bottle, 250ml	Each	1
Set of triple beam balance, 311 capacity with sensitivity of 0.01 gram	Set	1
3. Wash bottle, 1000ml	Each	1
4. Dial – 0 gram balance, 310 grams capacity x 0.01 gram sensitivity 0' haus	Each	1

c.) Moisture Density Relation

Compaction Mold, 4" dia., 1/30 cu. ft. with collar and base plate	Each	1
Compaction Rammer, 5.5 lb. X 12" drop	Each	1
Compaction Mold, 6" dia. 1/13.33 cu. ft. with extension collar and base plate	Each	1
Compaction Hammer, 10 lbs. X 18" drop	Each	1
Steel Straight Edge, 12 - inch x 1 1/2" x 1/8"	Each	1
Mixing Towel, 2.5" x 4.5" blade	Each	2
Spatula, 8 inches blade	Each	1
Spatula, 4 inches blade	Each	1
Trimming Knife	Each	1
Heavy Duty Solution Balance, 20 kg. Capacity	Each	1
Mixing Pan, 24" x 24" x 3" with blade	Each	1
Moisture Can, 500 cc with cover	Each	6

d.) Laboratory CBR

Items included per set:

Mechanical Loading Press, 45 KN cap. w/ metric dial reading to 0.025 mm	Unit	1
CBR Mold, 6" dia. X 7" w/ collar and base plate	Each	3
Slotted Surcharge Weight, 25 lbs.	Each	2
Circular Surcharge Weight, 25 lbs.	Each	2
Straight Edge, 12" x 1-1/2" x 1/8"	Each	1
Spacer Disk	Each	1
CBR Swell Plate	Each	1
Dial Indicator Reading to 0.025 mm for penetration	Each	1
Swell Dial Indicator	Each	1
Holder of Penetration Dial		
Tripod Attachment	Each	1
4.5 T Capacity Proving Ring	Each	1
Filter Screen, 100 mesh, 5-5/16" dia.	Each	1
Filter Screen, 15 cm., Box of 100	Box	1
e.) Field Density		
Sand Cone and Jug	Set	1
Replacement Jug, Plastic	Set	1
Density Plate	Set	1
Sample Can	Pieces	10
Liquid Sample bags, 8" x 14"	Each	200
Sampling Spoon	Each	2
Plastic Bags, 8" x 14" x 0.0035	Each	200
Field Can, 1 Gallon	Each	1
Steel Chisel, 1" width	Each	1

FACILITIES FOR THE ENGINEER

A

Ball Hammer	Each	1
Sand Scoop	Each	1
Speedy Moisture Tester with Reagents	Unit	1
Field Scale, 15 kgs; 4.5 gram Sensitivity	Set	1
Ottawa Sand	Each	1

f.) Organic Impurities

1. Graduated Test Bottle, 12 oz.	Pieces	6
2. Sodium Hydroxide Solution	Bottles	2
3. Color Standard Chart for Organic Impurities	Each	2

II. Concrete Testing Equipment

#4 - 8" dia. Brass Sieve	Each	1
#8 - 8" dia. Brass Sieve	Each	1
#16 - 8" dia. Brass Sieve	Each	1
#30 - 8" dia. Brass Sieve	Each	1
#50 - 8" dia. Brass Sieve	Each	1
#100 - 8" dia. Brass Sieve	Each	1
#200 - 8" dia. Brass Sieve	Each	1
Portable Compression Testing Machine, 100 tons	Unit	1
Sample Splitter, 2-1/2" Opening	Unit	1
Cylinder Mold, 6" x 12"	Each	4
Slump Cone & Base w/ Graduated Tamping Rod	Set	1
Beam Molds, 6" x 6" x 18"	Pieces	36
Mixing Pan, 24" x 24" x 3"	Each	2

FACILITIES FOR THE ENGINEER**A**

Pressure Meter, 1/4 cu. ft.	Each	1
Cement Trowel (rectangular blade)	Each	1
Cement Trowel (triangular blade)	Each	1
Density Basket , 2.36 mm mess	Each	1
Yield Bucket, 1/2 cu.ft.	Each	1
Yield Bucket, 1 cu.ft.	Each	1
Concrete Airmeter	Each	1
Platform on Balance, 100 kgs capacity, 200 grams sensitivity	Each	1
Capping Set	Set	1
Core Drilling Machine 4" dia.	Unit	1
Core Drilling Machine 6" dia.	Unit	1
Specimen Cutting Machine, 4" dia.	Unit	1
Specimen Cutting Machine, 6" dia.	Unit	1
Vicat Apparatus	Each	1
Gilmore Needle	Each	1
Cylinder Capper, 6" x 12"	Each	1
Cylinder Carrier, 6" x 12"	Each	1
Warmer, 220V, 50/60 H2	Each	1
Capping Ladle, 8 oz.	Each	1
III. Miscellaneous Equipment & Items		
Laboratory Oven, Double Wall, 220v/60, AC cycle 24" x 24" x 34.5"	Unit	1
Gas Range, 3 Burners with Oven	Each	1
Graduated Cylinder, 1000 ml	Each	1
Graduated Cylinder, 500 ml	Each	1
Graduated Cylinder, 100 ml	Each	1

FACILITIES FOR THE ENGINEER**A**

Graduated Cylinder, 50 ml	Each	1
Graduated Cylinder, 25 ml	Each	1
Sand Equivalent Set	Set	1
Speedy Moisture Tester w/ Reagents	Each	1
Vernier Caliper	Each	1
Hot Plate, 12" x 24" x, 220 V	Each	1
Vertical Capping Set	Each	1
Glass Plate, 15 cm x 15 cm	Each	1
Stanley Steel Tape, 5 M.	Each	1
Pipe Wrench, 500 mm	Each	1
Trowel, 150 mm Blade	Each	1
Steel Straight Edge, 300 mm long	Each	1
Stainless Steel Mixing Bowl, 5 liters capacity	Each	2
Calcium Carbide Reagent	Box	1
Plastic Buckets	Each	2
Sand Equivalent Stock Solution	Bottles	10
Shovel, Short Handled	Each	1
L.A. Abrasion Machine	Unit	1
Pick	Each	1
Sodium Hydroxide Solution for Organic Impurities	Bottles	10
Paint Brush, 2.5 cm. wide	Each	6
Sodium Sulphate Solution for Soundness	Bottles	10
Rubber Mallet, 15 cm. diameter	Each	6
Distilled Water		
Scoop, Square Mouth, Cast Aluminum 76 cm x 20 cm diameter	Each	1

IV. Publications

Part I AASHTO Specifications, latest Edition	Each	1
Part II AASHTO Tests, latest Edition	Each	1

The Contractor shall carry out the underlisted minimum tests requirement. Unless otherwise stated, the tests shall be as specified under the following AASHTO Methods:

a) Soil and Aggregate Testing

**Test Reference
(AASHTO Designation)**

Standard Method Test For:

T - 11	Amount of material finer than 0.075 mm sieve in aggregate
T - 19	Unit Weight of aggregate
T - 27	Sieve Analysis of Fine and Coarse Aggregate
T - 30	Mechanical Analysis of Extracted Aggregates
T - 84	Specific Gravity and Absorption of Coarse Aggregates
T - 85	Specific Gravity and Absorption of fine Aggregates
T - 87	Dry Preparation of Disturbed Soil Aggregate Samples for Test
T - 88	Particle Size Analysis of Soils
T - 89	Determining the Liquid Limit of Soils
T - 90	Determining the Plastic limit and Plasticity Index of Soils
T - 92	Determining the Shrinkage Factors of Soils
T - 96	Resistance to Abrasion by use of LA Machine
T - 99	Moisture Density Relations of Soils using a 2.5 kgs. Rammer and 305 mm Drop (Standard AASHTO).

T - 100	Specific Gravity of Soils
T - 134	Moisture-Density Relations of Soil Cement Mixture
T - 176	Plastic Fines in Grade Aggregates and Soils by use of the Equivalent Test
T - 180	Moisture Density Relation using 4.55 kgs. Rammer and 475 mm Drop (Modified AASHTO)
T - 191	Density of Soil in place by Sand cone Test
T - 193	California Bearing Ratio
T - 203	Soil Investigation and Sampling by Auger Borings
Determining of the Moisture Content by "Speedy Moisture Tester" Method:	
ASTM 1632	Compaction of Soil-Cement Mixture Specimen
ASTM 1633	Seven (7) Days Compressive Strength Test of Soil-Cement Mixture

b) Concrete Testing

Test Reference (AASHTO Designation)	Standard Method Test For:
T - 21	Organic Impurities of Sands for Concrete
T - 22	Compressive Strength of Cylindrical Concrete Specimens
T - 23	Making and Curing Compressive and Flexural Test Specimens in the Field
T - 24	Concrete Core Sampling
T - 26	Quality of Water to be used in Concrete
T - 97	Flexural Strength of Concrete
T - 119	Slump of Portland Cement Concrete
T - 121	Weight per Cubic Foot, Yield and Air Content of Concrete

T - 123	Capping Cylindrical Concrete Specimens
T - 126	Making and Curing Concrete Compression and Flexure Test Specimens in the Laboratory
T - 141	Sampling of Fresh Concrete
T - 148	Measuring Length of Drilled Concrete Cores

PROVISIONS FOR OPERATION/MAINTENANCE OF THE COMBINED FIELD OFFICE/LABORATORY AND THE LIVING QUARTERS FOR THE ENGINEER

SCHEDULE D - Operation/Maintenance of Combined Field Office/Laboratory and Living Quarters

Description	Quantity
a) Operation/Maintenance Staff	
Messenger/Utility Man	one (1)
Watchman/Security Guard	three (3)
Cook/Maid	one (1)
b) Laboratory Staff	
Laboratory Technician	two (2)
Laboratory Aide	four (4)
Clerk Typist/Encoder	one (1)
c) Survey Personnel	
Survey Aide	two (2)
Instrument Man	One (1)
Draftsman/Plotter	One (1)
Laborer	two (2)
d) Miscellaneous	
Water Bill	28 months

Electric Bill

28 months

PROVISIONS FOR FURNISHING SUPPLIES AND CONSUMABLE STORES FOR THE COMBINED FIELD OFFICE/LABORATORY AND THE LIVING QUARTERS FOR THE ENGINEER

SCHEDULE E - Supplies and Consumable Stores for Combined Field Office/Laboratory

Description	Unit	Quantity
a) Office Supplies (to be provided only on the 1st month)		
Stapler	Each	6
Staple Remover	Each	6
Two (2) Hole Puncher	Each	2
Tape Dispenser	Each	4
Triangle, 30 x 60 x 12"	Each	1
Triangle, 45 x 45 x 12"	Each	1
Protractor, 360 x 18" dia.	Each	1
Highway Curves, Metric	Each	1
Triangular Scale, Metric	Each	2
Erasing Shield, Stainless	Each	2
Incoming/Outgoing Table Tray	Each	5
Waste Paper Bin	Each	10
Pencil Sharpener	Each	2
Steel Ruler, 36 inches	Each	1
Scissors	Each	2
First Aid Kit	Each	2
Stamp Pad w/ Ink	Set	1
Complete Set of Technical Pen with box, # 0.1 - #1.2	Set	1

Field Book	Piece	6
Record Book	Piece	6
Mechanical Pencil 0.5 mm	Each	15
Lettering Set (Leroy)	Each	1
T – Square, 90 cm. Long	Each	1
NT Cutter	Each	2
b) Office Supply (Monthly)		
Cartridge (Computer Printer/Ink)	Each	1
Diskette, High Grade	Each	4
Bond Paper, A4 size	Ream	5
Bond Paper, Long	Ream	1
Yellow Pad Paper	Pad	4
Carbon Paper	Box	1
Staedtler Pencil (2B, HB & F)	Each	6
Ballpen	Each	6
Sign Pen	Each	6
Eraser, Staedtler	Each	6
Correction Fluid	Each	2
Scotch Tape	Roll	1
Masking Tape	Roll	1
Magic Tape, 18 mm, 33 mm	Roll	1
Dry Battery , AA	Dozen	1
Field Book	Piece	1
Staple Wire	Box	1
Paper Clip	Box	2
Brown Envelope, Long	Piece	15

FACILITIES FOR THE ENGINEER**A**

Brown Envelope, Short	Piece	15
Expanding Envelope, Long	Piece	6
Letter Envelope, White	Piece	15
Letter Envelope, Brown	Piece	15
Folder, Long	Piece	15
Folder, Short	Piece	15
Fastener	Box	1
Ink Eraser	Each	3
Pencil Lead, 0.5 mm 2B, HB, F	Tube	3
Technical Pen #0.1 - #0.6	Each	6
Technical Pen #0.8 - #1.0 & #1.2	Each	3
Cross - section Paper	Roll	1/2
Tracing Paper	Roll	1/4
Mylar Drafting Film	Roll	1/4
Copy Paper, A3 size	Ream	1/2
Colored Pencil, 12's	Set	1
Marker (stabilo)	Piece	4
Paper Glue	Bottle	2
Toner (Copy Machine)	Tube	1/2
Typewriter Ribbon	Each	1
Cutter Blade	Piece	4
Film (36 shots) 35 mm	Roll	2
c.) Consumable Stores (Monthly)		
Toilet Paper	Roll	10
Insect Spray (Baygon), 350 g.	Each	1
Toilet Deodorant	Each	2

FACILITIES FOR THE ENGINEER**A**

Incandescent Bulb, 60 - 100 W	Each	2
Fluorescent Tube, 20-40 W	Each	2
Toilet Soap	Each	4
Floor Map Rug	Each	1
Replenishment of First Aid Kit	Lot	1
Broom	Each	2

d.) Laboratory Consumable Stores (Monthly)

Sodium Hydroxide Solution	Bot.	2
Capping Compound	Box	1
Sodium Sulphate	Bottle	4
Calcium Carbide Reagent	Box	1
Sand Equivalent Stock Solution	Bottle	3
Color Standard Chart	Set	1
Distilled Water	Gallon	5
Plastic Bags, 8" x 14" size 0.00035 substance	Each	1,000

e.) Consumable Stores to be supplied upon request (Not to Exceed the quantity below)

Drum (Copy Machine)	Each	3
Developer (Copy Machine)	Each	4
Cleaning Blade (Copy Machine)	Each	4
Cleaning Roller (Copy Machine)	Each	4

SCHEDULE F - Supplies and Consumable Stores for the Living Quarters

Description	Unit	Quantity
a.) Supplies (To be provided only on the first month)		

FACILITIES FOR THE ENGINEER

A

Pairs of polyester pillows, 30 cm. X 60 cm. X 15 cm.	Pair	13
Pillow Cases, 40 cm. X 80 cm.	Each	26
Bed Sheets, Cotton, 150 cm. X 200 cm.	Each	13
Blankets, cotton, 160 cm. X 200 cm.	Each	13

b.) Consumable Stores (Monthly)

Toilet Paper	Roll	12
Insect Spray (Baygon), 350 g	Each	2
Toilet Deodorant	Piece	3
Incandescent Bulb, 60 - 100 Watts	Each	2
Fluorescent Tube, 20 - 40 Watts	Each	2
Toilet Soap	Each	6
Floor Map Rug	Each	1
Broom	Each	2

A.1.2 Vehicles for the Engineer

This item is modified to read as follows:

The Contractor shall provide within thirty (30) calendar days upon receipt of Notice to Proceed the following vehicles on rental basis, for the exclusive use of the Engineer and his staff. The vehicles shall be brand new, latest model, with car airconditioner, car stereo and preferably Nissan, Mazda, Mitsubishi, Isuzu or any equivalent, accepted and approved by the Engineer.

3 units	-	4WD Pick-Up Type, Double Crew Cab, service Vehicle, 2200cc, Diesel Engine with factory installed air-conditioner
1 unit	-	Car, Sedan, 1600 CC, gasoline engine, complete with all accessories
2 units	-	Wagon, diesel engine, complete with all car accessories

The vehicle shall comply in all respect, with all relevant Philippine National or Local Laws, statutes and regulations and shall be provided with comprehensive insurance, spare tires and wheels, and all necessary tools for minor repair.

In order to comply a continuous operation and efficient maintenance of the service vehicles, the Contractor shall provide monthly operating expenses including salary of the drivers, cost of fuel, lubricant, servicing and minor repair.

The monthly operating expenses of the vehicles shall be provided within the first week of each month. If the Contractor fails to comply with this requirement, the Engineer may advance the needed amount which shall be reimbursed by the Contractor upon presentation of necessary supporting documents.

If the Contractor fails to reimburse the said expenses on or before the 15th of the succeeding month, the Engineer shall make the billing directly to the Employer in the amount equivalent to the unit price as stipulated in the Contract.

In case of major repair and/or breakdown of the service vehicles, the Contractor shall provide the equivalent substitute immediately.

In case the Contractor fails to provide the transport vehicles within the stipulated time, the Engineer shall be entitled to provide such vehicles in a way he deems fit under the government regulations and charge the cost to the Contractor.

A.1.3 Assistance to the Engineer

This item is amended with the following paragraphs:

The Contractor shall supply within thirty (30) days from the commencement of the work and maintain for the duration of the contract, the provision of surveying, leveling and measuring instruments, together with the necessary personnels listed under SCHEDULE G and H, respectively.

Surveying, leveling and measuring instruments and apparatus to be provided shall be as prescribed herein this specification:

PROVISIONS FOR FURNISHING SURVEY INSTRUMENTS /EQUIPMENTS

SCHEDULE G - Survey Instruments/Equipment

Description	Unit	Quantity
Topcon Theodolite, Model TL-20G, 20-second angle accuracy, 30 x-erect image telescope magnification, vertical index compensator, complete with standard accessories including carrying case and adjusting tool set, made in Japan, with aluminum tripod, model TA-165	Unit	1
Wild/Leica Automatic Level, Model NA824, 24 x erect image telescope magnification, complete with standard accessories, with aluminum tripod, model TA-165	Unit	1
50 meters steel tape, K & E or similar	Each	1
Range Poles, 3 meters, Boit Aluminum	Each	3
Leveling Rods, 5 meters, Boit Aluminum	Each	2
Survey Umbrella	Each	1
Index Pocket Steel Tape, 5 meters, with stop locking system	Each	1
Index Pocket Steel Tape, 3 meters, with stop locking system	Each	1
Claw Hammer	Each	1

Adequate supply of pegs, concrete blocks, survey monuments, steel pins, paint hammer, saws, metal templates, straight edges, record book and other materials approved by the Engineer as necessary for the work shall be supplied by the Contractor.

All survey instruments/equipments provided under this item as "Assistance to the Engineer" shall remain the property of the Contractor upon completion of the Contract.

The following survey personnel shall also be provided by the Contractor subject to the approval of the Engineer.

No separate payment shall be made for complying with the requirements of this item as they are considered subsidiary to all pay items of the Contract.

PROVISIONS FOR OPERATION/MAINTENANCE OF SURVEY INSTRUMENTS/EQUIPMENTS

SCHEDULE H - Survey Personnel

Description	Quantity
Instrument Man	one (1)
Survey Aides	two (2)
Draftsman/Plotter	one (1)
Draftsman/Plotter	one (1)

These personnel shall work under the direct supervision of the Engineer or his duly authorized representatives.

A.1.4 Photographs

This item is modified and supplemented as follows:

The Contractor shall provide a photographic record of the Construction Work. Such photographs shall be taken when and where as directed by the Engineer or under the following occasions or events:

- a) When a portion of the work is difficult or impossible to inspect at the time of a particular operation, where a portion will be covered by backfill, or filling materials after completion and acceptance of the work by the Engineer.
- b) When or where special or unusual features of the work or latent conditions on the site are present.

When taking the photographs, the Contractor is required to observe that:

- a) An Indicator such as scale, pole or similar item shall be placed thereon to signify or illustrate the relative dimensions of the pictures.
- b) Each picture shall be captioned and identified as to date, location, description of the work in progress or completed operation or activity or presence of unusual features.
- c) Each picture shall be properly referenced.
- d) The picture shall be clearly discernible in color having a dimension of not less than 12.5cm x 9cm (D.O. No. 55, Series of 1994).

All photographs shall be submitted at intervals of not less than one (1) month or as required, taken selectively by the Engineer, which represent the progress of the works.

The photographs selected by the Engineer, which shall have his signature with copies furnished by the Contractor, shall be compiled in albums provided by the Contractor for the purpose and shall be so arranged in consecutive order in accordance with the construction program submitted to and approved by the Engineer. Each album shall show the name of the Project on the cover and shall contain a location map of the construction site.

All photographs retained by the Engineer shall become the property of the Owner.

A set of photographs shall consist of ten (10) proof prints at ten (10) each per month.

A.2 MEASUREMENT AND PAYMENT

A.2.1 Measurement

Delete Sub-items 1 to 6 and substitute the following:

1. Lump sum items shall be provided for the following:
 - a) Combined Field Office and Laboratory Building and Living Quarter for the Engineer including facilities for electricity, potable water, sewage and drainage system. The lump sum shall also include the cost of site preparation and ground improvement.
 - b) Provisions for furnishing Furnitures/Fixtures, Equipment and Appliances and publications specified under SCHEDULE A and B.
 - c) Provisions for furnishing Laboratory Testing Equipment/Apparatus specified under SCHEDULE C.
 - d) Provisions for temporary field office, laboratory and living quarters for the Engineer on a rental basis for three (3) months.
2. Operation and maintenance of the temporary and permanent Field Office, Laboratory and Living Quarters for the Engineer specified under SCHEDULE D will be paid for from the time the Engineer occupies the buildings until the final completion of the Contract. Payment shall be made on a monthly basis at the contract unit price shown in the Bill of Quantities.
3. All supplies and consumable stores for the combined Field Office/ Laboratory and the Living Quarters shall be in accordance with SCHEDULES E and F herein this specification. Payment shall be made on a monthly basis.
4. The quantities for the provisions of communication system provided on rental basis shall be the number of each type of communication equipment supplied including maintenance, accessories, licenses and fees, and shall be paid on a monthly basis.
5. Operation and maintenance of vehicles for the Engineer as specified will be paid for during the time which the Engineer is supplied with each type of vehicles until the completion of the project. The unit of measurement to be paid shall be per vehicle per month.
6. The quantities for progress photographs shall be the number of photos taken and the number of each selected pictures provided as progress photographs.

A.2.2 Payment

Add herein this item the following as:

*Upgrading Inter-Urban Highway System
Along The Pan-Philippine Highway
Cabanatuan Bypass, Contract Package No. IV
(Sta. 121 + 600.00 – Sta. 134 + 731.828)*

*Bidding Documents
Volume III – Technical Specifications
Page A-26*

FACILITIES FOR THE ENGINEER**A**

Payment will be made under.

Pay Item No.	Description	Unit of Measurement
A (1) a	Provision of Combined Field Office, Laboratory Building and Engineer's Quarter	Lump Sum
A (1) b	Operation / Maintenance Combined Field Office / Laboratory Building and Living Quarters for the Engineer (Schedule D)	Month
A (1) c	Provision of Furnitures / Fixtures for the Combined Field Office /Laboratory Building and Living Quarters for the Engineer (Schedule A)	Lump Sum
A (1) d	Provision of Equipment and Appliances for the Combined Field Office /Laboratory Building and Living Quarters for the Engineer (Schedule B)	Lump Sum
A (1) e	Provision of Office Supplies and Consumable Stores for Field Office, Laboratory and Living Quarters for the Engineer (Schedule E and F)	Month
A (1) f	Provide / Operate / Maintain Communication Equipments for the Engineer (Rental Basis)	Month
A (2) a	Provide/Operate/Maintain one (1) Service Car, Sedan, 1600 CC, gasoline engine (Rental Basis)	Vehicle-Month
A (2) b	Provide/Operate/Maintain two (2) Wagon Type Service Vehicle (Rental Basis)	Vehicle-Month

FACILITIES FOR THE ENGINEER

A

A (2) c	Provide/Operate/Maintain three (3) 4WD Pick-Up Type, Double Crew Cab Service Vehicle for the Engineer (Rental Basis)	Vehicle-Month
A (3) a	Provision of Testing Equipments, Apparatus and Publications (Schedule C)	Lump Sum
A (3) b	Progress Photographs (Proof Prints and Negatives)	Each

PART B

OTHER GENERAL REQUIREMENTS

OTHER GENERAL REQUIREMENTS

B

PART B - OTHER GENERAL REQUIREMENTS

The text under Part B of the General Specifications is modified to read as follows:

B.1 OFFICES, SHOPS, STORES AND WORKMEN'S ACCOMMODATION FOR CONTRACTOR

Add the following specifications at the end of this item as follows:

The selection of the site shall be the responsibility of the Contractor and shall be approved by the Engineer. It is entirely up to the Contractor to make whatever arrangements he deems necessary with the landowners regarding the use of land for the purpose of erecting camps, workshops, garages, stockpiling of materials, locations of plant, housing of labor and staff, welfare facilities, etc. All costs incurred in connection with the rental or lease of such land shall be at the Contractor's expense.

The Contractor shall be solely responsible for the erection, maintenance and subsequent disposal of whatever facilities he deems necessary to execute the Works.

The Contractor shall not be permitted to erect temporary buildings or structures within the road right-of-way without prior written approval from the Engineer.

B.2 MEDICAL ROOM AND FIRST AID FACILITIES

Supplement the following as paragraph 5:

The medical room and first aid facilities shall be provided by the Contractor with the following equipment and furniture as a minimum requirements:

One (1)	ea	Washbasin (hand) with hot and cold water tap
Two (2)	ea	Beds
Two (2)	ea	Chairs
One (1)	ea	Office Table
One (1)	ea	Electric kettle or other equipment for boiling water
One (1)	set	Complete first aid outfit (as may be required by the subsequent amendment thereto). An adequate supply of bed sheets, pillows, blankets and linen. The medical room shall be provided with water supply and electricity at all times and shall be adequately lighted and ventilated.

Delete the title and text of B.3 and substitute the following:

B.3 STIPULATIONS RELATING TO CONTRACT DOCUMENTS

OTHER GENERAL REQUIREMENTS

B

In connection with the Contract Documents issued by the Department of Public Works and Highways, the Bidder/Contractor is instructed to observe and comply with the following stipulations:

- a) All informations are for the exclusive use of the Employer, Engineer and the Bidder/Contractor and should be treated as private and confidential.
- b) The data in the Bid Documents which are obtained, recorded and given interpretation in accordance with accepted engineering principles, practices and methodology for purposes of design shall be considered as basis or reference in securing bids and/or determining working activities and construction operations. It is assumed that data may indicate the actual site conditions to be encountered and it is the Contractor's obligation to conduct his own field examination and investigation.
- c) The submission of bids shall be done as sufficient evidence that the Contractor has performed such examination and investigation.
- d) Refer to Article 1.8 of the Instructions to Bidders for requirements of the Contractor to attend organized site visit.
- e) If during the execution of the Works there should exist variations from the data originally contained in the Contract Documents, it shall be the Contractor's responsibility to forthwith notify the Engineer in writing for such variations, who in turn shall issue also in writing for appropriate instruction. The Contractor shall not be compensated for whatever variations of work may arise unless otherwise proper notification to the Engineer has been made. Refer to Clause 13.1 of the Conditions of Contract.

Add the following specification to read as:

B.4 QUALITY CONTROL OF MATERIALS

All Quality Control Procedures should be in accordance with the DPWH Bureau of Research and Standard Requirements and the Construction Manager's own Quality Control/Quality Assurance Procedure.

B.4.1 Source of Supply and Quality of Materials

Promptly after receiving the contract award, the Contractor shall notify the Engineer of all proposed material sources, including fabricators of steel or other finished products. Prior to delivery of materials, sources shall be approved first by the Engineer. If approved sources are unable to provide acceptable or uniform products, the Contractor shall locate other sources and obtain approval from the Engineer.

All equipments, materials, and articles incorporated into the permanent work shall:

1. Be new, unless the Specifications permit otherwise;
2. Meet the requirements of the contract and be approved by the Engineer;
3. Be inspected or tested at any time during their preparation and use; and
4. Not be used in the work if they become unfit after being previously approved.

B.4.2 Samples and Tests for Acceptance

OTHER GENERAL REQUIREMENTS

B

The Contractor shall deliver material samples (from the Contractor, Producer, or Fabricator) to the Engineer prior to execution of work. In providing samples, the Contractor shall provide the Engineer with sufficient time and quantities for approval before use. The Engineer may require samples at any time. Samples not taken in the presence of the Engineer will not be accepted for test, unless the Engineer permits otherwise.

The Contractor shall designate his experienced personnel as direct contact person for major item testing and acceptance. In case of his absence, the Contractor shall designate other personnel of the same experience to ensure the direct contact is maintained during the execution of work.

The Engineer will designate also an experienced representative as point of contact for materials testing and acceptance.

All field and laboratory materials testing to be undertaken by the Contractor, shall be in accordance with the methods described in the contract documents, or in the recognized standards of national organizations. The following provisions will apply when the Contractor uses the specifications or methods from the sources named hereunder.

ASTM – American Society for Testing and Materials. The ASTM designation number refers to this society's latest adopted or tentative standard. The standard or tentative standard in effect on the bid advertising date, will apply in each case.

Copies of any separate ASTM specifications or testing method may be obtained from: the American Society for Testing and Materials, 1916 Race Street, Philadelphia, USA.

AASHTO – American Association of State Highway and Transportation Officials. An AASHTO number refers to that organization's currently published (1) "Standard Specifications for Transportation Materials and Methods of Sampling and Testing" or any adopted revisions, or (2) "Interim Specifications and Methods of Sampling and Testing adopted by the AASHTO Subcommittee on Materials."

Any standards, revisions, and interim standards in effect on the bid advertising date will apply.

Copies of "Standard Specifications for Transportation Materials and Methods of Sampling and Testing" may be obtained from the American Association of State Highway and Transportation Officials, 917 National Press Building, Washington, DC, USA.

B.4.3 Removed and Rejected Materials

The Contractor may, prior to sampling, select to remove any defective material(s) and replace it with new material(s) at no expense to the Employer. Any such new material will be sampled, tested and evaluated for acceptance as a sub-lot in accordance with the sampling and testing procedure.

The Engineer may reject a sub-lot wherein tests show to be defective. Such rejected material shall not be used in the work, and the results or tests run on the rejected material will not be included in the original lot acceptance tests.

B.4.4 Manufacturer's Certificate of Compliance

The Engineer may accept certain materials on the basis of a Manufacturer's Certificate of Compliance as an alternative to material inspection and testing. When a Manufacturer's Certificate of Compliance is authorized by these Specifications, the certificate shall be furnished prior to the use of material.

The Contractor may request, in writing, authority from the Engineer to install such material prior to submitting the required certification; however, no payment shall be made for the work in the absence of the acceptable Manufacturer's Certificate of Compliance. The Employer reserves the right to deny the request for good cause.

If for any reason, the Contractor has no acceptable Manufacturer's Certificate of Compliance on the completion date of the work, the Employer may process the final payment without paying for the work performed on such basis.

The Manufacturer's Certificate of Compliance must identify the manufacturer, the type and quantity of material being certified, the applicable specifications being affirmed, and the signature of a responsible corporate official of the manufacturer and include supporting mill tests or documents. A Manufacturer's Certificate of Compliance shall be furnished with each lot of material delivered to the site and the lot so certified shall be clearly identified in the certificate.

All materials used and identified in the Manufacturer's Certificate of Compliance may be sampled and tested at any time. Any material not conforming to the requirements will be subject to rejection whether in place or not. The Employer reserves the right to refuse to accept materials not on the basis of a Manufacturer's Certificate of Compliance.

B.4.5 Handling and Storing Materials

In storage and handling, the Contractor shall protect any materials against damage from careless handling, from exposure to weather, from mixture with foreign matter, and from all other causes. The Engineer will reject and refuse to test materials improperly handled or stored.

B.4.6 Sieves for Testing

Test sieves shall be made either: (1) of woven wire cloth conforming to AASHTO Designation M 92 or ASTM Designation E 11, or (2) of square-hole, perforated plates conforming to ASTM Designation E 323.

B.4.7 The Contractor shall comply with the requirements of the "**Revised Schedule of Minimum Test Requirements Governing Items of Work of the DPWH Standard Specifications for Highways, Bridges and Airports, Volume II**". Appendix "A" is a copy of the DPWH Memorandum Circular dated 25 January 1989 containing the said "Revised Schedule".

OTHER GENERAL REQUIREMENTS

B

B.5 TRANSPORTATION AND HANDLING

B.5.1 Description

This Item sets out the requirements for the transportation and handling of soils, asphalt and concrete materials, pre-cast concrete items, equipment and tools, and other materials required by the Contractor for the completion of work.

The provisions of Item B.4 Quality Control of Materials shall be treated as being complementary to the contents of this Item.

B.5.2 Construction Requirements

B.5.2.1 Standards

Work processes shall be conducted in strict conformity with the National, Provincial and District regulations governing the work as well as requirements for the preservation of natural resources and the environment.

B.5.2.2 Coordination with Others

The Contractor's attention is directed to the fact that he will be required to coordinate his transport operations with the work being performed or to be performed on other Contracts, with work of the subcontractors, utility companies and others as may be required.

If interference in operations of different Contractors, the Engineer shall have a sole power to direct each Contractor and to determine the sequence of work necessary to expedite the completion of the entire project, and in all cases his decision shall be accepted as final and no cause for claim.

B.5.2.3 Weight Limitations and Legal Requirements

If required, the Engineer may impose weight restrictions for the protection of any existing road or structure within the vicinity of the project. The Contractor shall have site responsibility for complying with all legal weight restrictions on existing roads and highways used for his work. The Contractor shall provide portable scales as may be required to ensure compliance.

The Contractor shall be responsible for any damage to roads or structures resulting from his construction operations.

In case hauling operations made by the Contractor may cause damage to public road or structure, or may cause flooding which results to stop the operation, the Engineer may direct the Contractor to use an alternative route. The Contractor shall have no right of any claims for additional compensation to his damage during operations.

OTHER GENERAL REQUIREMENTS

B

B.6 FIELD ENGINEERING SERVICES

B.6.1 Description

The Contractor shall provide all necessary skilled and experienced engineering personnel to execute both survey and any field works conforming to the requirements given to him by the Engineer. Quality performance of work and strict conformity to the dimensions required by the Engineer shall be observed in the field.

Field survey work to be performed by the Contractor shall include but not necessarily limited to the following:

1. Setting-out / staking-out of the Works; and
2. Measurements for pay quantities

In addition to the above routine field survey services, the Contractor shall provide geo-technical engineering specialist to monitor and ensure compliance with additional soil borings, if ordered by the Engineer.

B.6.2 Setting-Out / Staking-Out of the Work

1. The Contractor shall have sole responsibility for establishing and maintaining all horizontal and vertical control points required or as may be directed by the Engineer. Information for the existing control monuments is shown on the Plans and shall be used by the Contractor for establishing the horizontal and vertical controls needed for his work.
2. Schedule and notification to survey shall be provided to the Engineer and be subject for review and monitoring by the Engineer's representative.
3. The Contractor shall make minor adjustments subject to the Engineer's approval in the event that discrepancies are found between the information shown on the Plans and the actual field conditions.
4. From the control points provided by the Engineer and Employer, the Contractor shall establish all additional and intermediate controls for accurately locating all structures, centerlines, right-of-way limits, slopes, etc. as shown on the Plans and required by the Contract.
5. Should the Engineer so require, the Contractor shall to the extent required to provide to the Engineer all necessary instruments, personnel, labor and materials that the Engineer may require for checking the setting out or for any other relevant work to be done.

OTHER GENERAL REQUIREMENTS

B

B.6.3 Measurements for Pay Quantities

1. The Contractor and Engineer shall jointly measure the Works for the purpose of establishing progress and final pay quantities.
2. The Contractor shall provide all necessary personnel and equipment to perform the measurements for payment required by the Contract. Such measurements and quantity calculations will not be accepted unless conducted jointly with and monitored by the Engineer.
3. Whenever required for the purposes of measurement of quantities, the Contractor shall take cross sections on the original ground at intervals of 20 meter or less, as directed by the Engineer. The profiles so established shall be plotted on tracing paper to a scale, size and layout as stipulated by the Engineer. The drawn cross sections shall include the proposed finished lines derived from the approved design details.

The original profile together with the three copies shall be submitted to the Engineer who will endorse one copy with his approval, or his revision thereof, and return it to the Contractor.

4. At any locations, measurement for pay quantities shall require material volumes to determine the difference between the after-construction (or design) profile and the existing before-construction profile. The Contractor shall carry out as a part of his routine survey work all the necessary topographic surveys in sufficient details to enable the work volumes to be accurately calculated.
5. The Contractor in his routine survey work for quantity measurement requires not only geometric measurement using precise levels, theodolites, chains, etc. but also the taking and measuring of the pavement cores. The Contractor is also required to check the embankment thickness by auger boring or settlement plates. He also keep the haulage truck tallies; determine the asphalt density and bitumen content in both the laboratory and the field; and all such other methods of work volume measurement as the Engineer may direct. The detailed requirements for the measurement of the Works are specified for each Pay Item in the relevant sections of these Technical Specifications.

B.7 PROJECT RECORD DOCUMENTS

B.7.1 Description

Throughout the progress of the Works, the Contractor shall maintain the accurate records of all changes in the Contract Documents on a "Job Set" herein specified and shall transfer the final as built information to the Final Record Documents before the completion of the Works.

OTHER GENERAL REQUIREMENTS

B

B.7.2 Submittal Requirements

1. Submit or make available for review by the Engineer's representative, the job set of Project Record Documents as currently maintained on the 25th of each month. The Engineer's approval of these documents will be a prerequisite for approval of the Monthly Progress Payment Certificates.
2. Submit for the Engineer's approval the Final Project Record Documents at the time of application for Certificate of Substantial Completion. Accompany the submittal with a transmittal letter, containing:
 - Date;
 - Project title and number;
 - Contractor's name and address;
 - Title and number of each record document;
 - Certification that each document as submitted is complete and accurate; and
 - Signature of the Contractor, or his authorized representative.

B.7.3 Project Record Documents

1. Job Set

Promptly following the Award of Contract, the Contractor shall obtain from the Engineer at no cost to the Contractor, two complete sets of all Documents comprising the Contract.

The Job Set will include (unless otherwise stated in the Contract) the following:

- Conditions of Contract
- Contract Drawings
- Specifications
- Addenda
- Other Modifications to the Contract (if any)

2. Storage of Job Set

The job set shall be stored in the field office in files and racks and the Contractor shall maintain the job set protected from loss and damage until the transfer of as-built data to the Final Project Documents has been completed.

The record documents shall not be used for construction purposes and the documents shall be available at all times for inspection by Engineer and Employer.

B.7.4 Project Records for Materials & Equipment

All records concerning the testing and approval of materials and equipment to be incorporated into the Permanent Works shall form a part of the project records. The Contractor shall develop and maintain a record system which clearly shows the current status of all material sources, testing and approval. All approved samples shall be maintained at the job site.

B.7.5 Update and Maintenance of the Job Set Documents**1. Responsibility**

The Contractor shall delegate the responsibility for the maintenance of Record Documents to his authorized person as prior approved by the Engineer.

2. Identification

Immediately upon receipt of the job set, identify each of the Documents with the title "PROJECT RECORD DOCUMENTS - JOB SET", in 5 cm high printed letters.

3. Preservation

Considering the Contract completion time, the probable number of occasions upon which the job set must be taken out for new entries and for examination, and the conditions under which these activities will be performed, devise a suitable method for protecting the job set to the approval of the Engineer.

4. Marking Entries on Drawings

Using an erasable colored pencil (not ink or indelible pencil), clearly describe the change by notes and by graphic lines as required. Date all entries, call attention to the entry by a "cloud" around the area or areas affected. In the event of overlapping changes, different colors may be used for each of the changes. Keep record documents current and do not permanently conceal any work carried out.

Legibly mark and record the actual construction details such as:

- a. Depths of various elements of foundation in relation to datum shown.
- b. Horizontal and vertical location of underground utilities referenced to permanent surface improvements.
- c. Locations of internal utilities concealed in construction referenced to visible and accessible features of structures.

- d. Field changes of dimension and detail
 - e. Changes made by Change Order.
 - f. Details not on original Contract Drawings.
5. Timing

All entries shall be made within 24 hours after receipt of the information.

6. Accuracy

Use all the necessary means including the proper tools for measurement to determine the actual locations of the installed items and the accuracy of entries.

The Contractor shall thoroughly coordinate all the changes within the Record Documents and adequately and properly mark such changes on each page of the Specifications, on each sheet of Drawings and other Contract Documents. The accuracy of records shall be such that any future search for items shown on the Contract Documents may be obtained from the approved Record Documents.

B.7.6 Final Record Documents

1. General

The purpose of the Final Record Documents is to provide factual information regarding all aspects of the Works, both concealed and visible, to enable future modification of design to proceed without lengthy and expensive site measurement, investigation and examination.

2. Transfer of Data to Drawings

Carefully transfer all changes of data shown on the job set of Record Drawings to the corresponding original drawing of the Final Report Drawings and clearly indicate the full description of all changes made during construction and the actual location of all items. Call attention to each entry by drawing a "cloud" around the area or areas affected. Make all change entries on the originals neatly, consistently, and in ink or crisp black pencil.

3. Transfer of Data to Other Documents

If Documents other than Drawings have been kept clean and neat during the progress of the Work, and if entries have been sufficiently and orderly with the

OTHER GENERAL REQUIREMENTS

B

approval of the Engineer, the job set of those Documents (other than Drawings) will be accepted by the Engineer as Final Record Documents. If any such document is not so approved by the Engineer, secure a new copy of that document from the Engineer and carefully transfer the change data to the new copy for the approval of the Engineer.

4. Review and Approval

Submit the completed set of Final Record Documents to the Engineer at the time of application for the Take Over Certificate. If requested by the Engineer, participate in a review meeting or meetings, execute any required changes and promptly re-submit the Final Record Documents to the Engineer for his acceptance.

5. Changes Subsequent to Acceptance

The Contractor shall have no responsibility of recording changes to the Works subsequent to the issue by the Engineer of the Take Over Certificate. He shall be responsible only for changes resulting from replacements, repairs, and alternations made by him as part of his guarantee, or additional work that he has agreed to carry out during the Defects Liability Period.

B.8 PROVISIONS FOR PASSAGE OF TRAFFIC

The Contractor shall construct and maintain detours wherever the work will interfere with traffic on existing roads, footways or other ways over which there is a public or private right-of-way, until such time as permanent diversions to serve such traffic shall have been completed. No detours shall be constructed and no traffic diverted until the Contractor's proposals therefore have been approved by the Engineer and by the appropriate government authorities. Prior to the commencement of the construction and of the use of detours, the Contractor shall provide the Engineer with a full photographic record of the existing roads, pathways, etc. as directed by the Engineer and shall have the necessary temporary road signs ready for use.

No work will be in any way inconvenient to the traveling public shall be started until adequate provision satisfactory to the Engineer, shall have been made to divert or bypass the traffic in safety and in comfort. No road shall be closed to the public except by permission in writing from the Engineer and from the appropriate government authorities. Where traffic conditions permit, one-way-lane may be permitted by the Engineer. When road under construction is being used by the traveling public, special attention shall be given to traffic conditions so that the public can travel in comfort and safety without undue delay. Material stored upon the roadway shall be so well placed and the work shall be so conducted as to cause as little obstruction as possible to the traveling public.

All detours shall be maintained in good condition at all times, if possible and if not specified to be in a higher standard, shall have a total width of at least 6 meters and provided with graveled surface having a minimum compacted thickness of 80 mm. Where existing public or private roads are used as detours, the same shall be

OTHER GENERAL REQUIREMENTS

B

maintained in good riding condition at all times and just before completion of the Contract, such roads shall be restored to a condition not less satisfactory than that existing prior to the commencement of the work.

Where part-width construction is adopted, the part-width not under construction shall be made available to public traffic under alternate one-way control.

In such case, the Contractor shall furnish flagmen, pilot car and drivers to direct traffic through the section of road under one-way control. The length of part-width construction shall not exceed 500 m for each section and the distance between successive sections of part-width construction shall not be less than 500 m.

The Contractor shall so conduct his operations as to offer the least possible obstruction, inconvenience and delay to traffic and shall be responsible for adequate traffic control to achieve such an end.

Suitable warning signs, illuminated at night by electric bulbs, lanterns or flares shall be provided to mark the places not yet available to traffic. In part-width construction, the Contractor shall place acceptable barricades along the inside edge of the available surface so that traffic will be confined therein while the other part-width is under construction. One-way control shall continue until the adjoining surface is completed and opened to traffic.

At sections where part-width traffic is in operation, and when so ordered by the Engineer, the movements of the Contractor's equipment from one place of work to another shall be subject to such part-width traffic control. Spillage resulting from hauling operations along or across the roadway, shall be removed immediately at the Contractor's expense.

For further details in connection with "Provisions for Passage of Traffic" see Item SPL 900 (1) - Traffic Management During Construction provided hereinafter.

B.9 DISPOSAL OF MATERIALS OUTSIDE THE PROJECT BOUNDARIES

Proper disposal of materials outside the project boundaries shall be the responsibility of the Contractor. He shall make his own arrangements for the disposal of materials outside of the project boundaries and all the costs involved therein including the cost of hauling shall be considered as covered under the pay items involved in the Contract.

When any materials including excess or unsuitable materials from excavations are to be disposed of outside the project boundaries, the Contractor shall first obtain a written permit from the property owner of the proposed disposal site. He shall submit to the Engineer the said permit or a certified copy thereof, together with a written release from the property owner absolving the Government from any and all responsibilities in connection with the disposal of materials into his property. No material shall be disposed prior to the receipt of written approval and permission from the Engineer.

When materials are disposed of as provided above and if the site is visible from the highway, the Contractor shall make the disposal in a neat and presentable condition as to the satisfaction of the Engineer. The disposal site must not be an eyesore.

B.10 CLEARING/FINISHING THE SITE

OTHER GENERAL REQUIREMENTS

B

Upon completion of all construction operations, the entire roadway or roadways shall be finished/cleared as specified herein these specifications.

Stockpiling of materials on the finished pavement and drifting of materials across the pavement will not be permitted. The finished pavement shall be cleaned of all dirt and foreign materials.

The slopes in embankments; excavations; road approaches; road connections; ditches; channel changes; and material sites within or adjacent to the project boundaries shall be cleared and finished to the lines and grades called for on the plans. Ditches and channels within or adjacent to the project boundaries shall be cleared of debris and obstructions. Sewers, culverts and other drainage facilities and their appurtenant structures constructed under the contract shall be cleaned out. All stores and other waste materials exposed on slopes, which are liable to become loosened, shall be removed and disposed of. All materials and debris resulting from clearing and grubbing operations not previously removed shall be disposed of.

All materials resulting from the above-specified clearing/finishing operations shall become the property of the Contractor and shall be disposed of outside the project boundaries unless otherwise permitted by the special provisions.

Disposal of materials outside the highway right of way shall be in accordance with the provision in Item B.10, "Disposal of Materials outside the Project Boundaries". The entire roadway and right of way shall be left in a neat and presentable condition.

B.11 MEASUREMENTS

B.11.1 Measurement of Quantities

In measuring all acceptably completed bid items of work, the Engineer will:

1. Use SI metric standard measure;
2. Make all measurements as described in this item, unless individual specifications require otherwise;
3. Follow methods generally recognized as conforming to good engineering practice;
4. Conform to the usual practice of the Employer by carrying measurements and computations to the proper significant figure or fraction of units for each item, but not exceeding one decimal place; and
5. Measure horizontally or vertically (unless otherwise specified).

The items listed below shall be defined as follows in all measurements under this item:

OTHER GENERAL REQUIREMENTS

B

1. "Lump Sum" (when used as an item of payment): complete payment for the work described for that item in the contract.
2. "Gage" (in measurement of plates): the U.S Standard Gage.
3. "Gage" (in measurement of galvanized sheets used to manufacture corrugated metal pipe, metal plate, pipe culverts and arches, and metal cribbing): that specified in AASHTO M 36, M 167, M 196, M 197, or M 219.
4. "Gage" (in measurement of wire): that specified in AASHTO M 32.
5. "Tonne" : The metric ton equal to 1,000 kilograms of weight.

For each basis of measurement listed below, the Engineer will use the method of measurements as described herein.

1. Square Meter or Hectare - Measured on the neat dimensions shown on the plans or dimensions altered by the Engineer.
2. Linear Meter (pipe culverts, guard rail, under drains, etc.) - measured parallel to the structure's base or foundation or unless the plans require otherwise.
3. Weight - weighed as required in Item B.13.2.

Volume (of excavation and embankment) - measured by the average-end-area method. All or some computations may be based on ground elevations and other data derived photogrammetrically. The Engineer may correct for curvature.

For each item listed below, the Engineer will use the method of measurement described herein as:

Structure - measured on the neat lines shown on the Plans or as dimensions altered by the Engineer. When a complete structure or structural unit is specified as the unit of measurement, the unit shall include all fittings and accessories.

Standard Manufactured Items (fence, wire, plats, rolled shapes, pipe conduit, etc., when specified) - measured by the manufacturer's identification of gage, unit weight, section dimension, etc. The Engineer will accept manufacturing tolerances set by each industry unless cited specifications require more stringent tolerances.

Cement - measured by bags

Asphalt - measured by the tonne.

No measurement will be made for :

OTHER GENERAL REQUIREMENTS

B

1. Work performed or materials placed outside lines shown on the Plans or set by the Engineer;
2. Materials wasted, used, or disposed of in manner contrary to the contract;
3. Rejected materials (including those rejected after placement if the rejection resulted from the Contractor's failure to comply with the contract);
4. Hauling and disposing of rejected materials;
5. Material remaining on hand after the work is completed, except as provided in the contract; and
6. Any other work or material contrary to any contract provision.

B.11.2 Weighing Equipment

B.11.2.1 General Requirements for Weighing Equipment

Any highway or bridge construction materials to be proportioned or measured and paid for by weight, shall be weighed on scales. These materials include natural, manufactured, or processed materials obtained from natural deposits, stockpiles, or bunkers. The Contractor shall provide, set up, and maintain certified scales to their good weighing condition and use it permanently all throughout weighing work.

Scales shall :

1. Be accurate to within one-half of 1 percent throughout the range of use;
2. Not include spring balances;
3. Include beams, dials, or other reliable readout equipment;
4. Be arranged so that operators and inspectors can safely and easily see dials, beams, rods, and operating scale mechanisms;
5. Be built to prevent scale parts from binding, vibrating, or being displaced and to protect all working parts from falling material, wind, and weather; and
6. Be carefully maintained, with (a) bunkers and platforms kept clear of accumulated materials that could cause errors and (b) knife edges given extra care and protection.

At each batching and platform scale location, the contractor shall keep standard weights for scale calibration and testing. If the Engineer has approved other calibration and testing equipment, the contractor may substitute it for these weights.

B.11.2.2 Specific Requirements for Batching Scales

1. All materials proportioned by weight shall be weighed on an accurate and approved scale by qualified operators employed by the Contractor. The scales shall be positioned at locations required and approved by the Engineer.
2. Each scale shall be designated to support a weighing hopper. The arrangement shall make it convenient for the operator to *remove material* from the hopper while watching read-out devices. Any hopper mounted on a platform scale shall have its center of gravity directly over the platform centerline.
3. Marked intervals on the read-out device shall be spaced evenly throughout and shall be based on scale's nominal rated capacity. These intervals shall be at least 0.5 kilogram but shall not exceed one-tenth of 1 percent of nominal rated capacity.
4. An agent of the scale manufacturer shall test and service any batch scale before its use at each new site and then at 6-month intervals. The Contractor shall provide the Engineer a copy of the final results after each test. Whenever the Engineer requests, the Contractor's operator(s) shall test the scale while the inspector observes.
5. Portland or asphalt cement shall be weighed on a scale not used for other materials.

B.11.2.3 Measurement

If testing shows the scale has been under weighing, it shall be adjusted immediately. The Contractor shall not be compensated for any loss from under weighing.

If the scale has been overweighing, its operation will cease immediately until adjusted. The Employer will calculate the combined weight of all materials weighed after the last test showing accurate results. This combined weight will then be reduced by the percentage of scale error that exceeds one-half of 1 percent.

B.11.2.4 Payment

The Employer will pay for no materials received by weight unless they have been weighed as required in this item or as required by another method the Engineer has approved in writing.

Payment will not be made for any material over the maximum gross legal weight for the hauling vehicle.

OTHER GENERAL REQUIREMENTS

B

Unit contract prices for the various pay items of the project cover all costs related to weighing and proportioning materials for payment. These costs include those for furnishing, installing, certifying, and maintaining scales, those for furnishing check weights and scale house, and those for any other related item covered in this specification.

B.12 PROJECT SIGN BOARD

Unless otherwise specified in other pay item of the contract, the Contractor shall provide and erect project signboard at the exact location approved by the Engineer. The design, layout and wording are all to be approved by the Engineer. All signboards shall display the title of the project, the name of the Employer, the funding agency and the consulting engineering company, and the funding Loan Agreement Reference Number. The signboard shall be maintained in good condition throughout the duration of the Contract, and shall be removed upon completion of the project to the satisfaction of the Engineer.

B.13 MEASUREMENT AND PAYMENT

Unless specifically included in the Bill of Quantities as pay item(s) of work, under **PART B – OTHER GENERAL REQUIREMENTS**, the work(s) shall not be measured for direct payments but shall be considered as subsidiary work for other related Pay Items.