

सिविल, सरंचना एवं  
वास्तुकला कार्यो (ईपीसीसी/  
एकमुश्त टर्नकी संविदाओ)  
के लिए निरीक्षण एवं परीक्षण  
योजना (आईटीपी)

INSPECTION & TEST PLAN (ITP)  
CIVIL, STRUCTURAL &  
ARCHITECTURAL WORKS  
(EPCC/LSTK CONTRACTS)

4	29.08.2023	REVISED AND REISSUED	DJ	DG	RKS	SM
3	27.07.2018	REVISED AND REISSUED	SKG	AP	AKK	RKT
2	19.02.2016	REVISED AND REISSUED	DJ	AKM	TKS	SC
1	04.07.2011	REVISED AND REISSUED	SM	SM	MKG	DM
0	17.10.2005	ISSUED AS STANDARD SPECIFICATION	MPJ	SPS	VNP	VJN
Rev. No	Date	Purpose	Prepared by	Checked by	Standards Committee Con-venor	Standards Bureau Chairman
Approved by						

**Abbreviations:**

AFC	:	Approved For Construction
BM	:	Bench Mark
CI	:	Cast Iron
CPT	:	Cone Penetration Test
GI	:	Galvanized Iron
IRC	:	Indian Road Congress
JB	:	Junction Box
MS	:	Mild Steel
MT	:	Magnetic Particle Testing
NDT	:	Non Destructive Testing
PCC	:	Plain Cement Concrete
PQR	:	Procedure Qualification Record
PT	:	Penetration Testing
PVC	:	Poly Vinyl Chloride
PWHT	:	Post Weld Heat Treatment
RCC	:	Reinforced Cement Concrete
RF	:	Reinforcement
SPT	:	Standard Penetration Test
U/G	:	Under Ground
WBM	:	Water Bound Macadam
WMM	:	Water Mix Macadam
WPS	:	Welding Procedure Specification

**Construction Standards Committee**

**Convenor:** Sh. Rupesh Kumar Singh , ED (Construction)

**Members:** Sh. Janak Kishore, ED (Projects),  
Sh. Chinmoy Kapuria, CGM (SCM),  
Sh. Udayan Chakravarty, Sr. GM (Piping),  
Sh. Debasish Ghosal, GM (Construction),  
Sh. Pankaj Kumar Rai, DGM (Construction),

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## GENERAL NOTE

*The enclosed ITPs shall be followed for the works to be performed by the contractor. The provisions indicated for stage wise inspection by EIL/Owner (For specific activities), may be modified in line with EIL scope of services as per the contract between EIL and Owner. Activities for which ITP's are not provided in this specification, contractor to develop and get the same approved by EIL/Owner before start of the work. In general, role of EIL has been specified in the document. The role of owner to be specified during preparation of site specific ITPs.*

*Contractor to submit job procedures for the jobs for which ITP's are attached & job specific reporting formats with the aid of enclosed sample reporting formats to EIL/Owner for approval, before commencement of the activity. If the contractor has to deviate from the given ITP for a valid reason, he shall obtain prior written approval of EIL/Owner. Contractor to carry out 100% examination of all activities.*

## LEGEND

**HP : Hold Point;**

A point which requires witnessing/inspection/verification and acceptance by Owner/EIL before any further processing is permitted.

The Contractor shall not process the activity/item beyond a Hold Point without written approval by Owner/EIL except where prior written permission for further processing is available.

**W : Witness Point;**

An activity which requires witnessing/inspection/verification by Owner/EIL when the activity is performed.

After proper notification has been provided (notification modalities and period shall be finalized before hand), the Contractor is not obliged to hold further processing if Owner/EIL is not available to witness the activity or does not provide comments before the date notified. In such cases, basis of acceptance shall be review of Contractor generated report/document as per relevant technical specification.

**Rw : Review of Contractor's documentation.**

**S : Surveillance Inspection by Owner/ EIL.**

Monitoring or making observations to verify whether or not material/items or services conform to specified requirements. Surveillance activities may include audit, inspections, witness of testing, Review of quality documentation & records.

**WC : 100% Supervision and Examination by Contractor.**

**Responsibility for execution of the inspection/testing is with the Contractor; Owner/EIL only verifies examination or testing done by the Contractor at important stages**

ITP NO. : 2701

**LAND & TOPOGRAPHICAL SURVEY**

SL. NO.	ACTIVITY	CONTRACTOR	EIL
1.	Boundary markings and submission of drgs./sketches	WC	Rw
2.	a) Availability of valid calibration certificates of instruments/ testing equipments	WC	Rw
	b) Field calibration, if any	WC	S
3.	Establishing permanent bench marks, temporary bench marks with ref. to Survey of India B.Ms. by check levels	WC	HP
4.	Block levels, contour plans and submission of relevant drgs. & records.	WC	S
5.	Protection of control points, permanent bench marks and regular rechecking	WC	S
6.	Submission of Master plan showing monuments, structures exposed rocks, weirs, water works, ponds, underground services if crossing that area, etc.	WC	Rw
	<b>INSPECTION &amp; TEST DOCUMENTS</b>		
	Review Test and Inspection Documents	WC	Rw

ITP NO. : 2702

**SOIL INVESTIGATION**

SL. NO.	ACTIVITY	CONTRACTOR	EIL
1.	Positioning of test location	WC	S
2.	a) Availability of valid calibration certificates of instruments/ testing equipments	WC	Rw
	b) Field calibration, if any	WC	S
3.	Boring & sampling	WC	S
4.	In-situ testing (SPT, CPT, Plate load test, Soil Resistivity, Block vibration test, etc.)	WC	S
5.	Lab testing (as applicable)	WC	S/Rw
6.	Monitoring of water level	WC	S
	<b>INSPECTION &amp; TEST DOCUMENTS</b>		
	Review Test and Inspection Documents	WC	Rw

ITP NO. : 2703

**SITE GRADING**

SL. NO.	ACTIVITY	CONTRACTOR	EIL	
			CAT B	CAT C
1.	Clearing and stripping of soil including disposal of unsuitable material	WC	S	-
2.	a) Availability of valid calibration certificates of instruments/ testing equipments	WC	Rw	Rw
	b) Field calibration, if any	WC	S	-
3.	Taking and plotting of initial levels at specified intervals for cutting as well as filling areas	WC	S*	S*
4.	Classification (Levels of strata) and testing of filling soil for suitability including preparation of Lead Charts to filling/disposal areas.	WC	S	-
5.	Proper warning of explosions, misfires and storage of explosive materials (As applicable).	WC	-	--
6.	Breaking up of clods, lumps, etc. at the time of filling and compaction.	WC	S	-
7.	Identification and suitability of borrow areas for filling soil/murrum including verification of payments for royalty, etc.	WC	Rw	-
8.	Compaction test for earth filling in specified layers including finished areas.	WC	Rw	-
9.	Verification of final finished grade levels.	WC	S*	S*
10.	Computation of Earth works.	WC	Rw*	Rw*
11.	Record of tree cuttings, stacking of blasted rocks and other quarry materials including handing over to Owner	WC	S	S
12.	Preparation of "As built drawings	WC	Rw	Rw
13.	Removal of Unserviceable Surplus earth/excavated material and leveling in disposal areas.	WC	S	-
	<b>INSPECTION &amp; TEST DOCUMENTS</b>			
	Review Test and Inspection Documents	WC	Rw	Rw

CAT B: All fillings

CAT C: All cuttings.

\* In case quantum of earthwork is required to be certified by EIL then W.

ITP NO. : 2704

EXCAVATION

SL. NO.	ACTIVITY	CONTRACTOR	EIL		
			CAT A	CAT B	CAT C
1.	a) Availability of valid calibration certificates of instruments/ testing equipments	WC	Rw	Rw	Rw
	b) Field calibration, if any	WC	S	S	-
2.	Layout checking	WC	S	-	-
3.	Taking initial levels	WC	S	-	-
4.	Slopes of excavation, benching, overburden, shoring & strutting (in case of deep excavation)	WC	S	--	-
5.	Check for sub-soil water, dewatering requirements as per specifications.	WC	S	--	--
6.	Bottom level of excavation and compaction	WC	S	--	--
7.	Stacking of different type of soils separately	WC	S	-	-
8.	Making trial pits manually to check UG utilities before carrying out Mechanical excavation (if applicable).	WC	S	S	S
9.	List of obstacles encountered (cables, pipes, conduits, etc)	WC	S	S	-
10.	Barricading of excavated pits for safety & protection from rain	WC	S	S	S
	<b>FOR HARD ROCK</b>				
1	Obtaining license from district authorities for undertaking blasting operations	WC	Rw	Rw	Rw
2	Storing of explosive materials as per explosive rules	WC	--	--	--
3	Prominent display of red flags around the area to be blasted	WC	S	S	S
4	Check the dimensions of bore holes	WC	--	--	--
5	Stacking of hard rock for useable/non useable including handing over to owner	WC	S	S	S
	<b>INSPECTION &amp; TEST DOCUMENTS</b>				
	Review Test and Inspection Documents	WC	Rw	Rw	Rw

CAT A : Equipment foundations, Plant buildings, Technological structure, etc.

CAT B : Non Plant buildings, pipe racks, pipe culverts, bridges, etc.

CAT C : Boundary walls, wing walls, manholes, drains, isolated non-critical foundations etc.

ITP NO. : 2705

**BACK FILLING**

SL. NO.	ACTIVITY	CONTRACTOR	EIL		
			CAT A	CAT B	CAT C
1.	Selection of materials/selected earth	WC	S	S	S
2.	Check for treatment of soil, if any	WC	S	S	-
3.	a) Availability of valid calibration certificates of instruments/ testing equipments	WC	Rw	Rw	Rw
	b) Field calibration, if any	WC	S	S	-
4.	Filling in specified layers, consolidating, watering.	WC	S	-	-
5.	Compaction tests for layers	WC	Rw	Rw	Rw
6.	Filling to required levels	WC	S	-	-
	<b>INSPECTION &amp; TEST DOCUMENTS</b>				
	Review Test and Inspection Documents	WC	Rw	Rw	Rw

**CAT A:** Equipment foundations, Plant buildings, Technological structure, etc.

**CAT B:** Non Plant buildings, pipe racks, pipe culverts, bridges, etc.

**CAT C:** Boundary walls, wing walls, manholes, drains, etc

ITP NO. : 2706

UNDERGROUND PIPING (RCC/ CI/HDPE/UPVC/CPVC)

SL. NO.	ACTIVITY	CONTRACTOR	EIL	
			CAT B	CAT C
1.	Checking of material	WC	NOTE 1	NOTE 1
2.	Adequate slope, benching in excavation for safety purposes (if required)	WC	S	
3.	Layout, line & level	WC	S	-
4.	Laying & jointing, grouting at manholes/chambers	WC	S	-
5.	Check for supports/ firm bed/ sub soil water level	WC	S	-
6.	Testing for leakages by blocking pipe ends	WC	W	W
7.	Hydro-testing and other tests, Removal of blockages, Cleaning & flushing of system	WC	W	W
8.	Backfilling in layers	WC	Rw	Rw
9.	Check for MS rungs in proper position, inlet/outlet pipe levels in manholes	WC	S	--
10.	Preparation of "As-built drawings"	WC	Rw	Rw
	<b>INSPECTION &amp; TEST DOCUMENTS</b>			
	Review Test and Inspection Documents	WC	Rw	Rw

NOTE : 1) For incoming material inspection please refer ITP no: 6-82-1010.

CAT B: Main Plant Buildings, Utilities, Offsites etc.

CAT C: Non Plant Buildings, Technological Buildings, Admn. Buildings, Gate House, Security Rooms, etc.

ITP NO. : 2707 A

**WBM ROADS**

SL. NO.	ACTIVITY	CONTRACTOR	EIL	
			CAT B	CAT C
1.	a) Availability of valid calibration certificates of instruments/ testing equipments	WC	Rw	Rw
	b) Field calibration, if any	WC	S	-
2.	Layout checking including Road crossings and taking initial levels	WC	S	S
3.	Approval of source & checking/testing of materials (wherever required)	WC	NOTE 1	NOTE 1
4.	Filling (if any), compaction, providing cambers in sub-base including levels	WC	S	S
5.	Spreading metal to required thickness, line & levels, dry rolling including spreading of screening material	WC	-	-
6.	Check for camber, superelevation and levels over metalling	WC	S	S
7.	Spreading murrum/ sand, watering and rolling	WC	S	-
8.	Checking thickness after each layer and rectification thereof (if any)	WC	S	S
9.	Checking quantity of aggregate by excavation of trial pits as per IRC Code	WC	S	S
<b>INSPECTION &amp; TEST DOCUMENTS</b>				
	Review Test and Inspection Documents	WC	Rw	Rw

**NOTE :** 1) For incoming material inspection please refer ITP no: 6-82-1010.

**CAT B:** Roads subjected to heavy loading, connected to main highway, main plant roads

**CAT C:** Balance Roads

ITP no: 2707 B

WMM for Roads

SL. NO.	ACTIVITY	CONTRACTOR	EIL	
			CAT B	CAT C
1.	a.) Review of calibration certificates of instruments/testing equipment's.	WC	Rw	Rw
	b)Field calibration, if any.	WC	S	-
2.	Design Mix to fix the proportion of ingredients	WC	Rw/HP	Rw/HP
3.	Layout Checking including Road Crossing & taking initial levels.	WC	S	S
4.	Approval of source & checking /testing of materials (wherever required)	WC	Rw	Rw
5.	Filling (if any), compaction, providing chambers in sub-base including levels.	WC	S	-
6	Spreading metal to required thickness, line & levels, dry rolling including spreading of screening material.	WC	S	-
7	Check for camber, superelevation & levels.	WC	S	S
8	Spreading, watering & rolling.	WC	S	-
9	Checking thickness after each layer and rectification thereof (if any).	WC	S	S
	<b>INSPECTION &amp; TEST DOCUMENTS</b>			
	Review Test and Inspection Documents	WC	Rw	Rw

**CAT- A** –Roads subjected to heavy loading connected to main High way, main plant roads etc.

**CAT B**- Balance roads

ITP NO. : 2708

**BLACK TOPPING- PREMIX CARPETING - PC, BITUMINOUS  
CONCRETE (BC) & BITUMINOUS MACADAM (BM)/ DENSE  
BITUMINOUS MACADAM (DBM)**

SL. NO.	ACTIVITY	CONTRACTOR	EIL
1.	Approval of source of materials	WC	Note 1
2.	a) Availability of valid calibration certificates of instruments/ testing equipments	WC	Rw
	b) Field calibration, if any	WC	S
3.	Surface preparation & check for camber/level	WC	S
4.	Checking/ testing of material wherever required	WC	S
5.	Tack coat application	WC	-
6.	Laying of Premix carpeting/ BC/BM/DBM including rolling	WC	S
7.	Application of Seal coat	WC	-
8.	Check for camber, superelevation and levels	WC	S
9.	Check for bitumen temperature and consumption	WC	S
10.	Thickness check of Premix carpet/ BC/BM/DBM	WC	S
11.	Removal of surplus earth	WC	-
12.	Berm preparation	WC	-
13.	Final Inspection	WC	S
	<b>INSPECTION &amp; TEST DOCUMENTS</b>		
	Review Test and Inspection Documents	WC	Rw

**NOTE :** 1) For incoming material inspection please refer ITP no: 6-82-1010.-

ITP NO. : 2709

**TANK PADS**

SL. NO.	ACTIVITY	CONTRACTOR	EIL	
			CAT A	CAT B
1.	Approval of source of materials	WC	NOTE 1	NOTE 1
2.	Stripping the area	WC	-	-
3.	a) Availability of valid calibration certificates of instruments/ testing equipments	WC	Rw	RW
	b) Field calibration, if any	WC	S	S
4.	Layout and marking of ground level	WC	S	-
5.	Excavation to required level, compaction of sub-base	WC	S	S
6.	Checking/ testing of materials	WC	S	S
7.	Filling selected materials in specified layers, rolling, watering	WC	S	-
8.	Compaction tests	WC	Rw	Rw
9.	Gravel filling under annular ring with compaction and adding graded filler material (As applicable)	WC	S	S
10.	Anti-corrosive layer, consolidation	WC	S	-
11.	Premix carpeting on side slopes	WC	S	S
12.	Preparation of "As-built drawing" for erection	WC	Rw	Rw
13.	Check for settlement of pads during hydro testing of tanks	WC	W	S
	<b>INSPECTION &amp; TEST DOCUMENTS</b>			
	Review Test and Inspection Documents	WC	Rw	Rw

**NOTE :** 1) For incoming material inspection please refer ITP no: 6-82-1010.

**CAT A:** All Site fabricated steel storage tanks for process fluid/ Hydrocarbon, floating roof, tanks having capacity 600cum or 10m dia. and 8 m height.

**CAT B:** Site fabricated steel storage tanks for Raw water, Fire water, waste water, DM water, etc. and all tanks not covered under "CAT A".

ITP NO. : 2710

**MICRO GRADING**

SL. NO.	ACTIVITY	CONTRACTOR	EIL
1.	a) Availability of valid calibration certificates of instruments/ testing equipments	WC	RW
	b) Field calibration, if any	WC	-
2.	Taking initial levels	WC	S/Rw
3.	Clearing/ Removal of extra soil, debris, etc. from site by transportation	WC	-
4.	Taking final levels	WC	S
5.	Verification of gradient of ground	WC	S
6.	Finishing of ground surface by hand compactor/ Roller (As applicable)	WC	S
7.	Final inspection	WC	S
	<b>INSPECTION &amp; TEST DOCUMENTS</b>		
	Review Test and Inspection Documents	WC	Rw

ITP NO. : 2740

FOR UNDERGROUND PIPING (CARBON STEEL)

SL. NO	ACTIVITY	CONTRACTOR	EIL	
			CAT B	CAT C
<b>A.</b>	<b>PRIOR TO FABRICATION</b>			
1	Incoming materials	WC	NOTE 1	NOTE 1
2.	Welding Filler Material Approval/Qualification			
	i) Review of Manufacturer's Test Certificates/ other documents	WC	RW	RW
	ii) Testing, if any	WC	Rw	Rw
3.	WPS/PQR			
	i) Review of proposed Procedure	WC	Rw	Rw
	ii) Welding of test coupon and subsequent Testing, if applicable	WC	W	W
	iii) Approval of Final WPS/PQR	WC	HP	HP
4	Certification & approval of welders	WC	Rw	Rw
5.	NDT Procedure Qualification			
	i) Review of proposed Procedure	WC	Rw	Rw
	ii) Testing	WC	Rw	Rw
	iii) Approval of NDT procedure	WC	HP	HP
6.	Preparation of sketches from General Arrangement drawings	WC	Rw	-
7.	Joint numbering	WC	Rw	-
8.	Approval of colour coding scheme	WC	Rw	-
9.	Monitoring of colour coding on pipes & fittings	WC	S	-
<b>B.</b>	<b>FABRICATION (SHOP &amp; FIELD)</b>			
1.	Material as per piping class (check w.r.t. approved colour coding procedure)	WC	S	
	i) Fit-up check	WC	S	Rw
	ii) Dimensional check	WC	S	Rw

NOTE : 1) For incoming material inspection please refer ITP no: -6-82-1010.

CAT B : All pressure lines, Fire Water line, Cooling Water line, etc.

CAT C : Balance Works

ITP NO. : 2740

FOR UNDERGROUND PIPING (CARBON STEEL)

SL. NO	ACTIVITY	CONTRACTOR	EIL	
			CAT B	CAT C
2.	Pre-heat (if any)	WC	S	-
3.	Check for purity of purging/shielding Gas (if any)	WC	S	-
4.	Purging (if any)	WC	S	-
5.	Shielding rate (if any)	WC	S	-
6.	Baking of Electrodes	WC	S	-
7.	Inter-pass cleaning & Temperature check.	WC	S	-
8.	Visual check of completed welds	WC	S	-
9.	PT/MT	WC	S	-
10.	Radiography marking (for Random Radiography)	WC	S	S
11.	Radiography Interpretation	WC	Rw	Rw
<b>C.</b>	<b>HYDROSTATIC/ PNEUMATIC TESTING</b>			
1.	Procedure Review	WC	Rw	Rw
2.	Correctness of Testing arrangements	WC	S	-
3.	Calibration of Pressure Gauges	WC	-	-
4.	R.F. Pad testing, if any	WC	S	-
5.	Scrutiny of test packs for Mechanical & NDT Clearance (Refer UG-01)	WC	HP	HP
6.	Air/Water Flushing (preliminary)	WC	S	S
6a.	Addition of corrosion inhibitors, if required – Approval of make & quality	WC	S	S

CAT B : All pressure lines, Fire Water line, Cooling Water line, etc.

CAT C : Balance Works

ITP NO. : 2740

FOR UNDERGROUND PIPING (CARBON STEEL)

SL. NO.	ACTIVITY	CONTRACTOR	EIL	
			CAT B	CAT C
7.	Pneumatic/ Hydrostatic testing	WC	S	S
8.	Draining of water & Air drying	WC	S	S
<b>D.</b>	<b>LAYING</b>			
1.	Trench excavation and levels	WC	S	-
2.	Cleaning of pipe surface	WC	S	-
3.	Approval of wrapping/coating material manufacturers	WC	Note 1	Note 1
4.	Approval of agency for wrapping & coating	WC	Rw	Rw
5.	Sample test of coating materials in approved laboratory	WC	Rw	Rw
6.	Application of primer	WC	S	S
7.	Coal tar temperature	WC	S	-
8.	Coating & wrapping	WC	S	S
9.	Approval of agency for epoxy coating/ cold tape joint/ hot jointing method	WC	Rw	Rw
10.	Check Thickness of coating (if applicable)	WC	S	-
11.	Calibration of Holiday tester	WC	Rw	Rw
12.	Holiday testing	WC	W	S
13.	Peel test	WC	S	S

**NOTE : 1)** For incoming material inspection please refer ITP no: 6-82-1010.

**CAT B** : All pressure lines, Fire Water line, Cooling Water line, etc.

**CAT C** : Balance Works

ITP NO. : 2740

FOR UNDERGROUND PIPING (CARBON STEEL)

SL. NO	ACTIVITY	CONTRACTOR	EIL	
			CAT B	CAT C
14.	Lifting arrangement	WC	S	-
15.	Lowering (levels & orientation of branches)	WC	S	-
16.	Checking of wrapping & coating for damages during lowering, their repair, Holiday Testing, etc.	WC	S	S
17.	Back filling & compaction	WC	S	-
18.	Location, Brickwork, plaster of valve pit	WC	-	-
19.	Top cover & Finish of valve pit	WC	S	S
<b>E.</b>	<b>SYSTEM COMPLETION</b>			
1.	Tie in joints	WC	Refer 2740A	Refer 2740A
2.	Scrutiny of test packs for system testing	WC	Refer 2740B	Refer 2740B
3.	System testing	WC	W	Rw
<b>INSPECTION &amp; TEST DOCUMENTS</b>				
	Review Test and Inspection Documents	WC	Rw	Rw

**CAT B** : All pressure lines, Fire Water line, Cooling Water line, etc.

**CAT C** : Balance Works

ITP NO. : 2740A

**TIE IN JOINTS FOR UNDERGROUND PIPING (CARBON STEEL)**

SL. NO.	ACTIVITY	CONTRACTOR	EIL
A.	Fit up	WC	S
B.	Root Run DP	WC	S
C.	Final Run DP	WC	S
D.	Radiograph Review	WC	Rw
E.	PWHT Hardness	WC	Rw
F.	RF Pad Testing	WC	W
G.	Cleaning & Priming	WC	S
H.	Coating, Wrapping	WC	S
I.	Peel Test	WC	S
J.	Holiday Testing	WC	W
K.	Checking For Any Damage In Wrapping & Coating After Lowering, Their Repair Holiday Testing, Etc.	WC	S
L.	Back Filling	WC	S

ITP NO. : 2740B

**MECHANICAL COMPLETION RECORD FOR  
UNDERGROUND PIPING (CARBON STEEL)**

SL. NO.	ACTIVITY	CONTRACTOR	EIL	
			CAT B	CAT C
1.	Clearance for flushing & testing	WC	Rw	Rw
1a.	Mechanical clearance			
	- Conformity with drawing	WC	Rw	Rw
	- Material as per Specification	WC	Rw	Rw
1b.	Welding & NDT clearance			
	- Material as per Specification	WC	Rw	Rw
	- Fit-up check record	WC	Rw	Rw
	- Visual check of completed welds	WC	Rw	-
	- PT/MT	WC	Rw	Rw
	- Radiography	WC	Rw	Rw
	- PWHT & hardness	WC	Rw	Rw
	- RF pad testing	WC	Rw	Rw
2.	Flushing & Pressure testing	WC	W	W
3.	Coating & wrapping			
	- Surface preparation	WC	Rw	-
	- Primer application	WC	Rw	Rw
	- Coating, wrapping & peel test	WC	Rw	-
	- Holiday check	WC	Rw	Rw
4.	Laying			
	- Trench leveling	WC	Rw	Rw
	- Lowering & checking for damages in wrapping & coating, their repair, Holiday testing, etc.	WC	Rw	Rw
	- Backfilling	WC	Rw	Rw

**CAT B** : All pressure lines, Fire Water line, Cooling Water line, etc.

**CAT C** : Balance works

ITP NO : 2741

PLAIN CEMENT CONCRETE

SL. NO.	ACTIVITY	CONTRACTOR	EIL	
			CAT B	CAT C
1.	a) Availability of valid calibration certificates of instruments/ testing equipments	WC	RW	RW
	b) Field calibration, if any	WC	S	Rw
2.	Checking of layout and materials, compaction of sub-grade	WC	S	-
3.	Mix proportion	WC	S	-
4.	Check for shuttering, dewatering if any.	WC	-	-
5.	Concreting with proper compaction	WC	-	-
6.	Checking of top level of PCC	WC	Rw	-
7.	Curing	WC	-	-
	<b>INSPECTION &amp; TEST DOCUMENTS</b>			
	Review Test and Inspection Documents	WC	Rw	Rw

CAT B : for filled-up area

CAT C : for cutting area

**ITP NO : 2742**  
**REINFORCED CEMENT CONCRETE (SUBSTRUCTURE)**

SL. NO.	ACTIVITY	CONTRACTOR	EIL		
			CAT A	CAT B	CAT C
1	Approval of source of materials	WC	HP	HP	Rw
2.	a) Availability of valid calibration certificates of instruments/ testing equipments	WC	Rw	Rw	Rw
	b) Field calibration, if any	WC	S	S	S
3.	Checking of layout & condition of PCC/ leveling course	WC	S	S	-
4.	Incoming material checking	WC	NOTE 1	NOTE 1	NOTE 1
5.	Design of mix & establishment of strength at site by trial mix	WC	HP	HP	HP
6.	Check for line & level of shuttering including its condition, quality and rigidity.	WC	S	--	-
7.	Check for sub-soil water & dewatering arrangement, if any	WC	S	--	-
8.	Reinforcement & covers to reinforcement	WC	S	S	--
9.	Inserts, Anchor bolts and pipe sleeves, pockets, dowels, etc.	WC	S	S	--
10.	Pour Card	WC	W	S	Rw
11.	Check for obstacles encountered (Electrical conduits, pipe lines, etc.)	WC	S	--	-
12.	Concreting, testing, compaction & finishing	WC	S	S	-
13.	Casting of cubes	WC	S	S	--
14.	Curing	WC	S	S	-
15.	Testing of cubes – 7 days	WC	S/Rw	S/Rw	S/Rw
16	Testing of cubes – 28 days	WC	W	S/Rw	S/Rw
17.	Removal of shuttering	WC	S	-	-
18.	Check for water tightness, rendering, if any	WC	S	S	S
19.	Preparation of As-built drawings	WC	Rw	Rw	Rw
	<b>INSPECTION &amp; TEST DOCUMENTS</b>				
	Review Test and Inspection Documents	WC	Rw	Rw	Rw

**NOTE : 1)** For incoming material inspection please refer ITP no: 6-82-1010.

**CAT A:** Critical foundations of equipments i.e. compressors, reactors, columns, stacks, foundations subjected to dynamic loading and any other foundation with RCC Quantity > 250 Cum in single pour ,etc.

**CAT B:** Unit Pipe racks, plant buildings and other equipment foundations not covered in category A, etc

**CAT C:** Non critical pipe racks (branch pipe, offsite pipe rack, etc.) non-plant buildings, pipe sleepers, manhole, catch pit and balance works.

**ITP NO : 2743**
**REINFORCED CEMENT CONCRETE (SUPER STRUCTURE)**

SL. NO.	ACTIVITY	CONTRACTOR	EIL		
			CATA	CATB	CAT C
1	Approval of source of materials	WC	HP	HP	Rw
2.	a) Availability of valid calibration certificates of instruments/ testing equipment	WC	Rw	Rw	Rw
	b) Field calibration, if any	WC	S	S	S
3.	Checking of layout	WC	S	--	-
4.	Incoming material inspection	WC	Note 1	Note 1	Note 1
5.	Design of mix & establishment of strength at site by trial mix	WC	HP	HP	HP
6.	Check for line & level of shuttering and scaffolding/ vertical bracing including hoisting arrangements.	WC	S	S	-
7.	Reinforcement & covers to reinforcement	WC	S	S	--
8.	Inserts, bolts, pipe sleeves, MS rungs, concealed electrical conduits, fan hooks, dowels, etc. including welding if any	WC	S	S	-
9.	Pockets/ openings	WC	S	S	-
10.	Expansion joints, if any	WC	S	S	-
11.	Check for water stops, slopes, stoppers, if any	WC	S	S	-
12.	Pour Card	WC	W	S	Rw
13.	Concreting, testing, compaction & finishing	WC	S	S	S
14.	Casting of cubes	WC	S	S	S
15.	Curing	WC	S	S	-
16.	Testing of cubes – 7 days	WC	S/Rw	S/Rw	S/Rw
17.	Testing of Cubes – 28 days	WC	W	Rw	S/Rw
18.	Removal of formwork/ staging	WC	S	-	-
19.	Verification of dimensions viz. AFC drawings and tolerances	WC	S	S	S
20.	Check for water tightness, rendering, if any	WC	S	S	-
21.	Preparation of As built drawings.	WC	Rw	Rw	Rw
	<b>INSPECTION &amp; TEST DOCUMENTS</b>				
	Review Test and Inspection Documents	WC	Rw	Rw	Rw

**NOTE : 1)** For incoming material inspection please refer ITP no: 6-82-1010.

**CAT A:** Super structure of foundations for Critical equipment's i.e. compressors, reactors, columns, stacks, foundations subjected to dynamic loading and super structure of any other foundation with RCC Quantity > 250 Cum. in single pour, Slabs of plant and non-plant buildings, etc.

**CAT B:** Unit Pipe racks, plant buildings and super structure of other equipment not covered in category A, etc

**CAT C:** Non critical pipe racks (branch pipe, offsite pipe rack, etc.) non-plant buildings, pipe sleepers, manhole, catch pit and balance works.

**ITP NO : 2745**
**RCC PAVEMENT/FLOORING**

SL. NO.	ACTIVITY	CONTRACTOR	EIL
1.	Approval of source of materials	WC	Rw
2.	a) Availability of valid calibration certificates of instruments/ testing equipments	WC	Rw
	b) Field calibration, if any	WC	S
3.	Layout checking/ excavation of all new foundations	WC	-
4.	Incoming material inspection	WC	NOTE 1
5.	Design of mix & establishment of strength at site by trial mix	WC	HP
6.	Check for proper back filling/compaction/ completion of sub - Structure works	WC	S
7.	Check for edges of shuttering, alternate panels	WC	-
8.	Check for slopes, thickness of flooring	WC	S
9.	Shuttering, reinforcement (as applicable)	WC	-
10.	Check for expansion joints/ Construction joints	WC	S
11.	Check for concealed pipe embedment, earthing, if any	WC	-
12.	Check for dividing strips, as applicable	WC	S
13.	Concreting, finishing, etc	WC	S
14.	Checking for line, levels, slopes, joints, thickness of flooring viz. AFC drawings	WC	S
15.	Curing	WC	S
16.	Grinding & polishing, as applicable	WC	S
17.	Testing of concrete cubes -7 days (as applicable)	WC	S/Rw
18.	Testing of concrete cubes -28 days (as applicable)	WC	W
19.	Preparation of "As Built Drawings"	WC	Rw
	<b>INSPECTION &amp; TEST DOCUMENTS</b>		
	Review Test and Inspection Documents	WC	Rw

**NOTE : 1)** For incoming material inspection please refer ITP no: 6-82-1010.

ITP NO : 2746

**BRICK MASONARY**

SL. NO.	ACTIVITY	CONTRACTOR	EIL	
			CAT B	CAT C
1.	a) Availability of valid calibration certificates of instruments/ testing equipments	WC	RW	RW
	b) Field calibration, if any	WC	Rw	Rw
2.	Incoming material inspection	WC	Note 1	Note 1
3.	Cleaning of surface	WC	-	-
4.	Wetting/soaking of bricks	WC	S	S
5.	Cement mortar proportion	WC	S	S
6.	Staging & scaffolding	WC	-	-
7.	Hacking of adjacent concrete surface	WC	S	S
8.	Check for bond/closers, thickness of joints	WC	S	-
9.	Line, level & plumb	WC	S	S
10.	Raking out joints, keys in brick work, if any	WC	S	S
11.	Check for placement of Reinforcement bars in case of partition brick work	WC	S	S
12.	Embedment of fixtures	WC	S	S
13.	Curing	WC	-	-
14.	Preparation of 'As Built' Drawings	WC	Rw	Rw
<b>INSPECTION &amp; TEST DOCUMENTS</b>				
	Review Test and Inspection Documents	WC	Rw	

**NOTE :** 1) For incoming material inspection please refer ITP no: 6-82-1010.

**CAT B** : Load bearing walls

**CAT C** : Balance works

ITP NO : 2747  
STRUCTURAL STEEL WORKS

S. NO	ACTIVITY	CONTRACTOR	EIL		
			CAT A	CAT B	CAT C
<b>A</b>	<b>PRE – FABRICATION ACTIVITIES</b>				
1.	a) Availability of valid calibration certificates of instruments/ testing equipments	WC	Rw	Rw	Rw
	b) Field calibration, if any	WC	S	S	
2.	Incoming material inspection	WC	Note I	Note I	Note I
3.	Welding Filler material approval/ qualification				
	a) Manufacturing test certificates/ documents	WC	Rw	Rw	Rw
	b) Testing, if any	WC	S	S	S
4.	Approval of WPS/ PQR	WC	HP	HP	HP
5.	Welders performance qualification	WC	Rw	Rw	Rw
6.	Layout checking	WC	S	-	-
7.	Welding equipment and accessories	WC	S	-	-
8.	Preparation and approval of Fabrication drawings	WC	Rw	Rw	-
<b>B</b>	<b>FABRICATION ACTIVITIES</b>				
1.	Materials as per design drawing	WC	Rw	Rw	Rw
2.	Check straightness and non-warping of members	WC	S	S	-
3.	Dimensional and fit-up checks including provision of slopes for deflection wherever required	WC	S	S	-
4.	Visual check for welding	WC	S	S	-
5.	Grinding including surface preparation for painting and application of primer	WC	S	S	-
6.	Checking paint as per specs, shelf-life, etc.	WC	S	S	-
7.	Application of specified paint, painting thickness, etc.	WC	S	S	-
<b>C</b>	<b>FIELD ERECTION ACTIVITIES</b>				
1.	Lifting arrangements including test certificates of lifting tackles	WC	S	S	Rw
2.	Correctness of location	WC	S	-	-
3.	Orientation of bracing, lugs, Anchor bolts	WC	S	-	-
4.	Alignment & levels	WC	S	-	-
5.	Field welding (if any)	WC	S	S	-
6.	Grouting	WC	S	S	-
7.	Finishing coat of paint, thickness of paint etc.	WC	S	S	S
8.	Preparation of As-built drawings	WC	Rw	Rw	Rw
	<b>INSPECTION &amp; TEST DOCUMENTS</b>				
	Review Test and Inspection Documents	WC	Rw	Rw	Rw

**NOTE :** 1) For incoming material inspection please refer ITP no: 6-82-1010.

**CAT A:** Steel structures pertaining to equipments i.e. compressors, reactors, columns, stacks, Technological structures.

**CAT B:** Steel structures pertaining to Unit Pipe racks, and other equipments not covered in category A, etc.

**CAT C:** Steel structures of Non critical pipe racks (branch pipe, offsite pipe rack, etc) plant buildings and non-plant buildings, pipe sleepers, manhole, catch pit, walkways, platforms at grade levels, etc.

**ITP NO : 2748**
**PILING WORKS**

SL. NO.	ACTIVITY	CONTRACTOR	EIL		
			CAT A	CAT B	CAT C
1.	Approval of source of materials	WC	HP	HP	Rw
2.	Layout and ground level	WC	S	S	-
3.	Incoming material inspection	WC	Note 1	Note 1	Note 1
4.	Design of mix & establishment of strength at site by trial mix	WC	HP	HP	HP
5.	Driving of piles & check for set point	WC	S	S	-
6.	Check for depth of bore and lowering of cage measuring	WC	S	-	-
7.	Pour Card	WC	HP	S/Rw	Rw
8.	Concreting,	WC	W	S	S
9.	Casting of cubes/Testing – 7 days	WC	S/Rw	S/Rw	S/Rw
10.	Casting of cubes/Testing – 28 days	WC	W	S/Rw	S
11.	Check for cut off level of concreting & quantity of concrete poured	WC	S	-	-
12.	Lifting of casing pipe	WC	S	--	-
13.	Pile load tests (lateral/vertical/cyclic/pull out)	WC	W	Rw	Rw
14.	Submission of pile load test report	WC	Rw	Rw	Rw
<b>INSPECTION &amp; TEST DOCUMENTS</b>					
	Review Test and Inspection Documents	WC	Rw	Rw	Rw

**NOTE : 1)** For incoming material inspection please refer ITP no: 6-82-1010.

**CAT A:** Critical foundations of equipments i.e. compressors, reactors, columns, stacks, foundations subjected to dynamic loading and any other foundation with RCC Quantity > 250 Cum in single pour ,Technological structures, etc.

**CAT B:** Unit Pipe racks, plant buildings and other equipment foundations not covered in category A, etc.

**CAT C:** Non critical pipe racks(branch pipe, offsite pipe rack, etc.) non-plant buildings ,pipe sleepers, manhole, catch pit, etc.

ITP NO : 2771

**ANTI-TERMITE TREATMENT**

SL. NO.	ACTIVITY	CONTRACTOR	EIL
1.	Approval of applicator agency	WC	HP
2.	Incoming material inspection & spraying devices including personal protective equipments like facemask, gloves, shoes, etc.	WC	Note 1
3.	Preparation of surface for taking dosage of emulsion by ramming of each layer of soil by roding the earth at specified intervals	WC	-
4.	Backfilling and compaction in specified layers along with application of emulsifier along the sides of masonry & RCC structures	WC	S
5.	Compaction of top surface for taking dosage of emulsifier by roding the earth at specified intervals for the entire floor area before concreting	WC	-
6.	Check for consumption of emulsifier utilized	WC	S
7.	Shelf life of anti-termite chemical	WC	S
8.	Guarantee Certificate for performance	WC	Rw
	<b>INSPECTION &amp; TEST DOCUMENTS</b>		
	Review Test and Inspection Documents	WC	Rw

**NOTE :** 1) For incoming material inspection please refer ITP no: 6-82-1010.

ITP NO : 2772

PLASTERING

SL. NO.	ACTIVITY	CONTRACTOR	EIL	
			CAT B	CAT C
1.	Check for completeness of all hidden jobs like piping, conduiting, etc.	WC	-	-
2..	Check for grading of sand, Mix proportion	WC	S	S
3.	Mortar Cube casting & its testing	WC	S	S
4.	Use of Chicken mesh of given gauge at junction of concrete & masonry.	WC	S	S
5.	Sample preparation for finish and its approval	WC	W	S
6.	Neeru application on plaster (as applicable)	WC	S	-
7.	Hacking and cleaning the surface, removing loose particles, wetting the surface	WC	S	S
8.	Leaving plaster rough where tiles are to be fixed	WC	-	-
9.	Checking of plaster thickness, plumb & even surface	WC	S	-
10.	Check for grooves, openings, rounding off the corners, hollowness in plaster	WC	S	S
11.	Checking for use of waterproofing compound , Mix proportion(as applicable)	WC	S	S
12.	Curing	WC	S	-
<b>INSPECTION &amp; TEST DOCUMENTS</b>				
	Review Test and Inspection Documents	WC	Rw	-

**CAT B:** Area requiring special finish (e.g. pebble dash finish etc.)

**CAT C:** Balance works.

ITP NO. : 2773

**DOORS, ROLLING SHUTTERS, WINDOWS AND VENTILATORS**

SL. NO.	ACTIVITY	CONTRACTOR	EIL	
			CAT B	CAT C
1.	Incoming material inspection	WC	Note 1	Note 1
2.	Check for sections & dimensions	WC	S	-
3.	Line, level & plumb	WC	-	-
4.	Section joinery details	WC	Rw	-
5.	Check for orientation/ opening direction	WC	S	S
6.	Grouting with lugs/ dash fasteners	WC	-	-
7.	Check for fixtures & fittings	WC	S	S
8.	Check for thickness & type of glazing	WC	-	-
9.	Check for rubber gasket, anodizing (as applicable)	WC	-	-
10.	Brand/ shade of paints, no. of coats including surface preparation (as applicable)	WC	S	Rw
11.	Check for fire rated certificate for fire doors/ windows/ partitions	WC	Rw	Rw
	<b>INSPECTION &amp; TEST DOCUMENTS</b>			
	Review Test and Inspection Documents	WC	Rw	Rw

**NOTE :** 1) For incoming material inspection please refer ITP no: 6-82-1010.

**CAT B:** Main plant buildings

**CAT C:** Balance works



ITP NO. : 2775

**SANITARY FITTINGS**

SL. NO.	ACTIVITY	CONTRACTOR	EIL	
			CAT B	CAT C
1.	Incoming material inspection	WC	Note 1	Note 1
2.	Checking of sample (as applicable)	WC	S	-
3.	Check completeness of finishing works w.r.t. line, level & position	WC	S	-
4.	Check proper fixing of the sanitary fittings to give aesthetic appeal	WC	S	-
5.	Check for leakage/ testing at given pressure	WC	S	S
<b>INSPECTION &amp; TEST DOCUMENTS</b>				
	Review Test and Inspection Documents	WC	Rw	Rw

**NOTE :** 1) For incoming material inspection please refer ITP no: 6-82-1010.

**CAT B:** Main plant buildings

**CAT C:** Balance works

ITP NO. : 2776

**WATER PROOFING (ROOF)**

SL. NO.	ACTIVITY	CONTRACTOR	EIL
1.	Surface preparation for screeding/ water proof plastering	WC	S
2.	Mix proportion, thickness of screeding/ plastering & slope towards rain water pipes	WC	S
3.	Formation of groove at specified height on parapet wall/ pedestal/ columns etc.	WC	S
4.	Incoming material inspection, no. of coats, application procedure and consumption.	WC	S/Note 1
5.	Lapping (along the length & in transverse direction) of waterproofing membrane.	WC	S
6.	Termination of material in groove on vertical plane	WC	S
7.	Check for hollowness, bubbles in water proofing, if any	WC	S
8.	Conducting a sample of water proofing test by flooding the area for specified interval (as applicable)	WC	S
9.	Check for protective layer of PCC over waterproofing with chicken wire mesh, groove cutting, sealant filling.	WC	S
10.	Cleaning of surface	WC	-
11.	Submission of Guarantee in the requisite Performa	WC	Rw
<b>INSPECTION &amp; TEST DOCUMENTS</b>			
	Review Test and Inspection Documents	WC	Rw

**NOTE :** 1) For incoming material inspection please refer ITP no: 6-82-1010.

ITP NO : 2777

**FALSE FLOORING AND FALSE CEILING**

SL. NO.	ACTIVITY	CONTRACTOR	EIL
	<b>FALSE FLOORING</b>		
1.	Manufacturers Test Certificate	WC	Rw
2.	Incoming material inspection	WC	Note I
3.	Cleaning base floor	WC	S
4.	Painting base floor with Polyurethane based paint (as specified)	WC	S
5.	Check for cutouts in floor, anchor fasteners in floor, studs spacing etc.	WC	S
6.	Proper line, level & layout	WC	S
	<b>FALSE CEILING</b>		
1.	Manufacturers Test Certificate	WC	Rw
2.	Incoming material inspection	WC	Note I
3.	Surface preparation of panel boards	WC	-
4.	Proper line, level & cut-outs	WC	S
5.	Finishing of panel boards	WC	S
	<b>INSPECTION &amp; TEST DOCUMENTS</b>		
	Review Test and Inspection Documents	WC	Rw

**NOTE : 1)** For incoming material inspection please refer ITP no: 6-82-1010.

ITP NO. : 2778

**UNDER DECK INSULATION**

SL. NO.	ACTIVITY	CONTRACTOR	EIL
1.	Incoming material checking including density	WC	Note 1
2.	Checking of adhesive, fasteners for anchorage	WC	S
3.	Fixing of scaffolding, ladders, platforms	WC	S
4.	Fixing of under-deck insulation with adhesive	WC	S
5.	Use of chicken wire mesh while fixing the insulation sheet.	WC	S
6.	Fixing of dash fasteners at defined spacing	WC	-
7.	Finishing	WC	S
	<b>INSPECTION &amp; TEST DOCUMENTS</b>		
	Review Test and Inspection Documents	WC	Rw

**NOTE : 1)** For incoming material inspection please refer ITP no: 6-82-1010.

ITP NO. : 2779

**ROOFING ACCESSORIES**

SL. NO.	ACTIVITY	CONTRACTOR	EIL	
			CAT B	CAT C
1.	Incoming material inspection	WC	HP/Note 1	HP/Note 1
2.	Check for mitring, overhang, laps, etc.	WC	S	-
3.	Slopes line, level of sheets, barge boards, ridges & gutters, overhang of sheets	WC	S	-
4.	Checking for profile, coating, shade of sheet.	WC	S	-
4.	Bolting by drilling only, length of bolts, nos., anodizing and type of washers	WC	S	-
5.	Check for slopes of rain gutters, down take pipes, north lighting curves/ supports for gutters	WC	S	-
6.	Check for wind ties installation of required dimensions	WC	S	-
7.	Check for leakage/ passing of light	WC	S	-
<b>INSPECTION &amp; TEST DOCUMENTS</b>				
	Review Test and Inspection Documents	WC	Rw	Rw

- NOTE :** 1) For incoming material inspection please refer ITP no: 6-82-1010.  
2) Fixing arrangement need to be reviewed with respect to contract specifications.

**CAT B:** Important structures (e.g. Compressor House, Warehouse and Pump House etc.)  
**CAT C:** Balance works.

ITP NO. : 2799

**LIGHTING WORKS (NON PLANT BUILDINGS)**

SL. NO.	ACTIVITY	CONTRACTOR	EIL
1.	Prepare detailed conduit layout diagram as per the approved electrical drawing	WC	Rw
2.	Provide /PVC/GI sleeves in columns/beams at identified locations to facilitate laying of conduit on later date.	WC	S
3.	Ensure conduit & accessories material is inspected at site before using	WC	Note-1
4.	Ensure that the conduit is laid in line with execution drawings & provide pull-wires as per requirement.	WC	S
5.	Check correctness of drop/JB locations	WC	S
6.	Check threaded joints are proper	WC	S
7.	Ensure all JB/Fan box are properly stuffed with jute	WC	S
8.	Ensure conduits are properly tied to reinforcement bars to prevent floating during concrete	WC	S
9.	Ensure proper supporting of conduit lengths wherever required	WC	S
10.	Ensure adequate chasing depth for conduit portion coming inside brick walls	WC	S
11.	Check workmanship towards joints and presence of any foreign material inside the conduits	WC	S
12.	Ensure wiring material is inspected at site before use & colour code is checked.	WC	Note-1
13.	Ensure correctness of lighting wire size and no. of wires as per the drawing in each conduit portion	WC	S
14.	Preparation of "As Built" drgs.	WC	Rw
<b>INSPECTION &amp; TEST DOCUMENTS</b>			
	Review Test and Inspection Documents	WC	Rw

**NOTE :** 1) For incoming material inspection please refer ITP no: 6-82-1010.