

<b>Name of Work :- Development Of Permanent Campus Of NU Rajgir.</b>	<b>23-06-2016</b>	
<p data-bbox="91 103 380 127"><b>Subject :- Schedule-B</b></p> <p data-bbox="91 127 2103 239"><b>General Notes :</b> All the works are to be carried out as per latest specifications of CPWD/MES/Indian Railways/State PWD, and relevant IS Codes unless otherwise specified in BOQ. Measurements of all the items of work will be done as per IS 1200 with its latest revisions. Unless otherwise specified, the rates of various items will be for all heights, leads and lifts. It is deemed that tenderer has understood the intent of the item of work to be completed and cost(s) of item quoted, is worked out to include the cost of all labour &amp; materials and to complete the item of work irrespective of completeness of the description.</p> <p data-bbox="91 263 168 287"><b>Note:</b></p> <p data-bbox="91 319 1758 343"><b>A)</b> In case any specific method of measurement for any item is not mentioned, IS 1200 shall be followed for the purpose of measurement and certification.</p> <p data-bbox="91 375 840 399"><b>B)</b> This BOQ shall be read in conjunction with Technical Specification.</p> <p data-bbox="91 430 2103 510"><b>C)</b> All levels mentioned in tender/GFC drawing are with respect to existing ground level at site or, for trenches and pits, the bottom of mass excavation, whichever deeper. At the time of handing over the site to the Contractor, if in case, any variation, discrepancy between Good For Construction(GFC)/tender drawings and existing site conditions is noticed, the same should be brought to the notice of Engineer-in Charge/ Architects/Consultants in writing.</p> <p data-bbox="91 542 1512 566"><b>D)</b> Levels are to be taken before and after excavation and as directed by Engineer-in-charge for calculating the depth of excavation.</p> <p data-bbox="91 574 2103 734"><b>E)</b> Rate shall include marking the areas to be excavated, setting up the reference datum bench mark, establishing interim and final excavation levels with appropriate survey instruments, carrying out excavation in the specified type of soil, inclusive of de-watering to keep the area clear from water ponding at all times to the required depth and profile . Rate shall include for breaking and removing old foundations with or without reinforcement, underground tanks, floor concrete, sewers, pipelines etc. and carting away the debris. Rate shall be inclusive of shoring, strutting, removal of slurry, dewatering, including stacking of good excavated earth anywhere within site premises and backfilling in layers of 300mm to achieve 95 % proctor density as approved by Engineer in charge, include all other incidental charges. (Note: Working space and extra space for side slope soil stabilization will not be measured and paid for). Payments will be made only on the volume of earth excavated as per GFC drawings.</p> <p data-bbox="91 766 2103 869"><b>F)</b> Dewatering : If water is met with in the excavations due to springs, seepage, rain or other causes, it shall be removed by suitable diversions, pumping or bailing out and the excavation kept dry whenever so required or directed b y the Engineer. Care shall be taken to discharge the drained water into suitable outlets as not to cause damage to the works, crops or any other property. Due to any negligence on the part of the Contractor, if any such damage is caused, it shall be the sole responsibility of the Contractor to repair/restore to the original condition at his own cost or compensate for the damage.</p> <p data-bbox="91 909 2103 989"><b>G)</b> Contractor shall use the latest mechanical means of excavation suitable to achieve the required excavation level within the agreed time period. All such equipment mobilized on the site shall be in perfectly working condition, well maintained, ensuring no down time during the entire agreed working period. A list of all such equipment, manpower, machinery and the proposed infrastructure that the contractor is going to mobilize for the work shall be submitted to the Engineer in charge before start of work for his approval.</p> <p data-bbox="91 1021 2103 1077"><b>H)</b> The final approved founding strata shall be left absolutely clean by removing loose, slushy soil, moorum and weathered rock with necessary tools &amp; tackles, cleaning the surface by wire brush and carting away debris, dewatering to keep site dry at all times etc. all complete to the approval of Engineer in charge.</p> <p data-bbox="91 1101 1187 1125"><b>I)</b> Contractor's rates shall include fees for all statutory sanction and royalties for any kind of disposal.</p> <p data-bbox="91 1157 2103 1212"><b>J)</b> Quoted rate shall include for cost of materials, labour, loading and unloading charges, hire of machinery, tools &amp; plants, shoring, strutting, dewatering, removal of slurry, fuel charges, transportation, scaffolding and all other incidental charges etc., with all leads and lifts, complete and as directed by the Engineer-in-charge at all levels.</p> <p data-bbox="91 1236 2103 1324"><b>K)</b> If the Excavation for foundation is done to a depth greater than that shown in the drawings or as required by the Engineer -In- Charge, the excess depth shall be made good by the contractor at his own cost with the concrete of the mix used for levelling / bed concrete for foundations. No Payment shall be made to contractor for the cost of Additional Concrete required to fill up the extra depth of excavation in such cases.</p>		

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**L)** No side shuttering shall be paid for PCC for foundations and in trenches, which shall be cast directly against excavated soil neatly dressed and moistened. Only exact measurements as per drawing shall be payable. Shuttering if done by the contractor in special situation shall be paid only after joint measurement, and only on the specific instructions of the Engineer In Charge in writing before the work is executed.

**M)** Carriage of materials up to site of work is included in the estimation of rates for following items : Cement, Reinforcement steel, Bitumen, Bitumen Primer, Bitumen Emulsion, Separation Membrane. Payment for Carriage of these materials will not be made separately.

**N)** Carriage of following materials will be paid in the relevant items of Carriage through Katcha Road, Carriage through Gravel Road or Carriage through surface road as per whatever case may be, will be paid after the approval by Engineer-in-Charge. Sand, Aggregates, Earth from Borrow pits, Murrum etc. **Contractor will take prior permission and approval regarding source of materials and the Carriage charges for the lead/distance from source to the site to be paid before procurement of any such materials.**

**O)** Cost of Loading and unloading of materials, all lead and lift within the site of works are included in the Item rates of various items. No separate payment will be made for such expenses.

Sr.no	MoRTH/DSR'14	Total Quantity	Description	Unit	Rate Inclusive of Labour	Total Amount
<b>MoRTH/SOR - 2016 OF ROAD CONSTRUCTION DEPARTMENT GOVERNMENT OF BIHAR</b>						
<b>1</b>						
<b>Carriage of Materials</b>						
1.01	NH SOR 1.4 (i)	13662958.186	Cost of Haulage/Carriage of Materials by tipper excluding Cost of loading, unloading and stacking through Surfaced Road	Tonne.km	6.90	942,74,411.48
1.02	NH SOR 1.4 (ii)	1245586.195	Cost of Haulage/Carriage of Materials by tipper excluding Cost of loading, unloading and stacking through Unsurfaced Gravelled Road	Tonne.km	8.40	104,62,924.04
1.03	NH SOR 1.4 (iii)	1245586.195	Cost of Haulage/Carriage of Materials by tipper excluding Cost of loading, unloading and stacking through Katcha Track and Track in Riverbed/Nallah Bed and Choe Bed	Tonne.km	16.75	208,63,568.76
<b>Subtotal of Carriage of Materials</b>						<b>1256,00,904.28</b>
<b>2</b>						
<b>Earthwork</b>						
2.01	NH SOR 2.3 (ii) A	101.440	Clearing and grubbing road land including uprooting rank vegetation, grass, bushes, shrubs, saplings and trees girth up to 300 mm, removal of stumps of trees cut earlier and disposal of unserviceable materials and stacking of serviceable material to be used or auctioned, up to a lead of 1000 metres including removal and disposal of top organic soil not exceeding 150 mm in thickness. <b>(II) By Mechanical Means (A) In area of light Jungle.</b>	hectare	63,816.00	64,73,523.16
2.02	NH SOR 3.19	34148.145	<b>Compacting original ground supporting embankment.</b> Loosening, levelling and Compacting original ground supporting embankment to facilitate placement of first layer of embankment, scarified to a depth of 150 mm, mixed with water at OMC and then compacted by rolling so as to achieve minimum dry density as given in Table 300-2 for embankment construction.	Cum.	46.00	15,70,814.67

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2.03	NH SOR 3.6	411981.864	<b>Excavation in Soil using Hydraulic Excavator CK 90 and Tipper with disposal with in the site.</b> Excavation for roadwork or Water bodies or storm water drains etc. in soil with hydraulic excavator of 0.9 cum bucket capacity including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and transporting to the embankment location with all lifts and lead up to 1000 m. within the Site.	Cum	106.00	436,70,077.62
2.04	NH SOR 3.16	34637.462	Construction of embankment with approved material obtained from borrow pits with all lifts and lead up to 1000 m, transporting to site, spreading, grading to required slope and compacting to meet requirement of <b>MoRTH table 300-2</b>	Cum	247.00	85,55,453.11
2.05	NH SOR 3.17	138549.848	<b>Construction of Embankment with Material Deposited from Roadway/Water bodies Cutting</b> (Construction of embankment with approved materials deposited at site from roadway/water bodies cutting and excavation from, drain and foundation of other structures graded and compacted to meet requirement of <b>MoRTH table 300-2</b> )	Cum	187.00	259,08,821.58
2.06	NH SOR 3.18	123055.658	<b>Construction of Subgrade and Earthen Shoulders.</b> (Construction of embankment for subgrade and earthen shoulders with approved material obtained from borrow pits with all lifts and lead up to 1000 m, transporting to site, spreading, grading to required slope and compacting to meet requirement of <b>MoRTH table 300-2</b> )	Cum	284.00	349,47,806.73
2.07	NH SOR 12.1 (I)	448.380	<b>Excavation for Structures</b> (Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material.) <b>Ordinary Soil (up to 3.0 m. Depth)</b>	Cum	95.00	42,596.10
2.08	NH SOR 12.3	13001.851	Sand filling in foundation trenches, in embankment, under floor as per drawing and technical Specification	Cum	489.00	63,57,905.02
2.09	NH SOR 2.1 (i)	3.000	Cutting of Trees, including Cutting of Trunks, Branches and Removal (Cutting of trees, including cutting of trunks, branches and removal of stumps, roots, stacking of serviceable material with all lifts and up to a lead of 1000 metres and earth filling in the depression/pit.) (a) : Beyond 30 cm girth up to and including 60 cm girth	Nos	217.00	651.00
2.10	NH SOR 2.1 (ii)	20.000	(b) : Beyond 60 cm girth up to and including 90 cm girth	Nos	421.00	8,420.00
2.11	NH SOR 2.1 (iii)	10.000	(c) : Beyond 90 cm girth up to and including 180 cm girth	Nos	770.00	7,700.00
2.12	NH SOR 2.1 (iv)	1.000	(d) : Above 180 cm girth	Nos	1,418.00	1,418.00
			<b>Subtotal of Earth Work</b>			<b>1275,45,186.98</b>
	<b>3</b>		<b>Concrete work PCC/RCC</b>			
3.01	NH SOR 12.8 A	101.160	Plain/Reinforced cement concrete in open foundation including formwork complete as per drawing and technical specifications <b>(A) PCC Grade M-15.</b>	Cum	5,129.00	5,18,849.64
3.02	NH SOR 12.8 B	284.714	Plain/Reinforced cement concrete in open foundation including formwork complete as per drawing and technical specifications <b>(B) PCC for Grade M-20.</b>	Cum	5,886.00	16,75,826.60

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3.03	NH SOR 12.4	480.650	PCC 1:3:6 in Foundation including form work (Plain cement concrete 1:3:6 nominal mix in foundation with crushed stone aggregate 40 mm nominal size mechanically mixed, placed in foundation and compacted by vibration including curing for 14 days.)	Cum	4,437.00	21,32,644.05
3.04	NH SOR 13.5 (F) Case-II	408.420	Plain/Reinforced cement concrete in sub-structure including form work complete as per drawing and technical specifications <b>(F) RCC Grade M-25 Height up to 5 m. Case-II, with Batching Plant, Transit Mixer. Steel Reinforcement will be measured and paid for separately.</b>	Cum	6,569.00	26,82,910.98
3.05	NH SOR 14.11	116.780	Reinforced cement concrete approach slab and wearing coat including formwork complete as per drawing and Technical specification. <b>Cement concrete M-30 Grade. Note -Steel Reinforcement will be measured and paid for separately.</b>	Cum	6,274.00	7,32,677.72
3.06	NH SOR 14.7	48.000	Construction of RCC railing of M30 Grade, in situ with 20 mm nominal size aggregate, true to line and grade, tolerance of vertical RCC post not to exceed 1 in 500, centre to centre spacing between vertical post not to exceed 2000 mm, leaving adequate space between vertical post for expansion, including reinforcement complete as per approved drawings and technical specifications. <b>Note -Steel Reinforcement will be measured and paid for separately.</b>	Rmt	589.00	28,272.00
<b>Subtotal of Concrete Work PCC/RCC</b>						<b>77,71,180.99</b>
<b>4</b>						
<b>Road work</b>						
4.01	NH SOR 13.10	3264.600	Providing and laying Filter media with granular materials/ stone crushed aggregates satisfying the requirements laid down in clause 2504.2.2 of MoRTH specifications to a thickness of not less than 150 mm below stone pitching and to a thickness not less than 600 mm with smaller size towards the soil and bigger size towards the wall and provided over the entire surface behind abutment, wing wall and return wall to the full height compacted to a firm condition complete as per drawing and technical specification.	Cum.	1,166.00	38,06,523.60
4.02	NH SOR It. No. 15.4	5496.300	Providing and laying Pitching on slopes laid over prepared filter media including boulder apron laid dry in front of toe of embankment complete as per drawing and Technical specifications	Cum	1,119.00	61,50,359.70
4.03	NH SOR 4.1 A	16039.013	Construction of granular sub-base by providing coarse graded material, spreading in uniform layers with motor grader on prepared surface, mixing by mix in place method with rotavator at OMC, and compacting with vibratory roller to achieve the desired density, complete as per MoRTH clause 401 for grading- I Material	Cum	1,022.00	163,91,870.78
4.04	NH SOR 4.12	22556.310	<b>Wet Mix Macadam :</b> Providing laying, spreading and compacting graded stone aggregate to wet mix macadam specifications including premixing the materials with water at OMC, in mechanical mix plant carriage of mix material by tipper to site, laying in uniform layers of 100/125 mm thick compacted macadam with paver in sub base/base course on well prepared surface and compacting with vibratory roller to achieve desired density as per relevant MoRTH clause 406	Cum	1,291.00	291,20,196.21
4.05	NH SOR 5.1	99124.200	Prime coat (Providing and applying primer coat with bitumen emulsion on prepared surface of granular Base including clearing of road surface and spraying primer at the rate of 0.60 kg/sqm using mechanical means.)	Sqm	26.5	26,26,791.30

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4.06	NH SOR 5.2	99124.200	Tack coat (Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor at the rate of 0.20 kg/sqm on prepared bituminous/ granular surface cleaned with mechanical means).	Sqm	9.5	9,41,679.90
4.07	NH SOR 5.6 (ii)	4956.210	<b>Dense Graded Bituminous Macadam</b> (Providing and laying dense graded bituminous macadam with 100-120 TPH batch type HMP / DMP 60-90 TPH capacity / 80 - 100 TPH Capacity using crushed aggregates of specified grading, premixed with bituminous binder @ 4.0 to 4.5 per cent by weight of total mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRTH specification clause No. 507 complete in all respects.) Grading II	Cum	6,646.00	329,38,971.66
4.08	NH SOR 13.8	192.000	Providing weep holes in Brick masonry/Plain/Reinforced concrete abutment, wing wall/return wall with 100 mm dia AC pipe, extending through the full width of the structure with slope of 1V :20H towards drawing face. Complete as per drawing and Technical specifications	Nos	138.00	26,496.00
4.09	NH SOR It No 14.9	8.000	Providing & Fixing Drainage Spouts complete as per drawing and Technical specification	Nos	971.00	7,768.00
			<b>Subtotal of Road Work</b>			<b>920,10,657.15</b>

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<b>1</b>	<b>MARKET RATE ITEMS</b>					
1.010	NH SOR 323	468609.600	Providing and Laying Separation Membrane of impermeable plastic / Polyethylene sheeting 125 micron thick.	Sqm	29.00	135,89,678.40
1.02	Based on Code No 0317 P 253	22.140	Providing and Laying premoulded Asphalt joint filler 12 mm thick for expansion joint	Sqm	371.00	8,213.94
1.03	MR 1	33621.644	Supplying, fitting, and placing <b>Thermo Mechanically Trated TMT 500 D</b> bar reinforcement in sub structure complete as per drawing and thechnical specifications	Kg	58.00	19,50,055.35
1.04	MR 2	1000.000	Supplying, fitting, and placing <b>Thermo Mechanically Trated TMT 500 D</b> bar reinforcement in super structure complete as per drawing and thechnical specifications	Kg	59.00	59,000.00
1.05	MR 3	640.000	Providing and laying Non Pressure NP-2 class (Light duty) R.C.C. pipes including collars/spigot jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete (a) 300 mm dia RCC Pipe	Metre	701.00	4,48,640.00
1.06	MR 4	1060.000	Providing and laying Non Pressure NP-2 class (Light duty) R.C.C. pipes including collars/spigot jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete (a) 450 mm dia RCC Pipe	Metre	844.00	8,94,640.00
1.07	MR 5	500.000	Supplying and Filling the approved good quality earth brought from outside the premises in layers not exceeding 20 cm in depth, breaking clods, watering, rolling No layer with 1/2 tonne roller, or wooden or steel rammers, and rolling every 3rd and top-most layer with power roller of minimum 8 tonnes and dressing up including all lead and lift. Consolidation of Earth to be achieved up to 95% proctor Density of Earth. The mode of measurement will be made on the consolidated volume.	Cum	406.00	2,03,000.00
1.08	MR 6	600.000	Transporting surplus excavated unusable stuff/earth from the site of work including loading, unloading, etc. outside campus premises for all lead and lift.	Cum	262.00	1,57,200.00
1.09	MR 7	5.000	Removing from one location, a tree of girth not more than 60 cm. Including the roots by excavating earth around the root, lifting the tree along with earth around the roots by suitable equipment, transporting the tree from old location to the new location, making a pit of required diameter and depth in earth at new location, and replanting the tree in to the pit, back filling the soil around the roots of the tree, including necessary manure, watering the tree for required time till the roots gets hold in the earth at new location complete as directed by Engineer In charge.	Cum	2,000.00	10,000.00
1.10	MR 8	1500.000	Providing and laying non-pressure NP2 class (light duty) R.C.C. pipes vertically in tree-pits complete as directed by EIC including supply of all material, labour and equipment up to any lead and lift (a) 900mm dia RCC pipe	Metre	1,905.00	28,57,500.00
<b>Subtotal of Market Rate Item Work</b>						<b>201,77,927.69</b>