ಕರ್ನಾಟಕ ಸರ್ಕಾರ

ಏಕರೂಪ ದರಪಟ್ಟಿ

ತಾಂತ್ರಿಕ ಕಾರ್ಯನಿರತ ತಂಡ

ಸಂಪುಟ – I

GOVERNMENT OF KARNATAKA

COMMON SCHEDULE OF RATES

TECHNICAL WORKING GROUP

VOLUME - I

GOVERNMENT OF KARNATAKA

COMMON SCHEDULE OF RATES
2022

TECHNICAL WORKING GROUP

Tribute

M. Visvesvaraya

1861 - 1962

Sayings of Sir M.Visvesvaraya

- *It is better to Work out than Rust out.*
- *Every man who has become great owes achievement to incessant toil.*
- *An Engineer is a person who applies the skills and Knowledge of basic Science for the good of society.*
- *If you do not work, neither shall you eat – a slogan in the West.*

ಕರ್ನಾಟಕ ಸರ್ಕಾರದ ನಡವಳಿಗಳು

ವಿಷಯಃ ಏಕರೂಪ ಅನುಸೂಚಿ ದರಗಳನ್ನು ತಯಾರಿಸಲು ತಾಂತ್ರಿಕ ಕಾರ್ಯನಿರತ ತಂಡವನ್ನು (Technical working group) ರಚಿಸುವ ಬಗ್ಗೆ.

ಉಲ್ಲೇಖಃ (1) ಸರ್ಕಾರದ ಆದೇಶ ಸಂಖ್ಯೆ : 65 ಆರ್.ಡಿ.ಎಫ್.2018 ದಿನಾಂಕ 04.04.2019

(2) ಸರ್ಕಾರದ ಆದೇಶ ಸಂಖ್ಯೆ : 65 ಆರ್.ಡಿ.ಎಫ್. 2018 ದಿನಾಂಕ 04.04.2019

(3) ಏಕರೂಪ ಅನುಸೂಚಿ ದರಗಳ ತಯಾರಿಕೆಗೆ ಸಂಬಂಧಿಸಿದಂತೆ ಸರ್ಕಾರದ ಕಾರ್ಯದರ್ಶಿಗಳು, (ವೆಚ್ಚ), ಅಧ್ಯಕ್ಷತೆಯಲ್ಲಿ ದಿನಾಂಕ 05.02.2020 ರಂದು ಜರುಗಿದ 2ನೇ ಪ್ರಗತಿ ಪರಿಶೀಲನಾ ಸಭೆಯ ನಡವಳಿಗಳು.

ಪ್ರಸ್ತಾವನೆ :

ಮೇಲೆ (1)ರಲ್ಲಿ ಓದಲಾದ ಸರ್ಕಾರದ ಆದೇಶದಲ್ಲಿ ಅನುಸೂಚಿ ದರಗಳನ್ನು ಪ್ರಕಟಿಸಲು ಅನುಸೂಚಿ ದರಗಳ ರಚನಾ ಸಮಿತಿಯನ್ನು ರಚಿಸಿ ಅನುಸೂಚಿ ದರಗಳ ತಯಾರಿಸುವ ಕಾರ್ಯವನ್ನು ದಿನಾಂಕಃ 01.06.2019ರ ಮುನ್ನ ಅಂತಿಮಗೊಳಿಸಿ ಅನುಸೂಚಿ ದರಗಳ ಪರಿಶೀಲನಾ ಸಮಿತಿಯ ಅನುಮೋದನೆ ಪಡೆದು ಜಾರಿಗೊಳಿಸಲು ಕ್ರಮವಹಿಸುವುದೆಂದು ಆದೇಶಿಸಲಾಗಿದೆ. ಮೇಲೆ (2)ರಲ್ಲಿ ಓದಲಾದ ಸರ್ಕಾರದ ಆದೇಶದಲ್ಲಿ ಅನುಸೂಚಿ ದರಗಳನ್ನು ಪ್ರಕಟಿಸಲು ಅನುಸೂಚಿ ದರಗಳ ಪರಿಶೀಲನಾ ಸಮಿತಿಯನ್ನು ರಚಿಸಿ ಸಮಿತಿಯು ಅನುಸೂಚಿ ದರಗಳ ರಚನಾ ಸಮಿತಿಯು ತಯಾರಿಸುವ ದರ ಪಟ್ಟಿಯನ್ನು ಪರಿಶೀಲಿಸಿ ದಿನಾಂಕಃ01.06.2019 ರಿಂದ ಕಡ್ಡಾಯವಾಗಿ ಜಾರಿಗೊಳಿಸಲು ಕ್ರಮವಹಿಸುವುದೆಂದು ಆದೇಶವನ್ನು ಹೊರಡಿಸಲಾಗಿದೆ.

ಮೇಲ್ಕಂಡ ಸರ್ಕಾರದ ಆದೇಶಗಳಲ್ಲಿ ಆದೇಶಿಸಿದಂತೆ ಏಕರೂಪ ಅನುಸೂಚಿ ದರಗಳನ್ನು ತಯಾರಿಸುವ ನಿಟ್ಟಿನಲ್ಲಿ ಕೂಡಲೇ ಕ್ರಮವಹಿಸಬೇಕಾಗಿರುವ ಹಿನ್ನೆಲೆಯಲ್ಲಿ ಮೇಲೆ ಓದಲಾದ ಸಭಾ ನಡವಳಿಗಳಲ್ಲಿ ತೀರ್ಮಾನಿಸಿದಂತೆ ಈ ಕೆಳಕಂಡ ಏಕರೂಪ ಅನುಸೂಚಿ ದರಗಳನ್ನು ತಯಾರಿಸಲು ತಾಂತ್ರಿಕ ಕಾರ್ಯನಿರತ ತಂಡವನ್ನು (Technical working group) ರಚಿಸಲು ಕೆಳಕಂಡಂತೆ ಆದೇಶ ಹೊರಡಿಸಲಾಗಿದೆ.

ಸರ್ಕಾರದ ಆದೇಶ ಸಂಖ್ಯೆ : ಆಇ 259 ಆಕೋ–2/2018 ದಿನಾಂಕ :17.02.2020

ಪ್ರಸ್ತಾವನೆಯಲ್ಲಿ ವಿವರಿಸಲಾದ ಅಂಶಗಳ ಹಿನ್ನೆಲೆಯಲ್ಲಿ, ಏಕರೂಪ ಅನುಸೂಚಿ ದರಗಳನ್ನು ಆದೇಶಿಸಿದೆ.

ತಾಂತ್ರಿಕ ಕಾರ್ಯನಿರತ ತಂಡ
(Technical working group)

ಕ್ರ.ಸಂ.	ಪರಿಣಿತರ ಹೆಸರು ಮತ್ತು ಪ್ರತಿನಿಧಿಸುವ ಇಲಾಖೆ	
1	ಶ್ರೀ ಆರ್. ಜೈಪ್ರಸಾದ್, ನಿವೃತ್ತ ಪ್ರಧಾನ ಇಂಜಿನಿಯರ್	ಅಧ್ಯಕ್ಷರು
2	ಶ್ರೀ ಸಿ. ಅನಂತರಾಮು, ನಿವೃತ್ತ ಮುಖ್ಯ ಇಂಜಿನಿಯರ್, ಜಲಸಂಪನ್ಮೂಲ ಇಲಾಖೆ	ಸದಸ್ಯರು
3	ಶ್ರೀ ಗೋಪಿನಾಥ್, ನಿವೃತ್ತ ಅಧೀಕ್ಷಕ ಇಂಜಿನಿಯರ್, ಲೋಕೋಪಯೋಗಿ ಇಲಾಖೆ	ಸದಸ್ಯರು
4	ಶ್ರೀ ರವಿಕುಮಾರ್, ನಿವೃತ್ತ ಕಾರ್ಯಪಾಲಕ ಇಂಜಿನಿಯರ್, ಲೋಕೋಪಯೋಗಿ ಇಲಾಖೆ	ಸದಸ್ಯರು
5	ಶ್ರೀ ರವಿಕುಮಾರ, ಅಧೀಕ್ಷಕ ಇಂಜಿನಿಯರ್ (ನಿವೃತ್ತ), ಗ್ರಾಮೀಣಾಭಿವೃದ್ಧಿ ಮತ್ತು ಪಂಚಾಯತ್ ರಾಜ್ ಇಲಾಖೆ	ಸದಸ್ಯರು
6	ಶ್ರೀಮತಿ ಮೈತ್ರಿ ಎಸ್.ಕೆ. ಡೆಪ್ಯೂಟಿ ಜನರಲ್ ಮ್ಯಾನೇಜರ್, BESCOM ಶ್ರೀ ಆನಂದ ಆರ್. ಕುಲಕರ್ಣಿ, ಅಸಿಸ್ಟೆಂಟ್ ಜನರಲ್ ಮ್ಯಾನೇಜರ್, BESCOM ಇಂಧನ ಇಲಾಖೆ	ಸದಸ್ಯರು
7	ಶ್ರೀ ಡಿ. ದೇವರಾಜ, ಉಪ ಅರಣ್ಯ ಸಂರಕ್ಷಣಾಧಿಕಾರಿ (ನಿವೃತ್ತ), ಅರಣ್ಯ ಇಲಾಖೆ	ಸದಸ್ಯರು
8	ಅಧೀಕ್ಷಕ ಅಭಿಯಂತರರು, ಲೋಕೋಪಯೋಗಿ ವೃತ್ತ, ಬೆಂಗಳೂರು	ಸದಸ್ಯ ಕಾರ್ಯದರ್ಶಿ/ಸಮನ್ವಯಾಧಿಕಾರಿ

i. ಈ ತಂಡವು ಕೂಡಲೇ ವಿವಿಧ ಇಲಾಖೆಗಳೊಂದಿಗೆ ಸಭೆಯನ್ನು ನಡೆಸಿ ಮಾರ್ಚ್–2020ರ ಮಾಹೆಯೊಳಗೆ ಏಕರೂಪ ದರಪಟ್ಟಿಯನ್ನು ತಯಾರಿಸಿ ಸರ್ಕಾರಕ್ಕೆ ಮುಂದಿನ ಕ್ರಮಕ್ಕಾಗಿ ಸಲ್ಲಿಸುವುದು.

ii. ಪ್ರಸಕ್ತ ಇರುವ ದರಪಟ್ಟಿಯಲ್ಲಿನ Rate Analysis ಮತ್ತು Specification ಗಳನ್ನು ಪರಿಶೀಲಿಸಿ ಸೂಕ್ತ ರೀತಿಯಲ್ಲಿ ವಿಶ್ಲೇಷಣೆ ಮಾಡಿ ಅದರಲ್ಲಿನ ಅಂಶಗಳನ್ನು/ಘಟಕಗಳನ್ನು (Components) ಪರಾಮರ್ಶಿಸಿ ಪುನರ್ ರಚಿಸಿ ಅದರ ಆಧಾರದ ಮೇಲೆ ಏಕರೂಪ ದರಪಟ್ಟಿಗಳನ್ನು ತಯಾರಿಸುವುದು ಹಾಗೂ ಡೇಟಾ ವಿಶ್ಲೇಷಣೆಯನ್ನು ಪರಿಶೀಲಿಸಿ duplication of common item in different SRs ಗಳನ್ನು ಒಗ್ಗೂಡಿಸುವುದು. ಈ ನಿಟ್ಟಿನಲ್ಲಿ ರಾಜ್ಯದಲ್ಲಿ ಪ್ರತ್ಯೇಕ ಎಸ್.ಆರ್. ಡೇಟಾವನ್ನು ತಂಡಕ್ಕೆ ಒದಗಿಸುವುದು ಹಾಗೂ ತಂಡವು ಬಯಸುವ ಮಾಹಿತಿಗಳನ್ನು ಒದಗಿಸಲು ಕ್ರಮವಹಿಸುವುದು. ಲೋಕೋಪಯೋಗಿ ಇಲಾಖೆಯಿಂದ ಈ ಕುರಿತು ಸೂಕ್ತ ಅಗತ್ಯ ಸೌಲಭ್ಯಗಳನ್ನು ಒದಗಿಸಿ ನಿಗದಿತ ಅವಧಿಯಲ್ಲಿ ಸದರಿ ದರಗಳನ್ನು ರಚನೆಯಾಗುವಂತೆ ನೋಡಿಕೊಳ್ಳುವುದು.

iii. ರಸ್ತೆ, ಸೇತುವೆ ಮತ್ತು ಕಟ್ಟಡ ಕಾಮಗಾರಿಗಳಿಗೆ ಸಂಬಂಧಿಸಿದಂತೆ ಇತರೆ ಇಲಾಖೆಗಳಲ್ಲಿ special items ಇದ್ದಲ್ಲಿ ಅಂತಹ ಐಟಂಗಳ ಪಟ್ಟಿಯನ್ನು ತಯಾರಿಸಿ, ಆರ್ಥಿಕ ಇಲಾಖೆಯು ರಚಿಸಿರುವ ಸಮಿತಿ ಮುಂದೆ ಮಂಡಿಸಲು ಕ್ರಮವಹಿಸುವುದು.

iv. ವಿವಿಧ ಇಲಾಖೆಗಳ ದರಪಟ್ಟಿಯ ತಯಾರಿಕೆ, ವಿಶಿಷ್ಟ ವಿವರಣೆ ಹಾಗೂ ಡೇಟಾ ವಿಶ್ಲೇಷಣೆ ಮುಂತಾದ ವಿವರಗಳನ್ನು ಏಕರೂಪ ದರಪಟ್ಟಿಯ ತಯಾರಿಕೆಗೆ ಸೃಜಿಸಿರುವ ತಾಂತ್ರಿಕ ತಂಡದೊಂದಿಗೆ ಹಂಚಿಕೊಳ್ಳುವುದು.

v. ಈ ಕುರಿತು ಕಾಲಕಾಲಕ್ಕೆ ಸರ್ಕಾರದಿಂದ ಮತ್ತು ಏಕರೂಪ ದರಗಳನ್ನು ರಚಿಸುವ ಸಂಬಂಧ ರಚಿಸಲಾಗಿರುವ ಸಮಿತಿ ನೀಡುವ ನಿರ್ದೇಶನದಂತೆ ಕಾರ್ಯನಿರ್ವಹಿಸುವುದು.

vi. ಮೇಲ್ಕಂಡ ತಂಡದ ಸದಸ್ಯರಿಗೆ ಸೇವಾ ಶುಲ್ಕವನ್ನು ನೀಡುವ ಕುರಿತಂತೆ ಸಮನ್ವಯಾಧಿಕಾರಿಯಾಗಿರುವ ಅಧೀಕ್ಷಕ ಇಂಜಿನಿಯರ್, ಲೋಕೋಪಯೋಗಿ ವೃತ್ತ, ಬೆಂಗಳೂರು ಇವರು ಕ್ರಮವಹಿಸುವುದು.

ಕರ್ನಾಟಕ ರಾಜ್ಯಪಾಲರ ಆಜ್ಞಾನುಸಾರ
ಮತ್ತು ಅವರ ಹೆಸರಿನಲ್ಲಿ
ಸಹಿ :–
(ಶ್ರೀಕೃಷ್ಣ ಎನ್. ಬುಗಟ್ಯಾಗೋಳ)
ವಿಶೇಷಾಧಿಕಾರಿ ಮತ್ತು ಪದನಿಮಿತ್ತ
ಸರ್ಕಾರದ ಜಂಟಿ ಕಾರ್ಯದರ್ಶಿ
ಆರ್ಥಿಕ ಇಲಾಖೆ
(ಲೋಕೋಪಯೋಗಿ ಆರ್ಥಿಕ ಕೋಶ)

ಇವರಿಗೆ :

1. ಸರ್ಕಾರದ ಕಾರ್ಯದರ್ಶಿ, ಲೋಕೋಪಯೋಗಿ, ಬಂದರು ಮತ್ತು ಒಳನಾಡು ಜಲಸಾರಿಗೆ ಇಲಾಖೆ,
2. ಪ್ರಧಾನ ಮುಖ್ಯ ಅಭಿಯಂತರರು ಮತ್ತು ಮುಖ್ಯ ಯೋಜನಾಧಿಕಾರಿ, ಕರ್ನಾಟಕ ರಾಜ್ಯ ಹೆದ್ದಾರಿ ಅಭಿವೃದ್ಧಿ ಯೋಜನೆ, ಕೆ.ಆರ್.ವೃತ್ತ, ಬೆಂಗಳೂರು
3. ಮುಖ್ಯ ಅಭಿಯಂತರರು, ಗ್ರಾಮೀಣ ನೀರು ಸರಬರಾಜು ಮತ್ತು ನೈರ್ಮಲ್ಯ, ಕಾವೇರಿ ಭವನ, ಬೆಂಗಳೂರು.
4. ನಿರ್ದೇಶಕರು, ತೋಟಗಾರಿಕೆ ಇಲಾಖೆ, ಲಾಲ್ ಬಾಗ್, ಬೆಂಗಳೂರು.

FOREWORD

Government in its order FD 259 F-2 2018 dated: 17-02-2020, have constituted Technical Working Group for preparation of Uniform SR/UNI SR/COMMON SR keeping in view the following (TOR):

i. ಈ ತಂಡವು ಕೊಡಲೇ ವಿವಿಧ ಇಲಾಖೆಗಳೊಂದಿಗೆ ಸಭೆಯನ್ನು ನಡೆಸಿ ಏಕರೂಪ ದರಪಟ್ಟಿಯನ್ನು ತಯಾರಿಸಿ ಸರ್ಕಾರಕ್ಕೆ ಮುಂದಿನ ಕ್ರಮಕ್ಕಾಗಿ ಸಲ್ಲಿಸುವುದು.

ii. ಪ್ರಸಕ್ತ ಇರುವ ದರಪಟ್ಟಿಯಲ್ಲಿನ Rate Analysis ಮತ್ತು Specification ಗಳನ್ನು ಪರಿಶೀಲಿಸಿ ಸೂಕ್ತ ರೀತಿಯಲ್ಲಿ ವಿಶ್ಲೇಷಣೆ ಮಾಡಿ ಅದರಲ್ಲಿನ ಅಂಶಗಳನ್ನು / ಘಟಕಗಳನ್ನು (Components) ಪರಮರ್ಶಿಸಿ ಪುನರ್ ರಚಿಸಿ ಅದರಆಧಾರದ ಮೇಲೆ ಏಕರೂಪ ದರಪಟ್ಟಿಗಳನ್ನು ತಯಾರಿಸುವುದು ಹಾಗೂ ಡೇಟಾ ವಿಶ್ಲೇಷಣೆಯನ್ನು ಪರಿಶೀಲಿಸಿ, duplication of common item in different SR's ಗಳನ್ನು ಒಗ್ಗೂಡಿಸುವುದು. ಈ ನಿಟ್ಟಿನಲ್ಲಿ ರಾಜ್ಯದಲ್ಲಿ ಪ್ರತ್ಯೇಕ ಎಸ್.ಆರ್. ಡೇಟಾವನ್ನು ತಂಡಕ್ಕೆ ಒದಗಿಸುವುದು ಹಾಗೂ ತಂಡವು ಬಯಸುವ ಮಾಹಿತಿಗಳನ್ನು ಒದಗಿಸಲು ಕ್ರಮ ವಹಿಸುವುದು. ಲೋಕೋಪಯೋಗಿ ಇಲಾಖೆಯಿಂದ ಈ ಕುರಿತು ಸೂಕ್ತ ಸೌಲಭ್ಯಗಳನ್ನು ಒದಗಿಸಿ ನಿಗದಿತ ಅವಧಿಯಲ್ಲಿ ಸದರಿ ದರಗಳನ್ನು ರಚನೆಯಾಗುವಂತೆ ನೋಡಿಕೊಳ್ಳುವುದು. ಸದರಿ ದರಗಳನ್ನು ಜಾರಿಗೆ ತರಲು ಎಲ್ಲಾ ಕ್ರಮಗಳನ್ನು ಲೋಕೋಪಯೋಗಿ ಇಲಾಖೆಯು ತೆಗೆದುಕೊಳ್ಳುವುದು.

iii. ರಸ್ತೆ, ಸೇತುವೆ ಮತ್ತುಕಟ್ಟಡ ಕಾಮಗಾರಿಗಳಿಗೆ ಸಂಬಂಧಿಸಿದಂತೆ ಇತರೆ ಇಲಾಖೆಗಳಲ್ಲಿ special items ಇದ್ದಲ್ಲಿಅಂತಹ ಐಟಂಗಳ ಪಟ್ಟಿಯನ್ನು ತಯಾರಿಸಿ, ಆರ್ಥಿಕ ಇಲಾಖೆಯು ರಚಿಸುವ ಸಮಿತಿ ಮುಂದೆ ಮಂಡಿಸಲು ಕ್ರಮವಹಿಸುವುದು.

iv. ವಿವಿಧ ಇಲಾಖೆಗಳ ದರಪಟ್ಟಿಯ ತಯಾರಿಕೆ, ವಿಶಿಷ್ಟ ವಿವರಣೆ ಹಾಗೂ ಡೇಟಾ ವಿಶ್ಲೇಷಣೆ ಮುಂತಾದ ವಿವರಗಳನ್ನು ಏಕರೂಪ ದರಪಟ್ಟಿಯ ತಯಾರಿಕೆಗೆ ಸೃಜಿಸಿರುವ ತಾಂತ್ರಿಕ ತಂಡದೊಂದಿಗೆ ಹಂಚಿಕೊಳ್ಳುವುದು.

v. ಈ ಕುರಿತು ಕಾಲಕಾಲಕ್ಕೆ ಸರ್ಕಾರದಿಂದ ಮತ್ತುಏಕರೂಪ ದರಗಳನ್ನು ರಚಿಸುವ ಸಂಬಂಧ ರಚಿಸಲಾಗಿರುವ ಸಮಿತಿ ನೀಡುವ ನಿದೇರ್ಶನದಂತೆ ಕಾರ್ಯನಿರ್ವಹಿಸುವುದು.

vi. ಮೇಲ್ಕಂಡ ತಂಡದ ಸದಸ್ಯರಿಗೆ ಸೇವಾ ಶುಲ್ಕವನ್ನು ನೀಡುವ ಕುರಿತಂತೆ ಸಮನ್ವಯಾಧಿಕಾರಿಯಾಗಿರುವ ಅಧೀಕ್ಷಕಇಂಜಿನಿಯರ್, ಲೋಕೋಪಯೋಗಿ ವೃತ್ತ, ಬೆಂಗಳೂರು ಇವರು ಕ್ರಮವಹಿಸುವುದು.

The Committee started working from March 3rd, 2020 continuously up to stoppage due to Covid lockdown. During the First Meeting, the available Scheduled Rates of the States were uploaded including MoRTH for Highways and CPWD for Buildings and SR's of other Organizations undertaking Engineering works. Meetings were held with the representatives of the following Organizations executing Engineering works also Forest, Horticulture and Water Shed. The same was presented with the hard copies for reviewing in Kaveri Guest House.

PWD, NH, PRED, PWD Electrical, KPTCL, ESCOM,
WRD, MI, KPCL, BWSSB, KUWSDB, RWS

During discussion the representatives briefed about the repetition of items like basic materials like aggregate, bitumen, steel, cement (key materials), Concreting, Earth work and also other materials.

The anomalies in the rates of Organizations were discussed with the Engineers and it was agreed to have one rate for materials in all SR and also Uniform Usage Charges of Machinery and Labour (as on prescribed by Department of LabourGoK) and also finished items like Earth Work

and Concreting. It was further discussed about grouping of Organizations, executing similar works like Water Supply, UGD - BWSSB, KUWSDB, RWS, Forest - Horticulture and Water Shed, PWD Electrical - ESCOMS and KPTCL, Irrigation - KPC, WRD and Minor Irrigation, Roads – NH, C&B, PRED.

Hitherto not covered, Ports and IWTD are now included and suggested to prepare own SR. It was further agreed by all Organizations to have a Uniform SR for all the Engineering Departments covering cost of Materials excluding GST, Usage Charges of Machinery, Wages to Labour, Contractors Profit, Overhead Charges, Area Specific Additionality, finished items of Earthwork, Concrete and Surveying. It was also accepted to have SR's for Organizations as grouped above.

Meetings were held at Government level and following recommendations of Technical Working Group were placed.

Common SR for items required by all the twelve Organizations. Uniform Charges of Machinery, Wages to Labour, Contractors Profit, Overhead Charges, Area Specific Additionality, finished items of Earthwork, Concrete and Surveying.

The Government was appraised about the anomaly in Wages of Labour in these Organizations as also in other States and requested the Government to consider the revision of Labour to the level of wages being considered by WRD / MI / KPC.

Meeting was held on September 1st, 2020 under the Chairmanship of Secretary PWD, wherein Additional Principal Chief Conservator of Forest, Chief Engineers of C&B, BBMP, BWSSB, KPCL, Joint Secretary Finance Department and representatives of Organizations were present

The recommendations of the Committee comprised of introduction of emerging technologies, removing items like Teak wood / Matti / Honne and all types of Marbles and also items like red-oxide flooring, mosaic which are obsolete. The items being scarce and expensive and preserve the natural resources. Apart from these Common SR other SR's of like Organizations (6 nos) are also prepared and placed.

Subsequently, Meeting was held with all the concerned Organizations under the Chairmanship of Additional Chief Secretary – Finance Department wherein Additional Chief Secretary - PWD, Additional Chief Secretary – Urban Development, Principal Secretaries with concerned Heads of Department and Engineers on 21st November, 2020 & the concluding decisions were taken in the meeting held under the Chairmanship of Secretary, PWD on 18-06-2021 & 14-01-2022. The Schedule of Rates of Ports & Inland Water Transport Department works will be included for the first time.

The SR prepared by PWD for Buildings is referred to by all Engineering Departments in the State and continued. The earlier Specifications and Rate Analysis have been replaced by Specifications and Rate Analysis based on CPWD. The Cost of Materials, Usage Charges of Machinery and Wages to Labour as prevailing in the State is continued.

Technical Working Group

Recommendations of the Technical Working Group

After successive meetings of the Group from 03-03-2020 to 18-06-2021 and continued interaction with the other Departments, the Group recommends:

1. Common SR for all the Engineering Departments comprising:
   - I. General Report
   - II. Bare Cost of Materials for all Common Engineering works (excluding GST)
   - III. Usage charges of Machinery (Hire charges)
   - IV. Wages to Labour
   - V. Overhead charges and Contractors Profit
   - VI. Area specific loading (Area weightage)
   - VII. Earthwork and Concrete works which are common to all Engineering Departments with Rate Analysis
   - VIII. Cement Constant and other references.
   - IX. Any other ready reckoners in Engineering Construction.

   These items will be bound and provided in soft and hard copies.

2. The total number of SR's will be common one with different volumes in comparison to earlier Thirty Two (32) SR's. One SR for PWD, One SR for Ports, One SR for Electrical, One SR for Irrigation, One SR for Water Supply and UGD, One SR for Forest.

SR's OF ORGANIZATIONS CONCERNED UNDER	NODAL ORGANIZATION
COMMON SR for Earthwork & Concrete Works	Technical Working Group
PWD (C&B), NH & PRED	PRAMC
WRD, MI & KPCL	WRD
BWSSB , KUWSDB & RWS	BWSSB
KPTCL, ESCOMS, PWD ELECTRICAL	BESCOM
PORTS & IWTD	PORTS
FOREST, WATERSHED, HORTICULTURE	FOREST

All SR's to follow SI units and round up the rates to the nearest Rupee and in no case indicate rates in paise, if need be the rate can be considered for 10 and multiples.

3. For Roads, Bridges and Culverts and other appurtenant works, specifications and rate analysis to be based on MoRTH Standard Data Rates of National Highways published in 2019 followed throughout the Country

   This recommendation is based on that the State Highways adopt the same Specification and Standard as in National Highway and Major District Roads, Bridges and Culverts on these two category of Roads follow the same Specification but modified Standards.

4. For Buildings and other appurtenant works Specifications and Rate Analysis to be based on CPWD, KPWD & Other state SRs which is followed throughout the Country and a few States shall be prepared based on the first principles and field experiences.

5. The Organizations mentioned above in para 2, will adopt common SR for Rate Analysis of Earthwork & Concrete works prepared by the Technical Working Group. The subsequent revisions of the Common SR on yearly basis and frequent revisions of key material rates shall be vested with PWD.

6. New technologies, new materials are available and the same are included in the respective SR's of Roads, Buildings and likewise other Departments follow suit.

7. The Group recommends Overhead charges of 10% and Contractors Profit of 10% invariably. In respect of such Organizations providing less than 10% for these two, they can continue with percentage being provided hitherto.

   Definition of Contractors Profit at 10%: For the Procurement of Materials, Mobilization of Labour and Machinery, Livelihood of labour for executing the work.

   Definition of Overhead charges at 10% : The Committee has defined the items covered under Overhead Charges of 10% as:

Supervision	4%
Site office, store shed	3%
Labour Amenities, Workmen compensation Act	2%
Quality Control, lab test	1%

8. The Cement Constants to be adopted in the preparation of Rate analysis by the Engineering departments shall be as per the table below –

Sl No.	**Grade of Concrete**	**Cement Co-efficient in kg/m^3**
1	M20	320
2	M25	340
3	M30	360

4	M35	390
5	M40	420
6	M45	430
7	M50	450
8	M55	450

9. So far there is no adoptable specification for furniture to be provided for public buildings including Courts, Circuit Houses and Quarters. The Group recommends that Public Buildings to be divided into two classifications as:

   i. VVIP

   ii. Remaining

   The type of furniture and type of fittings for Electrical, Water Supply, UGD works has been listed. *The PWD shall decide the class of the same issue suitable circulars as prevailing in the CPWD.*

10. Further:

   a. Items of RCC to include shuttering as preparation of DPR & more so taking measurements is cumbersome and further, Standard Data Book of MoRTH for concrete is inclusive for shuttering.

      A percentage upto one floor and for slabs is worked out based on the DPR's and incorporated.

   b. The Semi Dense Bituminous Concrete work is removed in the MoRTH V revision, however it shall be operated in the Road works as it is time tested for quality and the works are executed satisfactorily.

   c. Rates of each and every item will be inclusive of leads but not lifts. The lift charges for buildings shall be added floor wise to the finished rate at 1%.

   d. Item that ate obsolete like red-oxide, mosaic and such other items will be taken out from the SR. Likewise the group recommended scarce and expensive materials like Marble of all classifications and Teak / Matti / Honne will not be included in the SR. However, with the detailed discussion held under the Chairmanship of Secretary, PWD on 18-06-2021, the items of Teak Wood, Red Oxide & Marble shall be included in the Buildings SR with appropriate conditions on its usage.

   e. The experience of the Group is that Stone Masonry Buildings have not been proposed in recent years even for Mini Vidhana Soudha, DC's Office, Courts and such Buildings.

Group recommends the construction of Stone Masonry which cost twice that of brick work may be dropped from the SR for super structure beyond plinth. However, upto plinth the same needs to be continued. In case, any structure is proposed data rate may be worked from the rates available for the plinth.

The Irrigation Department provides for hidden cost on labour and also additional hidden cost on labour and the total hidden cost on labour varies from 23% to 33%. The Group recommends that this can be adopted over and above wages to labour fixed by the Department of Labour or 33% on the existing.

Further ESCOMs have given special Labour charges varying from 10% to 45%. As revision of minimum wages is being moved continuously at Government Level, the Group expresses that minimum wages charges that to be paid by all. However, the wages can be proportionate to the Labour and could be more than minimum. The Group recommends that, though not prevailing market rates, the Government need to consider revision upto 50% over and above minimum wages.

11. The Working Group recommends that the Common SR and the SR's worked out by the Departments may be put into system at Government level and brought into operation with the help of Officers of the Concerned Departments.

    A cell to be created with Superintending Engineer under PRAMC with dedicated in service Engineers. This cell will be guiding in the preparation and updating of Rates, Rate Analysis based on the Market Value and will be working with Government in PWD and associated with Special Officer PWD, Joint Secretary Finance.

    The Common SR containing items as above (para) and also SR's of other Organizations was circulated in soft copy to all the Heads of Department concerned for their inputs. The opinion received from the Heads of these Organizations had been complied and incorporated in the final copy of Common SR and SR's of Organization specific.

    Soft copies are handed over to FD for finalizing and concurring / arriving at a new SR for all the Engineering Organizations so that the updating & issue of addendums will be done by SR cell under PRAMC/PWD.

R Jaiprasad
Chairman, Technical Working Group

INDEX

METRIC UNITS / SI UNITS

- Basic units: * meter (length) * kilogram (mass) * second (time) * Ampere (electric current) * degrees Celsius (temperature) * (luminous intensity)
- It is equal to a Newton per square meter and corresponds to the familiar pounds per square inch (psi): 1 psi = 6.89 kilopascal.
- The following are some of the common conversion factors for SI Unit conversions.

Quantity or Test	Value in Trade or Customary Unit	X	Conversion Factor	=	Value in SI Unit	Symbol
Area	square inches		6.45		square centimeters	cm^2
	square feet		0.0929		square meters	m^2
	square yards		0.836		square meters	m^2
	acres		0.405		hectares	ha
Basis Weight* or	lb (17x22-500)		3.760		grams per square meter	g/m^2
Substance	lb (24x36-500)		1.627		grams per square meter	g/m^2
(500-sheet ream) or	lb (25x38-500)		1.480		grams per square meter	g/m^2
Grammage* when	lb (25x40-500)		1.406		grams per square meter	g/m^2
expressed in g/m^2	pounds per 1000 sq ft (Paperboard)		4.882		grams per square meter	g/m^2
Breaking Length	meters		0.001		kilometers	km
Burst Index	g/cm^2		0.0981		kilopascals	$KPa.m^2/g$
	g/m^2				grams per square meter	g/m^2
Bursting Strength	pounds per square inch		6.89		kilopascals	kPa
Caliper	mils		0.0254		millimeters	mm
Concora Crush	pounds		4.45		newtons	N
Edge Crush	pounds per inch		0.175		kilonewtons per meter	kN/m
Energy	British thermal units (Btu)		1055		joules	J
Flat Crush	pounds per square inch		6.89		kilopascals	kPa
Force	kilograms		9.81		newtons	N
	pounds		4.45		newtons	N
Length	angstroms		0.1		nanometers	nm
	microns		1		micrometers	µm
	mils		0.0254		millimeters	mm
	feet		0.305		meters	m
Mass	tons (2000 lbs.)		0.907		metric tons	t
	pounds		0.454		kilograms	kg
	ounces (avd p)		28.3		grams	g
Mass per Unit Volume	ounces per gallon		7.49		kilograms per cubic meter	kg/m^3
	pounds per cubic foot		1.60		kilograms per cubic meter	kg/m^3
Puncture Resistance	foot pounds		1.36		joules	J
Ring Crush	pounds (for a 6" length)		0.0292		kilonewtons per meter	KN/m
Stiffness (Taber)	gram centimeters (Taber Units)		0.0981		millinewton meters	mN• m
Tear Strength	grams		9.81		millinewtons	mN
Tensile Breaking Load	pounds per inch		0.175		kilonewtons per meter	kN/m
	kilograms per 15 millimeters		0.654		kilonewtons per meter	kN/m
Volume, Fluid	ounces (US Fluid)		29.6		milliliters	mL
	gallons		3.79		liters	L
Volume, Solid	cubic inches		16.4		cubic centimeters	Cm^3
	cubic feet		0.0283		cubic meters	m^3
	cubic yards		0.765		cubic meters	m^3

ii. Market Rate of Common Materials

- The important material components listed are common to all Engineering Departments.
- The rates are listed as per information provided by the PWD are inclusive of all statutory taxes.
- The material components are listed for the preparation of only Rate Analysis and cannot be used for direct payments.
- The provision of GST on works contract is considered in all the materials listed.

Sl No.	Material Component	Unit	HSN Code	GST	Market Rate Rs. (Uni SR)
1	2	3	4	5	6
	Granular Aggregates				
1	06mm downsize	m^3	2517	5%	1380
2	10mm downsize	m^3	2517	5%	1350
3	12mm downsize	m^3	2517	5%	1350
4	20mm downsize	m^3	2517	5%	1350
5	25mm downsize	m^3	2517	5%	1350
6	30mm downsize	m^3	2517	5%	1300
7	40mm downsize	m^3	2517	5%	1250
8	53mm downsize	m^3	2517	5%	1250
9	100mm downsize	m^3	2517	5%	1200
10	Acetylene gas	m^3	2803	18%	475
11	Autoclaved Aerated Concrete blocks 100mm th.	each	6810	18%	55
12	Autoclaved Aerated Concrete blocks 150mm th.	each	6810	18%	100
13	Autoclaved Aerated Concrete blocks 200mm th.	each	6810	18%	120
14	Bitumen VG 30 Bulk	t	2714	18%	Prevailing rates from MRPL to be considered
15	Bitumen VG 30 Packed	t	2714	18%	
16	Bitumen CRMB	t	2714	18%	
17	Bitumen Emulsion	t	2714	18%	

Sl No.	Material Component	Unit	HSN Code	GST	Market Rate Rs. (Uni SR)
1	2	3	4	5	6
18	Brick - Table Moulded Bricks	each	6904	5%	8
19	Brick - Wire Cut Bricks	each	6904	5%	19
20	Brick Perforated Clay bricks 300x25x25 mm	each	6904	5%	23
21	Brick Perforated Clay bricks 300x50x25 mm	each	6904	5%	28
22	Brick Perforated Clay bricks 300x150x25 mm	each	6904	5%	35
23	Brick Porotherm 100 mm	each	6904	5%	48
24	Brick Porotherm 150 mm	each	6904	5%	60
25	Brick Porotherm 200 mm	each	6904	5%	66
26	Bricks (Modular)	each	6904	5%	9
27	Bricks (Non – Modular)	each	6904	5%	7
28	Cement – White Cement	kg	2523	28%	25
29	Cement (OPC)	bag	2523	28%	447
30	Cement (PPC)	bag	2523	28%	400
31	Cement - Portland Slag Cement (PSC)	bag	2523	28%	370
31	Curing compound	l	3824	18%	230
32	Flowering plants	each	06	5%	2.5
33	Fly ash Bricks	each	6904	5%	6
34	Flyash as per IS 3812	t	2621	5%	300
35	Geotextile 200gsm	m^2	5911	12%	225
36	Geotextile 250gsm	m^2	5911	12%	258
37	Gravel 2.36mm downsize	m^3	2517	5%	200
38	Ground Granulated Blast furnace Slag (GGBS)	t	2621	5%	3000
39	Hedge plant	each	06	5%	3.15
40	Hot applied thermoplastic compound	l	3208	18%	80
41	Ordinary Earth	m^3	2517	5%	180

Sl No.	Material Component	Unit	HSN Code	GST	Market Rate Rs. (Uni SR)
1	2	3	4	5	6
42	RCC NP 2 1200mm dia	m	6810	18%	4985
43	RCC NP 2 250mm dia	m	6810	18%	420
44	RCC NP 2 450mm dia	m	6810	18%	1155
45	RCC NP 2 600mm dia	m	6810	18%	1785
46	RCC NP 2 750mm dia	m	6810	18%	1910
47	RCC NP 2 900mm dia	m	6810	18%	2885
48	RCC NP 3 1200mm dia	m	6810	18%	7610
49	RCC NP 3 300mm dia	m	6810	18%	1155
50	RCC NP 3 450mm dia	m	6810	18%	2150
51	RCC NP 3 600mm dia	m	6810	18%	2730
52	RCC NP 3 750mm dia	m	6810	18%	2990
53	RCC NP 3 900mm dia	m	6810	18%	4880
54	RCC NP 4 1200mm dia	m	6810	18%	9555
55	RCC NP 4 900mm dia	m	6810	18%	5930
56	Oxygen gas	m^3	2804	5%	84
57	Paver blocks 60mm th.	m^2	6810	18%	382
58	Paver blocks 75mm th.	m^2	6810	18%	554
59	Pesticide	l	3808	18%	250
60	Quick setting compound	kg	3824	18%	150
61	Ready Mix Concrete – M20	m^3	3824	18%	5000
62	Ready Mix Concrete – M25	m^3	3824	18%	5100
63	Ready Mix Concrete – M30	m^3	3824	18%	5200
64	Ready Mix Concrete – M35	m^3	3824	18%	5600
65	Ready Mix Concrete – M40	m^3	3824	18%	5750
66	Ready Mix Concrete – M45	m^3	3824	18%	6500

Sl No.	Material Component	Unit	HSN Code	GST	Market Rate Rs. (Uni SR)
1	2	3	4	5	6
67	Ready Mix Concrete – M50	m^3	3824	18%	6750
68	Recycled Concrete Aggregate 20mm downsize	m^3	-	5%	1000
69	Recycled Concrete Aggregate 10mm downsize	m^3	-	5%	1000
70	Red Oxide	kg	7210	0%	85
71	Reflectorising glass beads	kg	7018	18%	65
72	Sand - M-Sand –Fine	m^3	2517	5%	1488
73	Sand – MSIL Sand	50kg	2517	5%	190
74	Sand – River sand	m^3	2517	5%	1764
75	Sand- M-Sand – Coarse	m^3	2517	5%	1488
76	Sand- Robo sand	m^3	2517	5%	1620
77	Saplings 2m high	each	06	5%	7
78	Seeds	kg	-	0%	140
79	Shrubs	each	06	5%	2
80	Solid Concrete Blocks (100mm thickness)	each	6810	18%	30
81	Solid Concrete Blocks (150mm thickness)	each	6810	18%	35
82	Solid Concrete Blocks (200mm thickness)	each	6810	18%	48
83	Steel – Cold Twisted HYSD bars	t	7213	18%	62000
84	Steel Fe 415	t	7213	18%	65000
85	Steel Fe 500/ Fe 500 D	t	7213	18%	69357
86	Steel Fe 550	t	7213	18%	69857
87	Steel Fe 600	t	7213	18%	70000
88	Steel Mild Steel (Flats, Bars, Rods, Channels)	kg	7217	18%	60
89	Steel Mild Steel Anchors	kg	7216	18%	62
90	Steel Mild Steel Angles	kg	7216	18%	62

Sl No.	Material Component	Unit	HSN Code	GST	Market Rate Rs. (Uni SR)
1	2	3	4	5	6
91	Steel Mild Steel H Beams	kg	7216	18%	65
92	Steel Mild Steel I Beams	kg	7216	18%	65
93	Steel Mild Steel sheets 3mm	kg	7216	18%	60
94	Steel Mild Steel sheets 4mm	kg	7216	18%	62
95	Steel Mild Steel sheets 5mm	kg	7216	18%	65
96	Steel Mild steel Tees	kg	7216	18%	65
97	Steel Mild Steel Tubes 14 guage	kg	7216	18%	68
98	Steel Structural Steel	kg	7208	18%	70
99	Stone – Size stone 200x200x230mm	each	2516	5%	12.50
100	Stone Boulders 300m	m^3	2516	5%	700
101	Stone crusher dust finer than 3mm	m^3	8474	18%	1460
102	Superplasticizer as per IS 9103	kg	3824	18%	200
103	Through & bond stone 200mm	each	2516	5%	28
104	Zigzag Paver blocks 60mm th.	m^2	6810	18%	400
105	Zigzag Paver blocks 75mm th.	m^2	6810	18%	415

iii. Usage Charges of Machinery

- The machinery rates are adopted from MoRTH standard data book 2019 as reference with the current fuel prices updated by National Highways Department.
- The rates include crew charges, operational & maintenance charges such as cost of fuel, lubricants, stores, establishments, and depreciation & interest charges on hypothecation.
- In special cases, if the machinery components are supplied by the Department, the working cost of the machinery shall be recovered from the contractor.
- The outputs mentioned for the below said equipments are for the compacted quantities and shall not be paid for loose quantities.
- The rates are inclusive of GST & other minor sundries.
- Usage charges of machinery with or without operator attract 18% GST under Service Accounting Code 997313.

Sl. No.	Description	Unit	Operating Cost (Rs.)
1	**2**	**3**	**4**
1	Air Compressor -250 cfm	hr	446.00
2	Air Compressor -500 cfm	hr	1793.00
3	Automatic Vehicle Counter Classifier (ATCC) System	hr	74.00
4	Backhoe-loader 1 m3 bucket capacity	hr	1382.00
5	Bar Bending & Cutting Machine	hr	364.00
6	Batching and Mixing Plant - 120 m3 Capacity	hr	3767.00
7	Batching and Mixing Plant - 240 m3 Capacity	hr	5847.00
8	Bitumen Boiler Oil Fired	hr	546.00
9	Bitumen Pressure Distributor	hr	1311.00
10	Boat to carry atleast 20 persons	hr	766.00
11	Boom Placer	hr	3733.00
12	Cement spreader	hr	7023.00
13	Centrifugal water pump	hr	277.00
14	Cold in Situ recycling of bitumen's pavement with foam bitumen technology	hr	27600.00
15	Concrete Bucket	hr	121.00

Sl. No.	Description	Unit	Operating Cost (Rs.)
16	Concrete cutting machine	hr	182.00
17	Concrete Mixer - 0.4/0.28 m3	hr	358.00
18	Concrete Mixer - 1 m3	hr	387.00
19	Concrete Pump	hr	1067.00
20	Crane with grab 0.75 m3 capacity	hr	797.00
21	Crawler mounted Crane 35 t capacity	hr	5505.00
22	Crawler mounted Crane 100 t capacity	hr	8666.00
23	Crawler mounted Crane 80 t capacity	hr	5599.00
24	Dewatering Pump 10 HP	hr	234.00
25	Dozer - 175 HP	hr	4245.00
26	Dozer - 240 HP	hr	5494.00
27	Dozer - 90 HP	hr	2961.00
28	Emulsion Pressure Distributor	hr	1311.00
29	Epoxy Injection gun	hr	246.00
30	Falling weight deflectometer (FWD) Equipment With SUV	hr	2,923.00
31	Front End loader 2.1 m3 bucket capacity	hr	2028.00
32	Front End loader 3.1 m3 bucket capacity	hr	3404.00
33	Generator 100 KVA	hr	1303.00
34	Generator 125 KVA	hr	1515.00
35	Generator 15 KVA	hr	289.00
36	Generator 250 KVA	hr	2865.00
37	Generator 33 KVA	hr	496.00
38	Generator 400 KVA	hr	4071.00
39	Generator 500 KVA	hr	5039.00
40	Generator 62.5 KVA	hr	845.00
41	Generator 725 KVA	hr	7281.00

Sl. No.	Description	Unit	Operating Cost (Rs.)
42	Grouting machine	hr	613.00
43	Hot in place recycling	hr	102652.00
44	Hotmix Plant - 40/60 TPH capacity	hr	10800.00
45	Hotmix Plant - 100 TPH capacity	hr	15340.00
46	Hotmix Plant - 120 TPH capacity	hr	18600.00
47	Hotmix Plant - 160 TPH Capacity	hr	32630.00
48	Hotmix Plant - 200 TPH Capacity	hr	42190.00
49	Hydraulic Chip Spreader	hr	1610.00
50	Hydraulic Excavator of 0.9 m3 bucket	hr	944.00
51	Hydraulic Excavator of 1.1 m3 bucket	hr	1130.00
52	Hydraulic Excavator of 1.2 m3 bucket	hr	1250.00
53	Hydraulic Rock bolt drill	hr	6771.00
54	In situ stabilisation of WMM/GSB/Sub grade	hr	24101.00
55	Induction, deinduction and erection of plant and equipment including all components and accessories for pneumatic method of well sinking.	hr	8997.00
56	Integrated Stone Crusher Stone (3 Stage) 250 TPH	hr	14152.00
57	Jack for Lifting 40 t lifting capacity.	hr	256.00
58	Jack Hammer (attachment of Hydraulic Excavator)	hr	206.00
59	Jack Hammer for air compressor	hr	11.00
60	Joint Cutting Machine	hr	348.00
61	Kerb Casting Machine	hr	1585.00
62	Mastic Cooker	hr	506.00
63	Mechanical Broom Hydraulic	hr	776.00
64	Milling Machine with 1 meter Drum Width	hr	4120.00
65	Milling Machine with 1.2 m Drum Width	hr	4787.00
66	Milling Machine With 1.3 m Drum Width	hr	6851.00
67	Milling Machine With 2 m Drum Width	hr	10059.00

Sl. No.	Description	Unit	Operating Cost (Rs.)
68	Mini Tandem Roller	hr	1105.00
69	Mobile Bridge Inspection Unit (MBIU)	hr	6651.00
70	Mobile cold recycling mixing plant	hr	20545.00
71	Mobile Concrete Batching / Mixing Plant	hr	726.00
72	Mobile Hydraulic Crane 10 t capacity	hr	921.00
73	Mobile Hydraulic Crane 15 t capacity	hr	956.00
74	Mobile Hydraulic Crane 20 t capacity	hr	1151.00
75	Mobile Hydraulic Crane 3 t capacity	hr	788.00
76	Mobile Hydraulic Crane 5 t capacity	hr	823.00
77	Mobile Hydraulic Crane 35 t capacity	hr	1748.00
78	Mobile Slurry Seal Equipment	hr	3442.00
79	Motor Grader 4.3 m blade	hr	5467.00
80	Motor Grader 3.35 m blade	hr	4438.00
81	Motor Grader 3.7 m blade	hr	5005.00
82	Needle Vibrator	hr	395.00
83	Network Survey Vehicle (NSV) With SUV	hr	6079.00
84	Paver Finisher Concrete with 118 HP Motor	hr	3901.00
85	Paver Finisher Concrete with 241 HP Motor	hr	16698.00
86	Paver Finisher Concrete with 300 HP Motor	hr	26019.00
87	Paver Finisher Hydrostatic with sensor control -170 HP	hr	6470.00
88	Paver Finisher Hydrostatic with sensor control -240 HP	hr	8159.00
89	Paver Finisher Mechanical	hr	2107.00
90	Piling Rig with Bentonite Pump	hr	16959.00
91	Plate Compactor	hr	405.00
92	Pneumatic Road Roller	hr	2012.00
93	Pneumatic Sinking Plant	hr	5243.00

Sl. No.	Description	Unit	Operating Cost (Rs.)
94	Pot-Hole Repair Machine	hr	1249.00
95	Pre heater unit for hot in place recycling	hr	809.00
96	Prestressing Jack with Pump & Access	hr	429.00
97	Retroreflectometer testing equipment with Vehicle With SUV	hr	1528.00
98	Ripper	hr	21.00
99	Road marking machine	hr	1336.00
100	Rotating Telehandlers	hr	918.00
101	Rotavator	hr	17.00
102	Shotcrete Machine	hr	1587.00
103	Shredding Machine	hr	446.00
104	Single boom Hydraulic Drill Jumbo	hr	4584.00
105	Smooth Wheeled Roller 8 t	hr	1555.00
106	Sport utility vehicle (SUV)	hr	978.00
107	Tandem Roller	hr	2014.00
108	Texture Curing Machine (TCM) - upto 18 m	hr	4374.00
109	Texture Curing Machine (TCM) - upto 9 m	hr	3401.00
110	Three boom Hydraulic Drill Jumbo	hr	9945.00
111	Tipper -10 m3 (Surface Road)	per t km	6.90
112	Tipper -10 m3 (Katcha Track)	per t km	16.77
113	Tipper -10 m3 (UnsurfacedGravelled Road)	t.km	8.38
114	Tipper -14 m3 (Surface Road)	per t km	5.54
115	Tipper -14 m3 (Katcha Track)	per t km	13.46
116	Tipper -14 m3 (Unsurfaced Gravel Road)	t.km	6.73
117	Tipper 18 m3 (Surface Road)	per t km	4.82
118	Tipper- 5.5 m3 (Surface Road)	per t km	9.69
119	Tipper- 5.5 m3 (Katcha Track)	per t km	23.55

Sl. No.	Description	Unit	Operating Cost (Rs.)
120	Tipper- 5.5 m3 (UnsurfacedGravelled Road)	per t km	5.85
121	Tipper-10 m3	hr	1811.00
122	Tipper-14 m3	hr	2019.00
123	Tipper-18 m3	hr	2248.00
124	Tipper-18 m3 (Katcha Track)	per t km	11.71
125	Tipper-18 m3 (UnsurfacedGravelled Road)	t.km	5.85
126	Tipper-5.5 m3	hr	1413.00
127	Tractor-Trolley	hr	662.00
128	Transit Mixer - 6 m3	hr	1898.00
129	Transit Mixer - 6 m3	per t km	10.54
130	Two boom Hydraulic Drill Jumbo	hr	6853.00
131	Vibrating Pile driving hammer complete with power unit and accessories.	hr	15838.00
132	Vibratory Soil Compactor (10 t)	hr	2024.00
133	Water Tanker (12 KL)	hr	964.00
134	Water Tanker (16 KL)	hr	1,138.00
135	Water Tanker (6 KL)	hr	733.00
136	Wet Mix Plant - 100 TPH Capacity	hr	439.00
137	Wet Mix Plant - 200 TPH Capacity	hr	464.00
138	Wet Mix Plant - 250 TPH Capacity	hr	759.00

iv. Wages to Labour

- The wages given below as per GoK Labour department circular vide KAE 2 LMW 2015 dated 06-01-2017 wef 01-04-2021 are listed for preparation of Rate analysis.
- These rates are exclusive of GST, labour cess, Contractor's profit & Overhead expenses but inclusive of weekly rest.

LABOUR RATES FOR THE PREPARATION OF UNI SR										
ZONE 1 :: Bruhat Bengaluru Mahanagara Palike, Other Corporation areas of the state & their Agglomeration Areas.										
ZONE 2 :: All District Centres of the state other than mentioned in Zone 1										
ZONE 3 :: Other than Places mentioned in Zone 1 & 2										
		ZONE - I			**ZONE - II**			**ZONE - III**		
Sl. No.	**Class of employment : Particulars**	**Basic**	**DA**	**Total**	**Basic**	**DA**	**Total**	**Basic**	**DA**	**Total**
I.	**HIGHLY SKILLED**									
1	Literate Labour	**425.00**	101.22	526.22	**415.00**	101.22	516.22	**385.00**	101.22	486.22
II.	**SKILLED**									
1	Blacksmith	**405.00**	101.22	506.22	**395.00**	101.22	496.22	**375.00**	101.22	476.22
2	Stone Cutter	**405.00**	101.22	506.22	**395.00**	101.22	496.22	**375.00**	101.22	476.22
3	Mason or Brick layer Class -1	**405.00**	101.22	506.22	**395.00**	101.22	496.22	**375.00**	101.22	476.22
4	Carpenter Class I	**405.00**	101.22	506.22	**395.00**	101.22	496.22	**375.00**	101.22	476.22
5	Plumber	**405.00**	101.22	506.22	**395.00**	101.22	496.22	**375.00**	101.22	476.22
6	Tin smith	**405.00**	101.22	506.22	**395.00**	101.22	496.22	**375.00**	101.22	476.22
7	Foreman	**405.00**	101.22	506.22	**395.00**	101.22	496.22	**375.00**	101.22	476.22
8	Sarang	**405.00**	101.22	506.22	**395.00**	101.22	496.22	**375.00**	101.22	476.22
9	Painter	**405.00**	101.22	506.22	**395.00**	101.22	496.22	**375.00**	101.22	476.22
10	Fitter Class I	**405.00**	101.22	506.22	**395.00**	101.22	496.22	**375.00**	101.22	476.22
11	Mechanic Class I	**405.00**	101.22	506.22	**395.00**	101.22	496.22	**375.00**	101.22	476.22
12	Pneumatic Driller	**405.00**	101.22	506.22	**395.00**	101.22	496.22	**375.00**	101.22	476.22
13	Engine driver	**405.00**	101.22	506.22	**395.00**	101.22	496.22	**375.00**	101.22	476.22
14	Gas or Electric Welder	**405.00**	101.22	506.22	**395.00**	101.22	496.22	**375.00**	101.22	476.22
15	Gauge repairer	**405.00**	101.22	506.22	**395.00**	101.22	496.22	**375.00**	101.22	476.22

		ZONE - I			ZONE - II			ZONE - III		
16	Laboratory Assistant	**405.00**	101.22	506.22	**395.00**	101.22	496.22	**375.00**	101.22	476.22
17	Machine operator	**405.00**	101.22	506.22	**395.00**	101.22	496.22	**375.00**	101.22	476.22
18	Turner	**405.00**	101.22	506.22	**395.00**	101.22	496.22	**375.00**	101.22	476.22
19	Welder	**405.00**	101.22	506.22	**395.00**	101.22	496.22	**375.00**	101.22	476.22
20	Crane driver	**405.00**	101.22	506.22	**395.00**	101.22	496.22	**375.00**	101.22	476.22
21	Stone crusher	**405.00**	101.22	506.22	**395.00**	101.22	496.22	**375.00**	101.22	476.22
22	Jack hammer worker	**405.00**	101.22	506.22	**395.00**	101.22	496.22	**375.00**	101.22	476.22
23	Blaster	**405.00**	101.22	506.22	**395.00**	101.22	496.22	**375.00**	101.22	476.22
24	Stone chistler	**405.00**	101.22	506.22	**395.00**	101.22	496.22	**375.00**	101.22	476.22
25	Floor polisher	**405.00**	101.22	506.22	**395.00**	101.22	496.22	**375.00**	101.22	476.22
26	Riveter	**405.00**	101.22	506.22	**395.00**	101.22	496.22	**375.00**	101.22	476.22
27	Stone polisher	**405.00**	101.22	506.22	**395.00**	101.22	496.22	**375.00**	101.22	476.22
28	Pump driver	**405.00**	101.22	506.22	**395.00**	101.22	496.22	**375.00**	101.22	476.22
29	Bar bender	**405.00**	101.22	506.22	**395.00**	101.22	496.22	**375.00**	101.22	476.22
30	Stone revetment builder	**405.00**	101.22	506.22	**395.00**	101.22	496.22	**375.00**	101.22	476.22
31	Maistry or Supervisor	**405.00**	101.22	506.22	**395.00**	101.22	496.22	**375.00**	101.22	476.22
32	Clerk Grade I	**405.00**	101.22	506.22	**395.00**	101.22	496.22	**375.00**	101.22	476.22
33	Horticulture supervisor	**405.00**	101.22	506.22	**395.00**	101.22	496.22	**375.00**	101.22	476.22
34	Shovel and scraper	**405.00**	101.22	506.22	**395.00**	101.22	496.22	**375.00**	101.22	476.22
III.	**SEMI SKILLED**									
1	Cleaner	**395.00**	101.22	496.22	**385.00**	101.22	486.22	**360.00**	101.22	461.22
2	Asphalt sprayer	**395.00**	101.22	496.22	**385.00**	101.22	486.22	**360.00**	101.22	461.22
3	Driller	**395.00**	101.22	496.22	**385.00**	101.22	486.22	**360.00**	101.22	461.22
4	Savgani or Chavli	**395.00**	101.22	496.22	**385.00**	101.22	486.22	**360.00**	101.22	461.22
5	White washer	**395.00**	101.22	496.22	**385.00**	101.22	486.22	**360.00**	101.22	461.22
6	Color washer	**395.00**	101.22	496.22	**385.00**	101.22	486.22	**360.00**	101.22	461.22
7	Sawyer	**395.00**	101.22	496.22	**385.00**	101.22	486.22	**360.00**	101.22	461.22
8	Helper to fitter	**395.00**	101.22	496.22	**385.00**	101.22	486.22	**360.00**	101.22	461.22
9	Gardener	**395.00**	101.22	496.22	**385.00**	101.22	486.22	**360.00**	101.22	461.22

		ZONE - I			ZONE - II			ZONE - III		
10	Cook	**395.00**	101.22	496.22	**385.00**	101.22	486.22	**360.00**	101.22	461.22
11	Dhobi	**395.00**	101.22	496.22	**385.00**	101.22	486.22	**360.00**	101.22	461.22
12	Care taker	**395.00**	101.22	496.22	**385.00**	101.22	486.22	**360.00**	101.22	461.22
13	Hammer man	**395.00**	101.22	496.22	**385.00**	101.22	486.22	**360.00**	101.22	461.22
14	Lift operator	**395.00**	101.22	496.22	**385.00**	101.22	486.22	**360.00**	101.22	461.22
15	Bamboo maker	**395.00**	101.22	496.22	**385.00**	101.22	486.22	**360.00**	101.22	461.22
16	Helper to carpenter	**395.00**	101.22	496.22	**385.00**	101.22	486.22	**360.00**	101.22	461.22
17	Gang man	**395.00**	101.22	496.22	**385.00**	101.22	486.22	**360.00**	101.22	461.22
18	Boatman	**395.00**	101.22	496.22	**385.00**	101.22	486.22	**360.00**	101.22	461.22
19	Jumper man	**395.00**	101.22	496.22	**385.00**	101.22	486.22	**360.00**	101.22	461.22
20	Brick moulder	**395.00**	101.22	496.22	**385.00**	101.22	486.22	**360.00**	101.22	461.22
21	Asphalt boiler atttend-ant	**395.00**	101.22	496.22	**385.00**	101.22	486.22	**360.00**	101.22	461.22
22	Limestone burner	**395.00**	101.22	496.22	**385.00**	101.22	486.22	**360.00**	101.22	461.22
23	Mason or Brick layer Class - 2	**395.00**	101.22	496.22	**385.00**	101.22	486.22	**360.00**	101.22	461.22
24	Carpenter class II	**395.00**	101.22	496.22	**385.00**	101.22	486.22	**360.00**	101.22	461.22
25	Fitter class II	**395.00**	101.22	496.22	**385.00**	101.22	486.22	**360.00**	101.22	461.22
26	Mechanic class II	**395.00**	101.22	496.22	**385.00**	101.22	486.22	**360.00**	101.22	461.22
27	Wireman / Clerk Grade 2	**395.00**	101.22	496.22	**385.00**	101.22	486.22	**360.00**	101.22	461.22
28	Stoner Vodder	**395.00**	101.22	496.22	**385.00**	101.22	486.22	**360.00**	101.22	461.22
29	Diesel compressor operator	**395.00**	101.22	496.22	**385.00**	101.22	486.22	**360.00**	101.22	461.22
30	Foreman in bricks plant	**395.00**	101.22	496.22	**385.00**	101.22	486.22	**360.00**	101.22	461.22
31	Trained mali with certificate	**395.00**	101.22	496.22	**385.00**	101.22	486.22	**360.00**	101.22	461.22
32	Bhisti with water bag	**395.00**	101.22	496.22	**385.00**	101.22	486.22	**360.00**	101.22	461.22
33	Horticulture gardener	**395.00**	101.22	496.22	**385.00**	101.22	486.22	**360.00**	101.22	461.22
34	Patkaries	**395.00**	101.22	496.22	**385.00**	101.22	486.22	**360.00**	101.22	461.22
35	Tile layer	**395.00**	101.22	496.22	**385.00**	101.22	486.22	**360.00**	101.22	461.22
36	Tracer	**395.00**	101.22	496.22	**385.00**	101.22	486.22	**360.00**	101.22	461.22

		ZONE - I			ZONE - II			ZONE - III		
IV.	**UNSKILLED**									
1	Mazdoor heavy	**385.00**	101.22	486.22	**375.00**	101.22	476.22	**350.00**	101.22	451.22
2	Mazdoor light	**385.00**	101.22	486.22	**375.00**	101.22	476.22	**350.00**	101.22	451.22
3	Watchman	**385.00**	101.22	486.22	**375.00**	101.22	476.22	**350.00**	101.22	451.22
4	Sweeper	**385.00**	101.22	486.22	**375.00**	101.22	476.22	**350.00**	101.22	451.22
5	Scavenger	**385.00**	101.22	486.22	**375.00**	101.22	476.22	**350.00**	101.22	451.22
6	Billover	**385.00**	101.22	486.22	**375.00**	101.22	476.22	**350.00**	101.22	451.22
7	Chief Mazdoor	**385.00**	101.22	486.22	**375.00**	101.22	476.22	**350.00**	101.22	451.22
8	Blue printer	**385.00**	101.22	486.22	**375.00**	101.22	476.22	**350.00**	101.22	451.22
V.	**Driver / Cleaner**									
1	Lorry driver/ Bus/ Road roller driver	**449.00**	101.22	550.22	**437.00**	101.22	538.22	**407.00**	101.22	508.22
2	Vehicle maintenance	**425.00**	101.22	526.22	**415.00**	101.22	516.22	**390.00**	101.22	491.22
3	Car/Jeep/Hospital vehicle driver	**421.00**	101.22	522.22	**410.00**	101.22	511.22	**385.00**	101.22	486.22
4	Lorry/Bus/Jeep cleaner	**385.00**	101.22	486.22	**375.00**	101.22	476.22	**350.00**	101.22	451.22
VI.	**Others**									
1	Manager/Personal Officer	**515.00**	101.22	616.22	**500.00**	101.22	601.22	**465.00**	101.22	566.22
2	Assistant Manager / Assistant Personal officer	**495.00**	101.22	596.22	**480.00**	101.22	581.22	**450.00**	101.22	551.22
3	Accountant	**475.00**	101.22	576.22	**465.00**	101.22	566.22	**435.00**	101.22	536.22
4	Cashier/Senior clerk/ Stenographer/Computer operator/Stone keeper/ Telephone operator	**465.00**	101.22	566.22	**455.00**	101.22	556.22	**425.00**	101.22	526.22
5	Typist/Data entry operator/Attender/ Junior clerk	**460.00**	101.22	561.22	**445.00**	101.22	546.22	**420.00**	101.22	521.22
6	Watchman/Security guard	**398.00**	101.22	499.22	**385.00**	101.22	486.22	**385.00**	101.22	486.22
7	Office boy/Sweeper/ Attender	**385.00**	101.22	486.22	**375.00**	101.22	476.22	**350.00**	101.22	451.22

v. Royalty

ಕರ್ನಾಟಕ ಸರ್ಕಾರ

ಸಂಖ್ಯೆ: ಗಭೂಇ/ಡಿಸಿಬಿ/2020–21

ನಿರ್ದೇಶಕರ ಕಛೇರಿ,
ಗಣಿ ಮತ್ತು ಭೂವಿಜ್ಞಾನ ಇಲಾಖೆ,
ನಂ. 49, ಖನಿಜ ಭವನ, ರೇಸ್ ಕೋರ್ಸ್ ರಸ್ತೆ,
ಬೆಂಗಳೂರು – 560001, ದಿನಾಂಕ : 03.07.2020
e-mail : dcbdmg@gmail.com

ಸುತ್ತೋಲೆ

ವಿಷಯ: ಕರ್ನಾಟಕ ಉಪ ಖನಿಜ ರಿಯಾಯಿತಿ ತಿದ್ದುಪಡಿ ನಿಯಮಾವಳಿಗಳು 2020 ರನ್ವಯ ದಿನಾಂಕ: 30.06.2020 ರಿಂದ ಜಾರಿಗೆ ಬರುವಂತೆ ಉಪ ಖನಿಜಗಳ ರಾಜಧನ ದರಗಳನ್ನು ಪರಿಷ್ಕರಿಸಿರುವ ಕುರಿತು.

ಉಲ್ಲೇಖ: ಸರ್ಕಾರದ ಅಧಿಸೂಚನೆ ಸಂಖ್ಯೆ: ಸಿಐ 115 ಎಂಎಂಎನ್ 2019 ದಿನಾಂಕ: 30.06.2020

* * * * *

ಮೇಲ್ಕಂಡ ವಿಷಯಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ, ಉಲ್ಲೇಖಿತ ಸರ್ಕಾರದ ಅಧಿಸೂಚನೆ ಪತ್ರರಲ್ಲಿ ದಿನಾಂಕ: 30.06.2020 ರಿಂದ ಜಾರಿಗೆ ಬರುವಂತೆ ಕರ್ನಾಟಕ ಉಪ ಖನಿಜ ರಿಯಾಯಿತಿ ತಿದ್ದುಪಡಿ ನಿಯಮಾವಳಿಗಳು 2020 ರನ್ವಯ ಉಪ ಖನಿಜಗಳ ಮೇಲೆ ರಾಜಧನ ದರಗಳನ್ನು ಪರಿಷ್ಕರಿಸಲಾಗಿದೆ. ವಿವರಗಳು ಕೆಳಕಂಡಂತಿರುತ್ತದೆ.

ಕ್ರ. ಸಂ.	ಉಪ ಖನಿಜ	ರಾಜಧನ ಪ್ರತಿ ಮೆಟ್ರಿಕ್ ಟನ್ ಗೆ	ಪರಿವರ್ತನ ಕೋಷ್ಟಕ ಕ್ಯೂಬಿಕ್ ಮೀಟರ್ ನಂತೆ	ರಾಜಧನ ಪ್ರತಿ ಕ್ಯೂಬಿಕ್ ಮೀಟರ್ ಗೆ
1	ಕಟ್ಟಡ ಕಲ್ಲು	ರೂ. 70	1 ಕ್ಯೂಬಿಕ್ ಮೀಟರ್ ಗೆ = 2.63 ಟನ್	ರೂ. 184
2	ಲ್ಯಾಟರೈಟ್ ಸ್ಟೋನ್	ರೂ. 60	1 ಕ್ಯೂಬಿಕ್ ಮೀಟರ್ ಗೆ = 1.80 ಟನ್	ರೂ. 108
3	ಜಲ್ಲಿ/ಮೆಟಲ್ ಎಲ್ಲಾ ವಿಧವಾದ (ಪುಡಿ ಗ್ರಾನೈಟ್/ಕ್ವಾಜೈಟ್)	ರೂ. 70	1 ಕ್ಯೂಬಿಕ್ ಮೀಟರ್ ಗೆ = 1.80 ಟನ್	ರೂ. 126
4	ಮರಳು	ರೂ. 80	1 ಕ್ಯೂಬಿಕ್ ಮೀಟರ್ ಗೆ = 1.72 ಟನ್	ರೂ. 138
5	ಗ್ರಾವೇಲ್ (ಮುರಂ)	ರೂ. 40	1 ಕ್ಯೂಬಿಕ್ ಮೀಟರ್ ಗೆ = 1.50 ಟನ್	ರೂ. 60
6	ಮಣ್ಣು (ಎಲ್ಲಾ ತರಹದ ಹೆಂಚು ಮತ್ತು ಇಟ್ಟಿಗೆ ತಯಾರಿಕೆಗಾಗಿ)	ರೂ. 60	1 ಕ್ಯೂಬಿಕ್ ಮೀಟರ್ ಗೆ = 1.50 ಟನ್	ರೂ. 90

ಸದರಿ ತಿದ್ದುಪಡಿ ಅಧಿಸೂಚನೆ ಪ್ರತಿಯನ್ನು ಮಾಹಿತಿಗಾಗಿ ಈ ಪತ್ರದೊಂದಿಗೆ ಲಗತ್ತಿಸಿದೆ.

ಸಹಿ/–

ನಿರ್ದೇಶಕರು

vi. Area Specific Loading

Sl. No	Category	Loading over Rates
1	Tier I city -Bruhat Bangaluru Mahanagara palike Limits (BBMP) (Night work , Traffic diversion, Head load/movement of machinery)	10%
2	Tier II cities (Corporation limits of Belagavi, Hubbali- Dharwada, Kalaburgi, Mangaluru, Mysuru, Vijayapura, Davanagere, Shivamogga & Tumkuru)	5%
3	Other Cities, Municipal Limits/Corporation Limits	3%
4	Kalyana Karnataka	5%
5	Restricted areas - Jails/ Forest/ Sewerage works under unhygienic conditions	12%
6	Major Irrigation command area / Mining Area/ Major Industries / Border Area (up to 5 km radius)	5%
7	Coastal Area (upto 25 km from coast), Tidal wave area, Heavy Rainfall area 1600 mm and above	12%
8	Hilly Terrain above 300 m from the nearest town/city	12%
9	Works in other States	Adopt SR of that State (City/Circle)

*Note : * Any one Area Specific loading shall be operated in a particular instance.*

"Source as Bengaluru". Bengaluru being the metropolitan city is the epicenter of the state for large logistic supplies. Many construction materials are being supplied to the state from the city from different sources. The material rates available in the Bengaluru city are considered in the preparation of Common SR. The important items are Cement, Steel, Aggregates & Masonry units are commonly available in the entire state. However, certain items such as Long steel products, Masonry units, by products of aggregates, finished products involving cement are to be supplied directly through a common source of Bengaluru which involves additional costs on the material rates, additional costs in transportation, labour, loading & unloading charges. And, due to the non-availability of certain material items in the other parts of the State like PVC products, chemicals, admixtures, the materials involving processed clay & cement and which requires specialized technology in manufacturing process are to be supplied from the source of Bengaluru which has

construction items manufacturing hubs in Bengaluru rural area surroundings and vast scale of logistic service with the supply from other states.

The Bitumen rates of MRPL are widely considered in the state and certain private companies which manufactures by products of Crude Bitumen are operating in the coastal areas. But the transportation of the same in the rolling, rough and hilly terrains adds to the cost compared to the plain terrains.

Considering the above, the source of materials as Bengaluru Rural is worked out and considered in the Rate Analysis. The mathematical & empirical relations are established in the Technical working Group and average area specific loading over the finished item rates considering all lead & lifts are recommended. This kind of practice is even followed in other neighbouring states. However, appropriate changes can be made by the departments that do not practice loading over the finished scheduled rates.

"Work in Urban Areas". The cost of work in urban roads inhabbited area will be comparatively higher due to following reasons.

a) There is mixed traffic on urban roads like slow moving hand and animal driven carts rickshaws cycles two / three wheeler apart from the usual vehicular traffic resulting in trafic jams. This causes loss of working time which may be in the range of 10-15percent .

b) There is considerable disruption of traffic adversely affecting the efficiency of the working parties including machineries due conjession caused by pedestrain traffic local road side vendors parking of vehicles on road side encroachment who makes use of berms of the road in front of these shops and unauthorised conversion of road berms into mini local market. The out put of manpower and machinery reduces due to factors subsantially.

c) Cost of living in urban areas is comparatively more resulting in higher wages.

d) At times, work is executed during night time due to heavy trafic during day time. This involves extra expenditure by the way of making arrangement for lighting and special transport for working in odd hours.

e) The population of Bengaluru city has increased substantially over the decade with extension of metropolis.

f) Construction Labour Productivity (CLP) is pivotal to ensure the output of the work. However, over the years the CLP is reduced substantially & the mechanization has taken the place in generating the required output. The mechanization further demands higher costs.

In the light of the above, the Technical Working Group decided to consider 10% Area specific additionality for BBMP limits and 5% Area specific additionality for other municipal areas as determined by the Urban Development department.

TECHNICAL SPECIFICATION

IMPORTANCE OF SAFETY IN CONSTRUCTION

For any construction activity to begin, the first and the foremost thing to be given importance is the Safety in Construction. The contractor shall employ only such methods of construction, tools and plant as are appropriate for the type of work or as approved by Executive Engineer.

The contractor shall take all precautions and measures to ensure safety of works and workman and shall be fully responsible for the same. Safety pertaining to construction works such as excavation, centering and shuttering, trenching, blasting, demolition, electric connections, scaffolds, ladders, working platforms, gangway, mixing of bituminous materials, electric and gas welding, use of hoisting and construction machinery shall be governed by safety code, relevant safety codes and as per the direction of Executive Engineer.

CHAPTER -1 : EARTH WORK EXCAVATION

CLASSIFICATION OF SOILS

The Earthwork shall be classified under the following categories and measured separately for each category:

- All kind of soils: Generally any strata, such as sand, gravel, loam, clay, mud, black cotton moorum, shingle, river or nallah bed boulders, siding of roads, paths and hard core, macadam surface of any description (water bound, grouted tarmac), lime concrete mud concrete and their mixtures which for excavation yields to application of picks, showels, jumper, sacrifiers, ripper and other manual digging implements.
- **Ordinary rock**: Generally any rock which can be excavated by splitting with crow bars or picks and does not require blasting, wedging or similar means for excavation such as lime stone, sand stone, hard laterite, hard conglomerate and un-reinforced cement concrete below ground level.
- If required light blasting may be resorted to for loosening the materials but this will not in any way entitle the material to be classified as 'Hard rock'.
- **Hard rock**: Generally any rock or boulder for the excavation of which blasting is required such as quartzite, granite, basalt, reinforced cement concrete (reinforcement to be cut through but not separated from concrete) below ground level and the like.
- **Hard rock (blasting prohibited**): Hard rock requiring blasting but where the blasting is prohibited for any reason and excavation has to be carried out by chiseling, wedging, use of rock hammers and cutters or any other agreed method.

As explained above, the various classifications of the Soil at site are to be excavated considering the following aspects by the departmental Engineers.

- Before the earthwork is started, the whole area where the work is to be done shall be cleared of grass, roots of trees and other organic matter. Site preparation shall consist of clearing grubbing and removal of any and all inappropriate materials.
- The excavation shall be carried out in accordance with the dimension shown on the sanctioned drawings. If the soil at the specified depth is found to be unsuitable, then it shall be dug to a depth at which a stratum of good hard soil is found as directed by the Quality control authorites. Besides digging the earth, the word excavation signifies the all the works related such as dressing of the sides, ramming of bottom, disposing of any soil not required out of site, and keeping the outer edge of excavation. Sides of the trenches shall be vertical and its bottom shall be perfectly levelled, both longitudinally and transversely. The Contractor shall dispose off allsurplus excavated soil at his own cost as directed by the Executive Engineer. Materials deemed not necessary or appropriate for the project shall be removed at the time of excavation. No material excavated from foundation trenches, shall be placed nearer than 1m to theouter edge of the excavation.
- The excavation shall be carefully executed as per the dimensions and elevations on sanctioned drawing and the established 'Benchmark' at the site. The contractor accepts full responsibility to align the building and slabs in reference to these given elevations. If any of the excavation be taken below the specified levels, the Contractor shall fill such excavation at his own expense with concrete well rammed in position until it is brought upto the proper levels; filling in with excavated materials will not be allowed for this purpose.If foundations are made broader or longer than directed, the extra length and breadth shall be filled in after the foundations are built with earth rammed and compacted, at the Contractor's expense.
- If the excavation is in earth, the bottom of the trenches shall be sprinkled with sufficient water to bring the soil to its optimum moisture and compacted to meet stated percentage ofcompaction. Any excess digging or any patches of bad soils or hollows shall be removed byplacing concrete or shall be subject to any other special treatment as per the decision of Executive Engineer.
- If the soil is soft, loose or slushy the trench shall be widened for allowing steps on either sides or the sides sloped or shored up. During excavation if rocks or rocky soils are found, (if approved as suitable for foundation), those shall be leveled as far as possible andthe small spaces which are difficult to level shall be filled in with CLSM.
- Water in trenches must be bailed or pumped out and where it is apprehended that the sides may slip down arrangements shall be made for adequate shoring. The Contractor shall at his own expense, make provision for all extra excavation in slope, pumping, dredging or bailing out water from the trenches and keep free of water duringthe

laying of foundation works. When it is specified that the work is to be carried out without removing pipes, cables, sewers etc. all of them shall be temporarily shored and saved from any damage. The materials or valuables found during excavation shall be the property of the Public Works Department, Government of Karnataka. The cost of all materials and labour required for fencing in and protection against risk of accidents due to open excavation shall be borne by the contractor. Care shall be taken in the disposal of water from the excavation to limit any damage to existing infrastructures or adjoining properties.

- The Contractor shall also at his own cost remove such portions of boulders or rocks and theremains of the old dismantled structures as are required to make the bottom of the trench horizontal and level. If unseen underground structures, high strength concrete, are encountered, extra payment shall be provided to the contractor with negotiations and actual calculations. If during excavation, exceptional conditions are encountered that the contractor deems outside of "normal" materials for excavation, the work shall not cease but documentation of the conditions shall be done immediately.
- The contractor needs to submit the purposed plan and schedule methodology. Before the implementation of the work, the materials required the equipments to be used need to be properly verified. Since the safety factor is directly related to the excavation, the contractor need to finish the job within the allocated period of time until and unless the contractor can provide a valid reason. As the excavation phase offers many hazards, the contractor shall have on site all needed materials barricading, caution lights & boards to protect the open excavation and warn any persons in or near the excavated areas before any excavation work shall commence.
- The Royalty charges are included in the material rates of Earth. Unless specified separately, the charges need not be paid extra. (To refer Part - I unit v)

1. ***Shoring and Protection****:* The contractor shall be responsible for all needed protection of adjacent structures, installation and design shall be his sole responsibility. The Executive Engineer shall assist as needed but implementation and protection shall be with the contractor. Any verifiable facilities initiated out of this work shall be rectified at the contractors own expense.

It is advisable for the contractors that they maintain a record and photos of all the existing surroundingbuildings in the area. It would be very useful, in-case certain claims occurs for the damage of the neighbouring building during the excavation of the site. Executive Engineer shall assist as needed as per requirement for the unnecessary claims, if proper management records are maintained. The contractor accepts sole responsibility for any damage to adjoining properties incurred in the performance of the work. It is highly recommended that a

record of all adjoining properties be maintained at site (photos and brief written descriptions).

When the depth of foundation is below 3.5 m, and where shoring is necessary, all the aspect shall depend upon the type of soil; the Contractor shall be responsible for the designof shoring for proper excavation. Shoring shall be of sufficient strength to resist side pressure ensuring safety from slippage, preventing damage to work and property and injury to persons. It shall be metal sheet piling or any other approved means strong enoughto retain the earth and protect the existing structures against any damages. The contractorshall prepare and submit the method, details and process of such shoring to the consultantbefore starting earthwork for the basement or as per the specification. It shall be removed as directed after all the items for which it is required are completed. Foundation pits, well pits and similar excavation shall be securely fenced and marked with red lights at night and be in charge of watchmen to avoid accidents. Adequate protective measures shall be taken to see that the foundation excavations do not affect or damage adjoining structures.

All measures required for the safety of the excavation, the people working in and near the foundation trenches, property and the people in the vicinity should be the responsibility of the Contractor. The Contractor shall be entirely responsible for any injury to life and damage to property caused by his negligence or accidents due to his construction operations. The work will be in two stages: this includes excavation of the basement and earth filling works. The contractor will ensure that for both stages all safety measures for the excavated areas with necessary fencing, lighting etc are provided on instruction and approval of the consultant. No extra shall be paid in this connection unless otherwise specified. Any excavation deeper than 3.5 m shall be deemed as mandatory for placement of properly designed shoring to protect workers and work at the perimeter of the excavation, any other areas found to be unstable, shall at the request of the Executive Engineer be stabilized with properly designed shoring. Design and methods shall be approved as per the stated criteria by the Superintending Engineer prior to any further work in those areas.

2. ***De-watering:*** The Contractor shall not be paid extra for bailing out or pumping out of water which may accumulate in the excavation during the progress of the work either from seepage, springs, rain from neighboring properties or any other source; any equipment shall be removed after their purpose is served. Any soils deemed saturated and unfit to support foundation shall be removed and replaced with materials of appropriate to support the structure. Placement shall be as per requirements to bear / with stand the weight of the structure and minimize and future settlement. The act of dewatering shall in no way be a determent to the community at large or inflict any undue stress on the communities' infrastructure.

Pumping water from any foundation enclosure or trenches shall be generally in such a manner as to preclude the possibility of any damage to the foundation trenches, concrete or masonry or any adjacent structure and pumbed water to be bailedout to nearby drain depending

the quantity of water. The excavation shall be kept free from water (i) during inspection and measurement, (ii) when concrete and/or masonry works are in progress and until they come above the natural water level and (iii) until the Executive Engineer considers that the concrete/mortar is sufficiently set.

3. ***Trimming and levelling****:* The bottom of all foundation should be trimmed and levelled in accordance with the sanctioned drawings. The bottom of the foundation shall be rammed and watered before concrete is deposited. The term "watered" shall be deemed to mean a condition of water content giving optimum consolidation of the soil in the compaction process, it shall not mean a condition reflecting total saturation of the soil, or flooding.

Measurement:

For Earthwork measurements, the detailed procedures enumerated in the IS 1200-1992 (Fourth revision) to be referred & followed.

Other necessary information on Earthwork Excavation & Back filling:

No black cotton soil or any other inappropriate materials shall not be used for the backfilling works. The contractor and Executive Engineer shall confer as to the appropriateness of the material to be used. If other material must be brought from outside to the site, the Executive Engineer shall give an approval prior to bring on site.

The openings around the foundation, pipes and drains in trenches shall be cleared of all debris, brick-bats. The fillings shall be done in layers, not exceeding 150 mm each layer. Each layer shall be watered, rammed and consolidated before the succeeding one is laid. Earth shall be rammed with proper compaction machines, as required by the site condition. Special care shall be taken that no damage is caused to the pipes, drains and masonry in the trenches below underneath.

All lines and levels for excavation, filling and backfilling work shall be based on the consultants' benchmark or reference point, and survey work shall be done under the direction of Engineer or surveyor retained by the contractor.

During filling of earth, the contractor needs to make necessary arrangements such that earth is properly consolidated. The contractor need to ensure that adequate amount of water is left on top of the daily filled earth so that proper consolidation occurs.

The contractor shall test the compacted earth if desired by the Executive Engineer. The density for the back fill earth shall not be less than 95% of the proctor density to the original earth unless specified in the BOQ or as approved in the Work order.

CHAPTER 2 : REINFORCED CONCRETE WORKS

The main components of this chapter are ***Cement, Steel & Aggregates***. Following are the references and practices to be followed during construction.

CEMENT : The cement used for PCC/Reinforced concrete works shall be ordinary Portland cement of approved brand and manufacture by the Executive Engineer and shall comply in all respects with Portland cement confirming to I.S. 269-2015. The contractor shall use only one brand of cement for the structural portion of the building, therefore arrangements shall be completed at the time of commencement of work to have a continual supply of that brand from start to finish. Other brands will be acceptable for other phases of work (i.e. plastering, screed, punning), again mixing of different brands cement in phases such as plastering shall not be allowed. Each phase of work shall be limited to a single brand.

It shall be delivered to the site in packages (bags) with an unbroken seal fixed by the makers and plainly marked with the name of the brand and the date of manufacture. The contractor shall weigh the cement bought at site as per the random selection from the Engineer in charge. The weight of the cement shall be 50 kg net and shall be fresh. The cement shall be storedin stacks on raised platforms, dry and impervious to water with at least 300 mm clearance from any wall/floor. The cement shall be in regular piles not exceeding ten bags high and in such a manner that it will be protected from moisture and contamination, consignments received shall be used in the order in which they are received. The stores for the cement shall be inspected and approved by Executive Engineer prior to stacking. Where bulk handling of cement is undertaken protective masks shall be provided fro the workmen. Set cement shall immediately removed from the site and replaced by the contractor at his own expense. If desired, tests shall be made by taking samples cement from stores or elsewhere from the works. The selection of samples and procedure for testing shall comply with the appropriate I.S. codes. Should the contractor deem it necessary or advantageous to use multiple brands, each brand shall be stored in a separate facility to eliminate confusion andinadvertent mixing of brands during the work. Division of a single facility shall not be acceptable, as monitoring becomes difficult.

The minimum compressive of ordinary Portland cement shall be as per I.S. 269. The initial setting time should not be less than 30 minutes and the final setting time should not be more than 10 hours.

FINE AGGREGATE : The fine aggregate (sand) shall confirm to either I.S. 383-1963 or I.S. 515 up-to-date. It shallbe clean, sharp, heavy and gritty to touch. Sand should be free from clay, mica, vegetable and organic matter or any other foreign matter. River and pit sand should be used as this does not contain common salt in large quantities. Sand should be perfectly dry before it is used, otherwise the bulking effect of sand must be taken into account.

Sand must be cleaned by screening before its use. If a sample of sand contains more than 4to 5 percent of clay, it should be washed thoroughly before use. The percentage of clay lumps shall be determined by examining the various fractions that remain after the material has been tested for grading. Any particles that can be broken with fingers shall be classified as clay lumps and the total percentage of clay limps shall be determined on the basis of the total original weight of the sample.

Sand for all cement concrete works must be coarse. It should not pass through I.S. sieve No. 480 (approximately 4.75 mm) and retained on No. 15 sieve (5.5 mm). The fineness modulus of coarse sand shall be determined by taking 500 gms of it from a representative sample of sand and passing it successively through I.S. sieves No. 484, No. 240, No. 120, No. 60, No. 30 and No. 15. Sand used in cement shall be from an approved pit, river sand is not appropriate as the water action on the grains round the edges and reduce the gripping hold of the particle. The pit sand used must be properly washed and free fromany kind of mud & clay components.

Medium sand may be used in cement mortar for masonry, plastering, pointing etc. and bituminous works of road. Sand filling in plinth, where specified may be done with fine sand. The fineness modulus of fine sand should not be less than one.

Fine aggregate shall be preferably stacked in regular stacks on hard surface of platform so as to prevent the admixture of clay, vegetable and other foreign matter. The contractor shallbe using different sieve size sand for the different purposes such as structural and non- structural. It is advised that the contractor maintain a proper storage place for different type of sand, in quality such as sieve sizes, origin etc. This shall be very or advantageous toeliminate confusion and inadvertent mixing during the work. Division of a single facility shall not be acceptable, as monitoring becomes difficult

COARSE AGGREGATE : Aggregate, as per IS 383, most of which is retained on 4.75 mm I.S. sieve and containingonly so much finer material as is permitted for the various types described below.

Quality of Aggregates: Aggregate shall consist of gravel or stone, crushed or uncrushed, or a combination thereof. It shall be hard, strong, dense, durable, clean and free from adherent coatings. As far as possible, flaky and elongated pieces should be avoided. It shall be obtained from approved quarry.

Deleterious Materials: Aggregate shall not contain any harmful material, such as coal, mica, laminated material, clay, alkali, soft fragments, sea-shells, organic impurities etc, in such quantity as affect the strength or durability of the concrete or in addition to the above for reinforced concrete, any materials which might affect the reinforcement. Aggregates which are chemically reactive with the alkalies or cement are harmful, as cracking of concrete may take place.

1. ***Mechanical Properties of Aggregate:*** The aggregate crushing value, when determined in accordance with I.S. 2386 (Part IV), mechanical properties shall not exceed 45 per cent for aggregate used for concrete other than for wearing surfaces and 30 percent for concrete for wearing surfaces such as runways, roads and pavements.

2. ***Size and Grading of Aggregate:*** When coarse aggregate brought to the site is ungraded, single size coarse aggregates of different nominal sizes, confirming to the requirements vide, table given below, shall be mixed at site. Ungraded materials shall not be placed on site, unless pre-approval is issued by the field engineer. Any such materials brought to the site shall be placed in a segregated area, so that their accidental incorporation in cement does not happen.

Designation	**All in aggregate grading Percentage passing 40 mm nominal size**	**20 mm nominal size**
80 mm	100	-
40 mm	95-100	100
20 mm	45-75	95-100
4.75 mm	25-45	30-50
600 micron	8-30	10-35
150 micron	0-6	0-6

3. ***Storage:*** The contractor shall provide means of storing the aggregates at each point where the concrete is such that (a) each nominal size of coarse aggregate and the fineaggregate shall be kept separated at all times (b) contamination of the aggregates by the ground or other foreign matter shall be effectively prevented at all times and (c) each heapof aggregate shall be capable of freely being drained. The contractor shall ensure that the graded coarse aggregates are tipped, stored and removed from the stock yard in manner that does not cause segregation.

The contractor shall make available to the Engineer incharge such samples of aggregates, as required. Such samples shall be collected at the point of discharge of the aggregate to the batching plant. If any such sample doesn't confirm with the specification, the aggregate it represent shall be promptly removed from the site and the contractor shall carry out such modification to the storage arrangements as may be necessary to secure compliance with the specification.

STEEL : The reinforcement shall be of mild steel and medium steel wire, conforming to I.S. 432-1960or TMT bars conforming to I.S. 1786-2008 or deformed steel bars conforming to I.S.1139 with up-to-date modification. Bar reinforcement described as "mild steel" shall be plain round hot rolled steel bars. Bar reinforcement described as "tor steel shall be hot rolled deformed bars or

cold twisted bras or Fe500. With respect to manufacture, quality, physical properties and related requirements, reinforcement bars of the foregoing description shall comply with appropriate parts of IS Standards 432 (part I).

All reinforcement shall be clean and free from loose mill scales, dust and coats of paint, oil, rust or other coatings which may destroy or reduce bond. The steel bar shall be found and capable of being bent (doubled over) without fracture. Joint in the bars should be avoided as far as possible, when joints have to be made an overlap of 45-60 times diameter of the bar shall be given with proper hooks at ends and joints should be staggered.

CEMENT CONCRETE WORKS

Materials: All the materials used in the cement concrete such as cement, sand (fine aggregate), coarse aggregate, water, and reinforcement shall be as per the relevant I.S. Codes and/or as per the individual specification presented.

Proportion: The proportion of the concrete shall be as mentioned in the Bill of Quantities, Working Drawings etc. The minimum compressive strength for the cement concrete shall be in accordance with I.S. 456-upto date revision.

The aggregates, both coarse and fine shall be measured by volume with boxes. Cement need not be measured by box; one bag of cement (50 kg) should be considered. Size of measuring box may be 30 cm x 30 cm x 38 cm or equivalent volume. All materials shall be dry, if damp sand is used, compensation shall be made by adding additional sand to the extent required for the bulking of damp sand. Mixing shall be of machine mixing. For small works hand mixing by batches may be allowed but about 10% extra cement need to be added as per the compensation. Work shall be planned to minimize hand mixing, Hand mixing shall be limited to minor repair works and incidental occasions. A box shall be kept on site with the capacity of 10% of a sack of cement (5kg) and used any time hand mixing is being done to meet the requirements for hand mixing.

Besides that, for the first batch of mixing for the day, an extra bag of cement is added to the first mix. It is assumed that this shall compensate all the cement being connected to the equipments such as mixture machines, batching trolleys etc.

1. ***Machine mixing:*** The mixer drum shall be flushed clean with water. Measured quantity of dry coarse aggregate shall be place first; this shall be followed with measured quantity of fine aggregates and then cement. Aggregates, sand and cement shall be put into the cement concrete mixer to have required proportion as per the Bill of Quantities, working Drawings, etc. The machine shall then be revolved to mix materials dry and then water shall be added gradually to the required quantity, 20 to 28 litres, per bag of cement to have the required water cement ratio. The mixing should be thorough to have plastic mix of uniform colour. It requires $1^1/_2$ to 2 minutes' revolution for thorough mixing. Mixed concrete shall be unloaded

on a masonry platform or on a metal sheet. Output of concrete mixer shall be approximately 15-20 batches per hour.

Approximate quantity by water required for cement concrete may be taken 30% by weightof cement plus 5% by weight of total aggregate. The concrete compacted by mechanical vibrators the quantity of water shall be reduced by 20%.

2. ***Slump:*** Regular slump test should be carried out to control the addition of water and to maintain the required consistency. A slump of 7.5 cm to 10 cm may be allowed for the building. Slump tests shall be done on a regular basis during batching and placing of concrete, or as directed by the Executive Engineer.

3. ***Formwork:*** Formwork, centering and shuttering, shall be provided as required, as per standard specifications as per IS 1200 Part V, before lying concrete confine, to support or to keep the concrete in position. The inner surface of the shuttering shall be oiled to prevent concrete sticking to it. The base and formwork over which concrete to be laid shall be wetted by sprinkling water before the concrete is laid. Forms shall be removed as specified. Formwork shall be removed slowly and carefully without disturbing and damaging concrete. Upon removal of forms any minor voids shall be repaired immediately, deeper voids (min. 12mm to max 25mm) shall have a proper patch administered as per the instruction of the Executive Engineer, to seal and protect the reinforcement.

4. ***Laying:*** Concrete work shall be started until written permission from the Executive Engineer is not issued to the contractor. Concrete shall be laid gently (not thrown) in layers not exceeding 15 cm and compacted with mechanical vibrating machine until dense concrete is obtained. Over-vibration which will separate coarse aggregate from concrete should be avoided. After removal of the formwork in due time, the concrete surface shall be free from honey combing, air holes or any other defect. The contractor need to use vibrator as per the recommendation of the consultant no matter what the volume of the concrete for a day shall be done.

Concrete shall be laid continuously, if laying is suspended for rest or for the following day, the end shall be sloped at an angel of 30^0 and made rough for future jointing. When the work is resumed, the previous sloped portion shall be roughened, cleaned and watered and agrout of neat cement (thick cement slurry) shall be applied and fresh concrete shall be laid. For successive layer the upper layer shall be laid before the lower layer has set. Everyeffort shall be made to minimize “cold”/ construction joints, work shall be planned and reviewed with the site engineer prior to commencing and the contractor shall be preparedto extend the labour and site supervision to accomplish pouring in such a fashion.

For the special areas where mentioned in the sanctioned drawings, where there shall be not further finishing, the contractor shall to take further precautions such as is required to finish in compliance with the drawings and clients wishes, or as specified by Executive

Enigneer, without any additional cost. The contractor's failure to comply with the Executive Engineers stated expectation of finishing shall open themselves to having the pour rejected and loss of payment or removaland replacement in compliance with the finish required. Neat cement punning on the surface is not an option for consideration. It is highly recommended that the contractor to use power trowels in the area of basement where there is no other finishes. This shall assist the work to be completed in faster rate and in satisfaction to the client's expectation. The contractor shall manage his staff and materials to guaranty compliance with the approved schedule and amount of work to be accomplished on a daily basis, yet maintaining the desired quality.

In the specified areas such as ramp, external courtyard, etc., the contractor shall at completion of the concrete placement begin the finishing process which shall at completion render a "broom finish". The specific broom need to be utilized to complete the specified broom finish required by Executive Engineer. "Broom finish" here implies a non-skid concrete surface without application of any kind of additional surface on top of the concrete. The contractor needs to produce the "broom finish" with the application of broom just after the completionof concreting before the concrete is hardened. The contractor may propose alternative methods to accomplish this surface texture, but must receive prior approval from the Eecutive Engineer before commencing the work.

5. **Control of Concrete:** The contractor shall be called upon to submit representative samples of material to be usedfor concrete in order that they may be tested at a laboratory and the suitability of materials established. All expenses in connection with the above material tests shall be borne by the contractor.

During the progress of the work 15 cm cubes shall be made as per I.S. 456-2000 as necessary and tested in accordance with I.S. 516-reaffirmed 2018. A minimum of three cubes shall come from various batches or individual days. The concrete used in the project, from these batches,shall be recorded and properly maintained. The cubes shall be tested for 7 days, 14 days, and 28 days unless directed by Executive Engineer. The testing results shall meet the minimum compressive strength mentioned in the structural drawings or specified by the IS Code standard so that the field concrete work has the strength required as per the code or standard for stipulated time period, i.e. for concrete work of M20, the strength must be minimum 27 MPa in 28 days. All such testing shall be done in presence of Executive Engineer or his representative. The test result conducted in absence of Executive Engineer or his representative shall not be accepted or deemed valid.

6. ***Curing:*** Freshly laid concrete shall be protected from rain by suitable curing. The work should be protected from damage and rain during construction. After about two hours laying, when concrete has begun, to harden, it shall be kept damp by covering with wet gunny bags for 7 days continuously 24 hours. After the 7th day, the contractor needs to make sure that the concrete remains wet during the hot days upto 7 days of casting. If specified curing may be done by covering concrete with special type of waterproof paper so as to prevent water escaping or evaporating.

Curing and strength development is an important part of the construction process and failure to maintain the concrete as per the stated parameters shall result in rejection and loss of time. As no time extension shall be administered for removal and replacement of any rejected work which could have been prevented with proper administration of the contract.

Executive Engineer reserves the full right to hold the concreting works if the proper curing management is not performed before the concreting. Executive Engineer holds the total control for curing and has full authority to hold the concreting work using the past curing works as an example. The contractor needs to allocate a separate staff for curing of the concrete for at least 14 days.

7. ***Repairing Honeycomb:*** Immediately after stripping the formwork, minor defects and honey combed area shall be patched and the holes filled before the concrete is thoroughly dry. Patch areas shall be chipped away to a 25 mm depth, with regular edges perpendicular to the surface.

The contractor needs to mobilize personnel to rectify the honey combing as the formworks are being stripped off the concrete surface. The contractor needs to make necessary arrangement prior to the removal of formwork and needs to complete the work when the concrete is green.

Test of Structure: Executive Engineer shall instruct for a proper testing mechanism on the works or any part thereof if in the opinion such a test be deemed necessary for one or more of the following reasons:

- The site-made concrete test cubes failing to attain the specified strength.
- The shuttering being prematurely removed.
- Concrete improperly cured.

If the contractor is instructed to conduct testing of concrete already placed for any of the previously stated reasons it shall be accomplished at his expense. If the member shows evident failure, changes as are necessary to make the structure adequately strong shall be made free of cost. The entire cost of testing shall be borne by the contractor. If in the course of dismantling, any damage is done to the embedded items and or other adjacent structures, the same shall be made good free of charge by the contractor to the satisfaction of Executive Engineer.

If the results of the tests are not satisfaction, executive engineer shall instruct the loading test of the entire structure. If such testing is required by Executive engineer, the member under consideration shall be subjected to a superimposed load equal to one and a quarter ($1^1/_4$) times the specified superimposed load used for design and this load shall be maintained for a period of 24 hours before removal. The detail procedure of the test is to be decided by Executive Engineer even afterthese tests the results obtained are not satisfactory to executive engineer, the part of the works concerned shall be taken down or removed and reconstructed to comply with

the specification, or that such other remedial measures shall be taken as to make the works secure. The contractor needs to bear all the cost for taking out and other remedial works.

8. ***Water Proofing Compound:*** For those areas, such as shear walls of the water tanks, terrace slabs, the contractor needs to mix the water proofing compound of IS, ASTM & BS standards within the concrete itself for the extra protection. The contractor needs to get approval of the specification and the brand of the water proofing compound likely to be used prior to the application. Once the water proofing compound is approved, the contractor needs to apply the mix, proportion as per the manufacturer's specification. The contractor holds full responsibility for the water proofing compound in concrete.

FORMWORK

Formwork shall be designed and constructed so that concrete can be properly placed and thoroughly compacted. Formwork shall be firmly supported and adequately strutted, braced, or tied. It shall be capable of adjustment to the lines and dimensions of the finished concrete and it shall be sufficiently strong to resist without distortion, the pressure of concrete during its placing and compaction and other loads to which it may be subjected. It shall not be liable to suffer distortion under the influence of the weather. When concrete isto be vibrated, special care shall be taken to ensure that the formwork will remain stable and joints tight, gaps in form panels greater than 5mm shall not be acceptable. The safety and adequacy of centering and shuttering shall be sole responsibility of the contractor.

Formwork shall include all forms or moulds required for forming the concrete which is cast-in-situ, together with all temporary construction required for their support.

Materials for Formwork: Formwork shall be of minimum 19 mm thick water proof plywood or metallic sheets unless otherwise specified. Timber used for formwork shall be easily workable with nails without splitting and of light weight. It shall be stiff and strong enough to avoid undue deflection when loaded and not liable to warp when exposed to sun and rain or wetted during casting of concrete.

Formwork shall be of rigid construction true to shape and dimensions shown on drawings. It shall be strong enough to withstand the dead and live loads and forces caused by ramming and vibrations of concrete and other incidental loads imposed upon it during and after casting of concrete. It shall be made sufficiently rigid by using adequate number of braces and ties. To make up any settlement in the formwork either before or during the placing of concrete, hard wood wedges shall be provided where required. Error upto 10 mm shall be under tolerance, so the contractor needs to maintain the materials as well as the workmanship upto the perfect expectation.

All form work shall be so constructed as to be removable in section in the desired sequence, without damaging the surface of concrete or disturbing other sections. Forms should be easy to strip after connecting and no piece should be keyed into the concrete. The completed form work

shall be approved after inspection by Executive Engineer.

Propping and Centering: Props used for centering shall be of steel unless otherwise specified. All props shall further be provided with double wedges so as to facilitate tightening and easing of shuttering without causing shock to the concrete.

In case a span exceeds 4.5 m and height exceeds 3.5 m suitable horizontal as well as vertical and / or diagonal bracings shall be provided after accounting for all forces including action of wind which may produce lateral forces. In case the height of centering exceeds 3.5 meters, the props may be provided in multi-stages. The detail of splicing the props at each stage shall be as per approved drawing. The vertical props shall be erected in spacing of 750-900 mm centre to centre. The erecting of the props for any structural elements directly on the ground will not be accepted. They shall be erected on wooden beams or any approved base on the ground. The horizontal bracing shall be at a spacing of 1000 mm centre to centre vertically.

Before the casting of concrete is started, the props and wedges shall be thoroughly checked to see that there are intact, in line of level, and plumb. While the casting of concrete is in progress, at least one carpenter shall keep a constant watch on the props and take immediate remedial measures, as soon as any of them gets loosened.

***Shuttering*:** The shuttering shall be of approved dressed timber of well seasoned boards to give a smooth and even surface and the joints shall not permit leakage of cement grout. The timber shall be free from loose knots, projected nails, splits, adhering grout or other defects that may mar the cement surface of concrete. It shall not be green or wet as to shrink after erection. Species of timber which are not affected appreciably by its contact with water shall be used. When metal forms are used, all bolts and nuts shall be countersunk and well ground to provide a smooth plain surface. Opening for fan clamps and other fittings connected with services shall be provided in the shuttering as directed by Executive Engineer.

The surfaces of timber shuttering that would come in contact with concrete shall be thoroughly cleaned and well wetted and coated with soap solution, raw linseed oil, or form oil of approved manufacture, or any other approved material such as polythene sheets, to prevent adhesive of concrete to form work. Executive Engineer shall inspect and accept the form work as to its strength, alignment and general fitness before placing any concrete in the forms. But such inspection shall not relieve the contractor of his responsibility for safety of man, machinery, materials and for results obtained.

Suitable camber shall be provided in horizontal members of structures especially in long members to counteract the effects of deflection. The camber for beams and slabs shall be 4 mm per meter i.e. 1 in 250 and for cantilevers, at free end shall be $1/50^{th}$ of the projected length or as directed by Executive Engineer. In case of beams and shear walls, the shuttering shall be tied with nut bolts system @ 750 mm centre to centre vertically and horizontally unless instructed by Executive Engineer.

1. ***Off-form finish:*** The concrete shall be an off form finish, which means that the formwork itself shall be of a good finish to achieve the off form concrete surface smoothand even, free from all board marks, projections, pits and honey combing etc and all arises shall be square, straight and true. The contractor shall especially see that the finished exposed surface be smooth and even so that no rendering or plastering is required.

2. ***Removal of Formwork:*** The formwork shall be removed avoiding shock or vibration that may cause any damage to concrete. In slab and beam construction, sides of beam shall be stripped first; then the under sides of slab and lastly the underside of the beam. The period that shall elapse after the concrete has been laid before undertaking the work of easing and removal of centering and shuttering shall be as per according to I.S. 456-2000 revision.

In case of cantilever slabs and beams, the centering shall remain till structures for bearing down have been erected and have sufficient strength.

Measurement:

Measurement for payment shall be done on the area of which centering shuttering has been carried out. Rate shall include centering and shuttering including propping, strutting etc. and removal of forms, including applying form oil to shuttering. The rate also includes removal of the form as per the specified time.

Nothing extra shall be paid for any kind of curved surfaces, small offsets, decorative designs etc. unless otherwise specified. All these decorative designs and offsets shall be measured accordingly as mentioned earlier and no special provision shall be applied to these measurements. The contractor needs to produce off form finish concrete as much as possible. Nothing extra shall be provided to the contractor for this account. The formwork & Concrete combined to be paid for payment as specified in the appendix.

ANTI-TERMITE TREATMENT

Sub-terranean termites are responsible for most of the termite damage in buildings. Typically, they form nests or colonies underground. In the soil near ground level in a stump or other suitable piece of timber in a conical or dome shaped mound. The termites find access to the super-structure of the building either through the timber buried in the ground or by means of mud shelter tubes constructed over unprotected foundations.

Termite control in existing as well as new building structures is very important as the damage likely to be caused by the termites to wooden members of building and other household article like furniture, clothing, stationery etc. is considerable. Anti-termite treatment can be either during the time of construction i.e. pre- constructional chemical treatment or after the building has been constructed i.e. treatment for existing building.

Prevention of the termite from reaching the super-structure of the building and its contents can be achieved by creating a chemical barrier between the ground, from where the termites come and other contents of the building which may form food for the termites. This is achieved by treating the soil beneath the building and around the foundation with a suitable insecticide.

Materials

Chemicals: Any one of the following chemicals in water emulsion to achieve the percentage concentration specified against each chemical shall be used:

Chlorphriphos emulsifiable concentrate of 20%

Lindane emulsifiable concentrate of 20%

Anti-termite treatment chemical is available in concentrated form in the market and concentration is indicated on the sealed containers. To achieve the specified percentage of concentration, Chemical should be diluted with water in required quantity before it is used. Graduated containers shall be used for dilution of chemical with water in the required proportion to achieve the desired percentage of concentration. For example, to dilute chemical of 20% concentration. 19 parts of water shall be added to one part of chemical for achieving 1% concentration.

Engineer -in-Charge shall procure the chemical of required concentration in sealed original containers directly from the reputed and authorized dealers, chemical shall be kept in the custody of the Engineer-in-Charge or his authorized representatives and issued for use to meet the day's requirements. Empty containers after washing and concentrated chemical left unused at the end of the day's work shall be returned to the Engineer-in-Charge or his authorized representative.

Measurements: Concentrated chemical in sealed containers shall be measured in litres. Chemicals of different types and concentration shall be measured separately.

Safety Precautions

Chemical used for anti-termite treatment are insecticides with a persistent action and are highly poisonous. This chemical can have an adverse effect upon health when absorbed through the skin, inhaled as vapours or spray mists or swallowed.

The containers having emulsifiable concentrates shall be clearly labelled and kept securely closed in stores so that children or pet cannot get at them. Storage and mixing of concentrates shall not be done near any fire source or flame. Persons using these chemical shall be warned that absorption though skin is the most likely source of accidental poisoning. Particular care shall be taken to prevent skin contact with concentrates and prolonged exposure to dilute emulsion shall also be avoided. After handling the concentrates or dilute emulsion. Workers shall wash themselves with soap and water and wear clean clothing, especially before eating. In the event of

severe contamination, clothing shall be removed at once and the skin washed with soap and water. If chemical has splashed into the eyes, they shall be flushed with plenty of soap and water and immediate medical attention shall be sought.

Treatment

Once the termites have an ingress into the building, they keep on multiplying and destroy the wooden and cellulosic materials, and as such it becomes essential to take measures for protection against termites. Anti termite measures described below are necessary for the eradication and control of termites in existing building. To facilitate proper penetrations of chemical in to the surface to be treated, hand operated pressure pump shall be used.

To have proper check for uniform penetration of chemical, graduated containers shall be used.

Proper check should be kept so that the specified quantity of chemical is used for the required area during the operation. Chemical treatment for the eradication and control of sub-terranean termites in existing building shall be done as per IS 6313 (Part III). Treatment shall be got done only from the approved specialized agencies using the chemical procured directly by the Executive Engineer from reputed and authorized dealers.

Treatment along outside of foundations: The soil in contact with the external wall of the building shall be treated with chemical emulsion at the rate of 7.5 L/m2 of vertical surface of the sub-structure to a depth of 300 mm. To facilitate this treatment, a shallow channel shall be excavated along and close to the wall face. The chemical emulsion shall be directed towards the wall at 1.75 L/m of the channel. Rodding with 12 mm diameter mild steel rods at 150 mm apart shall be done in the channel. If necessary, for uniform dispersal of the chemical to 300 mm depth from the ground level. The balance chemical of 0.5 L/m shall then be used to treat the backfill earth as it is returned to the channel directing the spray towards the wall surface.

If there is a concrete or masonry apron around the building, approximately 12 mm diameter holes shall be drilled as close as possible to the plinth wall about 300 mm apart, deep enough to reach the soil below and the chemical emulsion pumped into these holes to soak the soil below at the rate of 2.25 L/m.

In soils which do not allow percolation of chemicals to desired depth, the uniform disposal of the chemical to a depth of 300 mm shall be obtained by suitably modifying the mode of treatment depending on site condition.

In case of RCC foundations the soil (backfill) in contact with the column sides and plinth beams along with external perimeter of the building shall be treated with chemical emulsion at the rate of 7.5 L/m2. of the vertical surface of the structure. To facilitate this treatment, trenches shall be excavated equal to the width of the shovel exposing the sides of the column and plinth

beams upto a depth of 300 mm or upto the bottom of the plinth beams, if this level is less than 300 mm. The chemical emulsion shall be sprayed on the backfill earth as it is returned into the trench directing the spray against the concrete surface of the beam or column as the case may be.

Treatment of Soil under Floors : The points where the termites are likely to seek entry through the floor are the cracks at the following locations:

- At the junction of the floor and walls as result of shrinkage of the concrete;
- On the floor surface owing to construction defects;
- At construction joints in a concrete floor, cracks in sections; and
- Expansion joints in the floor.

Chemical treatment shall be provided in the plinth area of ground floor of the structure, wherever such cracks are noticed by drilling 12 mm holes at the junction of floor and walls along the cracks on the floor and along the construction and expansion joints at the interval of 300 mm to reach the soil below. Chemical emulsion shall be squirted into these holes using a hand operated pressure pump to soak the soil below until refusal or upto a maximum of one litre per hole. The holes shall then be sealed properly with cement mortar 1:2 (1 cement: 2 coarse sand) finished to match the existing floors. The cement mortar applied shall be cured for at least 10 days as per instruction of Engineer-in-charge.

Treatment of Voids in Masonry : The movement of termites through the masonry wall may be arrested by drilling holes in masonry wall at plilnth level and squirting chemical emulsions into the holes to soak the masonry. The holes shall be drilled at an angle of 45 degree from both sides of the plinth wall at 300 mm intervals and emulsion squirted through these holes to soak the masonry using a hand operated pump. This treatment shall also be extended to internal walls having foundations in the soil. Holes shall also be drilled at wall corners and where door and window frames are embedded in the masonry or floor at ground. Emulsion shall be squirted through the holes till refusal or to a maximum of one litre per hole. Care shall be taken to seal the holes after the treatment.

Treatment at Points of Contact of Wood Work : The wood work which has already been damaged beyond repairs by termites shall be replaced. The new timber shall be dipped or liberally brushed at least twice with chemical in oil or kerosene. All existing wood work in the building which is in contact with the floor or walls and which is infested by termites, shall be treated by spraying at the points of contacts with the adjoining masonry with the chemical emulsion by drilling 6 mm holes at a downward angle of about 45 degree at junction of wood work and masonry and squirting chemical emulsion into these holes till refusal or to a maximum of half a litre per hole. The treated holes shall then be sealed.

Infested wood work in chaukhats, shelves, joints, purlins and other items in contact with the floor or the walls shall be provided with protective treatment by drilling holes of about 3 mm diameter with a downward slant to the core of the wood work on the inconspicuous surface of the frame. These holes should be at least 150 mm centre to centre and should cover in entire frame work. Chemicals shall be liberally infused in these holes. If the wood is not protected by paint or varnish two coats of the chemicals shall be given on all the surfaces and crevices adjoining the masonry.

Cement Mortar : Cement Mortar with fine and forced sand 1:1 to 1:6 is considered as material component in the SR. Cement consumption coefficients are appended separately.

Chapter - I

EARTH WORK

CHAPTER 1

EARTH WORK

Sl. No	Description of item	Unit	Rate
1	Earth work in surface excavation for stripping, seating of bund, Road way, by manual means for lowering & leveling the ground for all works other than foundation & depth in all kinds of soil not exceeding 300mm as per drawing and technical specifications, including setting out, shoring, strutting, barricading, caution lights, removal of stumps and other deleterious matter including dressing of excavated surfaces, disposing off or levelling the excavated earth or sorting & stacking the selected earth for reuse in a radius of 50 m and lift upto 1.5 m including cost of labour, tools, usage & other appurtenances required to complete the work		
1.1	**In all kinds of soil upto 300 mm depth**	m^2	**70.00**
1.2	Earth work in surface excavation for stripping, seating of bund, Road way by manual means for lowering & levelling the ground for all works other than foundation & depth in Ordinary rock and soft rock upto 300mm depth as per drawing and technical specifications, including setting out, barricading, caution lights, including dressing of excavated surfaces, disposing off or levelling the excavated stuff or sorting & stacking the selected stuff for reuse in a radius of 50 m and lift upto 1.5 m including cost of labour, tools, usage& other appurtenances required to complete the work		
1.2.1	**In Ordinary rock and Soft rock upto 300 mm depth**	m^3	**452.00**
1.3	Earth work in surface excavation by manual means for lowering & levelling the ground by chiselling and wedging in Hard rock for all works other than foundation & depth not exceeding 100 mm as per drawing and technical specifications, including setting out, barricading, caution lights, dressing of excavated surfaces, disposing off the excavated spalls/stuff & stacking the selected spall/ stuff for reuse in a radius of 50 m and lift upto 1.5 m including cost of labour, tools, usage & other appurtenances required to complete the work		
1.3.1	**In Hard rock upto 100 mm depth**	m^2	**136.00**
1.4	Earth work excavation by manual means for drains,canals and similar works in all kinds of soils , as per drawing and technical specifications, including setting out, shoring, strutting, barricading, caution lights, removal of stumps and other deleterious matter, excavated surface leveled and sides neatly dressed disposing off the excavated stuff or sorting & stacking the selected stuff for reuse in a radius of 50 m and lift upto 1.5 m including cost of labour, tools & other appurtenaces required to complete the work		
1.4.1	**In all kinds of soils Depth upto 1.5 m**	m^3	**186.00**
	Note: Cost of De-watering upto 5 % may be added , where required assessment for dewatering shall be made as per site condition		

1.4.2	**Depth exceeding 1.5m, but not exceeding 3 m**	m^3	**199.00**
	Note: Cost of De-watering upto 10 % may be added , where required assessment for dewatering shall be made as per site condition		
1.4.3	**Depth exceeding 3m, but not exceeding 4.5 m**	m^3	**288.00**
	Note: Cost of De-watering upto 10 % may be added , where required assessment for dewatering shall be made as per site condition		
	Note: Add 5% per m^3 for every additional 1.50m depth or part thereoff beyod initial 1.50 m depth if shoring and strutting is provided		
1.5	Earth work excavation by manual means for drains,canals, waste weir draft, approach channels, key trench, foundation of Bridges and such similar works, as per drawing and technical specifications, including setting out, shoring, strutting, barricading, caution lights, excavated surface leveled and sides neatly dressed disposing off or leveling the excavated stuff or sorting & stacking the selected stuff for reuse in a radius of 50 m and lift upto 1.5 m including cost of labour, tools, usage & other appurtenances required to complete the work.		
1.5.1	**In ordinary/soft rock without blasting upto 1.5 m depth**	m^3	**229.00**
	Note: Cost of De-watering upto 5 % may be added , where required assessment for dewatering shall be made as per site condition		
1.5.2	**Depth exceeding 1.5m, but not exceeding 3 m**	**m^3**	**341.00**
	Note: Cost of De-watering upto 7.5 % may be added , where required assessment for dewatering shall be made as per site condition		
1.5.3	**Depth exceeding 3m, but not exceeding 4.5 m**	**m^3**	**452.00**
	Generally going 3 m in hard rock is not in practise except for tunnelling. It is desirable to stop at 3 m and add additionality for every 1.5 m		
	Note: Cost of De-watering upto 10 % may be added , where required assessment for dewatering shall be made as per site condition		
	Add 5% per m^3 for works under foul & sullage situation		
1.6	Earth work excavation for Foundation by manual means for all Buildings, Bridges, Retaining walls, Abutment Piers and such similar works as per drawing and technical Specifications, including setting out, providing shoring & strutting,barricading, caution lights, removal of stumps and other deleterious matter, including dressing of excavated surfaces, disposing off or levelling the excavated earth or sorting & stacking the selected earth for reuse in a radius of 50 m and lift upto 1.5 m including cost of labour, tools, usage& other appurtenances required to complete the work.		
1.6.1	**In all kinds of soils Depth upto 1.5 m**	m^3	**186.00**
	Note: Cost of De-watering upto 5 % may be added , where required assessment for dewatering shall be made as per site condition		
1.6.2	**Depth exceeding 1.5m, but not exceeding 3 m**		**199.00**

	Note: Cost of De-watering upto 7.5 % may be added , where required assessment for dewatering shall be made as per site condition		
1.6.3	**In ordinary/soft rock without blasting upto 1.5 m depth**	m^3	**229.00**
	Note: Cost of De-watering upto 5 % may be added , where required assessment for dewatering shall be made as per site condition		
	Add 5% per m^3 for works under foul & sullage situation		
	Note: Add 5% per m3 for every additional 1.50m depth or part thereoff beyod initial 1.50 m depth if shoring and strutting is provided		
1.7	Earth work excavation for pipelines/cables by Manual means upto 600 mm trench width, as per drawing and technical specifications, including setting out, shoring, strutting, barricading, caution lights, removal of stumps and other deleterious matter, including dressing of excavated surfaces, disposing off or leveling the excavated earth or sorting & stacking the selected earth for reuse in a radius of 50 m. Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering and lift upto 1.5 m including cost of labour, tools, usage& other appurtenances required to complete the work.		
1.7.1	**In all kinds of soils. Depth upto 1.50m**	m^3	**417.00**
	Details of laying of cost for 60m length of a pipe of an average dia. say 450mm. Slope assumed 1 in 200. Earth work and filling- Minimum depth of trench 0.75+0.45= 1.20m, Average depth = (1.50+1.20)/2 = 1.35, Width =0.40 + 0.45 = 0.85 m, 60x0.85x1.35=68.85 m^3, 5% for collars = 3.44 m^3 , Total=72.29m^3 Rate as per item no. 1.6.1		
	Filling available excavated earth in trenches Rate as per item 1.10		
1.7.2	Extra for excavating trenches for pipes, cables and similar works in all kinds of soil where excavation width is upto 600 mm for depth exceeding 1.5 m, but not exceeding 3 m. add 20 % extra (Rate is over corresponding basic item for depth upto 1.5 m).		
1.7.3	Extra for excavating trenches for pipes, cables and similar works in all kinds of soil where excavation width is upto 600 mm for depth exceeding 3.0 m, but not exceeding 4.5 m. add 50 % extra (Rate is over corresponding basic item for depth upto 1.5 m).		
	Note: 1. Additional rates for quantities of works, executed in or under water and /or liquid mud, including pumping water as required cost of 1 m depth 20% of the rate of the item)		
	Note: 2. Additional rates for quantities of works, executed in or under foul position,including pumping water as required cost of 1 m depth 25% of the rate of the item)		
	Note: 3. If the width of excavation is less than 0.60 m, Add 25% extra / m^3 for the above rates.		

1.8	Construction of Embankment with approved materials deposited at site from roadway cutting and excavation from drain and foundation of other structures graded with desired compaction.	m^3	**113.00**
1.9	Construction of Embankment by excavating the available approved Gravel/Murrum deposited at a place or borrow pits during or prior excavation with all lifts and lead, transportation to site, spreading, grading to required slope and compacting to meet the requirement complete as per specifications, including cost of labour,rolling,water,all materials,usage& all other appurtenaces required to complete the work.	m^3	**402.00**
	If the height of embankment construction is more than 1.50 m add 5% per m^3 for every 1.50 m height or part there off		
	Deduct 5% per m^3 if rollers are not used and tamping is done manually		
	Add 8% per m^3 for works under foul & sullage situation		
1.10	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations and other similar works etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.	m^3	**160.00**
1.11	Refilling available earth around trenches/pipelines, cables in layers not exceeding 20 cms in depth, compacting each deposited layer by ramming after watering with a lead upto 50 m , and lift upto 1.5 m. Including cost of all labour complete as per specifications	m^3	**96.00**
1.12	Supplying and filling in plinth with sand under floors, foundation of Bridges including watering, ramming, consolidating and dressing complete.	m^3	**2177.00**
	Mechanical Means		
1.14	Earth work in surface excavation by mechanical means for lowering & leveling the ground for all works other than foundation in all kinds of soils & upto depth not exceeding 300mm as per drawing and technical specifications, including setting out, shoring, strutting, barricading, caution lights, removal of stumps and other deleterious matter including dressing of excavated surfaces, disposing off or levelling the excavated earth or sorting & stacking the selected earth for reuse in a radius of 50 m and lift upto 1.5 m including cost of labour, tools, usage of machinery & other appurtenances required to complete the work.		
	In all kinds of soils upto 300 mm depth	m^3	**110.00**
1.15	Earth work in surface excavation by mechanical means for lowering & leveling the ground without blasting for all works other than foundation in Ordinary soil/Soft rock & depth not exceeding 300mm as per drawing and technical specifications, including setting out, shoring, strutting, barricading, caution lights, removal of stumps and other deleterious matter including dressing of excavated surfaces, disposing off or levelling the excavated earth or sorting & stacking the selected earth for reuse in a radius of 50 m and lift upto 1.5 m including cost of labour, tools, usage of machinery & other appurtenances required to complete the work		
	In Ordinary/Soft rock upto 300 mm depth	m^3	**218.00**

1.16	Earth work excavation for Foundation by mechanical means for all works & depth upto 3 m, as per drawing and technical specifications, including setting out, shoring, strutting, barricading, caution lights, including dressing of excavated surfaces, disposing off or levelling the excavated earth or sorting & stacking the selected earth for reuse in a radius of 50 m and lift upto 1.5 m including cost of labour, tools, usage of machinery & other appurtenaces required to complete the work		
1.16.1	**In all kinds of soils Depth upto 3 m**	m^3	**49.00**
	Note: Cost of De-watering upto 5 % of (A+B) may be added, where required assessment for dewatering shall be made as per site condition		
1.16.2	**Depth 3 m to 6 m**	m^3	**56.00**
	Note:Cost of dewatering upto 7.5 % of (A+B) may be added , where required assessment for dewatering shall be made as per site condition		
1.16.3	**Depth above 6 m**	m^3	**72.00**
	Note: cost of dewatering upto 10 % of (A+B) may be added , where required assessment for dewatering shall be made as per site condition		
1.17.1	**In ordinary/soft rock without blasting upto 1.5 m depth**	m^3	**216.00**
	Note:1 Cost of De-watering upto 5 % of (A+B) may be added , where required assessment for dewatering shall be made as per site condition.		
1.17.2	**Depth exceeding 1.5 m, but not exceeding 3 m**	m^3	**265.00**
	Note: Cost of De-watering upto 7.5 % of (A+B) may be added , where required assessment for dewatering shall be made as per site condition		
1.17.3	**Depth exceeding 3m, but not exceeding 4.5m**	m^3	**295.00**
	Note1: Cost of De-watering upto 10 % of (A+B) may be added , where required assessment for dewatering shall be made as per site condition		
	Note2:Extra rates for quantities of works, executed in or under foul position, including pumping water as required cost of 1 m depth 25% of the rate of the item)		
	Note 3 Add 5% per m3 for every additional 1.50m depth or part thereoff beyond 4.50 m depth is provided		
	Note 4: Add 5% per m3 for every additional 1.50m depth or part thereoff beyond initial 1.50 m depth if shoring and strutting is provided		
1.18	Earth work excavation for FOUNDATION by Mechanical means depth upto 1.50m, as per drawing and technical specifications, including setting out, shoring, strutting, barricading, caution lights, including cost of explosives, dressing of excavated surfaces, disposing off or levelling the excavated stuff or sorting & stacking the selected stuff for reuse in a radius of 50 m and lift upto 1.5 m including cost of labour, blasting materials, tools, usage of Machinery & all other appurtenaces required to complete the work		

1.18.1	**In Hard Rock (requiring blasting) Depth upto 1.50m**	m^3	**366.00**
	Note: Cost of De-watering upto 5 % of (A+B) may be added , where required assessment for dewatering shall be made as per site condition		
1.18.2	**Depth exceeding 1.5 m, but not exceeding 3 m**	m^3	**410.00**
	Note: Cost of De-watering upto 7.5 % of (A+B) may be added , where required assessment for dewatering shall be made as per site condition		
1.18.3	**Depth exceeding 3m, but not exceeding 4.5m**	m^3	**488.00**
	Note 1: Cost of De-watering upto 10 % of (A+B) may be added , where required assessment for dewatering shall be made as per site condition		
	Note: 2.Extra rates for quantities of works, executed in or under foul position,including pumping water as required cost of 1 m depth 25% of the rate of the item		
	Note 3 Add 5% per m3 for every additional 1.50m depth or part thereoff beyond 4.50 m depth is provided		
	Note 4 Add 3% per m3 for every additional 1.50m depth or part thereoff beyond initial 1.50 m depth if shoring and strutting is provided		
1.18.4	**Hard rock (blasting prohibited) depth upto 1.50m**	m^3	**672.00**
	Note: Cost of De-watering upto 5 % of (Material+Labour) may be added, were required assessment for dewatering shall be made as per site condition		
1.18.5	**Depth exceeding 1.5 m, but not exceeding 3 m**	m^3	**720.00**
	Note: Cost of De-watering upto 7.5 % of (A+B) may be added , where required assessment for dewatering shall be made as per site condition		
1.18.6	**Depth exceeding 3.0 m, but not exceeding 4.5 m**	m^3	**769.00**
	Note:1 Cost of De-watering upto 10 % of (Material+Labour) may be added , where required assessment for dewatering shall be made as per site condition		
	Note: 2.Extra rates for quantities of works, executed in or under foul position,including pumping water as required cost of 1 m depth 25% of the rate of the item)		
	Note 3 Add 5% per m3 for every additional 1.50m depth or part thereoff beyond 4.50 m depth is provided		

1.19	Earth work excavation for pipeline trenches in all kinds of soils by mechanical means above 600 mm (Depth upto 1.50m not exceeding 1.5m in width) trench width as per drawing and technical specifications, including setting out, construction of shoring, strutting, barricading, caution lights, bracing, using sight rails & boning rods at every 100 mm whevere necessary as directed, removal of stumps and other deleterious matter, dressing of sides and levelling the bottom of trench to the extent required , utilising the available excavated earth locally for the work etc., and all other appurtenances complete in the following strata.		
1.19.1	**All kinds of soils. Depth upto 1.50m**	m^3	**147.00**
1.19.2	**Depth exceeding 1.5 m, but not exceeding 3 m**	m^3	**192.00**
1.19.3	**Depth exceeding 3.0m, but not exceeding 4.50m**	m^3	**305.00**
1.20	**Extra for every additional lift of 1.5 m or part thereof in excavation / banking excavated or stacked materials.**	m^3	**67.00**
1.21	Earth work excavation for pipeline trenches in all kinds of by mechanical means above 600 mm (Depth upto 1.50m not exceeding 1.5m in width) trench width as per drawing and technical specifications, including setting out, construction of shoring, strutting, barricading, caution lights, bracing, using sight rails & bonding rods at every 100 mm whevere necessary as directed, removal of slumps and other deleterious matter, dressing of sides and levelling the bottom of trench to the extent required , utilising the available excavated earth locally for the work and all other appurtenances to complete in the following strata.		
1.21.1	**Ordinary/soft rock (without requiring blasting) Depth upto 1.50m**	m^3	**287.00**
1.21.2	**Depth exceeding 1.5 m, but not exceeding 3 m**	m^3	**366.00**
1.21.3	**Depth exceeding 3 m, but not exceeding 4.50m**	m^3	**426.00**
	Note Add 5% per m^3 for every additional 1.50m depth or part thereoff beyod 4.50 m depth		
1.22	**Extra for every additional lift of 1.5 m or part thereof in excavation / banking excavated or stacked materials.**	m^3	**120.00**
1.23	Earth work excavation for pipeline trenchesby mechanical means above 600 mm (Depth upto 1.50m not exceeding 1.5m in width) trench width as per drawing and technical specification, including setting out, construction of shoring, strutting, cost of blastingmaterials,barricading, caution lights, bracing, using sight rails & boning rods at every 100 mm whevere necessary as directed, removal of slumps and other deleterious matter, dressing of sides and levelling the bottom of trench to the extent required , utilising the available excavated earth locally for the work and all other appurtenances to complete in the following strata.		
1.23.1	**Hard rock (requiring blasting) Depth upto 1.50m**	m^3	**454.00**
1.23.2	**Depth exceeding 1.5 m, but not exceeding 3 m**	m^3	**518.00**

1.23.3	**Depth exceeding 3 m, but not exceeding 4.50m**	m^3	**582.00**
	Note Add 5% per m^3 for evey additional 1.50m depth or part thereoff beyod 4.50 m depth		
1.23.4	**Extra for every additional lift of 1.5 m or part thereof in excavation / banking excavated or stacked materials.**	m^3	**120.00**
1.23.5	**Hard rock (blasting prohibited) Depth upto 1.50m**	m^3	**719.00**
1.23.6	**Depth exceeding 1.5 m, but not exceeding 3 m**	m^3	**800.00**
1.23.7	**Depth exceeding 3 m, but not exceeding 4.50m**	m^3	**860.00**
	Note1 Add 5% per m^3 for every additional 1.50m depth or part thereoff beyod 4.50 m depth		
	Note: 2..Additional rates for quantities of works, executed in or under water and /or liquid mud, including pumping water as required cost of 1 m depth 20% of the rate of the item		
	Note: 3..Additional rates for quantities of works, executed in or under foul position,including pumping water as required cost of 1 m depth 25% of the rate of the item)		
	Note 4. If the width of excavation is less than 0.60 m, Add 25% extra / m^3 for the above rates.		
1.24	**Extra for every additional lift of 1.5 m or part thereof in excavation / banking excavated or stacked materials**	m^3	**120.00**
	Note: 1.Extra rates for quantities of works, executed in or under water and /or liquid mud, including pumping water as required cost of 1 m depth 20% of the rate of the item)		
	Note: 2.Extra rates for quantities of works, executed in or under foul position, including pumping water as required cost of 1 m depth 25% of the rate of the item)		
	Note : 3. If the width of excavation is less than 0.60 m, Add 25% extra / m^3 for the above rates.		

Note : For (A+B) refer rate analysis.

Chapter - II

CONCRETE WORKS

- The rates are excluding the cost of steel and formwork.
- Percentage as per Appendix-I to be adopted in case formwork is considered.

CHAPTER 2

CONCRETE WORKS

(PLAIN & REINFORCED CEMENT CONCRETE)

Item No.	Description of Item	Unit	Rate Rs.
2.1	Providing and laying in position plain cement concrete for levelling course for all works in foundation. The granite/trap/basalt crushed graded coarse aggregates and fine aggregates as per relevant IS Codes machine mixed, laid in layers not exceeding 150 mm thickness, well compacted using plate vibrators, including all lead & lifts, cost of all materials of quality, labour, Usage charges of machineries, curing, and all the other appurtenances required to complete the work as per technical specifications. (The cost of steel reinforcement & formwork shall be paid separately)		
2.1.1	Mix 1:5:10 Using 40 mm and down size graded crushed coarse aggregates	m^3	4976.00
2.1.2	Mix 1:4:8(M5) Using 40 mm and down size graded crushed coarse aggregates	m^3	5364.00
2.1.3	Mix 1:3:6 (M10) Using 40 mm and down size graded crushed coarse aggregates	m^3	5752.00
2.1.4	Mix 1:3:6 (M10) Using 20 mm and down size graded crushed coarse aggregates	m^3	5926.00
2.2	Providing and laying in position Reinforced cement concrete for all Foundation works. The granite/trap/basalt crushed graded coarse aggregates and fine aggregates as per relevant IS Codes machine mixed with super plasticizers laid in finished layers, well compacted using needle vibrators, including all lead & lifts, cost of all materials, quality confirming to the requirements of relevant IS codes , labour, Usage charges of machinery, curing and all the other appurtenances required to complete the work as per technical specifications. (The cost of steel reinforcement & formwork to be paid separately)		
2.2.1.1	M20 Design Mix Using 20 mm and down size graded crushed coarse aggregates	m^3	6231.00
2.2.1.2	M20 Design Mix Using 20 mm and down size graded crushed coarse aggregates with 20% partial replacement with Recycled concrete aggregate (RCA)	m^3	6161.00
2.2.2.1	M25 Design Mix Using 20 mm and down size graded crushed coarse aggregates	m^3	6285.00
2.2.2.2	M25 Design Mix Using 20 mm and down size graded crushed coarse aggregates with 20% partial replacement with Recycled concrete aggregate (RCA)	m^3	6211.00
2.2.3.1	M30 Design Mix Using 20 mm and down size graded crushed coarse aggregates	m^3	6633.00

2.2.3.2	M30 Design Mix Using 20 mm and down size graded crushed coarse aggregates with 20% partial replacement with Recycled concrete aggregate (RCA)	m^3	6559.00
2.2.4.1	M35 Design Mix Using 20 mm and down size graded crushed coarse aggregates	m^3	6917.00
2.2.4.2	M35 Design Mix Using 20 mm and down size graded crushed coarse aggregates with 20% partial replacement with Recycled concrete aggregate (RCA)	m^3	6842.00
2.2.5.1	M 40 Design Mix Using 20 mm and down size graded crushed coarse aggregates	m^3	7200.00
2.2.5.2	M40 Design Mix Using 20 mm and down size graded crushed coarse aggregates with 20% partial replacement with Recycled concrete aggregate (RCA)	m^3	7216.00
2.3	Providing and laying in Reinforced cement concrete for all Basement & surface level works, return walls, retaining walls, sunken floors etc. The granite/trap/basalt crushed graded coarse aggregates and fine aggregates as per relevant IS Codes machine mixed with super plasticisers, laid in layers not exceeding 150 mm thickness, well compacted using needle vibrators, providing weep holes wherever necesary, including all lead & lifts, cost of all materials of quality, labour, Usage charges of machinery, curing and all other appurtenances required to complete the work as per technical specifications. (The cost of steel reinforcement & formwork to be paid separately)		
2.3.1	M20 Design Mix Using 20 mm and down size graded crushed coarse aggregates	m^3	6318.00
2.3.2	M25 Design Mix Using 20 mm and down size graded crushed coarse aggregates	m^3	6288.00
2.3.3	M30 Design Mix Using 20 mm and down size graded crushed coarse aggregates	m^3	6714.00
2.3.4	M 35 Design Mix Using 20 mm and down size graded crushed coarse aggregates	m^3	7117.00
2.3.5	M 40 Design Mix Using 20 mm and down size graded crushed coarse aggregates	m^3	7408.00
2.4	Providing and laying in position Reinforced cement concrete for all Sub structures of building, Irrigation works, Sub structure works of bridges, Drain works & other parallel works from 0.50m to 3.50 m height. The granite/trap/basalt crushed graded coarse aggregates and fine aggregates as per relevant IS Codes machine mixed with super plasticisers, laid in layers, well compacted using needle vibrators, providing weep holes wherever necesary, including all lead & lifts, cost of all materials of quality, confirming to the requirements of relevant IS codes , labour, Usage charges of machinery, curing and all other appurtenances required to complete the work as per technical specifications. (The cost of steel reinforcement & formwork to be paid separately)		

2.4.1	Mix 1:2:4 (M15) Using 20 mm and down size graded crushed coarse aggregates	m^3	6096.00
2.4.2	M20 Design Mix Using 20 mm and down size graded crushed coarse aggregates	m^3	6409.00
2.4.3	M25 Design Mix Using 20 mm and down size graded crushed coarse aggregates	m^3	6299.00
2.4.4	M30 Design Mix Using 20 mm and down size graded crushed coarse aggregates	m^3	6819.00
2.4.5	M35 Design Mix Using 20 mm and down size graded crushed coarse aggregates	m^3	7176.00
2.4.6	M40 Design Mix Using 20 mm and down size graded crushed coarse aggregates	m^3	7423.00
2.4.7	M45 Design Mix Using 20 mm and down size graded crushed coarse aggregates	m^3	6934.00
2.4.8	M50 Design Mix Using 20 mm and down size graded crushed coarse aggregates	m^3	7297.00
2.4.9	M55 Design Mix Using 20 mm and down size graded crushed coarse aggregates	m^3	7133.00
2.5	Providing and laying in position Reinforced cement concrete for all Super structures of building , Road works, Water works, Irrigation works & super structure works of bridges upto 3.50 m height. The granite/ trap/basalt crushed graded coarse aggregates and fine aggregates as per relevant IS Codes machine mixed with super plasticisers laid in layers, well compacted using needle vibrators. The cost includes finsishing concrete structure in line, all lead & lifts, cost of all materials, quality confirming to the requirements of relevant IS codes , labour, Usage charges of machinery, curing and all other appurtenances required to complete the work as per technical specifications. (The cost of steel reinforcement, dowel bars & formwork to be paid separately)		
2.5.1	M20 Design Mix Using 20 mm and down size graded crushed coarse aggregates	m^3	6471.00
2.5.2	M25 Design Mix Using 20 mm and down size graded crushed coarse aggregates	m^3	6492.00
2.5.3	M30 Design Mix Using 20 mm and down size graded crushed coarse aggregates	m^3	7022.00
2.5.4	M 35 Design Mix Using 20 mm and down size graded crushed coarse aggregates	m^3	7305.00
2.5.5	M 40 Design Mix Using 20 mm and down size graded crushed coarse aggregates	m^3	7608.00
2.5.6	M50 Design Mix Using 20 mm and down size graded crushed coarse aggregates	m^3	7122.00

2.5.7	M 55 Design Mix Using 20 mm and down size graded crushed coarse aggregates	m^3	7122.00
2.6	**Bridge works Super Structure**		
2.6.1	*For Height upto 5 m rates, adopt as per item no 2.5.3 to 2.5.7*		
2.6.2	beyond 0 m upto 5 m add 10 % extra on formwork for staging & base preparation		
2.6.3	beyond 5 m upto 10 m add 12% extra on formwork for staging & base preparation		
2.6.4	beyond 10 m add 14% extra on formwork for staging & base preparation		
2.7	Providing waterproofing & durability enhancing admixture with approval from MORT&H for use on road & bridge projects with IRC accreditation & shall possess CE approval as per EN934-2. Material must fulfil the requirements of ACI-212-3R-10 Chapter 15 and fall under PRAH (permeability reducing admixtures for hydrostatic conditions) and must reduce coefficient of permeability of concrete by more than 90% when compared to control concrete and tested as per DIN 1048 Part-5 by carrying out 4 cycles each of 5 bar hydrostatic pressure for 72 hours and drying for 48 hours between the cycle and coefficient of permeability calculated as per Darcy's formula / Valenta equation by incorporating penetration values obtained at the end of fourth cycle pressure as per DIN 1048 test. Material must reduce chloride diffusion coefficient by minimum 45% when tested as per ASTM C 1556-4 and compared with the control concrete, thereby prolonging the durability and service of life of the treated concrete structure as well as must demonstrate minimum reduction of 50% in shrinkage cracks as compared to control concrete, as per BS ISO-1920-8:2009. Must demonstrate no internal expansion under sulphate attack, when tested as per ASTM C-1012-12 & conforming to norms of EPD as per ISO 14025 & EN 15804-A1. The crystalline admixture treated concrete must be able to withstand high hydrostatic pressure of 16 bar (156 metre of water head) when tested as per DIN 1048 & must capable of self -healing of cracks up to width of 0.5 mm. The performance of the crystalline admixture must not be restricted by water / cement ratio of the concrete mix. In other words, the crystalline admixture must perform at any water / cement ratio of the concrete mix. Product must possess a third party assurance, such as a U sign certificate or similar, confirming that the product, when use in the concrete, will have no detrimental side effects in terms of Alkali Silica Reaction (ASR), corrosion of steel reinforcement etc., as per the requirements of DIN 18998. The Dosage should be at 0.8% by weight of cement + cementitious material (or such dosage as desired to meet durability criteria) as per technical specification.		
2.7.1	Extra for use in cement concrete of mix in cement concrete of mix 1:2:4 at one kg of compound per bag of cement		172.00
2.7.2	Extra for use in cement concrete of mix in cement concrete of mix 1:1.5:3 at one kg of compound per bag of cement		215.00

2.7.3	Extra for use in cement concrete of mix 1:1:2 at one kg of compound per bag of cement		285.00
	Note : Item 2.7 shall not be used for grade of concrete M20 and above.		
2.8	Supply and placing the Design Mix of M-30 Grade for Self Compacting Concrete corresponding to IS 456 and relevant IS codes using Batching plant, Transit mixer and concrete pump with 12.5 mm size graded machine crushed hard granite metal (coarse aggregate) from approved quarry including cost and conveyance of all materials like cement, cement substitutes like fly ash, GGBS, etc., fine aggregate (sand), coarse aggregate, Admixture, water etc., to site inclduding and sales and other taxes on all materials including all opertational incidental and labour charges, but excluding cost of steel and its fabrication & formwork charges for finished item of work with minimum cement content as per IS code including pumping & curing etc complete for finished item of work (RCC slabs, Beams, Columns, Lintels, Water Tanks, RCC Walls in Buildings).		
2.8.1	Upto 5m height	m^3	7874.00
2.8.2	Add extra 3% on form work for staging for 0 to 5 m		
2.8.3	Add extra 5% on form work for staging for 5 to 10 m		
2.8.4	Add extra 5 % on form work for staging beyond 10 m		
2.9	Applying stamping finish on M30 grade concrete on PCC sub grade, applying and finishing with stamp/stencil of approved pattern and color in accordance with Engineers instructions & approved drawings with use of any approved brand of color hardener of 4.5 kg/m2, including floating of color hardener over the concrete surface with different types of floaters, application of release agent of 0.12 to 0.13kg/m2 depending on matching combination of selected color, stamping over the concrete surface with stamping tools , cleaning of surface with water and groove cutting of finished concrete and application of acrylic based sealer for final finish. Coverage of sealer should be 0.30litre/m2 per coat. The cost is inclusive of manpower, cutting machine, sprayer and all tools tackles for all activities and complete smooth and finish as per technical specifications. (The cost of Concrete shall be paid separately)	m^2	407.00

Note :

1. The cost of concrete is inclusive of lead but exclusive of lift.
2. The Concrete shall be used in works from ISO accredited Batching plants.
3. The Cement constants considered in the analysis is for case pure OPC considered in the analysis. However, if GGBS or any other mineral additives and admixtures are used, necessary deductions in the cost of the concrete with approved mix designs shall be made by the sanctioning authorities.
4. The usage charges for machinery means the cost inclusive of operating charges. i.e separate cost for crew & fuel shall not be paid unless specified in extra ordinary cases.

5. Additionalities For Building works
    - 1% of the finished cost of concrete shall be paid extra for every subsequent floors.
    - 5% of the finished cost of concrete shall be paid extra for concreting in foul conditions.
    - 5% of the finished cost of concrete shall be paid extra for concreting in under water conditions.
6. The concrete pumps considered in the analysis is the 'Line pump' whereas separate provisions shall be made if the pumping is done through 'Boom placer' which involves additional costs.
7. The vibrators for concrete used shall conform to IS 3558 (1983) reffirmed 2004.
8. The height of the Buidling shall be considered as 3.6 m per floor as per NBC 2016 for calculation of lifts.
9. The finished cost of concrete is exclusive of steel & formwork charges.
10. Necessary over head charges shall be add for Bridge works as per table below :

Bridge Works

For Bridge works, following additional overhead charges to be considered in the rate analysis.

Sl. No.	Description	Overhead charges to be considered
1.	Minor Bridges	20%
2.	Bridge Works (Rehabilitation)	30%
3.	Tunnel Works	25%

Chapter - III

MORTAR

- The items in this chapter are exclusive of Contractor's profit and Overhead charges.

3.0 MORTAR			
3.1	Providing Cement mortar 1:1 (1 cement : 1 fine sand) including cost of all materials, labour and usage charges of machinery complete as per the direction of engineer incharge of work.	m^3	8,803.00
3.2	Providing Cement mortar 1:2 (1 cement : 2 fine sand) including cost of all materials, labour and usage charges of machinery complete as per the direction of engineer incharge of work.	m^3	6,766.00
3.3	Providing Cement mortar 1:3 (1 cement : 3 fine sand) including cost of all materials, labour and usage charges of machinery complete as per the direction of engineer incharge of work.	m^3	5,750.00
3.4	Providing Cement mortar 1:4 (1 cement : 4 fine sand) including cost of all materials, labour and usage charges of machinery complete as per the direction of engineer incharge of work.	m^3	4,842.00
3.5	Providing Cement mortar 1:5 (1 cement : 5 fine sand) including cost of all materials, labour and usage charges of machinery complete as per the direction of engineer incharge of work.	m^3	4,354.00
3.6	Providing Cement mortar 1:6 (1 cement : 6 fine sand) including cost of all materials, labour and usage charges of machinery complete as per the direction of engineer incharge of work.	m^3	3,935.00
3.7	Providing Cement mortar 1:2 (1 cement : 2 coarse sand) including cost of all materials, labour and usage charges of machinery complete as per the direction of engineer incharge of work.	m^3	6,766.00
3.8	Providing Cement mortar 1:3 (1 cement : 3 coarse sand) including cost of all materials, labour and usage charges of machinery complete as per the direction of engineer incharge of work.	m^3	5,750.00
3.9	Providing Cement mortar 1:4 (1 cement : 4 coarse sand) including cost of all materials, labour and usage charges of machinery complete as per the direction of engineer incharge of work.	m^3	4,842.00
3.10	Providing Cement mortar 1:5 (1 cement : 5 coarse sand) including cost of all materials, labour and usage charges of machinery complete as per the direction of engineer incharge of work.	m^3	4,354.00
3.11	Providing Cement mortar 1:6 (1 cement : 6 coarse sand) including cost of all materials, labour and usage charges of machinery complete as per the direction of engineer incharge of work.	m^3	3,935.00
3.12	Providing Cement mortar 1:2 (1 cement : 2 stone dust) including cost of all materials, labour and usage charges of machinery complete as per the direction of engineer incharge of work.	m^3	6,741.00
3.13	Providing Mud mortar including cost of all materials, labour and usage charges of machinery complete as per the direction of engineer incharge of work.	m^3	569.00
	Note : The items in this chapter are exclusive of Contractor's profit and Overhead charges.		

PART - II

Rate Analysis for

EARTH WORK

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
COMMON SCHEDULE OF RATES FOR EARTH WORK ITEMS (Manual Means)					
1	Earth work in surface excavation for stripping, seating of bund, Road way, by manual means for lowering & leveling the ground for all works other than foundation & depth in all kinds of soil not exceeding 300mm as per drawing and technical specifications, including setting out, shoring, strutting, barricading, caution lights, removal of stumps and other deleterious matter including dressing of excavated surfaces, disposing off or leveling the excavated earth or sorting & stacking the selected earth for reuse in a radius of 50 m and lift upto 1.5 m including cost of labour, tools, usage & other appurtenances required to complete the work.				
	Details of cost for 100 m2				
A	**LABOUR**				
	Mazdoor Heavy	day	6.80	451.22	3068.30
	Mazdoor Light	day	5.60	451.22	2526.83
	Total				5595.13
B	Add 1 % Water charges				55.95
	Total				5651.08
	Add Shoring and shuttering 2% (A+B)				113.02
					5764.10
C	Over Head Charges 10 % (A+B)				576.41
	Contractor's Profit 10% (A+B+C)				634.05
	Cost for 100m²				6974.56
	Cost per m²				**70.00**
1.2	Earth work in surface excavation for stripping, seating of bund, Road way by manual means for lowering & levelling the ground for all works other than foundation & depth in Ordinary rock and soft rock upto 300mm depth as per drawing and technical specifications, including setting out, barricading, caution lights, including dressing of excavated surfaces, disposing off or levelling the excavated stuff or sorting & stacking the selected stuff for reuse in a radius of 50 m and lift upto 1.5 m including cost of labour, tools, usage& other appurtenances required to complete the work				

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Details of cost for 120m³				
A	**LABOUR**				
	Mazdoor Heavy	day	2.80	451.22	1263.42
	Mazdoor Light	day	70.00	451.22	31585.40
B	**MACHINERY**				
	Truck 5.5 m³ capacity	hour	10.00	1197.46	11974.58
	Total				44823.39
C	Over Head Charges 10 % (A+B)				4482.34
	Contractor's Profit 10% (A+B+C)				4930.57
	Cost for 120m³				54236.30
	Cost per m³				**452.00**
1.3	Earth work in surface excavation by manual means for lowering & leveling the ground by chiselling and wedging in Hard rock for all works other than foundation & depth not exceeding 100 mm as per drawing and technical specifications, including setting out, barricading, caution lights, dressing of excavated surfaces, disposing off the excavated spalls/stuff & stacking the selected spall/ stuff for reuse in a radius of 50 m and lift upto 1.5 m including cost of labour, tools, usage & other appurtenances required to complete the work				
	Details of cost for 100 m²				
A	**LABOUR**				
	Mazdoor Heavy	day	6.80	451.22	3068.30
	Mazdoor Light	day	5.60	451.22	2526.83
	Stone Chisler Class - II	day	8.00	461.22	3689.76
	Blacksmith - Class - II	day	4.00	461.22	1844.88
	Total				11129.77
B	Add 1 % Water charges				111.30
	Total				11241.07

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
C	Over Head Charges 10 % (A+B)				1124.11
	Contractor's Profit 10% (A+B+C)				1236.52
	Cost for 100m²				13601.69
	Cost per m²				**136.00**
1.4	Earth work excavation by manual means for drains,canals and similar works in all kinds of soils , as per drawing and technical specifications, including setting out, shoring, strutting, barricading, caution lights, removal of stumps and other deleterious matter, excavated surface leveled and sides neatly dressed disposing off the excavated stuff or sorting & stacking the selected stuff for reuse in a radius of 50 m and lift upto 1.5 m including cost of labour, tools & other appurtenaces required to complete the work				
1.4.1	**In all kinds of soils Depth upto 1.5 m**				
	Details of cost for 10 m³				
A	**LABOUR**				
	Mazdoor Heavy	day	0.70	451.22	315.85
	Mazdoor Light	day	2.70	451.22	1218.29
	Total				1534.15
B	Over Head Charges 10 % (A)				153.41
	Contractor's Profit 10% (A+B)				168.76
	Cost for 10m³				1856.32
	Cost per m³				**186.00**
	Note: Cost of De-watering upto 5 % may be added , where required assessment for dewatering shall be made as per site condition				
1.4.2	**Depth exceeding 1.5m, but not exceeding 3 m**				
	Details of cost for 10 m³				
A	**LABOUR**				
	Mazdoor Heavy	day	0.14	451.22	63.17
	Mazdoor Light	day	3.50	451.22	1579.27
	Total				1642.44

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
B	Over Head Charges 10 % (A)				164.24
	Contractor's Profit 10% (A+B)				180.67
	Cost for 10m³				1987.35
	Cost per m³				**199.00**
	Note: Cost of De-watering upto 10 % may be added, where required assessment for dewatering shall be made as per site condition				
1.4.3	**Depth exceeding 3m, but not exceeding 4.5 m**				
	Details of cost for 10 m³				
A	**LABOUR**				
	Mazdoor Heavy	day	0.28	451.22	126.34
	Mazdoor Light	day	5.00	451.22	2256.10
	Total				2382.44
B	Over Head Charges 10 % (A)				238.24
	Contractor's Profit 10% (A+B)				262.07
	Cost for 10m³				2882.75
	Cost per m3				**288.00**
	Note: Cost of De-watering upto 10 % may be added , where required assessment for dewatering shall be made as per site condition				
	Note: Add 5% per m³ for every additional 1.50m depth or part thereoff beyod initial 1.50 m depth if shoring and strutting is provided				
1.5	Earth work excavation by manual means for drains,canals, waste weir draft, approach channels, key trench, foundation of Bridges and such similar works, as per drawing and technical specifications, including setting out, shoring, strutting, barricading, caution lights, excavated surface leveled and sides neatly dressed disposing off or leveling the excavated stuff or sorting & stacking the selected stuff for reuse in a radius of 50 m and lift upto 1.5 m including cost of labour, tools, usage & other appurtenances required to complete the work.				

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
1.5.1	**In ordinary/soft rock without blasting upto 1.5 m depth**				
A	**LABOUR**				
	Mazdoor Heavy	day	0.20	451.22	90.24
	Mazdoor Light	day	4.00	451.22	1804.88
	Total				1895.12
B	Over Head Charges 10 % (A)				189.51
	Contractor's Profit 10% (A+B)				208.46
	Cost for 10m³				2293.10
	Cost per m³				**229.00**
	Note: Cost of De-watering upto 5 % may be added, where required assessment for dewatering shall be made as per site condition				
1.5.2	**Depth exceeding 1.5m, but not exceeding 3 m**				
	Details of cost for 10 m³				
A	**LABOUR**				
	Mazdoor Heavy	day	0.24	451.22	108.29
	Mazdoor Light	day	6.00	451.22	2707.32
	Total				2815.61
B	Over Head Charges 10 % (A)				281.56
	Contractor's Profit 10% (A+B)				309.72
	Cost for 10m³				3406.89
	Cost per m³				**341.00**
	Note: Cost of De-watering upto 7.5 % may be added , where required assessment for dewatering shall be made as per site condition				
1.5.3	**Depth exceeding 3m, but not exceeding 4.5 m**				
	Details of cost for 10 m³				
A	**LABOUR**				
	Mazdoor Heavy	day	0.28	451.22	126.34
	Mazdoor Light	day	8.00	451.22	3609.76
	Total				3736.10

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
B	Over Head Charges 10 % (A)				373.61
	Contractor's Profit 10% (A+B)				410.97
	Cost for 10m³				4520.68
	Cost per m³				**452.00**
	Generally going 3 m in hard rock is not in practise except for tunnelling. It is desirable to stop at 3 m and add additionality for every 1.5 m				
	Note: Cost of De-watering upto 10 % may be added, where required assessment for dewatering shall be made as per site condition				
	Add 5% per m³ for works under foul & sullage situation				
1.6	Earth work excavation for Foundation by manual means for all Buildings, Bridges, Retaining walls, Abutment Piers and such similar works as per drawing and technical Specifications, including setting out, providing shoring & strutting,barricading, caution lights, removal of stumps and other deleterious matter, including dressing of excavated surfaces, disposing off or levelling the excavated earth or sorting & stacking the selected earth for reuse in a radius of 50 m and lift upto 1.5 m including cost of labour, tools, usage& other appurtenances required to complete the work.				
1.6.1	**In all kinds of soils Depth upto 1.5 m**				
	Details of cost for 10 m³				
A	**LABOUR**				
	Mazdoor Heavy	day	0.70	451.22	315.85
	Mazdoor Light	day	2.70	451.22	1218.29
	Total				1534.15
B	Over Head Charges 10 % (A)				153.41
	Contractor's Profit 10% (A+B)				168.76
	Cost for 10m³				1856.32
	Cost per m³				**186.00**
	Note: Cost of De-watering upto 5 % may be added, where required assessment for dewatering shall be made as per site condition				
	In all kinds of soils				

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
1.6.2	**Depth exceeding 1.5m, but not exceeding 3 m**				
	Details of cost for 10 m³				
A	**LABOUR**				
	Mazdoor Heavy	day	0.14	451.22	63.17
	Mazdoor Light	day	3.50	451.22	1579.27
	Total				1642.44
B	Over Head Charges 10 % (A)				164.24
	Contractor's Profit10% (A+B)				180.67
	Cost for 10m³				1987.35
	Cost per m³				**199.00**
	Note: Cost of De-watering upto 7.5 % may be added, where required assessment for dewatering shall be made as per site condition				
1.6.3	**In ordinary/soft rock without blasting upto 1.5 m depth**				
	Details of cost for 10 m³				
A	**LABOUR**				
	Mazdoor Heavy	day	0.20	451.22	90.24
	Mazdoor Light	day	4.00	451.22	1804.88
	Total				1895.12
B	Over Head Charges 10 % (A)				189.51
	Contractor's Profit 10% (A+B)				208.46
	Cost for 10m³				2293.10
	Cost per m³				**229.00**
	Note: Cost of De-watering upto 5 % may be added, where required assessment for dewatering shall be made as per site condition				
	Add 5% per m³ for works under foul & sullage situation				
	Note: Add 5% per m3 for every additional 1.50m depth or part thereoff beyod initial 1.50 m depth if shoring and strutting is provided				

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
1.7	Earth work excavation for pipelines/cables by Manual means upto 600 mm trench width, as per drawing and technical specifications, including setting out, shoring, strutting, barricading, caution lights, removal of stumps and other deleterious matter, including dressing of excavated surfaces, disposing off or levelling the excavated earth or sorting & stacking the selected earth for reuse in a radius of 50 m. Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering and lift upto 1.5 m including cost of labour, tools, usage& other appurtenances required to complete the work.				
1.7.1	**In all kinds of soils. Depth upto 1.50m**				
	Details of laying of cost for 60m length of a pipe of an average dia. say 450mm. Slope assumed 1 in 200. Earth work and filling- Minimum depth of trench 0.75+0.45= 1.20m, Average depth = (1.50+1.20)/2 = 1.35, Width =0.40 + 0.45 = 0.85 m, 60x0.85x1.35 = 68.85 m^3 , 5% for collars = 3.44 m^3 , Total = 72.29 m^3 Rate as per item no. 1.6.1	m^3	72.29	186.00	13445.94
	Filling available excavated earth in trenches Rate as per item 1.10	m^3	72.29	160.00	11566.40
	TOTAL Cost of 60m length of pipe				25012.34
	TOTAL Cost of 1m length of pipe				**417.00**
1.7.2	Extra for excavating trenches for pipes, cables and similar works in all kinds of soil where excavation width is upto 600 mm for depth exceeding 1.5 m, but not exceeding 3 m. add 20 % extra (Rate is over corresponding basic item for depth upto 1.5 m).				
1.7.3	Extra for excavating trenches for pipes, cables and similar works in all kinds of soil where excavation width is upto 600 mm for depth exceeding 3.0 m, but not exceeding 4.5 m. add 50 % extra (Rate is over corresponding basic item for depth upto 1.5 m).				
	Note: 1.Additional rates for quantities of works, executed in or under water and /or liquid mud, including pumping water as required cost of 1 m depth 20% of the rate of the item)				
	Note: 2. .Additional rates for quantities of works, executed in or under foul position,including pumping water as required cost of 1 m depth 25% of the rate of the item)				

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Note 3. If the width of excavation is less than 0.60 m, Add 25% extra /m³ for the above rates.				
1.8	Construction of Embankment with approved materials deposited at site from Roadway cutting and excavation from drain and foundation of other structures graded with desired compaction.				
	Details of cost for 450 m³ .				
A	**MATERIALS**				
	Available Earth (Including Royalty)	m3	450.00	60.00	27000.00
	Water	KL	36.00	44.00	1584.00
B	**LABOUR**				
	Mate	day	0.04	451.22	18.05
	Mazdoor heavy	day	1.00	451.22	451.22
C	**MACHINERY**				
	Motor grader 3.35 m blade	hr	2.18	3761.02	8187.73
	Water tanker (12kl)	hr	1.09	816.95	887.53
	Vibratory Roller 10 t	hr	2.18	1715.25	3746.12
					41874.65
D	Over Head Charges 10 % (A+B+C)				4187.47
	Contractor's Profit 10% (A+B+C+D)				4606.21
	Total cost for 450m³				50668.33
	Cost per m³				**113.00**
1.9	Construction of Embankment by excavating the available approved Gravel/Murrum deposited at a place or borrow pits during or prior excavation with all lifts and lead, transportation to site, spreading, grading to required slope and compacting to meet the requirement complete as per specifications, including cost of labour,rolling,water,all materials,usage& all other appurtenaces required to complete the work.				
	Details of cost for 450 m³				
A	**MATERIALS**				
	Gravel 2.36 mm (Including Royalty)	m³	517.50	247.62	128142.86
	Water	KL	36.00	44.00	1584.00

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
B	**LABOUR**				
	Mate	day	0.08	451.22	36.10
	Mazdoor heavy	day	2.00	451.22	902.44
C	**MACHINERY**				
	Hydraulic Excavator 1 m³ bucket capacity.	hr	5.81	957.63	5566.70
	Motor grader 3.35 m blade	hr	2.18	3761.02	8187.73
	Water tanker (12kl)	hr	1.50	816.95	1225.42
	Vibratory Roller 10 t	hr	2.18	1715.25	3746.12
					149391.37
D	Over Head Charges 10 % (A+B+C)				14939.14
	Contractor's Profit 10% (A+B+C+D)				16433.05
	Total cost for 450m³				180763.56
	Cost per m³				**402.00**
	Note:If the height of embankment construction is more than 1.50m add 5% per m³ for every 1.50 m height or part there of				
	Note:Deduct 5% per m³ if rollers are not used and tamping is done manually				
	Add 8% per m³ for works under foul & sullage situation				
1.10	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations and other similar works etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.				
	Details of cost for 10 m³ .				
A	**LABOUR**				
	Mazdoor Heavy	day	0.20	451.22	90.24
	Mazdoor Light	day	2.70	451.22	1218.29
	Total				1308.54
	Add 1 % Water charges				13.09
	Total				1321.62
B	Over Head Charges 10 % (A)				132.16
	Contractor's Profit 10% (A+B)				145.38

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Cost for 10m³				1599.16
	Cost per m³				**160.00**
	Note 3 Add 5% per m3 for every additional 1.50m depth or part thereoff beyond 4.50 m depth is provided				
	Note 4 Add 3% per m3 for every additional 1.50m depth or part thereoff beyond initial 1.50 m depth if shoring and strutting is provided				
1.11	Refilling available earth around trenches/pipelines, cables in layers not exceeding 20 cms in depth, compacting each deposited layer by ramming after watering with a lead upto 50 m , and lift upto 1.5 m. Including cost of all labour complete as per specifications				
	Details of cost for 10 m³ .				
A	Rate as per Item no 1.10	m³	6.00	160.00	960.00
	Cost for 10m³				960.00
	Cost per m³				**96.00**
1.12	Supplying and filling in plinth, foundations of Bridges with sand under floors, including watering, ramming, consolidating and dressing complete.				
	Details of cost for 10 m³				
	MATERIAL				
	Sand	m³	10.00	1680.00	16800.00
	LABOUR				
	Mazdoor Heavy	day	0.89	451.22	401.59
	Mazdoor Light	day	1.35	451.22	609.15
	Total				17810.73
	Add 1 % Water charges				178.11
	Total				17988.84
	Over Head Charges 10 % (A)				1798.88
	Contractor's Profit 10% (A+B)				1978.77
	Cost for 10m³				21766.50
	Cost per m³				**2177.00**

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
COMMON SCHEDULE OF RATES FOR EARTH WORK ITEMS (Mechanical Means)					
1.14	Earth work in surface excavation by mechanical means for lowering & leveling the ground for all works other than foundation in all kinds of soils & upto depth not exceeding 300mm as per drawing and technical specifications, including setting out, shoring, strutting, barricading, caution lights, removal of stumps and other deleterious matter including dressing of excavated surfaces, disposing off or levelling the excavated earth or sorting & stacking the selected earth for reuse in a radius of 50 m and lift upto 1.5 m including Cost of labour, tools, usage of machinery & other appurtenances required to complete the work.				
	Details of Cost for 180 m³ .				
	Average output of Hydraulic Excavator per hour = 30m³				
A	**MACHINERY**				
	Dozer 90 HP	hr	6.00	2509.32	15055.93
B	**LABOUR**				
	Mazdoor Heavy	day	0.08	451.22	36.10
	Mazdoor light	day	2.00	451.22	902.44
	Sub Total				15994.47
C	Add Water charges, Shoring and shuttering & sundries 2% (A+B)				319.89
	Total				16314.36
D	Over Head Charges 10 % (A+B+C)				1631.44
	Contractor's Profit 10% (A+B+C+D)				1794.58
	Cost for 180 m³				19740.37
	Cost of 1 m³ .				**110.00**

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
1.15	Earth work in surface excavation by mechanical means for lowering & leveling the ground without blasting for all works other than foundation in Ordinary soil/Soft rock & depth not exceeding 300mm as per drawing and technical specifications, including setting out, shoring, strutting, barricading, caution lights, removal of stumps and other deleterious matter including dressing of excavated surfaces, disposing off or levelling the excavated earth or sorting & stacking the selected earth for reuse in a radius of 50 m and lift upto 1.5 m including Cost of labour, tools, usage of machinery & other appurtenances required to complete the work				
	Details of Cost for 10 m^3				
	Average output of Hydraulic Excavator per hour = 30m^3				
A	**MACHINERY**				
	Hydraulic Excavator 1.1 m^3 capacity	hr	0.01	957.63	7.54
	Front end Backhoe-loader 1 m^3 bucket capacity	hr	0.01	1171.19	9.22
B	**LABOUR**				
	Mazdoor Heavy (Mate)	day	0.50	451.22	225.61
	Mazdoor light	day	0.55	451.22	248.17
	Rock Excavator	day	0.71	476.22	335.74
	Rock Breaker	day	1.59	476.22	757.19
	Rock Hole Driller	day	0.36	476.22	169.06
	Sub Total				1752.53
C	Add Water charges, Shoring and shuttering & sundries 2% (A+B)				35.05
	Total				1804.34
D	Over Head Charges 10 % (A+B+C)				180.43
	Contractor's Profit 10% (A+B+C+D)				198.48
	Cost for 10 m^3 .				2183.26
	Cost of 1 m^3 .				**218.00**

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
1.16	Earth work excavation for Foundation by mechanical means for all works & depth upto 3 m, as per drawing and technical specifications, including setting out, shoring, strutting, barricading, caution lights, including dressing of excavated surfaces, disposing off or levelling the excavated earth or sorting & stacking the selected earth for reuse in a radius of 50 m and lift upto 1.5 m including Cost of labour, tools, usage of machinery & other appurtenaces required to complete the work				
1.16.1	**In all kinds of soils Depth upto 3 m**				
	Taking output = 240 m³				
A	**LABOUR**				
	Mazdoor heavy (Mate)	day	0.32	451.22	144.39
	Mazdoor Light	day	8.00	451.22	3609.76
B	**MACHINERY**				
	Hydraulic Excavator 1 m³ bucket capacity.	hr	6.00	957.63	5745.76
	Sub Total				9499.91
C	Add Water charges, Shoring and shuttering & sundries 2% (A+B)				190.00
	Total				9689.91
D	Over Head Charges 10 % (A+B+C)				968.99
	Contractor's Profit10% (A+B+C+D)				1065.89
	Cost for 240 m³				11724.79
	Cost of 1 m³ .				**49.00**
	Note: Cost of De-watering upto 5 % of (A+B) may be added , where required assessment for dewatering shall be made as per site condition				
1.16.2	**Depth 3 m to 6 m**				
	Taking output = 210 m³				
A	**LABOUR**				
	Mazdoor heavy (Mate)	day	0.32	451.22	144.39
	Mazdoor Light	day	8.00	451.22	3609.76

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
B	**MACHINERY**				
	Hydraulic Excavator 1 m³ bucket capacity.	hour	6.00	957.63	5745.76
	Total				9499.91
C	Add Water charges, Shoring and shuttering & sundries 2% (A+B)				190.00
	Over Head Charges 10 % (A+B+C)				968.99
D	Contractor's Profit 10% (A+B+C+D)				1065.89
	Cost for 210 m³				11724.79
	Cost of 1 m³ .				**56.00**
	Note:Cost of dewatering upto 7.5 % of (A+B) may be added , where required assessment for dewatering shall be made as per site condition				
1.16.3	**Depth above 6 m**				
	Taking output = 180 m³				
A	**LABOUR**				
	Mazdoor heavy (Mate)	day	0.40	451.22	180.49
	Mazdoor Light	day	10.00	451.22	4512.20
B	**MACHINERY**				
	Hydraulic Excavator 1 m³ bucket capacity.	hr	6.00	957.63	5745.76
	Total				10438.45
C	Add Water charges, Shoring and shuttering & sundries 2% (A+B)				208.77
D	Over Head Charges 10 % (A+B+C)				1064.72
	Contractor's Profit 10% (A+B+C+D)				1171.19
	Cost for 180 m³				12883.14
	Cost of 1 m³ .				**72.00**
	Note: 1) Note: Add 5% per m³ for every additional 1.50m depth or part thereoff beyond initial 1.50 m depth if shoring and strutting is provided 2) Cost of dewatering upto 10 % of (A+B) may be added , where required assessment for dewatering shall be made as per site condition				

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
1.17.1	**In ordinary/soft rock without blasting upto 1.5 m depth**				
	Details of Cost for 10 m³ .				
	Average output of Hydraulic Excavator per hour = 30m³				
A	**MACHINERY**				
	Hydraulic Excavator 1 m³ capacity.	hr	0.01	957.63	7.54
	Hire and running charges of tipper	hr	0.01	1197.46	9.43
B	**LABOUR**				
	Mazdoor Heavy (Mate)	day	0.50	451.22	225.61
	Mazdoor light	day	0.55	451.22	248.17
	Rock Excavator	day	0.71	476.22	335.74
	Rock Breaker	day	1.59	476.22	757.19
	Rock Hole Driller	day	0.36	476.22	169.06
	Total				1752.74
C	Add Water charges, Shoring and shuttering & sundries 2% (A+B)				35.05
	Total				1787.79
D	Over Head Charges 10 % (A+B+C)				178.78
	Contractor's Profit 10% (A+B+C+D)				196.66
	Cost for 10 m³				2163.23
	Cost of 1m³ .				**216.00**
	Note:1 Cost of De-watering upto 5 % of (A+B) may be added , where required assessment for dewatering shall be made as per site condition.				
1.17.2	**Depth exceeding 1.5 m, but not exceeding 3 m**				
	Details of Cost for 10 m³				
	Average output of Hydraulic Excavator per hour is 30m³				
A	**MACHINERY**				
	Hydraulic Excavator 1 m³ bucket capacity.	hr	0.01	957.63	11.13
	Hire and running charges of tipper	hr	0.01	1197.46	13.92

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
B	**LABOUR**				
	Mazdoor Heavy (Mate)	day	0.65	451.22	293.29
	Mazdoor light	day	0.70	451.22	315.85
	Rock Excavator	day	0.88	476.22	419.07
	Rock Breaker	day	1.75	476.22	833.39
	Rock Hole Driller	day	0.55	476.22	261.92
	Total				2148.58
C	Add Water charges, Shoring and shuttering & sundries 2% (A+B)				42.97
	Total				2191.55
D	Over Head Charges 10 % (A+B+C)				219.16
	Contractor's Profit 10% (A+B+C+D)				241.07
	Cost for 10 m^3 Total				2651.78
	Cost of 1m^3 .				**265.00**
	Note: 1) Cost of De-watering upto 7.5 % of (A+B) may be added , where required assessment for dewatering shall be made as per site condition 2)Add 5% per m^3 for works under foul & sullage situation				
1.17.3	**Depth exceeding 3m, but not exceeding 4.5m**				
	Details of Cost for 10 m^3 .				
	Average output of Hydraulic Excavator per hour = 30m^3				
A	**MACHINERY**				
	Hydraulic Excavator 1 m^3 bucket capacity.	hr	0.02	957.63	14.36
	Tipper 5m^3	hr	0.02	1197.46	17.96
B	**LABOUR**				
	Mazdoor Heavy (Mate)	day	0.75	451.22	338.42
	Mazdoor light	day	0.80	451.22	360.98
	Rock Excavator	day	0.99	476.22	471.46
	Rock Breaker	day	1.85	476.22	881.01
	Rock Hole Driller	day	0.65	476.22	309.54
	Total				2393.73

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
C	Add Water charges, Shoring and shuttering & sundries 2% (A+B)				47.87
	Total				2441.60
D	Over Head Charges 10 % (A+B+C)				244.16
	Contractor's Profit 10% (A+B+C+D)				268.58
	Cost for 10 m³ .Total				2954.34
	Cost of 1m³ .				**295.00**
	Note1: Cost of De-watering upto 10 % of (A+B) may be added , where required assessment for dewatering shall be made as per site condition				
	Note2:Extra rates for quantities of works, executed in or under foul position,including pumping water as required Cost of 1 m depth 25% of the rate of the item)				
	Note 3 Add 5% per m3 for every additional 1.50m depth or part thereoff beyod 4.50 m depth is provided				
	Note 4: Add 5% per m3 for every additional 1.50m depth or part thereoff beyod initial 1.50 m depth if shoring and strutting is provided				
1.18	Earth work excavation for FOUNDATION by Mechanical means depth upto 1.50m, as per drawing and technical specifications, including setting out, shoring, strutting, barricading, caution lights, including Cost of explosives, dressing of excavated surfaces, disposing off or levelling the excavated stuff or sorting & stacking the selected stuff for reuse in a radius of 50 m and lift upto 1.5 m including Cost of labour, blasting materials, tools, usage of Machinery & all other appurtenaces required to complete the work				
1.18.1	**In Hard Rock (requiring blasting) Depth upto 1.50m**				
	Details of Cost for 10 m³ .				
	Average output of Hydraulic Excavator per hour = 30m³				
A	**MATERIALS**				
	Blasting Powder	kg	3.93	33.90	133.22
	Fuse wire	each	4.00	12.71	50.85
B	**MACHINERY**				
	Hydraulic Excavator 1 m³ bucket capacity.	day	0.02	957.63	14.96
	Tipper 5m^3	day	0.02	1197.46	18.71

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
C	**LABOUR**				
	Mazdoor Heavy (Mate)	day	0.50	451.22	225.61
	Mazdoor light (Coolie day)	day	0.55	451.22	248.17
	Rock Excavator	day	1.06	476.22	504.79
	Rock Breaker	day	2.83	476.22	1345.32
	Rock Hole Driller	day	0.89	476.22	421.45
	Total				2963.09
D	Add Water charges, Shoring and shuttering & sundries 2% (A+B)				59.26
E	Over Head Charges 10 % (A+B+C+D)				302.24
	Contractor's Profit 10%(A+B+C+D+E)				332.46
	Cost for 10 m³ .Total				3657.05
	Cost of 1m³ .				**366.00**
	Note:1) Add 5% per m³ for works under foul & sullage situation. 2) Note: Add 5% per m3 for every additional 1.50m depth or part thereoff beyod initial 1.50 m depth if shoring and strutting is provided. 3) Cost of De-watering upto 5 % of (A+B) may be added , where required assessment for dewatering shall be made as per site condition.				
1.18.2	**Depth exceeding 1.5 m, but not exceeding 3 m**				
	Details of Cost for 10 m³ .				
	Average output of Hydraulic Excavator per hour = 30m³				
A	**Wheeled Dozer**				
	Blasting powder	kg	4.10	33.90	138.98
	Blasting fuse (fuse wire)	each	8.00	12.71	101.69
B	**MACHINERY**				
	Hydraulic Excavator 1 m³ bucket capacity.	hr	0.02	957.63	16.76
	Tipper 5m^3	hr	0.02	1197.46	20.96
C	**LABOUR**				
	Rock Excavator	day	1.32	451.22	595.61
	Rock Breaker	day	3.00	451.22	1353.66

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Rock Hole Driller	day	0.95	476.22	452.41
	Mazdoor Heavy (Mate)	day	0.65	476.22	309.54
	Mazdoor light	day	0.70	476.22	333.35
	Total				3322.97
D	Add Water charges, Shoring and shuttering & sundries 2% (A+B)				66.46
E	Over Head Charges 10 % (A+B+C+D)				338.94
	Contractor's Profit 10 % (A+B+C+D+E)				372.84
	Cost for 10 m^3 .Total				4101.21
	Cost of 1m^3 .				**410.00**
	Note: Cost of De-watering upto 7.5 % of (A+B) may be added , where required assessment for dewatering shall be made as per site condition				
1.18.3	**Depth exceeding 3m, but not exceeding 4.5m**				
	Details of Cost for 10 m^3 .				
	Average output of Hydraulic Excavator per hour = 30m^3				
A	**MATERIALS**				
	Blasting powder	Kg	4.50	33.90	152.54
	Blasting fuse (fuse wire)	each	12.00	12.71	152.54
B	**MACHINERY**				
	Hydraulic Excavator 1 m^3 bucket capacity.	hr	0.02	957.63	19.15
	Tipper 5m^3	hr	0.02	1197.46	23.95
C	**LABOUR**				
	Mazdoor Heavy (Mate)	day	0.70	451.22	315.85
	Mazdoor light	day	0.75	451.22	338.42
	Rock Excavator	day	1.5	476.22	714.33
	Rock Breaker	day	3.5	476.22	1666.77
	Rock Hole Driller	day	1.2	476.22	571.46
	Total				3955.02

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
D	Add Water charges, Shoring and shuttering & sundries 2% (A+B)				79.10
E	Over Head Charges 10 % (A+B+C+D)				403.41
	Contractor's Profit 10% (A+B+C+D+E)				443.75
	Cost for 10 m³ .Total				4881.28
	Cost of 1m³				**488.00**
	Note 1: Cost of De-watering upto 10 % of (A+B) may be added , where required assessment for dewatering shall be made as per site condition				
	Note: 2.Extra rates for quantities of works, executed in or under foul position,including pumping water as required Cost of 1 m depth 25% of the rate of the item				
	Note 3 Add 5% per m3 for every additional 1.50m depth or part thereoff beyond 4.50 m depth is provided				
	Note 4 Add 3% per m3 for every additional 1.50m depth or part thereoff beyond initial 1.50 m depth if shoring and strutting is provided				
1.18.4	**Hard rock (blasting prohibited) depth upto 1.50m**				
	Details of Cost for 10 m³ .				
	Average output of Hydraulic Excavator per hour = 30m³				
A	**MACHINERY**				
	Hydraulic Excavator 1 m³ bucket capacity.	hr	0.02	957.63	16.76
	Tipper 5m^3	hr	0.02	1197.46	20.96
B	**LABOUR**				
	Rock Excavator	day	2.47	476.22	1176.26
	Rock Breaker	day	6.00	476.22	2857.32
	Stone Chiseller	day	1.06	476.22	504.79
	Blacksmith 2nd class	day	0.18	461.22	80.71
	Mazdoor Heavy (Mate)	day	0.75	451.22	338.42
	Mazdoor light	day	1.00	451.22	451.22
	Total				5446.44
C	Add Water charges, Shoring and shuttering & sundries 2% (A+B)				108.93
	Total				5555.37

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
D	Over Head Charges 10 % (A+B+C)				555.54
	Contractor's profit 10 % (A+B+C)				611.09
	Cost for 10 m³				6722.00
	Cost of 1m³ .				**672.00**
	Note: Cost of De-watering upto 5 % of (Material+Labour) may be added , were required assessment for dewatering shall be made as per site condition				
1.18.5	**Depth exceeding 1.5 m, but not exceeding 3 m**				
	Details of Cost for 10 m³ .				
	Average output of Hydraulic Excavator per hour = 30m³				
A	**MACHINERY**				
	Hydraulic Excavator 1 m³ bucket capacity.	hr	0.02	957.63	14.96
	Tipper 5m³	hr	0.02	1197.46	18.71
B	**LABOUR**				
	Rock Excavator	day	2.65	476.22	1261.98
	Rock Breaker	day	6.18	476.22	2940.66
	Stone Chiseller	day	1.06	476.22	504.79
	Blacksmith 2nd class	day	0.18	461.22	80.71
	Mazdoor Heavy (Mate)	day	0.75	451.22	338.42
	Mazdoor light	day	1.50	451.22	676.83
	Total				5837.07
C	Add Water charges, Shoring and shuttering & sundries 2% (A+B)				116.74
	Total				5953.81
D	Over Head Charges 10 % (A+B+C)				595.38
	Contractor's Profit 10% (A+B+C+D)				654.92
	Cost for 10 m³ .				7204.11
	Cost of 1m³ .				**720.00**
	Note: Cost of De-watering upto 7.5 % of (A+B) may be added , where required assessment for dewatering shall be made as per site condition				

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
1.18.6	**Depth exceeding 3.0 m, but not exceeding 4.5 m**				
	Details of Cost for 10 m³				
	Average output of Hydraulic Excavator per hour = 30m³				
A	**MACHINERY**				
	Hydraulic Excavator 1 m³ bucket capacity.	hr	0.02	957.63	14.96
	Tipper 5m³	hr	0.02	1197.46	18.71
B	**LABOUR**				
	Rock Excavator	day	2.83	476.22	1347.70
	Rock Breaker	day	6.35	476.22	3024.00
	Stone Chiseller	day	1.06	476.22	504.79
	Blacksmith 2nd class	day	0.18	461.22	80.71
	Mazdoor Heavy (Mate)	day	0.75	451.22	338.42
	Mazdoor light	day	2.00	451.22	902.44
	Total				6231.73
C	Add Water charges, Shoring and shuttering & sundries 2% (A+B)				124.63
	Total				6356.37
D	Over Head Charges 10 % (A+B+C)				635.64
	Contractor's Profit 10% (A+B+C+D)				699.20
	Cost for 10 m³ .				7691.21
	Cost of 1m³ .				**769.00**
	Note:1 Cost of De-watering upto 10 % of (Material+Labour) may be added , where required assessment for dewatering shall be made as per site condition				
	Note: 2.Extra rates for quantities of works, executed in or under foul position,including pumping water as required Cost of 1 m depth 25% of the rate of the item)				
	Note 3 Add 5% per m3 for every additional 1.50m depth or part thereoff beyond 4.50 m depth is provided				

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
1.19	Earth work excavation for **pipeline trenches in all kinds of soils** by mechanical means **above 600** mm (Depth upto 1.50m not exceeding 1.5m in width) trench width as per drawing and technical specifications, including setting out, construction of shoring, strutting, barricading, caution lights, bracing, using sight rails & bonding rods at every 100 mm whevere necessary as directed, removal of stumps and other deleterious matter, dressing of sides and levelling the bottom of trench to the extent required , utilising the available excavated earth locally for the work **etc.,** and all other appurtenances complete in the following strata.				
1.19.1	**All kinds of soils. Depth upto 1.50m**				
	Details of Cost for 10 m³ .				
A	**MACHINERY**				
	Hydraulic Excavator 1 m³ bucket capacity.	hr	0.04	957.63	39.50
	Backhoe-loader 1 m³ bucket capacity	hr	0.04	1171.19	48.31
B	**LABOUR**				
	Mazdoor Heavy (Mate)	day	0.40	451.22	180.49
	Mazdoor light	day	2.05	451.22	925.00
	Total				1193.30
	Add Water charges, Shoring and shuttering & sundries 2% (A+B)				23.87
C	Total				1217.17
D	Over Head Charges 10 % (A+B+C)				121.72
	Contractor's Profit 10% (A+B+C+D)				133.89
	Cost for 10 m³ .				1472.77
	Cost of 1m³ .				**147.00**
1.19.2	**Depth exceeding 1.5 m, but not exceeding 3 m**				
A	**MACHINERY**				
	Hydraulic Excavator 1 m³ bucket capacity.	hr	0.01	957.63	9.58
	Backhoe-loader 1 m³ bucket capacity	hr	0.01	1171.19	11.71

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
B	**LABOUR**				
	Mazdoor Heavy (Mate)	day	0.65	451.22	293.29
	Mazdoor light	day	2.75	451.22	1240.86
	Total				1555.44
	Add Water charges, Shoring and shuttering & sundries 2% (A+B)				31.11
C	Total				1586.54
D	Over Head Charges 10 % (A+B+C)				158.65
	Contractor's Profit 10% (A+B+C+D)				174.52
	Cost for 10 m^3 .				1919.72
	Cost of 1m^3 .				**192.00**
1.19.3	**Depth exceeding 3.0m, but not exceeding 4.50m**				
A	**MACHINERY**				
	Hydraulic Excavator 1 m^3 bucket capacity.	hr	0.02	957.63	14.96
	Backhoe-loader 1 m^3 bucket capacity	hr	0.02	1171.19	18.30
B	**LABOUR**				
	Mazdoor Heavy (Mate)	day	1.20	451.22	541.46
	Mazdoor light	day	4.00	451.22	1804.88
	Total				2379.61
	Add 1 % Water charges on (A +B)				23.80
	For shoring, strutting, barricading & caution lights at 5% (A+B)				118.98
C	Total				2522.38
D	Over Head Charges 10 % (A+B+C)				252.24
	Contractor's Profit 10% (A+B+C+D)				277.46
	Cost for 10 m^3 .				3052.08
	Cost of 1m^3 .				**305.00**

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
1.20	**Extra for every additional lift of 1.5 m or part thereof in excavation/banking excavated or stacked materials.**				
	Details of Cost for 10 m³ .				
A	**LABOUR**				
	Mazdoor Heavy (Mate)	day	0.10	451.22	45.12
	Mazdoor light	day	1.10	451.22	496.34
	Total				541.46
B	Add Water charges, Shoring and shuttering & sundries 2% (A+B)				10.83
	Total				552.29
C	Over Head Charges 10 % (A+B)				55.23
	Contractor's Profit 10% (A+B+C)				60.75
	Cost for 10 m³ .				668.27
	Cost of 1m³ .				**67.00**
1.21	Earth work excavation for pipeline trenches in all kinds of by mechanical means above 600 mm (Depth upto 1.50m not exceeding 1.5m in width) trench width as per drawing and technical specifications, including setting out, construction of shoring, strutting, barricading, caution lights, bracing, using sight rails & boning rods at every 100 mm whevere necessary as directed, removal of slumps and other deleterious matter, dressing of sides and levelling the bottom of trench to the extent required , utilising the available excavated earth locally for the work and all other appurtenances to complete in the following strata.				
1.21.1	**Ordinary/soft rock (without requiring blasting) Depth upto 1.50m**				
	Details of Cost for 10 m³ .				
A	**MACHINERY**				
	Hydraulic Excavator 1 m³ bucket capacity.	hr	0.01	957.63	7.48
	Tipper 5m³	hr	0.01	1197.46	9.36
B	**LABOUR**				
	Rock Excavator	day	0.53	476.22	252.40
	Rock Breaker	day	0.50	476.22	238.11

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Rock Hole Driller	day	1.30	476.22	619.09
	Mazdoor Heavy (Mate)	day	0.89	451.22	399.33
	Mazdoor light	day	1.77	451.22	796.40
	Total				2322.16
C	Add Water charges, Shoring and shuttering & sundries 2% (A+B)				46.44
	Total				2368.61
D	Over Head Charges 10 % (A+B+C)				236.86
	Contractor's Profit 10% (A+B+C+D)				260.55
	Cost for 10 m^3				2866.01
	Cost of 1m^3				**287.00**
1.21.2	**Depth exceeding 1.5 m, but not exceeding 3 m**				
	Details of Cost for 10 m^3				
A	**MACHINERY**				
	Hydraulic Excavator 1 m^3 bucket capacity.	hr	0.01	957.63	9.58
	Tipper 5m^3	hr	0.01	1197.46	11.97
B	**LABOUR**				
	Rock Excavator	day	0.65	476.22	309.54
	Rock Breaker	day	1.45	476.22	690.52
	Rock Hole Driller	day	1.30	476.22	619.09
	Mazdoor Heavy (Mate)	day	0.95	451.22	428.66
	Mazdoor light	day	1.98	451.22	893.42
	Total				2962.77
C	Add Water charges, Shoring and shuttering & sundries 2% (A+B)				59.26
	Total				3022.03
D	Over Head Charges 10 % (A+B+C)				302.20
	Contractor's Profit 10%((A+B+C+D)				332.42
	Cost for 10 m^3				3656.65
	Cost of 1m^3				**366.00**

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
1.21.3	**Depth exceeding 3 m, but not exceeding 4.50m**				
	Details of Cost for 10 m³				
A	**MACHINERY**				
	Hydraulic Excavator 1 m³ bucket capacity.	hr	0.02	957.63	17.36
	Tipper 5m³	hr	0.02	1197.46	21.70
B	**LABOUR**				
	Rock Excavator	day	0.80	476.22	380.98
	Rock Breaker	day	0.80	476.22	380.98
	Rock Hole Driller	day	1.30	476.22	619.09
	Mazdoor Heavy (Mate)	day	1.50	451.22	676.83
	Mazdoor light	day	3.00	451.22	1353.66
	Total				3450.59
C	Add Water charges, Shoring and shuttering & sundries 2% (A+B)				69.01
	Total				3519.60
D	Over Head Charges 10 % (A+B+C)				351.96
	Contractor's Profit 10% (A+B+C+D)				387.16
	Cost for 10 m³				4258.72
	Cost of 1 m³				**426.00**
1.22	**Extra for every additional lift of 1.5 m or part thereof in excavation / banking excavated or stacked materials.**				
	Details of Cost for 10 m³				
A	**LABOUR**				
	Mazdoor Heavy (Mate)	day	0.20	451.22	90.24
	Mazdoor light	day	1.95	451.22	879.88
	Total				970.12
B	Add Water charges, Shoring and shuttering & sundries 2% (A+B)				19.40
	Total				989.53

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
C	Over Head Charges 10 % (A+B)				98.95
	Contractor's Profit 10% (A+B+C)				108.85
	Cost for 10 m³				1197.33
	Cost of 1 m³				**120.00**
1.23	Earth work excavation for pipeline trenchesby mechanical means above 600 mm (Depth upto 1.50m not exceeding 1.5m in width) trench width as per drawing and technical specification, including setting out, construction of shoring, strutting, Cost of blastingmaterials,barricading, caution lights, bracing, using sight rails & boning rods at every 100 mm whevere necessary as directed, removal of slumps and other deleterious matter, dressing of sides and levelling the bottom of trench to the extent required, utilising the available excavated earth locally for the work and all other appurtenances to complete in the following strata.				
1.23.1	**Hard rock (requiring blasting) Depth upto 1.50m**				
	Details of Cost for 10 m³				
A	**MATERIALS**				
	Blasting powder	Kg	6.42	33.90	217.63
	Blasting fuse (fuse wire)	Each	7.00	12.71	88.98
B	**MACHINERY**				
	Hydraulic Excavator 1 m³ bucket capacity.	hr	0.02	957.63	14.96
	Tipper 5m³	hr	0.02	1197.46	18.71
C	**LABOUR**				
	Rock Excavator	day	1.24	476.22	590.51
	Rock Breaker	day	3.00	476.22	1428.66
	Rock Hole Driller	day	1.06	476.22	504.79
	Mazdoor Heavy (Mate)	day	0.50	451.22	225.61
	Mazdoor light	day	1.30	451.22	586.59
	Total				3676.45
D	Add Water charges, Shoring and shuttering & sundries 2% (A+B)				73.53
	Total				3749.97

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
E	Over Head Charges 10 % (A+B+C+D)				375.00
	Contractor's Profit 10% (A+B+C+D+E)				412.50
	Cost for 10 m³				4537.47
	Cost of 1 m³				**454.00**
1.23.2	**Depth exceeding 1.5 m, but not exceeding 3 m**				
	Details of Cost for 10 m³				
A	**MATERIALS**				
	Blasting powder	Kg	6.42	33.90	217.63
	Blasting fuse (fuse wire)	Each	7.00	12.71	88.98
B	**MACHINERY**				
	Hydraulic Excavator 1 m³ bucket capacity.	hr	0.02	957.63	17.36
	Tipper 5m^3	hr	0.02	1197.46	21.70
C	**LABOUR**				
	Rock Excavator	day	1.35	476.22	642.90
	Rock Breaker	day	3.50	476.22	1666.77
	Rock Hole Driller	day	1.25	476.22	595.28
	Mazdoor Heavy (Mate)	day	0.65	451.22	293.29
	Mazdoor light	day	1.45	451.22	654.27
	Total				4198.18
D	Add Water charges, Shoring and shuttering & sundries 2% (A+B)				83.96
	Total				4282.14
E	Over Head Charges 10 % (A+B+C+D)				428.21
	Contractor's Profit 10% (A+B+C+D+E)				471.04
	Cost for 10 m³				5181.39
	Cost of 1 m³				**518.00**
1.23.3	**Depth exceeding 3 m, but not exceeding 4.50m**				
	Details of Cost for 10 m³				
A	**MATERIALS**				
	Blasting powder	Kg	6.42	33.90	217.63

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Blasting fuse (fuse wire)	Each	7.00	12.71	88.98
B	**MACHINERY**				
	Hydraulic Excavator 1 m³ bucket capacity.	hr	0.02	957.63	19.75
	Tipper 5m³	hr	0.02	1197.46	24.70
C	**LABOUR**				
	Rock Excavator	day	1.45	476.22	690.52
	Rock Breaker	day	3.65	476.22	1738.20
	Rock Hole Driller	day	1.45	476.22	690.52
	Mazdoor Heavy (Mate)	day	0.88	451.22	397.07
	Mazdoor light	day	1.88	451.22	848.29
	Total				4715.67
D	Add Water charges, Shoring and shuttering & sundries 2% (A+B)				94.31
	Total				4809.98
E	Over Head Charges 10 % (A+B+C+D)				481.00
	Contractor's Profit 10% (A+B+C+D+E)				529.10
	Cost for 10 m³				5820.08
	Cost of 1 m³				**582.00**
	Note Add 5% per m³ /for every additional 1.50m depth or part thereoff beyod 4.50 m depth				
1.23.4	**Extra for every additional lift of 1.5 m or part thereof in excavation / banking excavated or stacked materials.**				
	Details of Cost for 10 m³				
A	**LABOUR**				
	Mazdoor Heavy (Mate)	day	0.20	451.22	90.24
	Mazdoor light	day	1.95	451.22	879.88
	Total				970.12
B	Add Water charges, Shoring and shuttering & sundries 2% (A+B)				19.40
	Total				989.53

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
C	Over Head Charges 10 % (A+B)				98.95
	Contractor's Profit 10% (A+B+C)				108.85
	Cost for 10 m³				1197.33
	Cost of 1 m³				**120.00**
1.23.5	**Hard rock (blasting prohibited) Depth upto 1.50m**				
	Details of Cost for 10 m³				
A	**MACHINERY**				
	Hydraulic Excavator 1 m³ bucket capacity.	day	0.02	957.63	14.96
	Tipper 5m³	day	0.02	1197.46	18.71
B	**LABOUR**				
	Rock Excavator	day	2.65	476.22	1261.98
	Rock Breaker	day	6.18	476.22	2940.66
	Stone Chiseller II	day	1.06	461.22	488.89
	Rock Hole Driller	day	0.18	476.22	83.34
	Mazdoor Heavy (Mate)	day	0.75	451.22	338.42
	Mazdoor light	day	1.50	451.22	676.83
	Total				5823.79
C	Add Water charges, Shoring and shuttering & sundries 2% (A+B)				116.48
	Total				5940.27
D	Over Head Charges 10 % (A+B+C)				594.03
	Contractor's Profit 10% (A+B+C+D)				653.43
	Cost for 10 m³ Total				7187.72
	Cost of 1 m³				**719.00**
1.23.6	**Depth exceeding 1.5 m, but not exceeding 3 m**				
	Details of Cost for 10 m³				
A	**MACHINERY**				
	Hydraulic Excavator 1 m³ bucket capacity.	day	0.02	957.63	17.36
	Tipper 5m³	day	0.02	1197.46	21.70

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
B	**LABOUR**				
	Rock Excavator	day	2.65	476.22	1261.98
	Rock Breaker	day	6.18	476.22	2940.66
	Stone Chiseller II	day	1.50	461.22	691.83
	Rock Hole Driller	day	0.18	476.22	83.34
	Mazdoor Heavy (Mate)	day	1.25	451.22	564.03
	Mazdoor light	day	2.00	451.22	902.44
	Total				6483.34
C	Add Water charges, Shoring and shuttering & sundries 2% (A+B)				129.67
	Total				6613.00
D	Over Head Charges 10 % (A+B+C)				661.30
	Contractor's Profit (10% (A+B+C+D)				727.43
	Cost for 10 m^3				8001.73
	Cost of 1 m^3 .				**800.00**
1.23.7	**Depth exceeding 3 m, but not exceeding 4.50m**				
	Details of Cost for 10 m^3				
A	**MACHINERY**				
	Hydraulic Excavator 1 m^3 bucket capacity.	day	0.02	957.63	19.75
	Tipper 5m^3	day	0.02	1197.46	24.70
B	**LABOUR**				
	Rock Excavator	day	2.65	476.22	1261.98
	Rock Breaker	day	6.18	476.22	2940.66
	Stone Chiseller II	day	1.75	461.22	807.14
	Rock Hole Driller	day	0.18	476.22	83.34
	Mazdoor Heavy (Mate)	day	1.45	451.22	654.27
	Mazdoor light	day	2.60	451.22	1173.17
	Total				6965.00

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
C	Add Water charges, Shoring and shuttering & sundries 2% (A+B)				139.30
	Total				7104.30
D	Over Head Charges 10 % (A+B+C)				710.43
	Contractor's Profit 10% (A+B+C+D)				781.47
	Cost for 10 m³ .Total				8596.21
	Cost of 1 m³ .				**860.00**
	Note:1 Add 5% per m³ /for every additional 1.50m depth or part thereoff beyod 4.50 m depth				
	Note: 2..Additional rates for quantities of works, executed in or under water and /or liquid mud, including pumping water as required Cost of 1 m depth 20% of the rate of the item				
	Note: 3..Additional rates for quantities of works, executed in or under foul position,including pumping water as required Cost of 1 m depth 25% of the rate of the item)				
	Note:4. If the width of excavation is less than 0.60 m, Add 25% extra /m³ for the above rates.				
1.24	**Extra for every additional lift of 1.5 m or part thereof in excavation / banking excavated or stacked materials.**				
	Details of Cost for 10 m³				
A	**LABOUR**				
	Mazdoor Heavy (Mate)	day	0.20	451.22	90.24
	Mazdoor light (Coolie day 1.20)	day	1.95	451.22	879.88
	Total				970.12
B	Add Water charges, Shoring and shuttering & sundries 2% (A+B)				19.40
	Total				989.53
C	Over Head Charges 10 % (A+B)				98.95
	Contractor's Profit 10% (A+B+C)				108.85
	Cost for 10 m³				1197.33
	Cost of 1 m³				**120.00**

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Note:1.Extra rates for quantities of works, executed in or under water and /or liquid mud, including pumping water as required Cost of 1 m depth 20% of the rate of the item)				
	Note: 2 .Extra rates for quantities of works, executed in or under foul position,including pumping water as required Cost of 1 m depth 25% of the rate of the item)				
	Note: 3. If the width of excavation is less than 0.60 m, Add 25% extra /m³ for the above rates.				

Rate Analysis for

CONCRETE WORK

- The rates are excluding the cost of steel and formwork.
- Percentage as per Appendix-I to be adopted in case formwork is considered.

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	COMMON SCHEDULE OF RATES FOR PLAIN & REINFORCED CEMENT CONCRETE				
2.1	Providing and laying in position plain cement concrete for levelling course for all works in f**oundation**. The granite/trap/basalt crushed graded coarse aggregates and fine aggregates as per relevant IS Codes machine mixed, laid in layers not exceeding 150 mm thickness, well compacted using plate vibrators, including all lead & lifts, cost of all materials of quality, labour, Usage charges of machinery, curing, and all the other appurtenances required to complete the work as per technical specifications. (The cost of steel reinforcement & formwork shall be paid separately)				
2.1.1	**Mix 1:5:10 Using 40 mm and down size graded crushed coarse aggregates**				
	Details of cost for 1 m³				
	MATERIAL				
	Stone Aggregate (Single size) :40 mm nominal size	m³	0.65	1190.48	773.81
	(0.70 m³ - 7.5% for voids i.e 0.05 = 0.65 m³)				
	Stone Aggregate (Single size) :20 mm nominal size	m³	0.24	1285.71	308.57
	Coarse sand	m³	0.47	1417.14	666.06
	Cement	t	0.13	6980.00	907.40
	LABOUR				
	Mason Class II	day	0.50	461.22	230.61
	Mazdoor light	day	2.00	451.22	902.44
	MACHINERY				
	Concrete mixer (cap 0.40/0.28 m³)	hr	0.25	303.39	75.85
	Vibrator(Needle type 40mm)	hr	0.50	334.75	167.37
	Sub Total - A				4032.11
	Add 1 % Water charges on A				40.32
	Sundries 1 % on A				40.32
	Sub Total - B				4112.75
	Over Head Charges 10 % on B				411.28
	Sub Total - C				4524.03
	Contractor's profit 10% on C				452.40

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Total Cost per 1m³				4976.43
	Say				4976.00
	Material Requirement : Cement= 130kg (2.6bags): Metal: 0.89 m3 : Sand= 0.47 m3				
2.1.2	**Mix 1:4:8(M5) Using 40 mm and down size graded crushed coarse aggregates**				
	Details of cost for 1 m³.				
	MATERIAL				
	Stone Aggregate (Single size) :40 mm nominal size	m³	0.65	1190.48	773.81
	(0.70 m³ - 7.5% for voids ie 0.05 = 0.65 m³)				
	Stone Aggregate (Single size) :20 mm nominal size	m³	0.24	1285.71	308.57
	Coarse sand	m³	0.47	1417.14	666.06
	Cement	t	0.175	6980.00	1221.50
	LABOUR				
	Mason Class II	day	0.50	461.22	230.61
	Mazdoor light	day	2.00	451.22	902.44
	MACHINERY				
	Concrete mixer (cap 0.40/0.28 m³)	hr	0.25	303.39	75.85
	Vibrator(Needle type 40mm)	hr	0.50	334.75	167.37
	Sub Total - A				4346.21
	Add 1 % Water charges on A				43.46
	Sundries 1 % on A				43.46
	Sub Total - B				4433.13
	Over Head Charges 10 % on B				443.31
	Sub Total - C				4876.45
	Contractor's profit 10% on C				487.64
	Total Cost per 1m³				5364.09
	say				5364.00
	Material Requirement : Cement= 175 kg (3.50 bags): Metal: 0.89 m3 : Sand= 0.47 m3				
2.1.3	**Mix 1:3:6 (M10) Using 40 mm and down size graded crushed coarse aggregates**				

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Details of cost for 1 m³				
	MATERIAL				
	Stone Aggregate (Single size) :40 mm nominal size	m³	0.65	1190.48	773.81
	(0.70 m³ - 7.5% for voids i.e 0.05 = 0.65 m³)				
	Stone Aggregate (Single size) :20 mm nominal size	m³	0.24	1285.71	308.57
	Coarse sand	m³	0.47	1417.14	666.06
	Cement	t	0.22	6980.00	1535.60
	LABOUR				
	Mason Class II	day	0.50	461.22	230.61
	Mazdoor light	day	2.00	451.22	902.44
	MACHINERY				
	Concrete mixer (cap 0.40/0.28 m³)	hr	0.25	303.39	75.85
	Vibrator(Needle type 40mm)	hr	0.50	334.75	167.37
	Sub Total - A				4660.31
	Add 1 % Water charges on A				46.60
	Sundries 1 % on A				46.60
	Sub Total - B				4753.51
	Over Head Charges 10 % on B				475.35
	Sub Total - C				5228.87
	Contractor's profit 10% on C				522.89
	Total Cost per 1m³				5751.75
	say				5752.00
	Material Requirement : Cement= 220 kgs (4.40 bags): Metal: 0.89 m3 : Sand= 0.47 m3				
2.1.4	**Mix 1:3:6 (M10) Using 20 mm and down size graded crushed coarse aggregates**				
	Details of cost for 1 m³				
	MATERIAL				
	Stone Aggregate (Single size) : 20 mm nominal size	m³	0.70	1285.71	900.00
	Stone Aggregate (Single size) : 10 mm nominal size	m³	0.24	1285.71	308.57
	Coarse sand	m³	0.47	1417.14	666.06

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Cement	t	0.22	6980.00	1535.60
	LABOUR				
	Mason Class II	day	0.50	461.22	230.61
	Mazdoor light	day	2.00	451.22	902.44
	MACHINERY				
	Concrete mixer (cap 0.40/0.28 m^3)	hr	0.30	303.39	91.02
	Vibrator(Needle type 40mm)	hr	0.50	334.75	167.37
	Sub Total - A				4801.67
	Add 1 % Water charges on A				48.02
	Sundries 1 % on A				48.02
	Sub Total - B				4897.70
	Over Head Charges 10 % on B				489.77
	Sub Total - C				5387.47
	Contractor's profit 10% on C				538.75
	Total Cost per 1m^3				5926.22
	say				5926.00
	Material Requirement : Cement= 220 kgs (4.40 bags): Metal: 0.94 m3 : Sand= 0.47 m3				
2.2	Providing and laying in position Reinforced cement concrete for all **Foundation works**. The granite/ trap/basalt crushed graded coarse aggregates and fine aggregates as per relevant IS Codes machine mixed with super plasticizers laid in finished layers, well compacted using needle vibrators, including all lead & lifts, cost of all materials, quality confirming to the requirements of relevant IS codes , labour, Usage charges of machinery, curing and all the other appurtenances required to complete the work as per technical specifications. (The cost of steel reinforcement & formwork to be paid separately)				
2.2.1.1	**M20 Design Mix Using 20 mm and down size graded crushed coarse aggregates**				
	MATERIAL				
	Stone Aggregate (Single size) : 20 mm nominal size	m^3	0.57	1285.71	732.86
	Stone Aggregate (Single size) : 10 mm nominal size	m^3	0.28	1285.71	360.00

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Coarse sand	m³	0.43	1417.14	602.29
	Cement	t	0.32	6980.00	2233.60
	LABOUR				
	Mason Class II	day	0.25	461.22	115.31
	Mazdoor light	day	0.90	451.22	406.10
	Mazdoor light (Helper)	day	1.00	451.22	451.22
	MACHINERY				
	Concrete mixer (cap 0.40/0.28 m³)	hr	0.10	303.39	30.34
	Vibrator(Needle type 40mm)	hr	0.35	334.75	117.16
	Sub Total - A				5048.87
	Add 1 % Water charges on A				50.49
	Sundries 1 % on A				50.49
	Sub Total - B				5149.84
	Over Head Charges 10 % on B				514.98
	Sub Total - C				5664.83
	Contractor's profit 10% on C				566.48
	Total Cost per 1m³				6231.31
	say				6231.00
	Material Requirement : Cement= 320 kgs (6.40 bags): Metal: 0.85 m3 : Sand= 0.43m3				
2.2.1.2	**M20 Design Mix Using 20 mm and down size graded crushed coarse aggregates with 20% partial replacement with Recycled concrete aggregate (RCA)**				
	MATERIAL				
	Stone Aggregate (Single size) : 20 mm nominal size	m³	0.46	1285.71	586.29
	Recycled Concrete Aggregate (RCA) 20mm downsize	m³	0.11	952.381	108.57
	Stone Aggregate (Single size) : 10 mm nominal size	m³	0.22	1285.71	288.00
	Recycled Concrete Aggregate (RCA) 10mm downsize	m³	0.06	952.381	53.33
	Coarse sand	m³	0.43	1417.14	602.29
	Cement	t	0.32	6980.00	2233.60

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	LABOUR				
	Mason Class II	day	0.25	461.22	115.31
	Mazdoor light	day	0.90	451.22	406.10
	Mazdoor light (Helper)	day	1.00	451.22	451.22
	MACHINERY				
	Concrete mixer (cap 0.40/0.28 m^3)	hr	0.10	303.39	30.34
	Vibrator(Needle type 40mm)	hr	0.35	334.75	117.16
	Sub Total - A				4992.20
	Add 1 % Water charges on A				49.92
	Sundries 1 % on A				49.92
	Sub Total - B				5092.04
	Over Head Charges 10 % on B				509.20
	Sub Total - C				5601.25
	Contractor's profit 10% on C				560.12
	Total Cost per 1m^3				6161.37
	say				6161.00
	Material Requirement : Cement= 320 kgs (6.40 bags): Metal: 0.85 m3 : Sand= 0.43m3				
2.2.2.1	**M25 Design Mix Using 20 mm and down size graded crushed coarse aggregates**				
	Details of cost for 15 m^3 .				
	MATERIAL				
	Cement	t	5.10	6980.00	35598.00
	Coarse sand	m^3	6.75	1417.14	9565.71
	20 mm aggregate	m^3	8.10	1285.71	10414.29
	10 mm aggregates	m^3	5.40	1285.71	6942.86
	Admixture @ 0.4 per cent of cement	kg	20.40	169.49	3457.63
	LABOUR				
	Mate	day	1.00	476.22	476.22
	Mason	day	3.00	461.22	1383.66
	Mazdoor	day	12.00	451.22	5414.64

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	MACHINERY				
	Concrete mixer (cap 0.40/0.28 m³)	hr	2.00	303.39	606.78
	Generator 33 VA	hr	2.00	420.34	840.68
	Vibrator(Needle type 40mm)	hr	1.50	334.75	502.12
	Water tanker 6kL	hr	1.00	621.19	621.19
	Tractor trolley	hr	1.00	561.02	561.02
	Sub Total - A				76384.78
	Add 1 % Water charges on A				763.8478
	Sundries 1 % on A				763.8478
	Sub Total - B				77912.48
	Over Head Charges 10 % on B				7791.248
	Sub Total - C				85703.73
	Contractor's profit 10% on C				8570.373
	Total Cost per 15m³				94274.10
	Per m³				6285.00
	Material Requirement : Cement= 340 kgs (6.80 bags): Metal: 0.90 m3 : Sand= 0.45m3				
2.2.2.2	**M25 Design Mix Using 20 mm and down size graded crushed coarse aggregates with 20% partial replacement with Recycled concrete aggregate (RCA)**				
	Details of cost for 15 m³ .				
	MATERIAL				
	Cement	t	5.10	6980.00	35598.00
	Coarse sand	m³	6.75	1417.14	9565.71
	20 mm aggregate	m³	6.48	1285.71	8331.43
	Recycled Concrete Aggregate (RCA) 20mm downsize	m³	1.62	952.38	1542.86
	10 mm aggregates	m³	4.32	1285.71	5554.29
	Recycled Concrete Aggregate (RCA) 10mm downsize	m³	1.08	952.38	1028.57
	Admixture @ 0.4 per cent of cement	kg	20.40	169.49	3457.63
	LABOUR				

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Mate	day	1.00	476.22	476.22
	Mason	day	3.00	461.22	1383.66
	Mazdoor	day	12.00	451.22	5414.64
	MACHINERY				
	Concrete mixer (cap 0.40/0.28 m³)	hr	2.00	303.39	606.78
	Generator 33 VA	hr	2.00	420.34	840.68
	Vibrator(Needle type 40mm)	hr	1.50	334.75	502.12
	Water tanker 6kL	hr	1.00	621.19	621.19
	Tractor trolley	hr	1.00	561.02	561.02
	Sub Total - A				75484.78
	Add 1 % Water charges on A				754.8478
	Sundries 1 % on A				754.8478
	Sub Total - B				76994.48
	Over Head Charges 10 % on B				7699.448
	Sub Total - C				84693.93
	Contractor's profit 10% on C				8469.393
	Total Cost per 15m³				93163.32
	Per m³				6211.00
	Material Requirement : Cement= 340 kgs (6.80 bags): Metal: 0.90 m3 : Sand= 0.45m3				
2.2.3.1	**M30 Design Mix Using 20 mm and down size graded crushed coarse aggregates**				
	Details of cost for 15 m³				
	MATERIAL				
	Cement	t	5.40	6980.00	37692.00
	Coarse sand	m³	6.75	1417.14	9565.71
	20 mm aggregate	m³	8.10	1285.71	10414.29
	10 mm aggregates	m³	5.40	1285.71	6942.86
	Admixture @ 0.4 per cent of cement	kg	21.60	169.49	3661.02
	LABOUR				
	Mate	day	1.00	476.22	476.22

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Mason	day	3.00	461.22	1383.66
	Mazdoor	day	8.00	451.22	3609.76
	MACHINERY				
	Mobile concrete batching / Mixing plant	hr	0.75	615.25	461.44
	Generator 100 kVA	hr	0.75	1104.24	828.18
	Water tanker 6kL	hr	1.00	621.19	621.19
	Tractor trolley	hr	1.00	561.02	561.02
	Transit mixer (Mixer of 6m3 capacity at 2.5 interval)	hr	2.00	1608.47	3216.95
	Concrete pump	hr	0.75	904.24	678.18
	Vibrator(Needle type 40mm)	hr	1.50	334.75	502.12
	Sub Total - A				80614.58
	Add 1 % Water charges on A				806.1458
	Sundries 1 % on A				806.1458
	Sub Total - B				82226.87
	Over Head Charges 10 % on B				8222.687
	Sub Total - C				90449.56
	Contractor's profit 10% on C				9044.956
	Total Cost per 15m³				99494.52
	Per m³				6633.00
	Material Requirement : Cement= 360 kgs (7.20 bags): Metal: 0.90 m3 : Sand= 0.45m3				
2.2.3.2	**M30 Design Mix Using 20 mm and down size graded crushed coarse aggregates with 20% partial replacement with Recycled concrete aggregate (RCA)**				
	Details of cost for 15 m³				
	MATERIAL				
	Cement	t	5.40	6980.00	37692.00
	Coarse sand	m³	6.75	1417.14	9565.71
	20 mm aggregate	m³	6.48	1285.71	8331.43
	Recycled Concrete Aggregate (RCA) 20mm downsize	m³	1.62	952.38	1542.86

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	10 mm aggregates	m^3	4.32	1285.71	5554.29
	Recycled Concrete Aggregate (RCA) 10mm downsize	m^3	1.08	952.38	1028.57
	Admixture @ 0.4 per cent of cement	kg	21.60	169.49	3661.02
	LABOUR				
	Mate	day	1.00	476.22	476.22
	Mason	day	3.00	461.22	1383.66
	Mazdoor	day	8.00	451.22	3609.76
	MACHINERY				
	Mobile concrete batching / Mixing plant	hr	0.75	615.25	461.44
	Generator 100 kVA	hr	0.75	1104.24	828.18
	Water tanker 6kL	hr	1.00	621.19	621.19
	Tractor trolley	hr	1.00	561.02	561.02
	Transit mixer (Mixer of 6m3 capacity at 2.5 interval)	hr	2.00	1608.47	3216.95
	Concrete pump	hr	0.75	904.24	678.18
	Vibrator(Needle type 40mm)	hr	1.50	334.75	502.12
	Sub Total - A				79714.58
	Add 1 % Water charges on A				797.1458
	Sundries 1 % on A				797.1458
	Sub Total - B				81308.87
	Over Head Charges 10 % on B				8130.887
	Sub Total - C				89439.76
	Contractor's profit 10% on C				8943.976
	Total Cost per 15m^3				98383.74
	Per m^3				6559.00
	Material Requirement : Cement= 360 kgs (7.20 bags): Metal: 0.90 m3 : Sand= 0.45m3				
2.2.4.1	**M35 Design Mix Using 20 mm and down size graded crushed coarse aggregates**				
	Details of cost for 15 m^3 .				
	MATERIAL				
	Cement	t	5.85	6980.00	40833.00

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Coarse sand	m^3	6.75	1417.14	9565.71
	20 mm aggregate	m^3	8.10	1285.71	10414.29
	10 mm aggregates	m^3	5.40	1285.71	6942.86
	Admixture @ 0.4 per cent of cement	kg	23.40	169.49	3966.10
	LABOUR				
	Mate	day	1.00	476.22	476.22
	Mason	day	3.00	461.22	1383.66
	Mazdoor	day	8.00	451.22	3609.76
	MACHINERY				
	Mobile concrete batching / Mixing plant	hr	0.75	615.25	461.44
	Generator 100 kVA	hr	0.75	1104.24	828.18
	Water tanker 6kL	hr	1.00	621.19	621.19
	Tractor trolley	hr	1.00	561.02	561.02
	Transit mixer (Mixer of 6m3 capacity at 2.5 interval)	hr	2.00	1608.47	3216.95
	Concrete pump	hr	0.75	904.24	678.18
	Vibrator(Needle type 40mm)	hr	1.50	334.75	502.12
	Sub Total - A				84060.67
	Add 1 % Water charges on A				840.6067
	Sundries 1 % on A				840.6067
	Sub Total - B				85741.88
	Over Head Charges 10 % on B				8574.188
	Sub Total - C				94316.07
	Contractor's profit 10% on C				9431.607
	Total Cost per 15m^3				103747.67
	Per m^3				6917.00
	Material Requirement: Cement= 390 kgs (7.80 bags): Metal: 0.85 m3 : Sand= 0.416m3				
2.2.4.2	**M35 Design Mix Using 20 mm and down size graded crushed coarse aggregates with 20% partial replacement with Recycled concrete aggregate (RCA)**				

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Details of cost for 15 m³ .				
	MATERIAL				
	Cement	t	5.85	6980.00	40833.00
	Coarse sand	m³	6.75	1417.14	9565.71
	20 mm aggregate	m³	6.48	1285.71	8331.43
	Recycled Concrete Aggregate (RCA) 20mm downsize	m³	1.62	952.38	1542.86
	10 mm aggregates	m³	4.32	1285.71	5554.29
	Recycled Concrete Aggregate (RCA) 10mm downsize	m³	1.08	952.38	1028.57
	Admixture @ 0.4 per cent of cement	kg	23.40	169.49	3966.10
	LABOUR				
	Mate	day	1.00	476.22	476.22
	Mason	day	3.00	461.22	1383.66
	Mazdoor	day	8.00	451.22	3609.76
	MACHINERY				
	Mobile concrete batching / Mixing plant	hr	0.75	615.25	461.44
	Generator 100 kVA	hr	0.75	1104.24	828.18
	Water tanker 6kL	hr	1.00	621.19	621.19
	Tractor trolley	hr	1.00	561.02	561.02
	Transit mixer (Mixer of 6m3 capacity at 2.5 interval)	hr	2.00	1608.47	3216.95
	Concrete pump	hr	0.75	904.24	678.18
	Vibrator(Needle type 40mm)	hr	1.50	334.75	502.12
	Sub Total - A				83160.67
	Add 1 % Water charges on A				831.6067
	Sundries 1 % on A				831.6067
	Sub Total - B				84823.88
	Over Head Charges 10 % on B				8482.388
	Sub Total - C				93306.27
	Contractor's profit 10% on C				9330.627
	Total Cost per 15m³				102636.89

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Per m³				6842.00
	Material Requirement: Cement= 390 kgs (7.80 bags): Metal: 0.85 m3 : Sand= 0.416m3				
2.2.5.1	**M 40 Design Mix Using 20 mm and down size graded crushed coarse aggregates**				
	Details of cost for 15 m³ .				
	MATERIAL				
	Cement	t	6.30	6980.00	43974.00
	Coarse sand	m³	6.75	1417.14	9565.71
	20 mm aggregate	m³	8.10	1285.71	10414.29
	10 mm aggregates	m³	5.40	1285.71	6942.86
	Admixture @ 0.4 per cent of cement	kg	25.20	169.49	4271.19
	LABOUR				
	Mate	day	1.00	476.22	476.22
	Mason	day	3.00	461.22	1383.66
	Mazdoor	day	8.00	451.22	3609.76
	MACHINERY				
	Mobile concrete batching / Mixing plant	hr	0.75	615.25	461.44
	Generator 100 kVA	hr	0.75	1104.24	828.18
	Water tanker 6kL	hr	1.00	621.19	621.19
	Tractor trolley	hr	1.00	561.02	561.02
	Transit mixer (Mixer of 6m3 capacity at 2.5 interval)	hr	2.00	1608.47	3216.95
	Concrete pump	hr	0.75	904.24	678.18
	Vibrator(Needle type 40mm)	hr	1.50	334.75	502.12
	Sub Total - A				87506.75
	Add 1 % Water charges on A				875.0675
	Sundries 1 % on A				875.0675
	Sub Total - B				89256.89
	Over Head Charges 10 % on B				8925.689
	Sub Total - C				98182.58
	Contractor's profit 10% on C				9818.258

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Total Cost per 15m³				108000.83
	Per m³				7200.00
	Material Requirement: Cement= 420 kgs (8.40 bags): Metal: 0.89 m3 : Sand= 0.45m3				
2.2.5.2	**M 40 Design Mix Using 20 mm and down size graded crushed coarse aggregates with 20% partial replacement with Recycled concrete aggregate (RCA)**				
	Details of cost for 15 m³ .				
	MATERIAL				
	Cement	t	6.30	6980.00	43974.00
	Coarse sand	m³	6.75	1417.14	9565.71
	20 mm aggregate	m³	6.48	1285.71	8331.43
	Recycled Concrete Aggregate (RCA) 20mm downsize	m³	1.62	952.38	1542.86
	10 mm aggregates	m³	4.32	1285.71	5554.29
	Recycled Concrete Aggregate (RCA) 10mm downsize	m³	1.08	952.38	1028.57
	Admixture @ 0.4 per cent of cement	kg	25.20	169.49	4271.19
	LABOUR				
	Mate	day	1.00	476.22	476.22
	Mason	day	3.00	461.22	1383.66
	Mazdoor	day	8.00	451.22	3609.76
	MACHINERY				
	Mobile concrete batching / Mixing plant	hr	0.75	615.25	461.44
	Generator 100 kVA	hr	0.75	1104.24	828.18
	Water tanker 6kL	hr	1.00	621.19	621.19
	Tractor trolley	hr	1.00	561.02	561.02
	Transit mixer (Mixer of 6m3 capacity at 2.5 interval)	hr	2.00	1608.47	3216.95
	Concrete pump	hr	0.75	904.24	678.18
	Vibrator(Needle type 40mm)	hr	1.50	334.75	502.12
	Sub Total - A				86606.75
	Add 1 % Water charges on A				866.0675

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Sundries 1 % on A				866.0675
	Sub Total - B				88338.89
	Over Head Charges 10 % on B				8833.889
	Sub Total - C				97172.78
	Contractor's profit 10% on C				9717.278
	Total Cost per 15m³				106890.05
	Per m³				7126.00
	Material Requirement: Cement= 420 kgs (8.40 bags): Metal: 0.89 m3 : Sand= 0.45m3				
2.3	Providing and laying in Reinforced cement concrete for all **Basement & surface level works, return walls, retaining walls, sunken floors etc**. The granite/trap/ basalt crushed graded coarse aggregates and fine aggregates as per relevant IS Codes machine mixed with super plasticisers, laid in layers not exceeding 150 mm thickness, well compacted using needle vibrators, providing weep holes wherever necesary, including all lead & lifts, cost of all materials of quality, labour, Usage charges of machinery, curing and all other appurtenances required to complete the work as per technical specifications. (The cost of steel reinforcement & formwork to be paid separately)				
2.3.1	**M20 Design Mix Using 20 mm and down size graded crushed coarse aggregates**				
	MATERIAL				
	Stone Aggregate (Single size) : 20 mm nominal size	m³	0.57	1285.71	732.86
	Stone Aggregate (Single size) : 10 mm nominal size	m³	0.28	1285.71	360.00
	Coarse sand	m³	0.43	1417.14	602.29
	Cement	t	0.32	6980	2233.60
	LABOUR				
	Mason Class II	day	0.50	461.22	230.61
	Mazdoor for converying concrete, cleaning etc	day	1.80	451.22	812.20
	MACHINERY				
	Concrete mixer (cap 0.40/0.28 m³)	hr	0.10	303.39	30.34
	Vibrator(Needle type 40mm)	hr	0.35	334.75	117.16
	Sub Total - A				5119.05

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Add 1 % Water charges on A				51.19
	Sundries 1 % on A				51.19
	Sub Total - B				5221.43
	Over Head Charges 10 % on B				522.14
	Sub Total - C				5743.57
	Contractor's profit 10% on C				574.36
	Total Cost per m³				6317.93
	say				6318.00
	Material Requirement : Cement= 320 kgs (6.40 bags): Metal: 0.85 m3 : Sand= 0.43m3				
2.3.2	**M25 Design Mix Using 20 mm and down size graded crushed coarse aggregates**				
	Details of cost for 15 m³ .				
	MATERIAL				
	Cement	t	5.10	6980.00	35598.00
	Coarse sand	m³	6.75	1417.14	9565.71
	20 mm aggregate	m³	8.10	1285.71	10414.29
	10 mm aggregates	m³	5.40	1285.71	6942.86
	Admixture @ 0.4 per cent of cement	kg	20.40	169.49	3457.63
	LABOUR				
	Mate	day	1.00	476.22	476.22
	Mason	day	2.00	461.22	922.44
	Mazdoor for converying concrete, cleaning etc	day	10.00	451.22	4512.20
	Bhisti	day	2.00	451.22	902.44
	MACHINERY				
	Concrete mixer (cap 0.40/0.28 m³)	hr	2.00	303.39	606.78
	Generator 33 VA	hr	2.00	420.34	840.68
	Vibrator(Needle type 40mm)	hr	3.00	334.75	1004.24
	Water tanker 6kL	hr	1.00	621.19	621.19
	Tractor trolley	hr	1.00	561.02	561.02

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Sub Total - A				76425.68
	Add 1 % Water charges on A				764.2568
	Sundries 1 % on A				764.2568
	Sub Total - B				77954.20
	Over Head Charges 10 % on B				7795.42
	Sub Total - C				85749.62
	Contractor's profit 10% on C				8574.962
	Total Cost per 15m³				94324.58
	Per m³				6288.00
	Material Requirement : Cement= 340 kgs (6.80 bags): Metal: 0.85 m3 : Sand= 0.45m3				
2.3.3	**M30 Design Mix Using 20 mm and down size graded crushed coarse aggregates**				
	Details of cost for 15 m³ .				
	MATERIAL				
	Cement	t	5.40	6980.00	37692.00
	Coarse sand	m³	6.75	1417.14	9565.71
	20 mm aggregate	m³	8.10	1285.71	10414.29
	10 mm aggregates	m³	5.40	1285.71	6942.86
	Admixture @ 0.4 per cent of cement	kg	21.60	169.49	3661.02
	LABOUR				
	Mate	day	1.00	476.22	476.22
	Mason	day	2.00	461.22	922.44
	Mazdoor for converying concrete, cleaning etc	day	10.00	451.22	4512.20
	Bhisti	day	1.20	451.22	541.46
	MACHINERY				
	Mobile concrete batching / Mixing plant	hr	0.75	615.25	461.44
	Generator 100 kVA	hr	0.75	1104.24	828.18
	Water tanker 6kL	hr	1.00	621.19	621.19
	Tractor trolley	hr	1.00	561.02	561.02

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Transit mixer (Mixer of 6m3 capacity at 2.5 interval)	hr	2.00	1608.47	3216.95
	Concrete pump	hr	0.75	904.24	678.18
	Vibrator(Needle type 40mm)	hr	1.50	334.75	502.12
	Sub Total - A				81597.27
	Add 1 % Water charges on A				815.9727
	Sundries 1 % on A				815.9727
	Sub Total - B				83229.21
	Over Head Charges 10 % on B				8322.921
	Sub Total - C				91552.13
	Contractor's profit 10% on C				9155.213
	Total Cost per 15m³				100707.35
	Per m³				6714.00
	Material Requirement : Cement= 360 kgs (7.20 bags): Metal: 0.90 m3 : Sand= 0.45m3				
2.3.4	**M 35 Design Mix Using 20 mm and down size graded crushed coarse aggregates**				
	Details of cost for 15 m³ .				
	MATERIAL				
	Cement	t	5.85	6980.00	40833.00
	Coarse sand	m³	6.75	1417.14	9565.71
	20 mm aggregate	m³	8.10	1285.71	10414.29
	10 mm aggregates	m³	5.40	1285.71	6942.86
	Admixture @ 0.4 per cent of cement	kg	23.40	169.49	3966.10
	LABOUR				
	Mate	day	1.00	476.22	476.22
	Mason	day	3.00	461.22	1383.66
	Mazdoor for conveying concrete, cleaning etc	day	12.00	451.22	5414.64
	Bhisti	day	1.40	451.22	631.71
	MACHINERY				
	Mobile concrete batching / Mixing plant	hr	0.75	615.25	461.44
	Generator 100 kVA	hr	0.75	1104.24	828.18

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Water tanker 6kL	hr	1.00	621.19	621.19
	Tractor trolley	hr	1.00	561.02	561.02
	Transit mixer (Mixer of 6m3 capacity at 2.5 interval)	hr	2.00	1608.47	3216.95
	Concrete pump	hr	0.75	904.24	678.18
	Vibrator(Needle type 40mm)	hr	1.50	334.75	502.12
	Sub Total - A				86497.25
	Add 1 % Water charges on A				864.9725
	Sundries 1 % on A				864.9725
	Sub Total - B				88227.20
	Over Head Charges 10 % on B				8822.72
	Sub Total - C				97049.92
	Contractor's profit 10% on C				9704.992
	Total Cost per 15m³				106754.91
	Per m³				7117.00
	Material Requirement: Cement= 390 kgs (7.80 bags): Metal: 0.90 m3 : Sand= 0.45m3				
2.3.5	**M 40 Design Mix Using 20 mm and down size graded crushed coarse aggregates**				
	Details of cost for 15 m³ .				
	MATERIAL				
	Cement	t	6.30	6980.00	43974.00
	Coarse sand	m³	6.75	1417.14	9565.71
	20 mm aggregate	m³	8.10	1285.71	10414.29
	10 mm aggregates	m³	5.40	1285.71	6942.86
	Admixture @ 0.4 per cent of cement	kg	25.20	169.49	4271.19
	LABOUR				
	Mate	day	1.00	476.22	476.22
	Mason	day	3.00	461.22	1383.66
	Mazdoor for conveying concrete, cleaning etc	day	12.00	451.22	5414.64
	Bhisti	day	1.60	451.22	721.95
	MACHINERY				

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Mobile concrete batching / Mixing plant	hr	0.75	615.25	461.44
	Generator 100 kVA	hr	0.75	1104.24	828.18
	Water tanker 6kL	hr	1.00	621.19	621.19
	Tractor trolley	hr	1.00	561.02	561.02
	Transit mixer (Mixer of 6m3 capacity at 2.5 interval)	hr	2.00	1608.47	3216.95
	Concrete pump	hr	0.75	904.24	678.18
	Vibrator(Needle type 40mm)	hr	1.50	334.75	502.12
	Sub Total - A				90033.58
	Add 1 % Water charges on A				900.3358
	Sundries 1 % on A				900.3358
	Sub Total - B				91834.26
	Over Head Charges 10 % on B				9183.426
	Sub Total - C				101017.68
	Contractor's profit 10% on C				10101.77
	Total Cost per 15m³				111119.45
	Per m³				7408.00
	Material Requirement: Cement= 420 kgs (8.40 bags): Metal: 0.90 m3 : Sand= 0.45m3				
2.4	Providing and laying in position Reinforced cement concrete for all **Sub structures** of building, Irrigation works, Sub structure works of bridges, Drain works & other parallel works from 0.50m to 3.50 m height. The granite/trap/basalt crushed graded coarse aggregates and fine aggregates as per relevant IS Codes machine mixed with super plasticisers, laid in layers, well compacted using needle vibrators, providing weep holes wherever necesary, including all lead & lifts, cost of all materials of quality, confirming to the requirements of relevant IS codes , labour, Usage charges of machinery, curing and all other appurtenances required to complete the work as per technical specifications. (The cost of steel reinforcement & formwork to be paid separately)				
2.4.1	**MIX 1:2:4 (M15) Using 20 mm and down size graded crushed coarse aggregates**				
	MATERIAL				

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Stone Aggregate (Single size) : 20 mm nominal size	m³	0.67	1285.71	861.43
	Stone Aggregate (Single size) : 10 mm nominal size	m³	0.22	1285.71	282.86
	Coarse sand	m³	0.45	1417.14	630.63
	Cement	t	0.24	6980	1675.20
	LABOUR				
	Mason Class II	day	0.50	461.22	230.61
	Mazdoor light	day	2.50	451.22	1128.05
	MACHINERY				
	Concrete mixer (cap 0.40/0.28 m³)	hr	0.10	303.39	30.34
	Vibrator(Needle type 40mm)	hr	0.30	334.75	100.42
	Sub Total - A				4939.54
	Add 1 % Water charges on A				49.40
	Sundries 1 % on A				49.40
	Sub Total - B				5038.33
	Over Head Charges 10 % on B				503.83
	Sub Total - C				5542.16
	Contractor's profit 10% on C				554.22
	Total Cost per m³				6096.38
	say				6096.00
	Material Requirement : Cement= 240 kgs (4.80 bags): Metal: 0.89 m3 : Sand= 0.45 m3				
2.4.2	**M20 Design Mix Using 20 mm and down size graded crushed coarse aggregates**				
	MATERIAL				
	Stone Aggregate (Single size) : 20 mm nominal size	m³	0.57	1285.71	732.86
	Stone Aggregate (Single size) : 10 mm nominal size	m³	0.28	1285.71	360.00
	Coarse sand	m³	0.43	1417.14	602.29
	Cement	t	0.32	6980.00	2233.60
	LABOUR				
	Mason Class II	day	0.50	461.22	230.61
	Mazdoor light	day	2.00	451.22	902.44

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	MACHINERY				
	Concrete mixer (cap 0.40/0.28 m³)	hr	0.10	303.39	30.34
	Vibrator(Needle type 40mm)	hr	0.30	334.75	100.42
	Sub Total - A				5192.56
	Add 1 % Water charges on A				51.93
	Sundries 1 % on A				51.93
	Sub Total - B				5296.41
	Over Head Charges 10 % on B				529.64
	Sub Total - C				5826.05
	Contractor's profit 10% on C				582.60
	Total Cost per m³				6408.65
	say				6409.00
	Material Requirement : Cement= 320 kgs (6.40 bags): Metal: 0.85 m3 : Sand= 0.43m3				
2.4.3	**M25 Design Mix Using 20 mm and down size graded crushed coarse aggregates**				
	Details of cost for 15 m³ .				
	MATERIAL				
	Cement	t	5.10	6980.00	35598.00
	Coarse sand	m³	6.75	1417.14	9565.71
	20 mm aggregate	m³	8.10	1285.71	10414.29
	10 mm aggregates	m³	5.40	1285.71	6942.86
	Admixture @ 0.4 per cent of cement	kg	20.40	169.49	3457.63
	LABOUR				
	Mate	day	1.00	476.22	476.22
	Mason	day	3.00	461.22	1383.66
	Mazdoor	day	12.00	451.22	5414.64
	MACHINERY				
	Concrete mixer (cap 0.40/0.28 m³)	hr	2.00	303.39	606.78
	Generator 33 VA	hr	2.00	420.34	840.68

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Vibrator(Needle type 40mm)	hr	2.00	334.75	669.49
	Water tanker 6kL	hr	1.00	621.19	621.19
	Tractor trolley	hr	1.00	561.02	561.02
	Sub Total - A				76552.16
	Add 1 % Water charges on A				765.5216
	Sundries 1 % on A				765.5216
	Sub Total - B				78083.20
	Over Head Charges 10 % on B				7808.32
	Sub Total - C				85891.52
	Contractor's profit 10% on C				8589.152
	Total Cost per 15m³				94480.67
	Per m³				6299.00
	Material Requirement : Cement= 340 kgs (6.80 bags): Metal: 0.90 m3 : Sand= 0.45m3				
2.4.4	**M30 Design Mix Using 20 mm and down size graded crushed coarse aggregates**				
	Details of cost for 15 m³ .				
	MATERIAL				
	Cement	t	5.40	6980.00	37692.00
	Coarse sand	m³	6.75	1417.14	9565.71
	20 mm aggregate	m³	8.10	1285.71	10414.29
	10 mm aggregates	m³	5.40	1285.71	6942.86
	Admixture @ 0.4 per cent of cement	kg	21.60	169.49	3661.02
	LABOUR				
	Mate	day	1.00	476.22	476.22
	Mason	day	3.00	461.22	1383.66
	Mazdoor	day	12.00	451.22	5414.64
	Bhisti	day	1.00	451.22	451.22
	MACHINERY				
	Mobile concrete batching / Mixing plant	hr	0.75	615.25	461.44
	Generator 100 kVA	hr	0.75	1104.24	828.18

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Water tanker 6kL	hr	1.00	621.19	621.19
	Tractor trolley	hr	1.00	561.02	561.02
	Transit mixer (Mixer of 6m3 capacity at 2.5 interval)	hr	2.00	1608.47	3216.95
	Concrete pump	hr	0.75	904.24	678.18
	Vibrator(Needle type 40mm)	hr	1.50	334.75	502.12
	Sub Total - A				82870.68
	Add 1 % Water charges on A				828.7068
	Sundries 1 % on A				828.7068
	Sub Total - B				84528.10
	Over Head Charges 10 % on B				8452.81
	Sub Total - C				92980.91
	Contractor's profit 10% on C				9298.091
	Total Cost per 15m³				102279.00
	Per m³				6819.00
	Material Requirement : Cement= 360 kgs (7.20 bags): Metal: 0.90 m3 : Sand= 0.45m3				
2.4.5	**M35 Design Mix Using 20 mm and down size graded crushed coarse aggregates**				
	Details of cost for 15 m³ .				
	MATERIAL				
	Cement	t	5.85	6980.00	40833.00
	Coarse sand	m³	6.75	1417.14	9565.71
	20 mm aggregate	m³	8.10	1285.71	10414.29
	10 mm aggregates	m³	5.40	1285.71	6942.86
	Admixture @ 0.4 per cent of cement	kg	23.40	169.49	3966.10
	LABOUR				
	Mate	day	1.00	476.22	476.22
	Mason	day	3.00	461.22	1383.66
	Mazdoor	day	14.00	451.22	6317.08
	Bhisti	day	1.00	451.22	451.22

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	MACHINERY				
	Mobile concrete batching / Mixing plant	hr	0.75	615.25	461.44
	Generator 100 kVA	hr	0.75	1104.24	828.18
	Water tanker 6kL	hr	1.00	621.19	621.19
	Tractor trolley	hr	1.00	561.02	561.02
	Transit mixer (Mixer of 6m3 capacity at 2.5 interval)	hr	2.00	1608.47	3216.95
	Concrete pump	hr	0.75	904.24	678.18
	Vibrator(Needle type 40mm)	hr	1.50	334.75	502.12
	Sub Total - A				87219.21
	Add 1 % Water charges on A				872.1921
	Sundries 1 % on A				872.1921
	Sub Total - B				88963.59
	Over Head Charges 10 % on B				8896.359
	Sub Total - C				97859.95
	Contractor's profit 10% on C				9785.995
	Total Cost per 15m³				107645.94
	Per m³				7176.00
	Material Requirement: Cement= 390 kgs (7.80 bags): Metal: 0.90 m3 : Sand= 0.45m3				
2.4.6	**M40 Design Mix Using 20 mm and down size graded crushed coarse aggregates**				
	Details of cost for 15 m³ .				
	MATERIAL				
	Cement	t	6.30	6980.00	43974.00
	Coarse sand	m³	6.75	1417.14	9565.71
	20 mm aggregate	m³	8.10	1285.71	10414.29
	10 mm aggregates	m³	5.40	1285.71	6942.86
	Admixture @ 0.4 per cent of cement	kg	25.20	169.49	4271.19
	LABOUR				
	Mate	day	1.00	476.22	476.22
	Mason	day	3.00	461.22	1383.66

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Mazdoor	day	14.00	451.22	6317.08
	MACHINERY				
	Mobile concrete batching / Mixing plant	hr	0.75	615.25	461.44
	Generator 100 kVA	hr	0.75	1104.24	828.18
	Water tanker 6kL	hr	1.00	621.19	621.19
	Tractor trolley	hr	1.00	561.02	561.02
	Transit mixer (Mixer of 6m3 capacity at 2.5 interval)	hr	2.00	1608.47	3216.95
	Concrete pump	hr	0.75	904.24	678.18
	Vibrator(Needle type 40mm)	hr	1.50	334.75	502.12
	Sub Total - A				90214.07
	Add 1 % Water charges on A				902.1407
	Sundries 1 % on A				902.1407
	Sub Total - B				92018.35
	Over Head Charges 10 % on B				9201.835
	Sub Total - C				101220.19
	Contractor's profit 10% on C				10122.02
	Total Cost per 15m³				111342.21
	Per m³				7423.00
	Material Requirement: Cement= 420 kgs (8.40 bags): Metal: 0.90 m3 : Sand= 0.45m3				
2.4.7	**M45 Design Mix Using 20 mm and down size graded crushed coarse aggregates**				
	Details of cost for 120 m³ .				
	MATERIAL				
	Cement	t	51.60	6980.00	360168.00
	Coarse sand	m³	54.00	1417.14	76525.71
	20 mm aggregate	m³	64.80	1285.71	83314.29
	10 mm aggregates	m³	43.20	1285.71	55542.86
	Admixture @ 0.4 per cent of cement	kg	206.40	169.49	34983.05
	LABOUR				

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Mate	day	1.00	476.22	476.22
	Mason	day	3.50	461.22	1614.27
	Mazdoor	day	16.00	451.22	7219.52
	MACHINERY				
	Batching plant 120 m³ /hr capacity	hr	1.00	3192.37	3192.37
	Generator 100 KVA	hr	6.00	1104.24	6625.42
	Loader	hr	6.00	1718.64	10311.86
	Transit mixer (capacity 6.0 m³/ hr)	hr	15.00	1608.47	24127.12
	Transit mixer (capacity 6.0 m³ per hr) lead upto 1 km	t-km	300.00	8.93	2679.66
	Concrete pump	hr	6.00	904.24	5425.42
	Vibrator(Needle type 40mm)	hr	6.00	334.75	2008.47
	Sub Total - A				674214.26
	Add 1 % Water charges on A				6742.14
	Sundries 1 % on A				6742.14
	Sub Total - B				687698.54
	Over Head Charges 10 % on B				68769.85
	Sub Total - C				756468.40
	Contractor's profit 10% on C				75646.84
	Total Cost per 120m³				832115.24
	Per m³				6934.00
	Requirement: Cement= 430 kgs (8.80 bags): Metal: 0.90 m3 : Sand= 0.45m3				
2.4.8	**M50 Design Mix Using 20 mm and down size graded crushed coarse aggregates**				
	Details of cost for 120 m³ .				
	MATERIAL				
	Cement	t	54.00	6980.00	376920.00
	Coarse sand	m³	54.00	1417.14	76525.71
	20 mm aggregate	m³	64.80	1285.71	83314.29
	10 mm aggregates	m³	43.20	1285.71	55542.86
	Admixture @ 0.4 per cent of cement	kg	216.00	169.49	36610.17

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	LABOUR				
	Mate	day	1.00	476.22	476.22
	Mason	day	3.50	461.22	1614.27
	Mazdoor	day	18.00	451.22	8121.96
	MACHINERY				
	Batching plant 120 m³ /hr capacity	hr	6.00	3192.37	19154.24
	Generator 100 KVA	hr	6.00	1104.24	6625.42
	Loader	hr	6.00	1718.64	10311.86
	Transit mixer (capacity 6.0 m³/ hr	hr	15.00	1608.47	24127.12
	Transit mixer (capacity 6.0 m³ per hr) lead upto 1 km	t-km	300.00	8.93	2679.66
	Concrete pump	hr	6.00	904.24	5425.42
	Vibrator(Needle type 40mm)	hr	6.00	334.75	2008.47
	Sub Total - A				709457.68
	Add 1 % Water charges on A				7094.58
	Sundries 1 % on A				7094.58
	Sub Total - B				723646.83
	Over Head Charges 10 % on B				72364.68
	Sub Total - C				796011.52
	Contractor's profit 10% on C				79601.15
	Total Cost per 120m³				875612.67
	Per m³				7297.00
	Requirement: Cement= 450 kgs (9.00 bags): Metal: 0.90 m3 : Sand= 0.45m3				
2.4.9	**M55 Design Mix Using 20 mm and down size graded crushed coarse aggregates**				
	Details of cost for 120 m³ .				
	MATERIAL				
	Cement	t	54.00	6980.00	376920.00
	Coarse sand	m³	54.00	1417.14	76525.71
	20 mm aggregate	m³	64.80	1285.71	83314.29
	10 mm aggregates	m³	43.20	1285.71	55542.86

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Admixture @ 0.4 per cent of cement	kg	216.00	169.49	36610.17
	LABOUR				
	Mate	day	1.00	476.22	476.22
	Mason	day	3.50	461.22	1614.27
	Mazdoor	day	18.00	451.22	8121.96
	MACHINERY				
	Batching plant 120 m³ /hr capacity	hr	1.00	3192.37	3192.37
	Generator 100 KVA	hr	6.00	1104.24	6625.42
	Loader	hr	6.00	1718.64	10311.86
	Transit mixer (capacity 6.0 m³/ hr	hr	15.00	1608.47	24127.12
	Transit mixer (capacity 6.0 m³ per hr) lead upto 1 km	t-km	300.00	8.93	2679.66
	Concrete pump	hr	6.00	904.24	5425.42
	Vibrator(Needle type 40mm)	hr	6.00	334.75	2008.47
	Sub Total - A				693495.82
	Add 1 % Water charges on A				6934.96
	Sundries 1 % on A				6934.96
	Sub Total - B				707365.73
	Over Head Charges 10 % on B				70736.57
	Sub Total - C				778102.31
	Contractor's profit 10% on C				77810.23
	Total Cost per 120m³				855912.54
	Per m³				7133.00
	Requirement: Cement= 450 kgs (9.00 bags): Metal: 0.90 m3 : Sand= 0.45m3				

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
2.5	Providing and laying in position Reinforced cement concrete for all **Super structures of building , Road works, Water works, Irrigation works & super structure works of bridges upto 3.50 m height**. The granite/trap/basalt crushed graded coarse aggregates and fine aggregates as per relevant IS Codes machine mixed with super plasticisers laid in layers, well compacted using needle vibrators. The cost includes finsishing concrete structure in line, all lead & lifts, cost of all materials, quality confirming to the requirements of relevant IS codes , labour, Usage charges of machinery, curing and all other appurtenances required to complete the work as per technical specifications. (The cost of steel reinforcement, dowel bars & formwork to be paid separately)				
2.5.1	**M20 Design Mix Using 20 mm and down size graded crushed coarse aggregates**				
	MATERIAL				
	Stone Aggregate (Single size) : 20 mm nominal size	m^3	0.57	1285.71	732.86
	Stone Aggregate (Single size) : 10 mm nominal size	m^3	0.28	1285.71	360.00
	Coarse sand	m^3	0.43	1417.14	602.29
	Cement	t	0.32	6980	2233.60
	LABOUR				
	Mason Class II	day	0.50	461.22	230.61
	Mazdoor light	day	2.00	451.22	902.44
	MACHINERY				
	Usage charges of Machinery - Concrete Mixer 0.25 to 0.40 m^3 with hopper	hr	0.10	303.39	30.34
	Vibrator(Needle type 40mm)	hr	0.45	334.75	150.64
	Sub Total - A				5242.77
	Add 1 % Water charges on A				52.43
	Sundries 1 % on A				52.43
	Sub Total - B				5347.62
	Over Head Charges 10 % on B				534.76
	Sub Total - C				5882.39
	Contractor's profit 10% on C				588.24
	Total Cost per m^3				6470.62

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	say				6471.00
	Requirement : Cement= 320 kgs (6.40 bags): Metal: 0.85 m3 : Sand= 0.43m3				
2.5.2	**M25 Design Mix Using 20 mm and down size graded crushed coarse aggregates**				
	Details of cost for 15 m³ .				
	MATERIAL				
	Cement	t	5.10	6980.00	35598.00
	Coarse sand	m³	6.75	1417.14	9565.71
	20 mm aggregate	m³	8.10	1285.71	10414.29
	10 mm aggregates	m³	5.40	1285.71	6942.86
	Admixture @ 0.4 per cent of cement	kg	20.40	169.49	3457.63
	LABOUR				
	Mate	day	1.00	476.22	476.22
	Mason	day	1.50	461.22	691.83
	Mazdoor	day	20.00	451.22	9024.40
	MACHINERY				
	Concrete mixer (cap 0.40/0.28 m³)	hr	2.00	303.39	606.78
	Generator 33 KVA	hr	2.00	420.34	840.68
	Vibrator(Needle type 40mm)	hr	0.30	334.75	100.42
	Water tanker 6kL	hr	1.00	621.19	621.19
	Tractor trolley	hr	1.00	561.02	561.02
	Sub Total - A				78901.02
	Add 1 % Water charges on A				789.0102
	Sundries 1 % on A				789.0102
	Sub Total - B				80479.04
	Over Head Charges 10 % on B				8047.904
	Sub Total - C				88526.94
	Contractor's profit 10% on C				8852.694
	Total Cost per 15m³				97379.64
	Per m³				6492.00

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Requirement : Cement= 340 kgs (6.80 bags): Metal: 0.90 m3 : Sand= 0.45m3				
2.5.3	**M30 Design Mix Using 20 mm and down size graded crushed coarse aggregates**				
	Details of cost for 15 m³ .				
	MATERIAL				
	Cement	t	5.40	6980.00	37692.00
	Coarse sand	m³	6.75	1417.14	9565.71
	20 mm aggregate	m³	8.10	1285.71	10414.29
	10 mm aggregates	m³	5.40	1285.71	6942.86
	Admixture @ 0.4 per cent of cement	kg	21.60	169.49	3661.02
	LABOUR				
	Mate	day	1.00	476.22	476.22
	Mason	day	1.50	461.22	691.83
	Mazdoor	day	20.00	451.22	9024.40
	MACHINERY				
	Mobile concrete batching / Mixing plant	hr	0.75	615.25	461.44
	Generator 100 kVA	hr	0.75	1104.24	828.18
	Water tanker 6kL	hr	1.00	621.19	621.19
	Tractor trolley	hr	1.00	561.02	561.02
	Transit mixer (Mixer of 6m3 capacity at 2.5 interval)	hr	2.00	1608.47	3216.95
	Concrete pump	hr	0.75	904.24	678.18
	Vibrator(Needle type 40mm)	hr	1.50	334.75	502.12
	Sub Total - A				85337.39
	Add 1 % Water charges on A				853.3739
	Sundries 1 % on A				853.3739
	Sub Total - B				87044.14
	Over Head Charges 10 % on B				8704.414
	Sub Total - C				95748.55
	Contractor's profit 10% on C				9574.855

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Total Cost per 15m³				105323.41
	Per m³				7022.00
	Requirement : Cement= 360 kgs (7.20 bags): Metal: 0.90 m3 : Sand= 0.45m3				
2.5.4	**M 35 Design Mix Using 20 mm and down size graded crushed coarse aggregates**				
	Details of cost for 15 m³ .				
	MATERIAL				
	Cement	t	5.85	6980.00	40833.00
	Coarse sand	m³	6.75	1417.14	9565.71
	20 mm aggregate	m³	8.10	1285.71	10414.29
	10 mm aggregates	m³	5.40	1285.71	6942.86
	Admixture @ 0.4 per cent of cement	kg	23.40	169.49	3966.10
	LABOUR				
	Mate	day	1.00	476.22	476.22
	Mason	day	1.50	461.22	691.83
	Mazdoor	day	20.00	451.22	9024.40
	MACHINERY				
	Mobile concrete batching / Mixing plant	hr	0.75	615.25	461.44
	Generator 100 kVA	hr	0.75	1104.24	828.18
	Water tanker 6kL	hr	1.00	621.19	621.19
	Tractor trolley	hr	1.00	561.02	561.02
	Transit mixer (Mixer of 6m3 capacity at 2.5 interval)	hr	2.00	1608.47	3216.95
	Concrete pump	hr	0.75	904.24	678.18
	Vibrator(Needle type 40mm)	hr	1.50	334.75	502.12
	Sub Total - A				88783.48
	Add 1 % Water charges on A				887.8348
	Sundries 1 % on A				887.8348
	Sub Total - B				90559.15
	Over Head Charges 10 % on B				9055.915
	Sub Total - C				99615.06

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Contractor's profit 10% on C				9961.506
	Total Cost per 15m³				109576.57
	Per m³				7305.00
	Requirement: Cement= 390 kgs (7.80 bags): Metal: 0.90 M3 : Sand= 0.45m3				
2.5.5	**M 40 Design Mix Using 20 mm and down size graded crushed coarse aggregates**				
	Details of cost for 15 m³ .				
	MATERIAL				
	Cement	t	6.30	6980.00	43974.00
	Coarse sand	m³	6.75	1417.14	9565.71
	20 mm aggregate	m³	8.10	1285.71	10414.29
	10 mm aggregates	m³	5.40	1285.71	6942.86
	Admixture @ 0.4 per cent of cement	kg	25.20	169.49	4271.19
	LABOUR				
	Mate	day	1.00	476.22	476.22
	Mason	day	2.00	461.22	922.44
	Mazdoor	day	20.00	451.22	9024.40
	MACHINERY				
	Mobile concrete batching / Mixing plant	hr	0.75	615.25	461.44
	Generator 100 kVA	hr	0.75	1104.24	828.18
	Water tanker 6kL	hr	1.00	621.19	621.19
	Tractor trolley	hr	1.00	561.02	561.02
	Transit mixer (Mixer of 6m3 capacity at 2.5 interval)	hr	2.00	1608.47	3216.95
	Concrete pump	hr	0.75	904.24	678.18
	Vibrator(Needle type 40mm)	hr	1.50	334.75	502.12
	Sub Total - A				92460.17
	Add 1 % Water charges on A				924.6017
	Sundries 1 % on A				924.6017
	Sub Total - B				94309.37
	Over Head Charges 10 % on B				9430.937

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Sub Total - C				103740.31
	Contractor's profit 10% on C				10374.03
	Total Cost per 15m³				114114.34
	Per m³				7608.00
	Requirement: Cement= 420 kgs (8.40 bags): Metal: 0.90 m3 : Sand= 0.45m3				
2.5.6	**M50 Design Mix Using 20 mm and down size graded crushed coarse aggregates**				
	Details of cost for 120 m³ .				
	MATERIAL				
	Cement	t	54.00	6980.00	376920.00
	Coarse sand	m³	54.00	1417.14	76525.71
	20 mm aggregate	m³	64.80	1285.71	83314.29
	10 mm aggregates	m³	43.20	1285.71	55542.86
	Admixture @ 0.4 per cent of cement	kg	216.00	169.49	36610.17
	LABOUR				
	Mate	day	1.00	476.22	476.22
	Mason	day	3.50	461.22	1614.27
	Mazdoor	day	20.00	451.22	9024.40
	MACHINERY				
	Batching plant 120 m³ /hr capacity	hr	1.00	3192.37	3192.37
	Generator 100 KVA	hr	6.00	1104.24	6625.42
	Loader	hr	6.00	1718.64	10311.86
	Transit mixer (capacity 6 m³/ hr)	hr	15.00	1608.47	24127.12
	Transit mixer (capacity 6.0 m³ per hr) lead upto 1 km	t-km	300.00	8.93	2679.66
	Concrete pump	hr	6.00	904.24	5425.42
	Vibrator(Needle type 40mm)	hr	0.30	334.75	100.42
	Sub Total - A				692490.20
	Add 1 % Water charges on A				6924.90
	Sundries 1 % on A				6924.90
	Sub Total - B				706340.01

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Over Head Charges 10 % on B				70634.00
	Sub Total - C				776974.01
	Contractor's profit 10% on C				77697.40
	Total Cost per 120m³				854671.41
	Per m³				7122.00
	Requirement: Cement= 450 kgs (9.00 bags): Metal: 0.90 m3 : Sand= 0.45m3				
2.5.7	**M 55 Design Mix Using 20 mm and down size graded crushed coarse aggregates**				
	Details of cost for 120 m³ .				
	MATERIAL				
	Cement	t	54.00	6980.00	376920.00
	Coarse sand	m³	54.00	1417.14	76525.71
	20 mm aggregate	m³	64.80	1285.71	83314.29
	10 mm aggregates	m³	43.20	1285.71	55542.86
	Admixture @ 0.4 per cent of cement	kg	216.00	169.49	36610.17
	LABOUR				
	Mate	day	1.00	476.22	476.22
	Mason	day	3.50	461.22	1614.27
	Mazdoor	day	20.00	451.22	9024.40
	MACHINERY				
	Batching plant 120 m³ /hr capacity	hr	1.00	3192.37	3192.37
	Generator 100 KVA	hr	6.00	1104.24	6625.42
	Loader	hr	6.00	1718.64	10311.86
	Transit mixer (capacity 6 m³/ hr)	hr	15.00	1608.47	24127.12
	Transit mixer (capacity 6.0 m³ per hr) lead upto 1 km	t-km	300.00	8.93	2679.66
	Concrete pump	hr	6.00	904.24	5425.42
	Vibrator(Needle type 40mm)	hr	0.30	334.75	100.42
	Sub Total - A				692490.20
	Add 1 % Water charges on A				6924.90

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Sundries 1 % on A				6924.90
	Sub Total - B				706340.01
	Over Head Charges 10 % on B				70634.00
	Sub Total - C				776974.01
	Contractor's profit 10% on C				77697.40
	Total Cost per 120m³				854671.41
	Per m³				7122.00
	Requirement: Cement= 450 kgs (9.00 bags): Metal: 0.90 m3 : Sand= 0.45m3				
2.6	**Bridge works Super Structure**				
2.6.1	*For Height upto 5 m rates, adopt as per item no 2.5.3 to 2.5.7*				
2.6.2	beyond 0 m upto 5 m add 10 % extra on formwork for staging & base preparation				
2.6.3	beyond 5 m upto 10 m add 12% extra on formwork for staging & base preparation				
2.6.4	beyond 10 m add 14% extra on formwork for staging & base preparation				

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
2.7	Providing waterproofing & durability enhancing admixture with approval from MORT&H for use on road & bridge projects with IRC accreditation & shall possess CE approval as per EN934-2. Material must fulfil the requirements of ACI-212-3R-10 Chapter 15 and fall under PRAH (permeability reducing admixtures for hydrostatic conditions) and must reduce coefficient of permeability of concrete by more than 90% when compared to control concrete and tested as per DIN 1048 Part-5 by carrying out 4 cycles each of 5 bar hydrostatic pressure for 72 hours and drying for 48 hours between the cycle and coefficient of permeability calculated as per Darcy's formula / Valenta equation by incorporating penetration values obtained at the end of fourth cycle pressure as per DIN 1048 test. Material must reduce chloride diffusion coefficient by minimum 45% when tested as per ASTM C 1556-4 and compared with the control concrete, thereby prolonging the durability and service of life of the treated concrete structure as well as must demonstrate minimum reduction of 50% in shrinkage cracks as compared to control concrete, as per BS ISO-1920-8:2009. Must demonstrate no internal expansion under sulphate attack, when tested as per ASTM C-1012-12 & conforming to norms of EPD as per ISO 14025 & EN 15804-A1. The crystalline admixture treated concrete must be able to withstand high hydrostatic pressure of 16 bar (156 metre of water head) when tested as per DIN 1048 & must capable of self -healing of cracks up to width of 0.5 mm. The performance of the crystalline admixture must not be restricted by water / cement ratio of the concrete mix. In other words, the crystalline admixture must perform at any water / cement ratio of the concrete mix. Product must possess a third party assurance, such as a U sign certificate or similar, confirming that the product, when use in the concrete, will have no detrimental side effects in terms of Alkali Silica Reaction (ASR), corrosion of steel reinforcement etc., as per the requirements of DIN 18998. The Dosage should be at 0.8% by weight of cement + cementitious material (or such dosage as desired to meet durability criteria) as per technical specification.				
2.7.1	**Extra for use of water proofing & durability compound in cement concrete of mix 1:2:4 at one kg of compound per bag of cement**				
	Detail for 10 m³				

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Water proofing compound (as per manufacturers specification)	kg	6.40	211.86	1355.9322
	Handling loading and unloading charges at 5% on A				67.79661
A	Total				1423.7288
B	Over Head Charges 10 % A				142.37288
	Contractor's profit 10%(A + B)				156.61017
	cost for 10 m³				1722.7113
	Cost per m³				172.00
2.7.2	**Extra for use of water proofing & durability compound in cement concrete of mix 1:1.5:3 at one kg of compound per bag of cement**				
	Detail for 10 m³				
	MATERIAL				
	Water proofing compound (as per manufacturers specification)	kg	8.00	211.86	1694.9153
	Handling loading and unloading charges at 5% on A				84.745763
A	Total				1779.661
B	Over Head Charges 10 % A				177.9661
	Contractor's profit 10%(A + B)				195.76271
	cost for 10 m³				2153.3898
	Cost per m³				215.00
2.7.3	**Extra for use of water proofing & durability compound in cement concrete of mix 1:1:2 at one kg of compound per bag of cement**				
	Detail for 10 m³				
	MATERIAL				
	Water proofing compound (as per manufacturers specification)	kg	10.60	211.86	2245.7627
	Handling loading and unloading charges at 5% on A				112.28814
A	Total				2358.0508
B	Over Head Charges 10 % A				235.80508
	Contractor's profit 10%(A + B)				259.38559
	cost for 10 m³				2853.2415
	Cost per m³				285.00

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Note : Item 2.7 shall not be used for grade of concrete M20 and above.				
	Self Compacting Concrete				
2.8	Supply and placing the Design Mix of M-30 Grade for Self Compacting Concrete corresponding to IS 456 and relevant IS codes using Batching plant, Transit mixer and concrete pump with 12.5 mm size graded machine crushed hard granite metal (coarse aggregate) from approved quarry including cost and conveyance of all materials like cement, cement substitutes like fly ash, GGBS, etc., fine aggregate (sand), coarse aggregate, Admixture, water etc., to site inclduding and sales and other taxes on all materials including all opertational incidental and labour charges, but excluding cost of steel and its fabrication & formwork charges for finished item of work with minimum cement content as per IS code including pumping & curing etc complete for finished item of work (RCC slabs, Beams, Columns, Lintels, Water Tanks, RCC Walls in Buildings).				
	Details of cost for 1.00 m³ .				
	MATERIAL				
	Cement	kg	300.00	6.98	2094.00
	Coarse Aggregate 12.5mm graded	m³	0.80	1285.71	1028.57
	Coarse sand G-1	m³	0.40	1417.14	566.86
	PCE (Poly Corboxylic Ether) Based plasticizers 0.50% in cementitious materials (400x0.5%)	kg	2.00	271.19	542.37
	VMA (Viscosity Modifying Agent)0.10% of cementitious materials	kg	0.40	338.98	135.59
	GGBS	kg	100.00	2.86	285.71
	LABOUR				
	Mason 1st class	day	0.25	476.22	119.06
	Mason 2nd class	day	0.50	461.22	230.61
	Mazdoor (Unskilled)	day	1.50	451.22	676.83
	MACHINERY				
	Batching & mixing plant 120m3 capacity	hr	0.008	3192.37	26.60
	Transit mixer 6m³ . Capacity	hr	0.25	1608.47	402.12
	Concrete pump	hr	0.30	904.24	271.27

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Sub Total - A				6379.60
	Add 1 % Water charges on A				63.80
	Sundries 1 % on A				63.80
	Sub Total - B				6507.19
	Over Head Charges 10 % on B				650.72
	Sub Total - C				7157.91
	Contractor's profit 10% on C				715.79
	Total Cost per m³				7874.00
	Requirement:Cement= 300 kgs (6 bags): GGBS=100kgs Metal: 0.80 m3 : Sand= 0.40m3				
	Additionalities for Self compacting concrete.				
i	Add extra 3% on form work for staging for 0 to 5 m				
ii	Add extra 5% on form work for staging for 5 to 10 m				
ii	Add extra 5 % on form work for staging beyond 15 m				
	Requirement : Cement= 300 kgs (6 bags): Metal: 0.80 m3 : Sand= 0.40m3				
2.9	Applying stamping finish on M30 grade concrete on PCC sub grade, applying and finishing with stamp/ stencil of approved pattern and color in accordance with Engineers instructions & approved drawings with use of any approved brand of color hardener of 4.5 kg/m2, including floating of color hardener over the concrete surface with different types of floaters, application of release agent of 0.12 to 0.13kg/m2 depending on matching combination of selected color, stamping over the concrete surface with stamping tools , cleaning of surface with water and groove cutting of finished concrete and application of acrylic based sealer for final finish. Coverage of sealer should be 0.30litre/m2 per coat. The cost is inclusive of manpower, cutting machine, sprayer and all tools tackles for all activities and complete smooth and finish as per technical specifications. (The cost of Concrete shall be paid separately)				
	Cost for 100 m2				
a	**MATERIAL**				
	Concrete hardner	kg	450.00	20.00	9000.00
	Release agent	kg	0.13	200.00	25.00

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Acrylic Sealer	L	30.00	260.00	7800.00
	PU Resin	m3	23.00	225.00	5175.00
b	**LABOUR**				
	Supervisor	day	2.00	476.22	952.44
	Mazdoor Heavy	day	6.00	451.22	2707.32
	Mazdoor light	day	6.00	451.22	2707.32
	Painter class I	day	4.00	476.22	1904.88
	Sub Total A				30271.96
c	Add 1% Water charges on A				302.72
d	Sundries, Stamping tools & others (for dewatering machine, Groove cutting, floaters, suckers, brushes & water jet)@ 10% on 'a'				3027.20
	Sub Total B				33601.88
e	Overhead charges @ 10% on B				3360.19
	Sub Total C				36962.06
f	Contractor's profit @ 10% on C				3696.21
	Total for 100 m2				40658.27
	Cost per m2				407.00

Rate Analysis for

MORTAR

- The items in this chapter are exclusive of Contractor's profit and Overhead charges.

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	MORTAR				
3.1	**Providing Cement mortar 1:1 (1 cement : 1 fine sand) including cost of all materials, labour and usage charges of machinery complete as per the direction of engineer incharge of work.**				
	Details of cost for 1 m3				
	MATERIAL				
	(0.7175 m3. of cement = 1.02 t)				
	Cement required for cement mortar is 71.25%				
	Cement	t	1.02	6980.00	7119.60
	Fine Sand	m3	0.7125	1417.14	1009.71
	LABOUR				
	For measuring, carrying, depositing and mixing-				
	Mazdoor Heavy	day	0.75	451.22	338.42
	Mazdoor Light	day	0.07	451.22	31.59
	Machinery				
	Hire and running charges of mechanical mixer	hr	1.00	303.39	303.39
	Total				**8803.00**
3.2	**Providing Cement mortar 1:2 (1 cement : 2 fine sand) including cost of all materials, labour and usage charges of machinery complete as per the direction of engineer incharge of work.**				
	Details of cost for 1 m3				
	MATERIAL				
	(0.475 m3. of cement = 0.68 t) Cement required for cement mortar is 47.50%				
	Cement	t	0.68	6980.00	4746.40
	Fine sand	m3	0.95	1417.14	1346.29
	LABOUR				
	For measuring, carrying, depositing and mixing				
	Mazdoor Heavy	day	0.75	451.22	338.42

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Mazdoor Light	day	0.07	451.22	31.59
	Machinery				
	Hire and running charges of mechanical mixer	hr	1.00	303.39	303.39
	Total				**6766.00**
3.3	**Providing Cement mortar 1:3 (1 cement : 3 fine sand) including cost of all materials, labour and usage charges of machinery complete as per the direction of engineer incharge of work.**				
	Details of cost for 1 m3				
	MATERIAL				
	(0.357 m3. of cement = 0.51 t) Cement required for cement mortar is 35.70%				
	Cement	t	0.51	6980.00	3559.80
	Fine sand	m3	1.07	1417.14	1516.34
	LABOUR				
	For measuring, carrying, depositing and mixing				
	Mazdoor Heavy	day	0.75	451.22	338.42
	Mazdoor Light	day	0.07	451.22	31.59
	Machinery				
	Hire and running charges of mechanical mixer	hr	1.00	303.39	303.39
	Total				**5750.00**
3.4	**Providing Cement mortar 1:4 (1 cement : 4 fine sand) including cost of all materials, labour and usage charges of machinery complete as per the direction of engineer incharge of work.**				
	Details of cost for 1 m3				
	MATERIAL				
	(0.268 m3. of cement = 0.38 t) Cement required for cement mortar is 26.80%				
	Cement	t	0.38	6980.00	2652.40
	Fine sand	m3	1.07	1417.14	1516.34
	LABOUR				

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	For measuring, carrying, depositing and mixing				
	Mazdoor Heavy	day	0.75	451.22	338.42
	Mazdoor Light	day	0.07	451.22	31.59
	Machinery				
	Hire and running charges of mechanical mixer	hr	1.00	303.39	303.39
	Total				**4842.00**
3.5	**Providing Cement mortar 1:5 (1 cement : 5 fine sand) including cost of all materials, labour and usage charges of machinery complete as per the direction of engineer incharge of work.**				
	Details of cost for 1 m3				
	MATERIAL				
	(0.214 m3. of cement = 0.31 t) Cement required for cement mortar is 21.40% Cement	m3	0.31	6980.00	2163.80
	Fine Sand	m3	1.07	1417.14	1516.34
	LABOUR				
	For measuring, carrying, depositing and mixing				
	Mazdoor Heavy	day	0.75	451.22	338.42
	Mazdoor Light	day	0.07	451.22	31.59
	Machinery				
	Hire and running charges of mechanical mixer	hr	1.00	303.39	303.39
	Total				**4354.00**
3.6	**Providing Cement mortar 1:6 (1 cement : 6 fine sand) including cost of all materials, labour and usage charges of machinery complete as per the direction of engineer incharge of work.**				
	Details of cost for 1 m3				
	MATERIAL				
	(0.178 m3. of cement = 0.25 t) Cement required for cement mortar is 17.80%				
	Cement	t	0.25	6980.00	1745.00
	Fine sand	m3	1.07	1417.14	1516.34

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	LABOUR				
	For measuring, carrying, depositing and mixing				
	Mazdoor Heavy	day	0.75	451.22	338.42
	Mazdoor Light	day	0.07	451.22	31.59
	Machinery				
	Hire and running charges of mechanical mixer	hr	1.00	303.39	303.39
	Total				**3935.00**
3.7	**Providing Cement mortar 1:2 (1 cement : 2 coarse sand) including cost of all materials, labour and usage charges of machinery complete as per the direction of engineer incharge of work.**				
	Details of cost for 1 m3				
	MATERIAL				
	(0.476 m3. of cement = 0.68 t) Cement required for cement mortar is 47.50%				
	Cement	t	0.68	6980.00	4746.40
	Coarse sand	m3	0.95	1417.14	1346.29
	LABOUR				
	For measuring, carrying, depositing and mixing				
	Mazdoor Heavy	day	0.75	451.22	338.42
	Mazdoor Light	day	0.07	451.22	31.59
	Machinery				
	Hire and running charges of mechanical mixer	hr	1.00	303.39	303.39
	Total				**6766.00**
3.8	**Providing Cement mortar 1:3 (1 cement : 3 coarse sand) including cost of all materials, labour and usage charges of machinery complete as per the direction of engineer incharge of work.**				
	Details of cost for 1 m3				
	MATERIAL				
	(0.357 m3. of cement = 0.51 t) Cement required for cement mortar is 35.70%				

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Cement	t	0.51	6980.00	3559.80
	Coarse sand	m3	1.07	1417.14	1516.34
	LABOUR				
	For measuring, carrying, depositing and mixing				
	Mazdoor Heavy	day	0.75	451.22	338.42
	Mazdoor Light	day	0.07	451.22	31.59
	Machinery				
	Hire and running charges of mechanical mixer	hr	1.00	303.39	303.39
	Total				**5750.00**
3.9	**Providing Cement mortar 1:4 (1 cement : 4 coarse sand) including cost of all materials, labour and usage charges of machinery complete as per the direction of engineer incharge of work.**				
	Details of cost for 1 m3				
	MATERIAL				
	(0.268 m3. of cement = 0.38 t) Cement required for cement mortar is 26.80%				
	Cement	t	0.38	6980.00	2652.40
	Coarse sand	m3	1.07	1417.14	1516.34
	LABOUR				
	For measuring, carrying, depositing and mixing				
	Mazdoor Heavy	day	0.75	451.22	338.42
	Mazdoor Light	day	0.07	451.22	31.59
	Machinery				
	Hire and running charges of mechanical mixer	hr	1.00	303.39	303.39
	Total				**4842.00**
3.10	**Providing Cement mortar 1:5 (1 cement : 5 coarse sand) including cost of all materials, labour and usage charges of machinery complete as per the direction of engineer incharge of work.**				
	Details of cost for 1 m3				
	MATERIAL				

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	(0.214 m3. of cement = 0.31 t) Cement required for cement mortar is 21.40%				
	Cement	t	0.31	6980.00	2163.80
	Coarse sand	m3	1.07	1417.14	1516.34
	LABOUR				
	For measuring, carrying, depositing and mixing				
	Mazdoor Heavy	day	0.75	451.22	338.42
	Mazdoor Light	day	0.07	451.22	31.59
	Machinery				
	Hire and running charges of mechanical mixer	hr	1.00	303.39	303.39
	Total				**4354.00**
3.11	**Providing Cement mortar 1:6 (1 cement : 6 coarse sand) including cost of all materials, labour and usage charges of machinery complete as per the direction of engineer incharge of work.**				
	Details of cost for 1 m3				
	MATERIAL				
	(0.178 m3. of cement = 0.25 t) Cement required for cement mortar is 17.80%				
	Cement	t	0.25	6980.00	1745.00
	Coarse sand	m3	1.07	1417.14	1516.34
	LABOUR				
	For measuring, carrying, depositing and mixing				
	Mazdoor Heavy	day	0.75	451.22	338.42
	Mazdoor Light	day	0.07	451.22	31.59
	Machinery				
	Hire and running charges of mechanical mixer	hr	1.00	303.39	303.39
	Total				**3935.00**
3.12	**Providing Cement mortar 1:2 (1 cement : 2 stone dust) including cost of all materials, labour and usage charges of machinery complete as per the direction of engineer incharge of work.**				

Sl. No.	Specification	Unit	Qty	Rate ₹	Amount
	Details of cost for 1 m3				
	MATERIAL				
	(0.475 m3. of cement = 0.68 t) Cement required for cement mortar is 47.50%				
	Cement	t	0.68	6980.00	4746.40
	Stone dust	m3	0.95	1390.48	1320.95
	LABOUR				
	For measuring, carrying, depositing and mixing				
	Mazdoor Heavy	day	0.75	451.22	338.42
	Mazdoor Light	day	0.07	451.22	31.59
	Machinery				
	Hire and running charges of mechanical mixer	hr	1.00	303.39	303.39
	Total				**6741.00**
3.13	**Providing Mud mortar including cost of all materials, labour and usage charges of machinery complete as per the direction of engineer incharge of work.**				
	Details of cost for 1 m3				
	MATERIAL				
	Mud (dry)	m3	1.00	142.86	142.86
	LABOUR				
	Mazdoor Heavy	day	0.63	451.22	284.27
	Mazdoor Light	day	0.32	451.22	142.13
	Total				**569.00**

APPENDIX

Appendix I – Additionalities for Formwork, Centering & Scaffolding

Following additional percentage to be added to the finished rates of concrete of Buildings, Irrigation works, Water supply works, Roads & Bridges depending upon the type of structure. These percentages are worked out based on empirical mathematical approaches & exhaustive studies on the common standard sizes of the type of the structure of Buildings, Irrigation works, Bridges, Water works etc. The use rate of shuttering material is considered at 40 repetitions and type of material to be used is steel centering.

For irrigation works, the cost of formwork is worked out based on theoretical computations on m^2 basis per m^3 of concrete and the percentage additionality on finished rate of concrete is arrived.

The percentages can be varied if the work involves extra ordinary conditions other than specified below subject to approval by the Superintending Engineer.

For fast paced monolithic constructions, the Mivan Shuttering (Aluminium formwork) shall be preferred.

Sl No.	Type of structure	Percentage on finished rate of concrete per m^3
1.	Foundation upto Plinth	3%
2.	Foundation, Sub structure of Cross drainages	5%
3.	Open Foundation	4%
4.	Well Foundation	20%
3.	Road medians, Traffic Separators, Dividers etc	5%
4.	Steel Channels for Road works	5%
5.	Culverts (Head walls)	8%
6.	Columns & Piers	10%
7.	Earth retaining structures	10%
8.	Canal lining	10%
9.	Dam & Allied works	12%
10.	Beams & Lintels of Building	20%
11.	Roof (Straight & Arched)	20%
12.	Roof (Curved)	22%

13.	Plastering & Painting of New walls	25%
14.	Painting of old walls & ceiling	20%
15.	Plastering & Painting of ceiling	25%
16.	Architectural projection of major sections	30%
17.	Domes & Sloped roofs	45%
18.	Chejjas, Canopy & Other Architectural projections of minor sections	45%

Bridges

Sl No.	Type of structure	Percentage on finished rate of concrete per m^3
1.	Solid Slab Super Structure	20%
2.	T-Beam & Slab	25%
3.	Box Girder & Balanced Cantilever	38%
4.	Cast insitu Box girder & Segmental construction	38%
5.	For T-beam & slab, including launching of precast girders by launching truss upto 40 m span	21%

Note : The above percentages are applicable for 0 to 5 m heights. For different heights, the percentages shall be adopted for form work and staging including base preparation as per Item No. 2.6

Appendix II - Additional Specifications to be Included in General Conditions of Contract for use of Manufactured Sand / Artificial Sand / Fine Aggregates

1. Crushed Sand / Artificially Manufactured Sand/ Fine Aggregates hereinafter referred for as “Manufactured Sand” shall be as defined under CL 3.1.2 of IS 383-2016

2. The properties of “Manufactured Sand” shall confirm to the provisions of IS 383·2016.

3. The “Manufactured Sand” shall be free of dust and other Deleterious material.

4. The “Manufactured Sand" shall be manufactured using “Automatic Vertical Shaft Impactor” type Crusher only.

5. The quantity of Microfines (Particles below 75 microns) in “Manufactured Sand” shall not be more than 7 %.

7. Each Load of Manufactured Sand whenever brought on site shall be tested for "Fineness modulus”. Fineness modulus shall be within permissible limits. If it doesn't fall within acceptable limits, it shall be rejected.

8. The Test of Compressive Strength of concrete / Mortar using "Manufactured Sand” shall be carried out in presence of Department's Engineer as per Quality Assurance Programme approved by Quality Assurance Authorities.

9. The Flakiness Index and Elongation index tests shall be within permissible limits.

11. As far as possible freshly produced “Manufactured Sand'" shall be used, Stored “Manufactured Sand” shall not be used.

12. For Plastering purpose, if the use of Manufactured Sand is proposed it shall be used with addition of super plasticisers at the rate of 100 ml / Bag of Cement without extra cost to Government.

13. The following tests shall be carried out for the use of “Manufactured Sand” at the site.

    a) Sieve analysis

    b) Specific Gravity

    c) Water absorption

    d) Bulk density

    e) Alkali Aggregate Reaction

    f) Soundness

g) Deleterious Material

h) Organic Impurities

i) Micro fines Content

j) Test for silt and clay

k) Fineness Modulus test

15. Grading Zone II mentioned under Clause 6.3 table 9 of fine aggregates is IS 383:2016 shall only be used for Concreting.

Sl No.	**IS Sieve Designation**	**Percentage Passing**			
		Gr. Zone - 1	**Gr. Zone - 2**	**Gr. Zone - 3**	**Gr. Zone - 4**
1.	10 mm	100	100	100	100
2.	4.75 mm	90 - 100	90 - 100	90 - 100	90 - 100
3.	2.36 mm	60 - 95	75 - 100	85 - 100	95 - 100
4.	1.18 mm	30 - 70	55 - 90	75 - 100	90 - 100
5.	600 micron	15 - 34	35 - 59	60 - 79	80 - 100
6.	300 micron	5 - 20	8 - 30	12 - 40	15 - 50
7.	150 micron	0 - 10	0 - 10	0 - 10	0 - 15

16. All in Aggregate grading shall be as per clause 6.4 IS 383 : 2016.

Appendix III – Criteria for approval of Reinforcement bars

Sl. No.	Type of Steel Bars	IS Code : reference
1.	Mild Steel	IS 432
2.	TMT Fe 500	IS 1786 - 2008
3.	TMT Fe 500D	
4.	Fe 550	
5.	Fe 600	

Thermo-Mechanically treated bars of grade 500 & above shall conform to IS 1786-2008 with satisfactory range of values as specified for physical & chemical characteristics.

Physical Properties :

Sl No.	Property	Fe500	Fe 550	Fe550D
1.	0.2% Proof stress, Yield stress Min : N/mm^2	500	550	600
2.	TS/ YS ratio N/mm^2	≥1.08	≥1.06	≥1.10
3.	Ultimate tensile strength N/mm^2	545	585	565
4.	Elongation % Min	12	10	16

Chemical Properties :

Sl No.	Constituent	% Maximum		
		Fe500	Fe 550	Fe550D
1.	Carbon	0.30	0.30	0.25
2.	Sulphur	0.055	0.055	0.040
3.	Phosphorous	0.055	0.050	0.040
4.	Sulphur & Phosphorous	0.105	0.100	0.075

The criteria for selection of the Mild steel & TMT bars shall be as per Ministry of Road Transport & Highways circular dated 12-02-2021.

Appendix IV – Information on Tier I, II & III Cities

Sl No	Tier : Class	City
1.	Tier I	Bengaluru (BBMP Limits)
2.	Tier II	Bengaluru Rural (BMRDA, BDA, BMICAP & BIAAPA Limits) Corporation limits of Mysuru, Hubli – Dharwad, Belagavi, Shivamogga, Tumkur, Bellary, Kalaburgi, Vijayapura, Davanagere & Mangaluru
3.	Tier III & IV	· Outside the limit of Corporation areas of Tier I & II cities. · Other than places mentioned above (Including CMCs, TMCs & TPs)

ಕರ್ನಾಟಕ ರಾಜ್ಯ ನಗರಾಭಿವೃದ್ಧಿ ಇಲಾಖೆ ಅಧಿಸೂಚನೆ ಸಂಖ್ಯೆ: ನಆಇ 156 ಎಸಿಬಿ 2009 ದಿ : 11–04–2011 ರಂತೆ

1) "ವರ್ಗ–1" ಎಂದರೆ 12 ಲಕ್ಷ ಅಥವಾ ಅದಕ್ಕಿಂತಲೂ ಹೆಚ್ಚಿನ ಜನಸಂಖ್ಯೆಯುಳ್ಳ ಮಹಾನಗರ ಪಾಲಿಕೆ

2) "ವರ್ಗ–2" ಎಂದರೆ 9 ರಿಂದ 12 ಲಕ್ಷ ಜನಸಂಖ್ಯೆಯುಳ್ಳ ಮಹಾನಗರ ಪಾಲಿಕೆ

3) "ವರ್ಗ–3" ಎಂದರೆ 6 ರಿಂದ 9 ಲಕ್ಷ ಜನಸಂಖ್ಯೆಯುಳ್ಳ ಮಹಾನಗರ ಪಾಲಿಕೆ

4) "ವರ್ಗ–4" ಎಂದರೆ 3 ರಿಂದ 6 ಲಕ್ಷ ಜನಸಂಖ್ಯೆಯುಳ್ಳ ಮಹಾನಗರ ಪಾಲಿಕೆ

However, necessary updations as per latest census figures by Urban development department shall be followed.

Appendix – V Classification of Class A, B & C for procurement of Furnitures

Sl No	Class Designation	City	Range of Furniture Rs.	Designations
1.	Class A	Tier I	Upto 10 lakhs	Ministerial Posts, VVIPs, VIPs, ACS, High Court Judges & Principal secretaries.
2.	Class A	Tier I	Upto 5 lakhs	Other Judges, Secretaries & Class I Officers.
3.	Class A	Tier II & III	Upto 3 lakhs	Other Class I designated officers.
4.	Class B	Tier I	Upto 2 lakhs	Class II designated officers.
5.	Class B	Tier II & III	Upto 1.5 lakhs	Class II designated officers.
6.	Class C	Tier I	Upto 1.0 lakhs	Class III designated officials.
7.	Class C	Tier II & III	Upto 0.75 lakh	Class III designated officials.
8.	Others	Tier I	Upto 0.50 lakh	-
9.	Others	Tier II & III	Upto 0.40 lakh	-

Appendix – VI Quality Control Lab Testing Rates

Sl No.	Material	Tests	Rate Rs.	Quantity of samples required for test**
1	Aggregate Coarse	Sieve Analysis	190.00	30-40 Kgs
		Specific Gravity	480.00	
		Bulk Density		
		Impact Value	360.00	
		Abrasion Value	460.00	
		Crushing Value	460.00	
		10% Fines Value	460.00	
		Partical finer than 75 microns	190.00	
		Stripping Value	190.00	
2	Aggregate Fine	Sieve Analysis	210.00	20- Kgs
		Specific Gravity	480.00	
		Bulk Density		
		Bulking & Moisture Content		
		Water Absorption		
		Partical finer than 75 microns	210.00	
		Fineness Modulus	190.00	
		Silt Content	190.00	
3	Bitumen	Specific Gravity	490.00	3 Kgs
		Flash point	490.00	
		Fire point		
		Softening Point	490.00	
		Penetration	490.00	
		Ductility	605.00	

4	Bitumenious Concrete / Mix	Job mix (BM/DBM/BC/ SDBC)	5470.00	Bitumen 5 kg Aggregate each 1 bag
		Sieve Analysis	190.00	
		Impact Value	360.00	
		Abrasion Value	460.00	
		Flakiness & Elongation Index	480.00	
		Water Absorption		
		Density		
		Stripping Value	190.00	
5	Bricks	Water Absorption	180.00	1 No for each test
		Compressive Strength	450.00	
		Efflorescence	210.00	
		Dimensional Analysis	100.00	
6	Cement			
		Consistancy	220.00	10 kgs
		Initial & Final Setting time	360.00	
		Fineness	150.00	
		Soundness	220.00	
		Compressive Strength	1000.00	
7	Cement Mortar	Proportion / Cement Content	415.00	2 kgs
8	Concrete Cubes	Compressive Strength	415.00	set of 3 nos
9	Concrete Blocks (Solid/Hollow)	Compressive Strength	600.00	1 No for each test
		Water Asorption	250.00	
10	Concrete Core	Concrete core extraction including Profometer test	1300.00	1 No

		Concrete core extraction without Profometer test	1000.00	1 No
		Compressive Strength with capping	750.00	1 No
11	Concrete Design Mix	Concrete Mix Design (Curing Method)	5400.00	Cement 1 bag Aggregate each 2 bags, Admixure 500ml
		Accelarated Curing Test (ACT Method)	6700.00	
13	Granular Sub Base (GSB)	GSB Mix design	3185.00	20 kgs
		Sieve Analysis	575.00	
		Water Absorption	3185.00	
		10% Fines Value		
		Liquid & Plastic limits		
		Impact Value		
		Abrasion Value		
		Modified Compaction		
		Soaked CBR		
16	Non Destructive Testing	Ultrasonic pulse velocity test	450.00	For 10 members (LS)
		Ultrasonic pulse velocity test	450.00	Additional per member Beyond 10 members
		Rebound Hammer	300.00	For 10 members (LS)
		Rebound Hammer	300.00	Additional per member Beyond 10 members
17	Pavers Block	Water Absorption	160.00	6 Nos
		Compressive Strength	200.00	
18	Reinforcing Steel	Physical properties up to 20mm	650.00	3 Nos of 1 mtr length
		Physical properties Mora than 20mm	700.00	

21	Soil Test (LAB)	Sieve Analysis	335.00	25 Kgs
		Liquid & Plastic limits	605.00	
		Standard Compaction (OMC&MDD)	400.00	
		Modified Compaction (OMC&MDD)	400.00	
		Soaked CBR	950.00	
		Specific gravity	270.00	
		Field Density test (Core cutter)	335.00	
		Field Density test (Sand Replacement)	335.00	
		Differntial free swell Index	200.00	
		Hydrometer	505.00	
		Unconfined Compressive Strength (UCC)	-	
		Permeability	975.00	
		Direct Shear Test	-	
		Shrinkage Limit	605.00	
		Swelling Pressure	800.00	
		Triaxial Shear test	1860.00	
		Consolidation	805.00	
25	Tiles-Clay	Breaking Load	380.00	1 No for each test
		Water Absorption	180.00	
26	Wet Mix Macadam (WMM)	WMM Mix design	2595.00	20 kgs
		Sieve Analysis	575.00	

		Water Absorption	2595.00	
		Impact Value		
		Abrasion Value		
		Liquid & Plastic limits		
		Flakiness & Elongation Index		
		Modified Compaction		
27	Water Bound Macadam (WBM)	Sieve Analysis	575.00	20 kgs
		Impact Value	360.00	
		Abrasion Value	460.00	
		Liquid & Plastic limits	-	
		Water Absorption	480.00	
28	Wood	Moisture Content	-	1 No
29	Water	Drinking purpose	200.00	2 Ltr
30	Mineral Admixtures / Cement Substitutes	Consistency Fineness Soundness Slag Activity Index Glass Content	2500.00	1 No
31	Initial Vertical Pile Load Test	For 1000mm dia. Pile, having pile capacity of 550 t Reaction load -1719 t	7,50,000.00	
		For 1200mm dia. Pile, having pile capacity of 750 t, Reaction load -2344 t	8,50,000.00	
		For 1500mm dia. Pile, having pile capacity of 1000 t, Reaction load - 3125 t	10,00,000.00	

32	Initial lateral Pile load test	For 1000mm dia. Pile, having pile capacity of 30 t	50,000.00	
		For 1200mm dia. Pile, having pile capacity of 40 t	50,000.00	
		For 1500mm dia. Pile, having pile capacity of 65 t	65,000.00	
33	Initial pullout test of pile	Per test	2,40,000.00	
34	Static routine vertical Pile load test	For 1000mm dia Pile, having pile capacity of more than 400 t upto 1030 t	7,50,000.00	
		For 1200mm dia Pile, having pile capacity of more than 500 t upto 1406 t	8,50,000.00	
		For 1500mm dia Pile, having pile capacity of more than 800 t upto 1875 t	10,00,000.00	
35	Static routine lateral Pile load test	For 1000mm dia. Pile, having pile capacity of 20 t to 30 t	50,000.00	
		For 1200mm dia. Pile, having pile capacity of 25 t to 40 t	50,000.00	
		For 1500mm dia. Pile, having pile capacity of 45 t to 65 t	65,000.00	
36	Dynamic Pile load test	For 1000mm dia. Pile as per ASTM 4945 Section 08	1,00,000.00	
		For 1200mm dia. Pile as per ASTM 4945 Section 08	1,00,000.00	
		For 1500mm dia. Pile as per ASTM 4945 Section 08	1,00,000.00	

37	Ultrasonic Cross Hole Test on pile	Per test	6,000.00	
38	Integrity testing of Pile	Per test	1,000.00	
39	Plate load test	Per test	55,000.00	
1	** Minimum number of samples required for each test, refer sampling criteria as per Indian Standards			
2	*All rates are exclusive of GST.*			

Appendix – VII Surveying

Sl. No.	Description	Unit	Rate in ₹
1	Fixing chainage Stone /Bench mark Stone / Center Stone / Apex Stone in earth and all sorts of soil and soft murum including conveying excavated material, fixing stone, including paintaining lettering numbers and back filling etc. complete.	Nos.	175.00
2	Taking the trial pit for roads, alignment, C.D. Works in earth soil of all sorts, sands gravel or soft murum, including stacking the excavated material including all lifts and necessary back filling upto depth 1.5 m	m^3	450.00
3	Taking the trial pit for roads, alignment, C.D. Works in earth soil of all sorts, sands gravel, or soft murum, including stacking the excavated material including all lifts and necessary back filling upto depth 3.0 m	m^3	490.00
4	Taking the trial pit for roads, alignment, C.D. Works in Hard murum, including stacking the excavated material including all lifts and necessary back filling upto depth 1.5 m	m^3	590.00
5	Taking the trial pit for roads, alignment, C.D. Works in Hard murum, including stacking the excavated material including all lifts and necessary back filling upto depth 3.0 m	m^3	660.00
6	Taking the trial pit for roads, alignment, C.D. Works in Hard murum, and Boulders including stacking the excavated material including all lifts and necessary back filling upto depth 1.5 m	m^3	730.00
7	Taking the trial pit for roads, alignment, C.D. Works in Hard murum, and Boulders including stacking the excavated material including all lifts and necessary back filling upto depth 3.0 m	m^3	930.00
8	Fixing survey pegs in earth and all sorts Soil, Sand, Gravel, Soft Murum, etc. including conveying, fixing etc. complete.	Nos.	10.00
9	Reconnaisance Survey of Road alignment in plain country including taking three dimensions of apexes, verification of type of land etc. alongwith the alignment etc. complete (Without Chaining).	km	2000.00

Sl. No.	Description	Unit	Rate in ₹
10	Reconnaisance Survey of Road alignment in plain country including taking three dimensions of apexes, verification of type of land etc. alongwith the alignment etc. complete (With Chaining).	km	5100.00
11	Reconnaissance Survey of a road alignment for new hilly road utilising exsisting forest cart tracks with use of ghat tracer (if found necessary), taking three dimensions of apexes including verification of type of land etc. complete. (Without Chaining)	km	5420.00
12	Reconnaissance Survey of road alignment for new hilly road utilising exsisting forest cart tracks with use of ghat tracer (if found necessary), taking three dimensions of apexes including verification of type of land etc. complete. (With Chaining)	km	5200.00
13	Reconnaissance Survey of road alignment in hilly road utilising exsisting forest cart tracks with use of ghat tracer (if found necessary), taking three dimensions of apexes including verification of type of land etc. complete. (Without Chaining) .	km	2880.00
14	Reconnaissance Survey of road alignment in hilly road utilising existing forest cart tracks with use of ghat tracer (if found necessary), taking three dimensions of apexes including verification of type of land etc. complete. (With Chaining) .	km	5570.00
15	Detailed survey of road in plain country including chaining and levelling with cross sections at every two chains inclusive of closing of survey each day.	km	6090.00
16	Detailed survey of road length where earthwork is partly done including chaining and levelling with cross sections at every two chains inclusive of closing survey each day.	km	5850.00
17	Detailed survey of road through hilly country taking cross section at every chains or as required including chaining, levelling and closing survey each day.	km	9340.00
18	Detailed survey of road through hilly country taking cross section at every chains as desired including chaining, levelling and closing survey each day utilising existing cart track.	km	7400.00

Sl. No.	Description	Unit	Rate in ₹
19	Providing and Fixing Wooden survey pegs including White washing etc. complete.	km	45.00
20	Carrying out catchment area traverse survey of minor stream (not traceable in toposheet) below 100 acres	km	3310.00
21	Cutting down branches of trees, bushes etc. stacking the material neatly as directed (For Motarable Road)	km	7640.00
22	Providing detailed layout plan of area in scale 1:500 including carrying out contour survey and detailed Engineering plane table Survey with the help of 24 Alidade. The dolomite area measurement of the plot and structures, trees, over head line and under ground service amenities within the area, with triangular method and giving detailes of the structures, such as total area, type of building and distance from all corners taking trial pit 0.5x0.5x2.00 m.-2 Nos. per acre and collection of record from city survey / D.I.L.R. authorities and authentication. The plan shall be traced on 75 micron polyster film and shall be submitted along with three Amonia prints. The contour levels shall be marked at 0.5 m intervals. Note:- The items includes- 1)Traversing work with theodolite and steel tape. 2) Levelling Grid Work of the terrain. 3)Detailed Engineering Survey and contouring work of the terrain. 4) Plotting work. 5) Collection of Record. a) up to 1 Acre	h	8400.00
23	Providing detailed layout plan of area in scale 1:500 including carrying out contour survey and detailed Engineering plane table Survey with the help of 24' Alidade. The dolomite area measurement of the plot and structures, trees, over head line and under ground service amenities within the area, with triagular method and giving detailes of the structures, such as total area, type of building and distance from all corners taking trial pit 0.5x0.5x2.00 m.-2Nos. per acre and collection of record from city survey / D.I.L.R. authorities and authentication. The plan shall be traced on 75 micron polyster film and shall be submitted along with three Amonia prints. The contour levels shall be marked at 0.5 Meter intervals. Note:- The items includes- 1)Traversing work with theodolite and steel tape. 2) Levelling Grid Work of the terrain. 3)Detailed Engineering Survey and contouring work of the terrain. 4)Plotting work. 5) Collection of Record. b) Above 1 Acre	h	8500.00

Sl. No.	Description	Unit	Rate in ₹
24	Reconnaisance survey including study of sheets, maps etc. for alignment including 3 dimension of apexes, fixing pegs, chain and compass or cross staff survey with L-Section and cross section of alignment at every 30 m or at every change of deviation whichever is less including fly levels at closing of day, fixing apex and B.M. stones of size 0.20*0.20*0.75 m in 1:2:4 C.C. at every 200 m and preparation of alignment plans and all type of compliance if required from department.	km	28000.00
25	Preparation of detailed Plans and Estimates of road including typing in 5 copies, ammonia prints, with colouring of plans, proper filing, indexing and paging etc. complete and all types of compliance, if required from Department.	km	15400.00
26	Survey of C.D. works including taking L-section of Road, catchment area plan by Traverse method and taking trial pits of size 1.00x1.00x1.50 m including preparation of detailed Plans and Estimates in 5 copies and all types of compliance if required from the Department.	Nos.	15500.00
27	Survey of Minor bridge including taking L section of existing road and two defined cross sections ,one of U/s and one of D/s, one vergin cross section on alternate proposed cross sections and bed slope of stream upto sufficient long distance as required with chain and compass. Taking three trial pits of size 1.00x1.00x3.0 m and collecting samples of materials at site for ascertaining the silt factor, unit weight test, specific gravity from Govt. approved laboratories(testing charges to be borne by the agency) and preparation of detailed survey data, submission of the project duly typed and colouring of the ammonia prints, site plan and other drawings etc. complete if required from the Department.	Nos.	59000.00

Sl. No.	Description	Unit	Rate in ₹
28	Survey of major bridge including taking L-section of existing road two defined cross -sections (one at U/S and one at D/s) and one vergin cross section on alternate proposed cross sections and bed slope of stream upto sufficient long distance as required with chain and compass.Taking 5 trial pits, three in bed, two on banks of size 2.00x2.00x3.00 m for collecting samples of materials at site for ascertaining the silt factor, unit weight test, specific gravity from Govt. approved laboratories (testing charges to be borne by the agency) and preparation of detailed survey data, submission of the project duly typed and colouring of ammonia prints, site plan and other drawings etc.complete and all types of compliance if required from Department. (Excluding taking trial bores and contouring)	m	1800.00
29	Contour Survey of stream U/S and D/S of proposed bridge site including levelling at every 30 X 30 m preparing contour map with Autocad prints etc.complete in 5 sets.	m^2	98000.00
30	Survey of raised Causeway including reconnaissance, taking L section of existing road one defined one vergin one alternate proposed cross section and stream upto sufficient lengths with chain and compass taking two trial pits of size 2.00x2.00x3.00 m. collecting samples at site ascertaining silt factor and preparation of detailed survey data,submission of the project duly typed colouring of the ammonia prints,site plan and other drawing etc.complete if required from Deparetment.	Nos.	40000.00
31	Preparation of detailed plans and estimates of Raise Causeway on the basis of the approved detailed survey data by competent authority including typing in 5 copies ammonia prints site plan other drawings with colouring of plans proper filling indexing and paging etc.complete and all types of compliance if required from Department.	Nos.	9880.00
32	Complete survey of stream having catchment area upto 1 sq. mile including catchment survey taking necessary L.S./C.S. and other details etc. complete.	Nos.	8600.00
33	Complete survey of stream having catchment area above 1 sq. Mile and upto 5 sq. Miles including taking necessary L.S./C.S. and other details etc. complete.	Nos.	17950.00

Sl. No.	Description	Unit	Rate in ₹
34	Reconnaissance survey of alignment in plain country for approaches to the bridge including taking three dimensions of apexes. (Without chaining)	km	2155.00
35	Fly levelling for carrying out bench mark.	km	1740.00
36	Detailed survey of approaches including Chain and Compass survey along bridge alignment and approaches including closing each day work.	km	4440.00
37	Taking longitudinal section of streams extending upstream and downstream side of the bridge site, requisite number of cross section of the stream on either sides block contouring and other details etc. complete. (Length of L.S. and C.S. for contouring to be worked out)	km	5370.00
38	Demarcation of right of way (ROW) as per design using total station including calculation of co-ordinates of 30 Meter interval on both sides of road.	km	9580.00
39	Preparation of Land Acquisition proposal including collection of 7/12 and 8/A documents marking alignment on village maps , area calculation, preparation of proposal, printing,binding, etc. complete and submission of 5 sets more ever liasoning and coordination with revenue authorities with compliance if any until finalisation of award including Joint measurement of the alignment. (For new alignment)	km	17900.00
40	Preparation of Land Acquisition proposal including collection of 7/12 and 8/A documents marking alignment on village maps , area calculation, preparation of proposal, printing,bindind, etc. complete and submission of 5 sets more ever liasoning and coordination with revenue authorities with compliance if any until finalisation of award including Joint measurement of the alignment. For existing alignment.	km	17450.00

Sl. No.	Description	Unit	Rate in ₹
41	Carrying of detailed topographic survey by using total station along the existing or new road including taking L-section and cross section at every 30 meter ROW ,taking at least 10 spot levels per cross section, picking up all existing details inside the Row like electric telephone line , encroachments, structures etc. connecting all the primary total station control points by G.I.S.Bench marks level or whichever available with department using auto level and preparing Auto CAD plan by using above data taking out 1 set of black and white printout on 50 micron polyster film sheet A2 size and 2 sets of coloured printout on A2 size submitting soft copy all data on CD. (Plain Terrain New Alignment)	km	45000.00
42	Carrying of detailed topographic survey by using total station along the existing or new road including taking L-section and cross section at every 30 meter ROW ,taking at least 10 spot levels per cross section, picking up all existing details inside the Row like electric telephone line , encroachments, structures etc. connecting all the primary total station control points by G.I.S.Bench marks level or whichever available with department using auto level and preparing Auto CAD plan by using above data taking out 1 set of black and white printout on 50 micron polyster film sheet A2 size and 2 sets of coloured printout on A2 size submitting soft copy all data on CD. Plain Terrain Existing Alignment.	km	42000.00
43	Carrying of detailed topographic survey by using total station along the existing or new road including taking L-section and cross section at every 30 m ROW ,taking at least 10 spot levels per cross section, picking up all existing details inside the Row like electric telephone line , encroachments, structures etc. connecting all the primary total station control points by G.I.S.Bench marks level or whichever available with department using auto level and preparing Auto CAD plan by using above data taking out 1 set of black and white printout on 50 micron polyster film sheet A2 size and 2 sets of coloured printout on A2 size submitting soft copy all data on CD. Hilly Terrain New Alignment	km	57450.00

Sl. No.	Description	Unit	Rate in ₹
44	Demarcation of Road boundry (ROW) including fixing the boundry stones of standard size and shape including fixing in block of standard size of C.C. of 1:4:8 white washing at 30 M interval on both sides	km	39400.00
45	Taking trial bores 75 to 100 mm for 53.0 to 88.9 mm core dia over burden (by diamond drilling machine) such as soil of all sorts, soft murum,hard murum and boulders and in soft rock including all materials such as casing pipes and accessories oil, grease, steel, rods, and such other materials as required (including conveying the material to site of work) . Preserving the loose sample in glass jar and core sample serially on site of work and conveying the same to HQ of concerning office as directed. a) over burden 0 to 50 m.	m	2085.00
46	Taking trial bores 75 to 100 mm for 53.0 to 88.9 mm core dia in rocks as specified below including all necessary materials such as oil, grease, steel boostan and such other materials as required (including conveying the material to site of work) and Preserving the core sample serially on site of work and conveying the same to HQ of concernring office as directed. Quartzite with diamond drill with Nx Bit 0 to 50 m.	m	6780.00
47	Taking trial bores 75 to 100 mm for 53.0 to 88.9 mm core dia in rocks as specified below including all necessary materials such as oil,grease,steel boostan and such other materials as required (including conveying the material to site of work) and Preserving the core sample serially on site of work and conveying the same to HQ of concernring office as directed. Quartzite with diamond drill with Ax Bit 0 to 50 m.	m	4090.00
48	Taking trial bores 75 to 100 mm for 53.0 to 88.9 mm core dia in rocks as specified below including all necessary materials such as oil,grease,steel boostan and such other materials as required (including conveying the material to site of work) and Preserving the core sample serially on site of work and conveying the same to HQ of concernring office as directed. Other Rock with diamond drill. 0 to 50 m.	m	3880.00

Sl. No.	Description	Unit	Rate in ₹
49	Providing tun tappa core boxes of jungle wood of size1.25mx 0.35x 0.15m for preserving core sample with all fixtures and fastening handles including locking arrangment etc . complete.	Nos.	5205.00
50	Providing and maintaining temparory platform of bore location in river bed in upto 1M of standing water and of size 3.50 x 4.00 m by using sand bags in layer for platform including all required materials labours etc. complete.	Nos.	12290.00
51	Providing and maintaining temporary platform for erecting boring machined in river bed to the depth of standing water 1m to 2m and of size 3.50 x 4.00 M by using 20 Nos. of M.S. empty barrels in M.S. frame made of M.S. angle size 50 x 50 x 5 mm with fabrication and over it a jungle wood planks platform of size 3.50 x 4.00 x 0.03 m size including supplying of nylon rope 24 mm dia. for anchoring platform include passage platform and enganging a labour etc. complete. 1 m to 2 m	Nos.	20000.00
52	Providing and maintaining temparory platform for erecting boring machined in river bed to the depth of standing water 2 m and above and of size 3.50 x 4.00 M by using 20 Nos. of M.S. empty barrels in M.S. frame made of M.S. angle size 50 x 50 x 5 mm with fabrication and over it a jungle wood planks platform of size 3.50 x 4.00 x 0.03 m size including supplying of nylon rope 24 mm dia. for anchoring platform include passage platform and enganging a labour etc. complete. 2 m and Above.	Nos.	20600.00
53	Providing and maintaining temparory platform for inspection from one bank to another bank of bore location in river bed in all depth of standing water of size 1.30 x 2.00 M by using 4 Nos. of M.S. empty barrels in M.S. frame made of M.S. angle size 50 x 50 x 5 mm with fabrication and over it a jungle wood planks platform of size 1.30 x 2.00 x 0.03 m size including supplying of nylon rope 24 mm dia. and 300 M length of movement of platform enganging a labour on inspection days etc. complete.	Nos.	19200.00

Sl. No.	Description	Unit	Rate in ₹
54	Conveying the boring machine and engine and all its accessories etc. to the site of the work and back including loading unloading etc. complete. (Note - Distance to be measured from the station of boring machine engine etc. of district head quarters to site of the work by short route).	km	80.00
55	Shifting boring plant with all its components and reinstalling the same at the directed place including all its charges etc. complete.	Shift	8500.00
56	Providing detailed reports of the inspection logging of drilled hole by observing visual description of data as per depth, thickness of layer, type of sample, wash sample, bore recovery type of drill etc. complete.	Nos.	9600.00
57	Providing detailed geological reports of proposed site by maintaining geotechnical investigation of structure stratification collecting soil, rock and ground water samples for laboratory tests to arrive the foundation design parameters. Rock properties such as type of rock, jointing fractures, etc. complete with suggestion about the site foundation and remedies.	Report	38720.00
58	Preparing land plans and land schedule including carrying out plane table survey for Private / Forest land on both side of road in Rural and Urban areas. The work of plotting and certificate from T.I.L.R. or other authorities shall be obtained from correctness of prepared plans. Tracing ang taking out prints and preparing the requisite booklets duly bounds and printing with all materials etc. Three land plan booklets along with original tracing shall be supplied including procurement of village maps / forest land plans from concern authorities.Note : The item plane table includes following points 1) Carrying out plane table survey. 2) Plotting of duly surveyed area . 3) Collection of data from D.I.L.R. authorities and verification of survey maps by D.I.L.R. authorities . 4) Preparing three booklets of survey maps including taking out prints of survey maps, binding etc. 5) Carrying out plane table survey of the Private / Forest land along the road upto 30 m on either side from the road centre.	km	40875.00

Sl. No.	Description	Unit	Rate in ₹
59	Geometrical design of road horizontal and vertical curves for design speed specified by IRC including carrying out trail for optimising of civil cost minimising land acquisition and maximum use of existing facility and preparation of widening arrangement drawing for insisting structures stake out date for horizontal alignment and working levels including super elevation effect etc. complete.	km	12300.00
60	Transfering and taking out design on coordinates of baseline on ground using nails for exsisting road surfaces and survey pegs for new alignments including taking out coordinates for horizontal curves at required interval of 50 m etc. complete. (Extra line such as right of way median edges to toe line not included).	km	12400.00
61	Preparation of roadway, drawing (Plan And Profile) on computer by using Autocad of required scale showing all topo feature and proposed construction details such as carriage way, median service road, toe line, retaining walls, cross drainage works, major structures, etc. complete. Including indexing, level tables, legend, basic information of project and design details etc.	km	10400.00
62	Preparation of Engineering drawing as strip plan, widening scheme, index / key map, typical cross section, retaining walls, road furniture, general arrangement drawings for bus bays / truck lay-bays / rest areas / toll plaza / booths / and type drawing of pipe/ slab drains etc. on computer using Auto CAD.	km	9300.00
63	Survey of C.D. works including taking L-Section of road, catchment area plan by Traverse method and taking trial pits of size 1.50 x 1.50 x 1.50 m including preparation of detailed plans and estimates in 5 copies and all types of compliance if required from the department.	Nos.	9500.00
64	Design of junctions including detail layout of traffic signs, informatory boards traffic islands. Breaks in median verge including working levels at junctions as per IRC standards etc. complete. a) Major Junction	Nos.	28700.00

Sl. No.	Description	Unit	Rate in ₹
65	Design of junctions including detail layout of traffic signs, informatory boards traffic islands. Breaks in median verge including working levels at junctions as per IRC standards etc. complete. b) Minor Junction	Nos.	16300.00
66	Preparaion of initial design of flyovers with preparing General Arrangement drawing with dimensions etc. complete and preparation of rough estimate for all components of bridge. Including supplying four copies of coloured drawings and copy of drawing on C.D. (excluding geotechnical and structural design part.)	m	770.00
67	Preparation of draft / Final Report comprising of technical, financial economic feasibility and environmental aspects of the project including executive summary and detailed chapters on necessity and introduction of project existing and future traffic, design philosophy scope of work, summary of available cost estimates justification for rates adopted, key points of execution, salient features of the project, location of toll plaza, toll rate / policy to be adopted and specification of major construction items etc. in 8 copies having attractive cover and binding s directed by engineer in charge etc. complete.	Nos.	279000.00
68	Preparation of Autocad drawing with colour print for Building / Bridge / Road/ CD Works in required size etc. complete. - A-0 Size	Nos.	4700.00
69	Preparation of Autocad drawing with colour print for Building / Bridge / Road/ CD Works in required size etc. complete. A-1 Size	Nos.	3800.00
70	Preparation of Autocad drawing with colour print for Building / Bridge / Road/ CD Works in required size etc. complete. A-2 Size	Nos.	2900.00
71	Autocad drawing with colour print out for Building / Bridge / Road/ CD Works in required size etc. complete. A-0 Size	Nos.	145.00
72	Autocad drawing with colour print out for Building / Bridge / Road/ CD Works in required size etc. complete. A-1 Size	Nos.	100.00

Sl. No.	Description	Unit	Rate in ₹
73	Autocad drawing with colour print out for Building / Bridge / Road/ CD Works in required size etc. complete. A-2 Size	Nos.	45.00
74	Autocad drawing with colour print out for Building / Bridge / Road/ CD Works in required size etc. complete. A-3 Size	Nos.	20.00
75	Autocad drawing with colour print out for Building / Bridge / Road/ CD Works in required size etc. complete. A-4 Size	Nos.	10.00
76	Deploying Automated Traffic Count and classification system on Road (Two Lane) in both direction at designated traffic count post by using High Definition Cameras..Collecting the Non Editable Data In DVR System with necessary electronic and electrical arrangements or inventor of required capacity Classification of data as per vehicle category as required with the help of software and submitting the the reports to the concerned department in hard copies as well as in soft copy, including using necessary technical manpower etc. complete. A) Up to 7 Days (Two Lane)	day	33500.00
77	Deploying Automated Traffic Count and classification system on Road (One Lane) in both direction at designated traffic count post by using High Definition Cameras..Collecting the Non Editable Data In DVR System with necessary electronic and electrical arrangements or inventor of required capacity Classification of data as per vehicle category as required with the help of software and submitting the the reports to the concerned department in hard copies as well as in soft copy, including using necessary technical manpower etc. complete. B) Extra charges for every additional lane (If required)	day	25000.00
78	Providing of Jeep/vehicle for conveying survey material, Engineers, labours etc. complete	day	3500.00

Sl. No.	Description	Unit	Rate in ₹
79	To carry out Polygon Drone Survey and post process aerial triangulation with required ground controle and benchmarks will be collected by using Survey grade dual frequency DGPS - PPK system. After post processing following outputs will be delivered. i) Geotagged images with high resolutions ii) GCP values in CSV format iii) 3D points cloud cover in .las format iv) digital surface model (DSM) in .tiff format v) 2D ortho rectified images in .tiff format with detailed features.	km^2	22500.00
80	Scanning, digitisation & Geo-referencing of Cadastral/revenus maps and interpretation of all existing features like building, water bodies, rivers, agricultural fields etc to generate map. Creation of G/S plat form by using Ortho redified images nd revenu date by linking of textual date.	km^2	4000.00
	All rates are exclusive of GST.		

ACKNOWLEDGEMENT

The Technical Working Group is grateful to Additional Chief Secretary, Finance, Additional Chief Secretary, PWD, Secretary PWD, Secretary Finance Department (Exp), Special Officer PWD and Ex-Officio Joint Secretary, Under Secretary PWD – Government of Karnataka.

The Group is indebted to Heads of the Departments and Engineering Departments who were responsive, enthusiastic and supportive in compiling Common SR as well as their Organization SR's without which it would not have been possible to compile and furnish the report.

The Group is highly thankful to Sri Shivayogi Hiremath, Chief Engineer PWD C&B (S), Sri Mahadevegowda, Chief Engineer BWSSB, Sri Govindaraja & Sri H.C. Ramendra, Chief Engineers National Highways, Sri Chinnasomaiah, Chief Engineer, KPCL, Sri Prahallad, Chief Engineer, BBMP, Sri Siddanaik, Chief Engineer, KUWS&DB, Sri Mukkana Naik, Superintending Engineer, PRED, Sri Dayananda Vernekar, Executive Engineer, PWD, Sri Krishna Rao, Executive Engineer WRDO, Sri Chandrashekhar, Executive Engineer, PWD (Electrical) and all Engineers for extending all technical leads to the group.

The group also thanks, Sri. Durugappa K & Sri Manjunath B.H., Superintending Engineer, PWD Bengaluru Circle for facilitating all the requirements associated with preparation of Common SR and with the continuous effort and hard work engaging with keen interest from all Engineering fraternity involved in preparing Common SR and making available the SR's of various Departments.

Special appreciation to Sri. Anwar Pasha, Technical Assistant (Retd.,) who has 25 years of background in preparation of SRs in Public Works Department who has worked tirelessly in preparation of this document and is pillar in bringing out this document.

The Group is indebted to all Technical staff who have worked in compiling and computerization.

"The Technical Working Group thanks the staff of Kaveri Guest House for attending timely needs".

R Jaiprasad

Chairman, Technical Working Group

Design & Print
DEEPAK PRINTS
+91 97319 82856