GENERAL NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. U.S. CUSTOMARY UNITS IN F. PARENTHESES.


3. MATERIALS AND WORKMANSHIP ARE TO BE IN ACCORDANCE WITH SPECIFICATION 408.

4. PIER DIMENSIONS ARE DETERMINED BY DESIGN.

5. PROVIDE THE FOLLOWING MINIMUM CONCRETE COVES FOR REINFORCEMENT:
   - CONCRETE CAST AT LEAST 28 DAYS BEFORE EXPOSED TO EARTH
   - CONCRETE EXPOSED TO WEATHER

6. USE GRANITE CEMENT CONCRETE IN PIERS, FOOTINGS, AND DRILLED SHAFTS.

7. USE CLASS C CEMENT CONCRETE BELOW BOTTOM OF FOOTINGS, IF SPECIFIED.

8. ENSURE THAT NO REINFORCEMENT COMES IN CONTACT WITH COLUMN OR STEEL AND CEMENT MIXTURE FROM PIER FOOTINGS INTO COLUMN OR STEEL AND CEMENT MIXTURE FROM PIER FOOTINGS INTO COLUMN.

9. SHERPA SUPERSTRUCTURES, SECTION D-234A-PH.

10. KEY FOR CONSTRUCTION JOINT MAY BE FORMED INTO THE COLUMN OR INTO THE FOOTING.

11. SEE KC-11M FOR STANDARD SPlice AND DEVELOPMENT LENGTH.

12. PROVIDE 0.045 IN. V-MATCH IN COLUMN OF PIERS AT FINISH GROUND LINE FOR PEERS WITH ANCHORS.

13. FOR FOOTINGS POURING ON DEMAND THE MINIMUM 200 LF. (11) SOIL COVER IS PREPARED BUT NOT REQUIRED. SOIL COVER MAY BE ANY DEPTH TO AVOID UNNECESSARY EXCAVATION.

DESIGN DATA

- DENSITY OF BACKFILL MATERIAL = 1500 kg/m³ (120 lb/ft³)
- DENSITY OF CONCRETE = 2400 kg/m³ (150 lb/ft³)
- EQUIVALENT FLUID BARTH PRESSURE = 1.5 S.F.U. (300 lb/ft²)
- FOR FOOTINGS USE A MINIMUM DEPTH INCREMENT OF 75 MM.
- FOR COLUMN SIZES, USE INCREMENTS OF 150 MM. MAXIMUM TO INCREASE COLUMN WIDTH.
- SHERPA SUPERSTRUCTURES, SECTION D-234A-PH.

CONSTRUCTABILITY CONSIDERATIONS

- TO ALLOW PLACEMENT OF THE PIER CAP REINFORCEMENT CAGE, PIER TOPS DEVICES IN COLUMN 3/4 IN. LONGER THAN INTO THE PIER CAP.
- DO NOT EXTEND SPIRALS INTO THE PIER CAP, PROVIDE SPIRAL TIES.
- FOR VERTICAL COLUMN REINFORCEMENT STABILITY, EXTEND VERTICAL COLUMN STEEL 1-1/2 BAR TO BOTTOM RIM OF FOOTING REINFORCEMENT STEEL.
- FOR STEPPED COLUMN, PROVIDE 100 LF. MINIMUM / 600 LF. MAXIMUM STEP, USE 600 LF. VERTICAL INCREMENT FOR COLUMN SECTION.
- FOR ROUND COLUMN RECOMMENDED MAXIMUM COLUMN DIAM. IS 200 LF. (8'-0")

REFERENCES

REFERENCE DRAWINGS

INDEX OF DRAWINGS

REFERENCE DRAWINGS

NOTE: EITHER ALL METRIC OR ENGLISH VALUES MUST BE USED ON PLANS. METRIC AND ENGLISH VALUES SHOWN MAY NOT BE MIXED.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION
ODA-12289M

STANDARD
REINFORCED CONCRETE PIERS

GENERAL NOTES AND DESIGN CRITERIA

SHEET 1 OF 15
BD-659R
ELEVATION (SEISMIC ZONE 1)

ELEVATION (SEISMIC ZONE 2)

NOTES

1. FOR SPlice CRITERIA, SEE SHEET 5, NOTE 2.
2. FOR BUNDLES 50+ (50 DIA OR LARGER), VERTICAL TIE SPACING
   MUST NOT EXCEED 150 (6").
3. COLUMN CONNECTION
   SLOTTED SP 1/4" MIN. ** DIMENSION OR LTE (15")
4. PLASTIC HINGE ZONE,
   COLUMNS G/A MAX. 450 (18")
5. ALL HOOKS ON TIES MUST ENGAGE VERTICAL COLUMN REINFORCING STEEL.
   ALTERNATE 60° & 15° HOOKS ON CROSS TIE.

OPTIONAL END TREATMENTS

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING

STANDARD REINFORCED CONCRETE PIERS
SOLID SHAFT DETAILS
MULTI-DRILLED SHAFT CONFIGURATIONS
(DETAILS NOT SHOWN)

NOTE:
① DRILLED SHAFTS NOT FORMED IN CONCRETE INTO ROCK ARE
SHOWN IN FIGURE FOR REFERENCE IN THE STRENGTH AND IF USED
MUST BE APPROVED BY THE CHIEF BRIDGE ENGINEER.
② USE OF BELLED TIP REQUIRES THE PRIOR APPROVAL OF THE
CHIEF BRIDGE ENGINEER.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION
BUREAU OF DESIGN

STANDARD
REINFORCED CONCRETE PIERS
SINGLE DRILLED SHAFT
DETAILS

NOTE: EITHER ALL METRIC OR ENGLISH VALUES
MUST BE USED ON PLANS. METRIC AND
ENGLISH VALUES SHOWN MAY NOT BE MIXED.

30" (MAX."

BD-659M
CROSS SECTION

ELEVATION

COLUMN REHABILITATION DETAILS

TYPE 1

TYPE 2

TYPE 3

CAP SECTION

CAP SECTION

FUTURE SUPERSTRUCTURE JACKING DETAILS

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION
BUREAU OF DESIGN

STANDARD
REINFORCED CONCRETE PIERS
REHABILITATION AND JACKING DETAILS

NOTE: EITHER ALL METRIC OR ENGLISH VALUES MUST BE USED IN PLANS. METRIC AND ENGLISH VALUES SHOWN MAY NOT BE MIXED.