

POST-TENSIONING CHARACTERISTICS ASSUMED FOR DESIGN

1. Prestressing strand
 - Friction curvature coefficient : 0.20
 - Friction wobble coefficient : 0.0007/m
 - Anchor set : 6 mm
2. Prestressing epoxy-coated monostrand (Tie-down cables only)
 - Friction curvature coefficient : N/A
 - Friction wobble coefficient : 0.0007/m
 - Anchor set : 6 mm
3. High strength rods (where applicable)
 - Friction curvature coefficient : 0.25
 - Friction wobble coefficient : 0.0007/m
 - Anchor set : 2 mm
4. High strength PT rod (75 mm)
 - Friction curvature coefficient : 0.25
 - Friction wobble coefficient : 0.0012/m
 - Anchor set : 2 mm
5. Prestressing strands shall conform to ASTM A416, low relaxation, 7-wire strands, with guaranteed minimum ultimate strength of 1860 MPa.
6. Prestressing epoxy-coated monostrands shall conform to ASTM A416, low relaxation, 7-wire strands, with guaranteed minimum ultimate strength of 1860 MPa.
7. High strength rods (ASTM A354 Grade BD) shall have a guaranteed minimum ultimate strength of 965 MPa.
8. High strength rods (ASTM A354 Grade BC) shall have a guaranteed minimum ultimate strength of 793 MPa.
9. High strength rods (ASTM A722) shall have a guaranteed minimum ultimate strength of 1030 MPa.
10. High strength PT rods (75 mm) shall have a guaranteed minimum ultimate strength of 1030 MPa.

PRETENSIONING/GROUTING SEQUENCE

1. The pretensioning and grouting sequence of the Pier W2 prestressing strand tendons and of the Pier W2 high strength anchor rods (anchor bolts) shall be included with the Contractor's erection plan. The Contractor shall submit the erection plan along with the pretensioning and grouting sequence to the Engineer for review and approval.
2. The pretensioning and grouting sequence of the Pier T1 (Tower) high strength anchor rods (anchor bolts) shall be included with the Contractor's erection plan. The Contractor shall submit the erection plan along with the pretensioning and grouting sequence to the Engineer for review and approval.
3. The pretensioning and grouting sequence of the Pier E2 prestressing strand tendons and of the Pier E2 Bearing and Pier E2 Shear Key high strength anchor rods (anchor bolts) shall be included with the Contractor's erection plan. The Contractor shall submit the erection plan along with the pretensioning and grouting sequence to the Engineer for review and approval.

STRESSING FORCE LIMITS

1. All high strength anchor rods (anchor bolts) shall be pretensioned by jacking to 70% of their ultimate tensile strength, unless noted otherwise.
2. Force in all permanent high strength prestressing tendons shall not exceed 70% of the guaranteed minimum ultimate strength of the tendon after seating.
3. Force in all permanent high strength rods (anchor bolts) shall not exceed 70% of the guaranteed minimum ultimate strength of the bar after seating.

CONCRETE

1. A minimum compressive strength of **36 MPa (f'ci)** shall be attained in the concrete of Pier W2 and Pier E2 crossbeams prior to stressing.

HIGH STRENGTH NONSHRINK GROUT

1. All high strength nonshrink grout shall attain a minimum compressive strength of $f'ci = 75\% f'c$ (MPa) prior to being subjected to subsequent loading and before pretensioning operations.

PT DUCTS

1. Ducts for prestressing strand tendons and high strength rods (anchor bolts) shall consist of galvanized corrugated steel ducts, unless noted otherwise.
2. Prebent ducts shall be used for prestressing tendons with radius less than 10 m.
3. Prestressing strand tendon suppliers shall provide and use extra strong steel pipes (ASTM A53 Type S, Grade B ($f_y = 240$ MPa) and necessary hardware connecting the steel pipes to galvanized corrugated steel ducts where radius of PT ducts is less than 5000 mm.
4. Based on the Contractor's stressing sequence, local strengthening of PT ducts (e.g. extra strong steel pipes) at critical locations may be required.

GROUT FOR PT DUCTS/PIPE SLEEVES

1. Tie-down cables with epoxy-coated monostrands shall not be grouted.
2. Ducts shall be grouted with nonshrink grout ($f'c = 60$ MPa).
3. Nonshrink grout shall attain a strength of 36 MPa ($f'ci$) minimum before being subjected to stresses due to subsequent loading.

BLOCKOUT CONCRETE

1. After completion of all pretensioning and grouting operations, the blockout closure reinforcement shall be bent into place over the anchors before the blockouts are filled with concrete ($f'c = 60$ MPa).



DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF	80	13.2/13.9	981R1	1204

REGISTERED ENGINEER - CIVIL
 12-6-04
 PLANS APPROVAL DATE
 The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.
 T.Y. LIN / MOFFATT & NICHOL
 825 BATTERY STREET
 SAN FRANCISCO, CA 94111
 To get to the web site, go to: <http://www.dot.ca.gov>



FOR REVISIONS ONLY

MARK	DATE	DESCRIPTIONS	MN	NV
△	07/21/06	CONCRETE STRENGTH, ISD		

CONTRACT CHANGE ORDER NO. _____
 SHEET _____ OF _____

R. Valizadeh/V. Toan/Y.L./W.L./F.C.
 DESIGN OVERSIGHT
 SIGN OFF DATE 07/21/06

DESIGN	BY J. Sun	CHECKED J. Duxbury
DETAILS	BY J. Sun	CHECKED J. Duxbury
QUANTITIES	BY J. Sun	CHECKED J. Duxbury

PREPARED FOR THE
STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
 R. Manzanarez
 PROJECT ENGINEER
 BRIDGE NO. 34-0006L/R
 KILOMETER POST 13.2/13.9

SAN FRANCISCO OAKLAND BAY BRIDGE
 EAST SPAN SEISMIC SAFETY PROJECT
 SELF-ANCHORED SUSPENSION BRIDGE
 (SUPERSTRUCTURE & TOWER)
PRESTRESSING NOTES

Rev. Date: 5-18-98
 ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS
 ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN
 DISREGARD PRINTS BEARING EARLIER REVISION DATES
 REVISION DATES (PRELIMINARY STAGE ONLY)
 SHEET 564R1 OF

TIME PLOTTED => 14 JUL 2006 100% P&S&E USERNAME => vjgntovs@DATE PLOTTED => 14 JUL 2006