GENERAL:

DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
LEVELS ARE IN METRES RELATIVE TO MEDITERRANEAN MEAN LEVEL (LMM).
ANGLES ARE IN DEGREES (0°–360°).

ABBREVIATIONS:

CL	CENTRE LINE
CLR	CLEAR
CSK	COUNTERSUNK
D	ANCHOR BOLT DIAMETER
DIA	DIAMETER
DRG	DRAWING
HDG	HOT DIP GALVANIZED
CHS	CIRCULAR HOLLOW SECTION
=	EQUAL
EQ	EQUAL
P.F.	TOP OF RAIL
PPWS	PREFABRICATED PARALLEL WIRE STRAND
Q.P.	ROADWAY TOP OF PAVEMENT
R	RADIUS
REF	REFERENCE
SOP	SETTING OUT POINT
SP	SPACE
T.T.	THEORETICAL CABLE POINT AT TOWER SADDLE
T.S.	THEORETICAL CABLE POINT AT SPLAY SADDLE
T.A.	THEORETICAL CABLE POINT AT ANCHORAGE
T.P.	TANGENT POINT
TYP	TYPICAL
U/N	UNLESS NOTED OTHERWISE
U/S	UNDERSIDE OF
U.T.	ULTRASONIC TESTING
WP	WORK POINT
Ø	DIAMETER
40 THK	THICKNESS 40 MM
500X40 THK	WIDTH 500 MM, THICKNESS 40 MM

CODES:

CG1000–P–RG–D–P–CG–00–00–00–00–00–13: BASIS OF DESIGN AND EXPECTED PERFORMANCE LEVELS OF THE BRIDGE
NTC–08: DM14.1.2008 TECHNICAL CONSTRUCTION STANDARD
ITALIAN STANDARD FOR DESIGN AND EXECUTION OF RAILWAY BRIDGES AND ATTTACHED TECHNICAL SPECIFICATIONS.

CABLE STEEL, CABLE STRUCTURES AND CAST STEEL:

MAIN CABLE: CLASS A GALVANIZED WIRE (UNI EN 10264) MIN f_u = 1860 MPa, GALVANIZED TO MIN 300 g/m2 (UNI EN 10244).

WIRE WRAPPING: SOFT ANNEALED GALVANIZED ROUND WRAPPING WIRE (BS 1052), GALVANIZED TO MIN 300 g/m2 (UNI EN 10244).

HANGERS: CLASS A GALVANIZED WIRE (UNI EN 10264) MIN f_u = 1770 MPa, GALVANIZED TO MIN 300 g/m2 (UNI EN 10244).

CABLE CLAMPS: CAST STEEL GRADE G24Mn6+QT2 (1.1118) (UNI EN 10340) WITH MIN fy=500 MPa FOR ALL RULING SECTIONS.

CROSS HEADS: CAST STEEL GRADE G20Mn5+QT(1.6220) (UNI EN 10340) WITH MIN fy=300 MPa FOR RULING SECTIONS UP TO 200 MM THK.

TOWER SADDLES: STRUCTURAL STEEL: EN 10025–4 S460ML – STEEL MUST PROVIDE A GUARANTEED YIELD STRENGTH OF MIN 460 MPa FOR ALL PLATE THICKNESSES UP TO 100 MM.

CAST STEEL: G24Mn6+QT2 (1.1118) (UNI EN 10340) WITH MIN fy=500 MPa FOR ALL RULING SECTIONS UP TO 100 MM AND fy=380 MPa ABOVE 100 MM.

SPLAY SADDLES: STRUCTURAL STEEL: EN 10025–4 S420ML – STEEL MUST PROVIDE A GUARANTEED YIELD STRENGTH OF MIN 420 MPa FOR ALL PLATE THICKNESSES UP TO 100 MM.

CAST STEEL: G24Mn6+QT2 (1.1118) (UNI EN 10340) WITH MIN fy=380 MPa FOR ALL RULING SECTIONS.

TRANSVERSE SUPPORTS AT TOWERS: CAST STEEL GRADE G24Mn6+QT2 (1.1118) (UNI EN 10340).

STRUCTURAL STEEL:

THE FOLLOWING STEEL GRADES ACCORDING TO EN 10025–4 SHALL APPLY FOR THE PRIMARY STRUCTURES UNLESS OTHERWISE NOTED:

PLATES:	SUSPENDED DECK:	S355ML / S420ML / S460ML – STEEL MUST PROVIDE A GUARANTEED YIELD STRENGTH OF MIN 355 / 420 / 460 MPa FOR ALL PLATE THICKNESSES UP TO 100 MM.
	TOWERS:	S460ML – STEEL MUST PROVIDE A GUARANTEED YIELD STRENGTH OF MIN 460 MPa FOR ALL PLATE THICKNESSES UP TO 100 MM. S355ML – STEEL MUST PROVIDE A GUARANTEED YIELD STRENGTH OF MIN 355 MPa FOR ALL PLATE THICKNESSES UP TO 150 MM
	TRANSVERSE SUPPORT AT TOWERS:	S460ML / STEEL MUST PROVIDE A GUARANTEED YIELD STRENGTH OF MIN 460 MPa FOR ALL PLATE THICKNESSES UP TO 100 MM.
	TERMINAL STRUCTURES:	S355ML
TUBULARS:	TOWERS:	S355ML

THE FOLLOWING STEEL GRADES ACCORDING TO EN 10025–2 SHALL APPLY FOR THE SECONDARY STRUCTURES UNLESS OTHERWISE NOTED:

PLATES: S355J2+N

TUBULARS: S355J2+N

ALL MATERIALS SHALL BE DELIVERED WITH INSPECTION CERTIFICATE IN ACCORDANCE WITH UNI EN 10204: INSPECTION CERTIFICATE 3.2 FOR PRIMARY STRUCTURES AND INSPECTION CERTIFICATE 3.1 FOR SECONDARY STRUCTURES.

REQUIREMENT OF IMPROVED THROUGH THICKNESS PROPERTIES IS SHOWN ON THE DRAWINGS. THE PLATE DESIGNATION IS THEN AMENDED "Z" OR "ZX" WHERE X IS THE QUALITY CLASS IN ACCORDANCE WITH EN 10164. THE REQUIRED QUALITY CLASS IS Z25 UNLESS OTHERWISE NOTED.

REQUIREMENT FOR ULTRASONIC TESTING IS SHOWN ON THE DRAWINGS. WHERE THE PLATE DESIGNATION IS ANNOTATED U.T., THE TESTING SHALL FULFILL THE REQUIREMENT OF CLASS S2 IN ACCORDANCE WITH UNI EN 10160 WITH 100% EXTENT OF TESTING UNLESS OTHERWISE NOTED.

STEEL SHALL BE IDENTIFIED BY MARKING. MARKING BY STAMPING SHALL NOT BE PERMITTED (OPTION 10 IN EN 10025–4).

PLATES FOR TROUGH STIFFENERS SHALL BE SUITABLE FOR COLD FORMING (OPTION 11b IN EN 10025–4).

EXECUTION OF STRUCTURAL STEEL WORK SHALL COMPLY WITH THE REQUIREMENTS STIPULATED IN DOC. NO. GCG.G.03.02, TECHNICAL SPECIFICATIONS FOR CONSTRUCTION OF THE SUSPENSION BRIDGE.

COPE HOLES SHALL BE 35MM (t < 30MM), 45MM RADIUS (30MM < t < 40MM) AND 55MM RADIUS (t > 40MM) RADIUS UNLESS OTHERWISE NOTED.

WHEN "GROUND SMOOTH" IS STATED ON THE DRAWINGS, THE GEOMETRICAL REQUIREMENTS TO THE GRINDING SHALL BE IN ACCORDANCE WITH CHAPTER 3. BURR GRINDING OF "RECOMMENDATIONS ON POST WELD FATIGUE LIFE IMPROVEMENT OF STEEL AND ALUMINIUM STRUCTURES" INTERNATIONAL INSTITUTE OF WELDING (IIW), DOC XIII–2200r7–07, REV. 06 JULY 2010.

TERMINATION OF T–STIFFENERS SHALL IN GENERAL BE CARRIED OUT IN ACCORDANCE WITH DRAWING CG1000–PAXDPSV–I3TP000000–02, SECTION T–T.

TERMINATION OF FLAT STIFFENERS SHALL IN GENERAL BE CARRIED OUT IN ACCORDANCE WITH DRAWING CG1000–PBXDPSV–I3TP000000–01, DETAIL 9.

TERMINATION OF ALL DIAPHRAGMS AND STIFFENERS SHALL IN GENERAL BE CARRIED OUT IN ACCORDANCE WITH DRAWING CG1000–PBXDPSV–I3TP000000–01, SECTION Q–Q.

STAINLESS STEEL:

THE FOLLOWING STEEL GRADE ACCORDING TO EN 10088–1 SHALL APPLY: EN 1.4404

SHEAR CONNECTORS:

HEAD STUD SHEAR CONNECTORS SHALL BE IN ACCORDANCE WITH EN 13918 AND SHALL COMPLY WITH EN 1994–2 SECTION 6.6.5.7. MINIMUM YIELD POINT OF 350 MPa AND MINIMUM ULTIMATE STRENGTH OF 450 MPa.

BOLTS:

GENERAL: BOLTS SHALL BE GRADE 10.9 (EN 20898) UNLESS NOTED OTHERWISE.

TOWERS: BOLTS FOR CONSTRUCTION JOINT SPLICES SHALL BE M30 GRADE 10.9 (EN 20898) UNLESS NOTED OTHERWISE. SPLICES SHALL BE SLIP RESISTANT AT THE ULTIMATE LIMIT STATE. FRICTION COEFFICIENT ON ALL FAYING SURFACES SHALL BE MINIMUM 0.45.

TOWER BASE ANCHOR BOLTS SHALL SATISFY THE REQUIREMENTS OF GRADE 10.9 (EN 20898) WITH AN ULTIMATE TENSILE STRENGTH, F_{ub}, OF 1000 MPa. BOLT SIZES ARE AS INDICATED IN THE DRAWINGS. ANCHOR BOLTS SHALL BE MANUFACTURED IN CONFORMITY WITH EN 1993–1–8 SECTION 1.2.4 "REFERENCE STANDARDS: GROUP 4." FOR ANCHOR BOLTS WITH CUT THREADS, THE THREADS SHALL COMPLY WITH THE REQUIREMENTS OF EN 1090.

STAINLESS STEEL: A4–70 UNLESS OTHERWISE NOTED WITH YIELD STRENGTH OF MIN 450 MPa AND ULTIMATE TENSILE STRENGTH OF MIN 700 MPa.

WELDING OF STRUCTURAL STEEL:

WELDING SYMBOLS ARE IN ACCORDANCE WITH UNI EN 22553.

DIMENSIONS OF FILLET WELDS ARE THROAT THICKNESS.

WELDS NOT SPECIFIED ON THE DRAWINGS SHALL BE FULL PENETRATION BUTT WELDS.

BUTT WELDS: WELD CLASS B AND NDT IN ACCORDANCE WITH TECHNICAL SPECIFICATIONS UNLESS OTHERWISE NOTED. ALL BUTT WELDS SHALL BE WELDED FROM BOTH SIDES UNLESS OTHERWISE SHOWN ON THE DRAWINGS. WELDS AGAINST CERAMIC BACKING WHICH CAN BE REPAIRED FROM THE ROOT SIDE IS CONSIDERED AS WELDED FROM BOTH SIDES.

FILLET WELDS: WELD CLASS C AND NDT IN ACCORDANCE WITH TECHNICAL SPECIFICATIONS UNLESS OTHERWISE NOTED.

THE FOLLOWING TABLE SHALL BE USED WHEN SIZES OF FILLET WELDS ARE NOT SHOWN ON THE DRAWINGS:

PLATE THICKNESS – THICKER PART (MM)	MINIMUM FILLET WELD THROAT SIZE (MM)
t < 15	4
15 < t < 25	6
25 < t < 35	8
35 < t < 45	10
45 < t < 60	13
60 < t < 80	16

WELDS SHALL BE AIRTIGHT.

CONSTRUCTION GEOMETRY:

THE REFERENCE CONDITION FOR THE BRIDGE IS THE CONDITION AT DAY OF COMPLETION FOR THE BRIDGE LOADED WITH ALL PERMANENT LOADS (STRUCTURAL + NON–STRUCTURAL DEAD LOADS) AND ADJUSTED TO A REFERENCE TEMPERATURE OF +20°C. THE ASSUMED PAVING THICKNESS FOR THE REFERENCE CONDITION IS 40MM.

WHERE INDICATED SPAN DIMENSIONS ARE DEFINED AT LEVEL +0,0. GLOBAL CURVATURE OF THE EARTH'S SURFACE IS NOT CONSIDERED IN DEFINITION OF THE REFERENCE GEOMETRY.

PROTECTIVE TREAMENTS:

GENERAL: PROTECTIVE TREATMENT SHALL COMPLY WITH THE REQUIREMENTS STIPULATED IN DOC. NO. GCG.G.03.02, TECHNICAL SPECIFICATIONS FOR CONSTRUCTION OF THE SUSPENSION BRIDGE.

ZINC SPRAY: WHERE SPECIFIED, ZINC SPRAY TO BE MIN. 100 µm THK (UNI EN 22063).

Stretto di Messina
Concessionaria per la progettazione, realizzazione e gestione del collegamento stabile tra la Sicilia e il Continente
Organismo di Diritto pubblico
(Legge n° 1158 del 17 dicembre 1971, modificata dal D.Lgs. n° 114 del 24 aprile 2003)
EurolinK

PONTE SULLO STRETTO DI MESSINA

PROGETTO DEFINITIVO

EUROLINK S.C.p.A.
IMPREGILO S.p.A. (Mandataria)
SOCIETA' ITALIANA PER CONDOTTE D'ACQUA S.p.A. (Mandante)
COOPERATIVA MURATORI E CEMENTISTI - C.M.C. di Ravenna Soc. Coop. a.r.l. (Mandante)
SACYR S.A.U. (Mandante)
ISHIKAWAJIMA - HARIMA HEAVY INDUSTRIES CO. Ltd. (Mandante)
A.C.I. S.C.P.A. - CONSORZIO STABILE (Mandante)

IL PROGETTISTA
COWI
Ing. E.M. Veje
Dott. Ing. E. Pagani
Ordine Ingegneri Milano n° 15408

IL CONTRAENTE GENERALE
PROJECT MANAGER
(Ing. P.P. Marcheselli)

STRETTO DI MESSINA
DirettoreGenerale e RUP Validazione
(Ing. C. Fiammenghi)

STRETTO DI MESSINA
Amministratore Delegato
(Dott. P. Ciucci)

OPERA D'ATTRAVERSAMENTO
SOVRASTRUTTURE
ELEMENTI DI CARATTERE GENERALE
GENERALE
NOTE GENERALI – INGLESE

PS0012_F0

CODICE C G 1 0 0 0 P S X D P S V 0 0 0 0 0 0 0 0 0 0 0 2 F0 SCALA: –

REV.	DATA	DESCRIZIONE	REDATTO	VERIFICATO	APPROVATO
F0	20-06-2011	EMISSIONE FINALE	RUE/LSJ	HPD	LSJ/LSJ

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