Supplementary Information

The following information is associated with Network Rail Standard:
NR CIV/SD/1801 Rev B

Additional Content Access

Click the link below to access CAD version of this drawing.

CAD Drawing

- CIV/SD/1801

If you have any questions, or need assistance, please contact **IHS Support**

Information accessed via the links above is the property of the Copyright holder

IHS Additional Content Page

Documents
Document Sharing Hub

Copyright Network Rail
Provided by IHS under license with Network Rail
No reproduction or networking permitted without license from IHS
Full document details: NR NR-CIV-SD-1801 ISSUE B 2010

Licensee=Weston Williamson/5989497001, User=sam, albett
Not for Resale, 03/27/2016 21:23:04 MDT

Full document details: NR NR-CIV-SD-1801 ISSUE B 2010

DRAWING No. NR/CIV/SD/1801

USE OF DRAWINGS

1. THE STANDARD DRAWING SERIES AVAILABLE TO THE DESIGNER ARE:
   NR/CIV/SD/1000 TO 1100 STANDARD BOX GIRDER DRAWINGS
   NR/CIV/SD/1200 STANDARD 'Z' TYPE DRAWINGS
   NR/CIV/SD/1300 STANDARD 'U' TYPE DRAWINGS
   NR/CIV/SD/1400 STANDARD 'D' TYPE DRAWINGS
   NR/CIV/SD/1500 STANDARD 'E' TYPE DRAWINGS
   NR/CIV/SD/1700 CONCRETE UNDERBRIDGE DRAWINGS
   NR/CIV/SD/1900 STANDARD WALKWAY DRAWINGS
2. THE STANDARD DRAWINGS TOGETHER WITH DRAWINGS OF THE PARTICULAR DECK END SHALL BE REFERRED TO BY THE CONTRACTOR WHEN PREPARING HIS WORKING DRAWINGS.
3. THESE DRAWINGS DO NOT REPLACE THE NEED FOR THE CONTRACTOR TO PREPARE FABRICATION DRAWINGS OR WRITTEN WELD PROCEDURES.

TRIAL ERECTION REQUIREMENTS

4. THE DECK SHALL BE FULLY TRIAL ERECTED ON ALL ITS BEARINGS AT THE SAME RELATIVE LEVELS AS INTENDED FOR THE PERMANENT ERECTION. THE ERECTION SHALL ALSO INCLUDE PRECAST CONCRETE CILL BEAMS, BALLAST WALLS, ETC, WHERE PROVIDED TO THEIR CORRECT RELATIVE LEVEL AND ALIGNMENT.
5. ALL LEVELS AND DIMENSIONS OF THE FULLY TRIAL ERECTED BRIDGE SHALL BE CHECKED AND RECORDED.
6. WHERE PROVIDED, WALKWAY AND PARAPET UNITS SHALL BE INSERTED, BUT NOT FIXED.
7. ALL STEELWORK OR CONCRETE IS TO BE INDIVIDUALLY MATCHMARKED AT TRIAL ERECTION FOR SUBSEQUENT MATCHING DURING ERECTION AT SITE.

PERMANENT ERECTION REQUIREMENTS

8. INDICATIVE LIFTING LOCATIONS WHERE SHOWN SHALL BE USED STRICTLY AS INTENDED AND SHOWN. ALL LIFTING ARRANGEMENT MUST BE DESIGNED BY THE CONTRACTOR AND SUBJECT TO THE ENGINEER'S WRITTEN AND FORM C APPROVAL.
9. THE DESIGNER IS TO SPECIFY MINIMUM ACCEPTABLE CONCRETE COMPRESSIBLE STRENGTH PRIOR TO LIFTING FROM PRECAST WORKS.

PARTICULAR HEALTH & SAFETY ASPECTS

10. ALL DECKS OR INDIVIDUAL ITEMS REQUIRING LIFTING OR MOVING SHALL BE CLEARLY MARKED WITH THEIR WEIGHT MARKING CLEARLY VISIBLE IN POOR LIGHT.
11. ALL PROCESSES (e.g. WELDING, PAINTING AND WATERPROOFING) SHALL BE CARRIED OUT IN A SAFE MANNER AND ALL SUBSTANCES SHALL BE USED IN ACCORDANCE WITH C.O.S.H.H. REGULATIONS. SOME OF THE SUBSTANCES INVOLVED ARE HAZARDOUS WITHIN THE REGULATIONS.

B

EXECUTION

12. ANCILLARY ITEMS STANDARD DETAILS ARE TO BE CONSIDERED EXECUTION CLASS EXC2 IN ACCORDANCE WITH BSEN1090-2 AND BSEN13670 AS APPROPRIATE.

ANCILLARY ITEMS STANDARD DRAWINGS – DESIGN PARAMETERS.

THE CILL UNITS ARE TO BE DESIGNED WITH DUE CONSIDERATION TO THE FOLLOWING PARAMETERS:

LOADS: RAILWAY — LM71 WITH ALPHA FACTOR VALUE 1.21 (TO BS EN 1991-2)

LOADS: WALKWAY — ALL NOMINAL: 5kN/m² LIVELOAD + 1kN/m FOR CABLES + 2kN POINT LOAD.
WALKWAY WEIGHT (MAX) 4.1kN/m ACTING 1m FROM CENTROID OF BOLT GROUP.
(REFER TO DRAWING SERIES NR/CIV/SD/1900).

BRITISH & EUROPEAN STANDARDS USED IN THE STANDARD DESIGNS.

COMMON STANDARDS

GC/RT5112	LOADING REQUIREMENTS FOR THE DESIGN OF BRIDGES
GC/RC5510	RECOMMENDATIONS FOR THE DESIGN OF BRIDGES
BA 24/87	EARLY THERMAL CRACKING OF CONCRETE
BD 28/87	EARLY THERMAL CRACKING OF CONCRETE
UIC 776 3R	DEFORMATION OF BRIDGES
NR/L2/CIV/020	DESIGN OF BRIDGES AND CULVERTS (DRAFT 12)

BRITISH STANDARDS

BS5400-1:1978	GENERAL STATEMENT
BS5400-2:2006	SPECIFICATION FOR LOADS
BS5400-3:2000	CODE OF PRACTICE FOR DESIGN OF STEEL BRIDGES
BS5400-4:1990	CODE OF PRACTICE FOR DESIGN OF CONCRETE BRIDGES
BS5400-5:2005	CODE OF PRACTICE FOR DESIGN OF COMPOSITE BRIDGES
BS5400-9:1983	BRIDGE BEARINGS
BS5400-10:1980	CODE OF PRACTICE FOR FATIGUE

EUROPEAN STANDARDS

THE FOLLOWING EUROCODES AND ALL EUROCODES REFERENCED THEREIN, PLUS THE UK NATIONAL ANNEX;

BS EN 1990, + A1 EUROCODE-BASIS OF STRUCTURAL DESIGN (+A1:2005)
(INCORPORATING CORRIGENDUM DECEMBER 2008) (NOTE ANNEX A2 INCLUDED)
BS EN 1991-1-1: 2002, EUROCODE 1: ACTIONS ON STRUCTURES-PART 1-1:
GENERAL ACTIONS-DENSITIES, SELF-WEIGHT, IMPOSED LOADS FOR BUILDINGS
BS EN 1991-1-3: 2003, EUROCODE 1: ACTIONS ON STRUCTURES-PART 1-3:
GENERAL ACTIONS-SNOW LOADS
BS EN 1991-1-4: 2005, EUROCODE 1: ACTIONS ON STRUCTURES-PART 1-4:
GENERAL ACTIONS-WIND ACTIONS
BS EN 1991-1-5: 2003, EUROCODE 1: ACTIONS ON STRUCTURES-PART 1-5:
THERMAL ACTIONS
BS EN 1991-2-2003, EUROCODE 1: ACTIONS ON STRUCTURES-PART 2:
TRAFFIC LOADS ON BRIDGES
BS EN 1992-2: 2005, EUROCODE 2: DESIGN OF CONCRETE STRUCTURES PART 2:
CONCRETE BRIDGES DESIGN AND DETAILING RULES
BS EN 1994-2: 2005, EUROCODE 4: DESIGN OF COMPOSITE STEEL AND CONCRETE
STRUCTURES-PART 2: GENERAL RULES AND RULES FOR BRIDGES

THE FOLLOWING NCCI:

PD 6687-2: 2008, RECOMMENDATIONS FOR THE DESIGN OF STRUCTURES TO BS EN 1992-2: 2005
PD 6696-2: 2007, BACKGROUND PAPER TO BS EN 1994-2 AND THE UK NATIONAL ANNEX TO BS EN 1994-2 EUROCODE 4

B

SAFETY, HEALTH & ENVIRONMENT RISK ASSESSMENT

DESIGNERS' NOTE – CDM REG. 13(2)(b)

THE FOLLOWING ARE SIGNIFICANT HAZARDS WHICH MIGHT AFFECT THE HEALTH AND SAFETY OF THOSE UNDERTAKING THE WORKS OUTLINED IN THIS SET OF DRAWINGS ON RAILWAY STRUCTURES OR THOSE AFFECTED BY THESE ACTIVITIES. A SITE SPECIFIC RISK ASSESSMENT SHALL BE UNDERTAKEN PRIOR TO COMMENCING ANY OF THE WORKS DESCRIBED ON SITE.

IT IS ASSUMED THAT A COMPETENT CONTRACTOR IS AWARE OF THE RISKS ASSOCIATED WITH GENERAL CONSTRUCTION ACTIVITIES UNDERTAKEN IN THE RAILWAY ENVIRONMENT.

RISK	STAGE	MITIGATING MEASURES
INJURY LIFTING COMPONENTS	D*	SCHEME AND WORKING DRAWINGS TO INCLUDE COMPONENT CENTROIDS AND WEIGHTS.
INJURY, DIRECTLY OR INDIRECTLY, DUE TO SITE WELDING.	C	COMPONENTS TO BE SHOP WELDED AND CONNECTED USING FRICTION GRIP BOLTS WHERE POSSIBLE, MINIMISING NEED FOR SITE WELDING.
INJURY DUE TO UNSUITABLE CONDITIONS FOR INSPECTION AND REPLACEMENT OF BEARINGS.	D	SUFFICIENT SPACE MUST BE LEFT IN FRONT OF THE ABUTMENTS AND AROUND THE BEARINGS FOR ACCESS TO INSPECT, MAINTAIN AND REPLACE THE BEARINGS.
DISEASE FROM VERMIN EXCREMENT	D/O	WHERE NOT PRACTICABLE TO DESIGN OUT HOLLOWS AND LEDGES, ANIMALS (PIGEONS) ARE TO BE DISCOURAGED FROM ROOSTING ON THE STRUCTURE WITH DETERRENTS. ALL HORIZONTAL SURFACES THAT COULD BE ACCESSED BY PIGEONS TO HAVE SPIKES ATTACHED.
COLLAPSE OF STRUCTURE/TRAIN DERAILMENT DUE TO TRAIN STRIKING THE BRIDGE	D*	SELECTION OF GEOMETRY TO ENSURE STRUCTURE GAUGE AND ALLOWANCE FOR FUTURE TRACK RE-ALIGNMENT

NOTE: C = CONSTRUCTION, D = DESIGN, O = OPERATION, D* = SCHEME DESIGN

NOTES

REV	DATE	DESCRIPTION	DES	C'KD
B	APR 10	EUROCODE ISSUE	MK	AGW
A	APR 10	FIRST ISSUE	MK	AGW
P1	29.07.09	DRAFT FORM B ISSUE	MK	AGW

Rev	Date	Description of revision	Design'd	C'kd

Network Rail Infrastructure Ltd
Registered Office:
Kings Place
90 York Way
London
N1 9AG

Approved	Paul Clark	Snr. Proj. Eng. Manager Infrastructure Investment Building and Civils	P.C.	APR 10
	Name	Position	Signature	Date

Master copy with original signatures held by Network Rail HQ
CIVIL ENGINEERING STANDARD DESIGN
© COPYRIGHT NETWORK RAIL 2009

UNDERBRIDGE
ANCILLARY ITEM DRAWINGS

GENERAL NOTES AND
H&S RISK REGISTER

Scale: AS SHOWN

Drawing Number: NR/CIV/SD/1801 B

Documents
Document Sharing Hub

Licensee=Weston Williamson/5989497001, User=sam, albett
Not for Resale, 03/27/2016 21:23:04 MDT

Copyright Network Rail
Provided by IHS under license with Network Rail
No reproduction or networking permitted without license from IHS