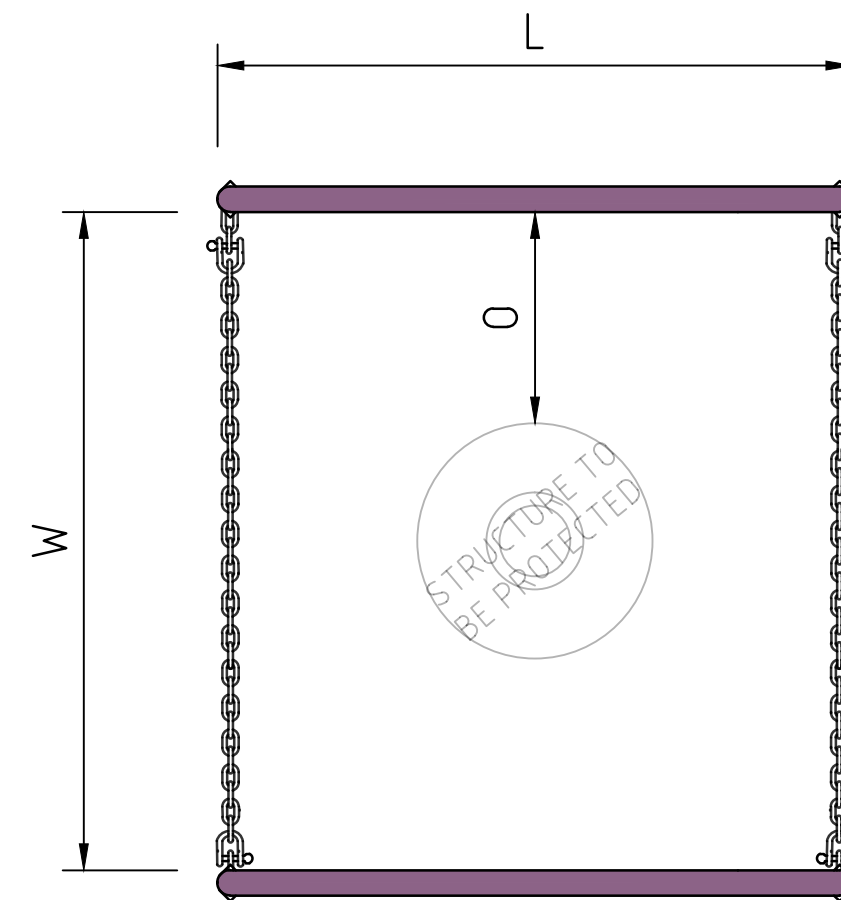


90 mm  $\phi$  BOLLARDS  
PLAN VIEW



48 mm  $\phi$  BOLLARDS  
PLAN VIEW

ITEM LIST

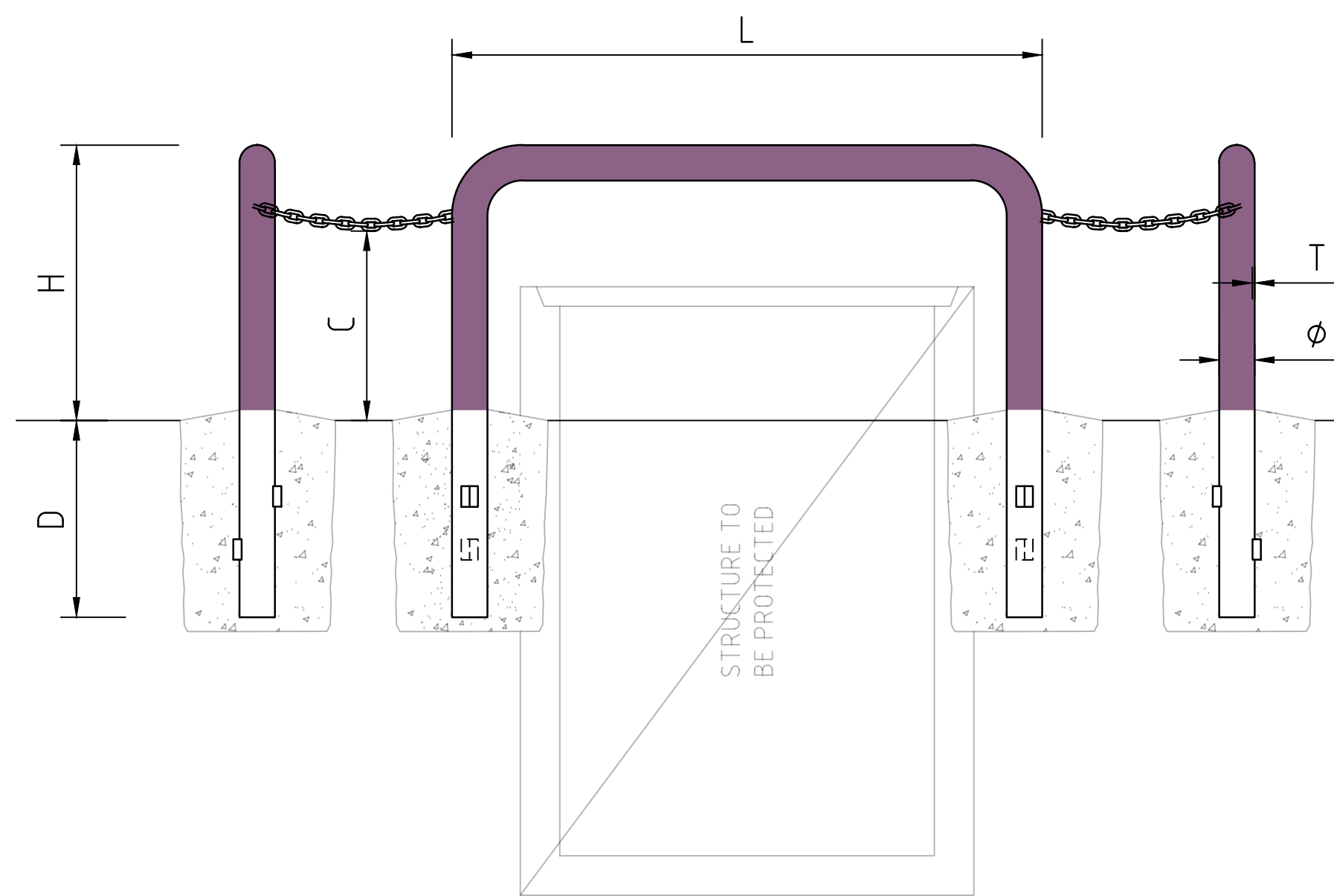
DIM	SIZE (mm)	DESCRIPTION
$\phi$	48 (min)	MINIMUM DIAMETER OF BOLLARD
T	3 (min)	MINIMUM WALL THICKNESS OF BOLLARD
L	1200 (max)	MAXIMUM LENGTH OF BOLLARD RAIL
H	700 (min)	MINIMUM HEIGHT OF BOLLARD ABOVE NSL
D	500 (min)	MINIMUM DEPTH OF POLLARD BELOW NSL
O	400 (min)	MINIMUM OFFSET OF BOLLARDS FROM STRUCTURES
P	300 (min)	MINIMUM CLEARANCE FROM PIPE
W	900 (min)	MINIMUM CLEAR ACCESS AND WORK AREA

48Mmm (min) GALVANISE BOLLARDS TO BE USED WHERE LENGTH (L) DOES NOT EXCEED 1200mm  
(NOT TO BE USED WHERE PROTECTION FROM STOCK IS REQUIRED)

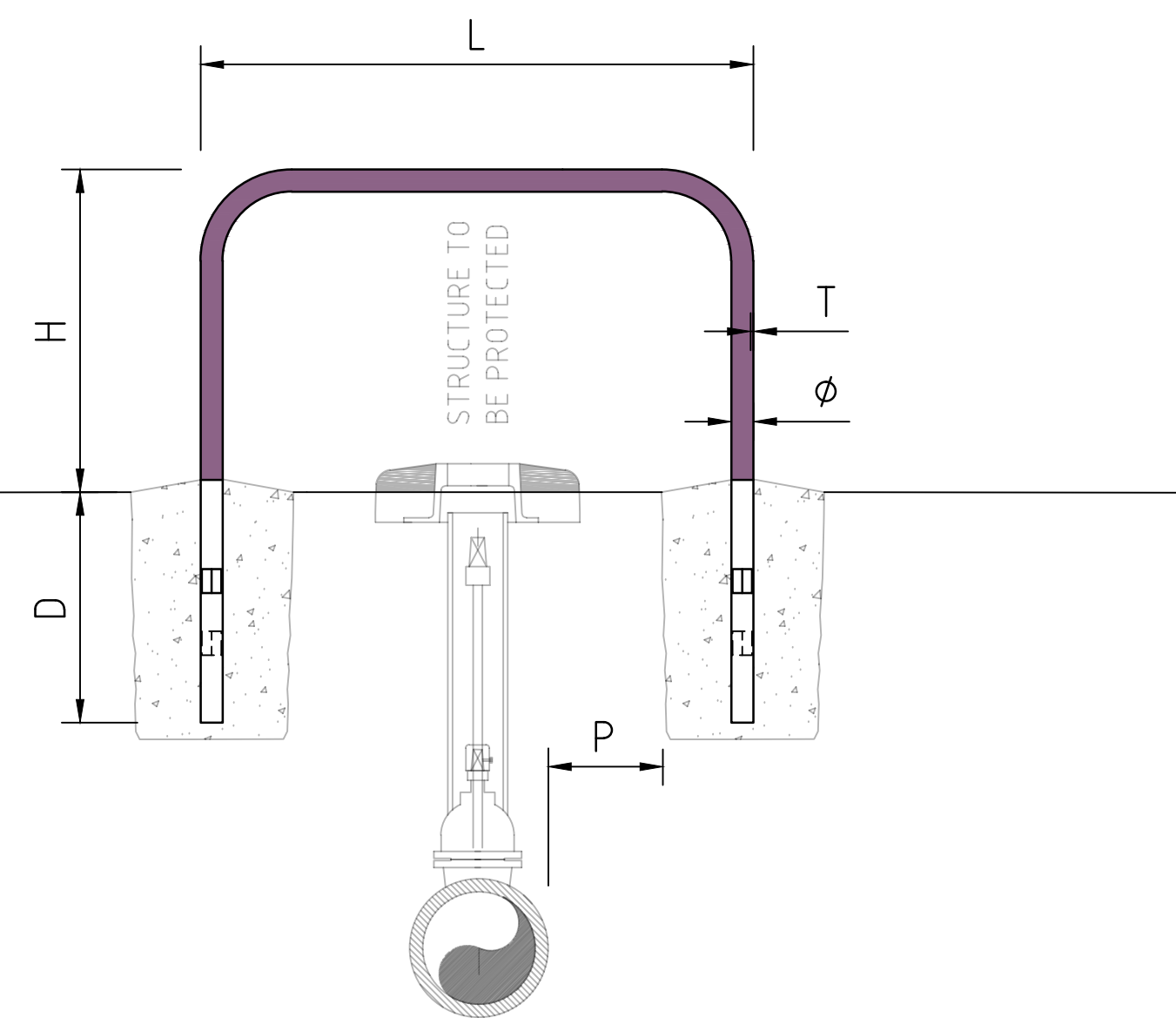
ITEM LIST

DIM	SIZE (mm)	DESCRIPTION
$\phi$	90 (min)	MINIMUM DIAMETER OF BOLLARD
T	5 (min)	MINIMUM WALL THICKNESS OF BOLLARD
L	3000 (max)	MAXIMUM LENGTH OF BOLLARD RAIL
H	700 (min)	MINIMUM HEIGHT OF BOLLARD ABOVE NSL
D	500 (min)	MINIMUM DEPTH OF POLLARD BELOW NSL
O	600 (min)	MINIMUM OFFSET OF BOLLARDS FROM STRUCTURES
C	500 (min)	MINIMUM HIGHT OF CHAIN ABOVE NSL
A	800 (min)	MINIMUM CLEAR OPENING
	800 (min) & 1000(max)	CLEAR OPENING WHERE BOLLARDS ARE TO PROTECT STRUCTURES FROM STOCK AND CHAINS ARE TO BE INSTALLED

90mm (min) GALVANISED BOLLARDS TO BE USED WHERE LENGTH (L) EXCEEDS 1200mm  
OR WHERE PROTECTION FROM STOCK IS REQUIRED



90 mm  $\phi$  BOLLARDS  
ELEVATION



48 mm  $\phi$  BOLLARDS  
ELEVATION

NOTES

- BOLLARDS ARE TO BE CONCRETED INTO A HOLE OF MINIMUM 450mm DIAMETER
  - CONCRETE TO BE 20MPa (min)
  - CONCRETE TO BE BEVELED DOWN FROM POST TO SHED WATER
- BOLLARDS ARE TO HAVE 2x SECURING LUGS ON EACH LEG EVENLY SPACED WITHIN CONCRETED REGION
- BOLLARDS ARE TO BE THE STANDARD CYCLAMEN COLOUR (P 22 TO AS 2700)
- 12mm GALVANISED CHAINS ARE TO BE USED WHERE BOLLARDS ARE REQUIRED TO PROTECT SRUCTURES FROM STOCK
- CHAINS ARE TO BE FIXED TO THE BOLLARDS WITH 12mm GAUGE WELDED RINGS AND AND 12mm GALVANISED D-SHACKLES

CONSTRUCTION ISSUE

				CONSULTANT DETAILS:			DESIGNED: R.D. DATE: 23-6-16 COMPANY: S.W.			TITLE: RECLAIMED WATER MANAGEMENT SCHEME		
							DRAWN: R.D. DATE: 23-6-16 COMPANY: S.W.			REMS 1B		
							CHECKED: J.B. DATE: 23-06-16 COMPANY: S.W.			ABOVE GROUND ASSETS		
							APPROVED: R.H. DATE: 24-06-16 COMPANY: S.W.			TYPICAL BOLLARD PROTECTION ARRANGEMENT		
REVISION DETAILS				CONSULTANT REFERENCE No.			SIZE: A1 SCALE: N.T.S. INDEX No.			DRAWING No. 24066 SHEET 004 REV No. 1		
No.				DWN	DATE							
1	ISSUED FOR CONSTRUCTION			R.D.	13-10-16							
0	ISSUED FOR TENDER			R.D.	24-06-16							