

CONSTRUCTION	DESCRIPTION	DWG No.	CONSTRUCTION	DESCRIPTION	DWG No.
	Bollard Construction Codes	5-11-2-1			
CB -- 1S	100kN Stayed Bollard - Material List	5-11-3-1			
CB -- 1S	100kN Stayed Bollard - Construction	5-11-3-2			
CB -- 1U	100kN Unstayed Bollard - Material List	5-11-4-1			
CB -- 1U	100kN Unstayed Bollard - Construction	5-11-4-2			
CB -- 2S	200kN Stayed Bollard - Material List	5-11-5-1			
CB -- 2S	200kN Stayed Bollard - Construction	5-11-5-2			

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ABN 50 087 646 062

Approved
P DE SOUSA ROQUE

Date
7/08/2013

Checked
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Drawn
K STOLZ

OVERHEAD SUB-TRANSMISSION
BOLLARD CONSTRUCTION
INDEX

DRAWING NUMBER: 5-11-1-1

VOLUME	FOLDER	PAGE	ISSUE
5	11	1-1	0B

SUPERSEDES:

BOLLARD POLES

TYPE

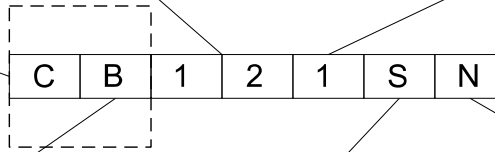
C	Concrete
S	Steel (future)
W	Wood (Future)

LENGTH

1	0	10m
1	2	12m
1	4	14m
1	6	16m

BOLLARD CAPACITY

1	100kN Bollard
2	200kN Bollard



POLE TYPE

B	Bollard
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STAYED

S	Stayed
U	Unstayed

SOIL TYPE

N	Normal soil
B	Black soil

BOLLARD CONSTRUCTION:

Small world object type: Pole

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BOLLARD CONSTRUCTION
CONSTRUCTION CODE GUIDE**

DRAWING NUMBER: 5-11-2-1	VOLUME	FOLDER	PAGE	ISSUE
	5	11	2-1	0B

SUPERSEDES:

MATERIAL

ASSY	DESCRIPTION				
		CB101SN	CB121SN	CB141SNH	CB161SN
1080-1	Reverse back to back stay brackets	1	1	1	1
1150-1	10m x stayed bollard concrete pole	1			
1150-2	12m x stayed bollard concrete pole		1		
1150-3	14m x stayed bollard concrete pole			1	
1150-4	16m x stayed bollard concrete pole				1

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**OVERHEAD SUB-TRANSMISSION
BOLLARD CONSTRUCTION
100kN STAYED BOLLARD
MATERIAL**

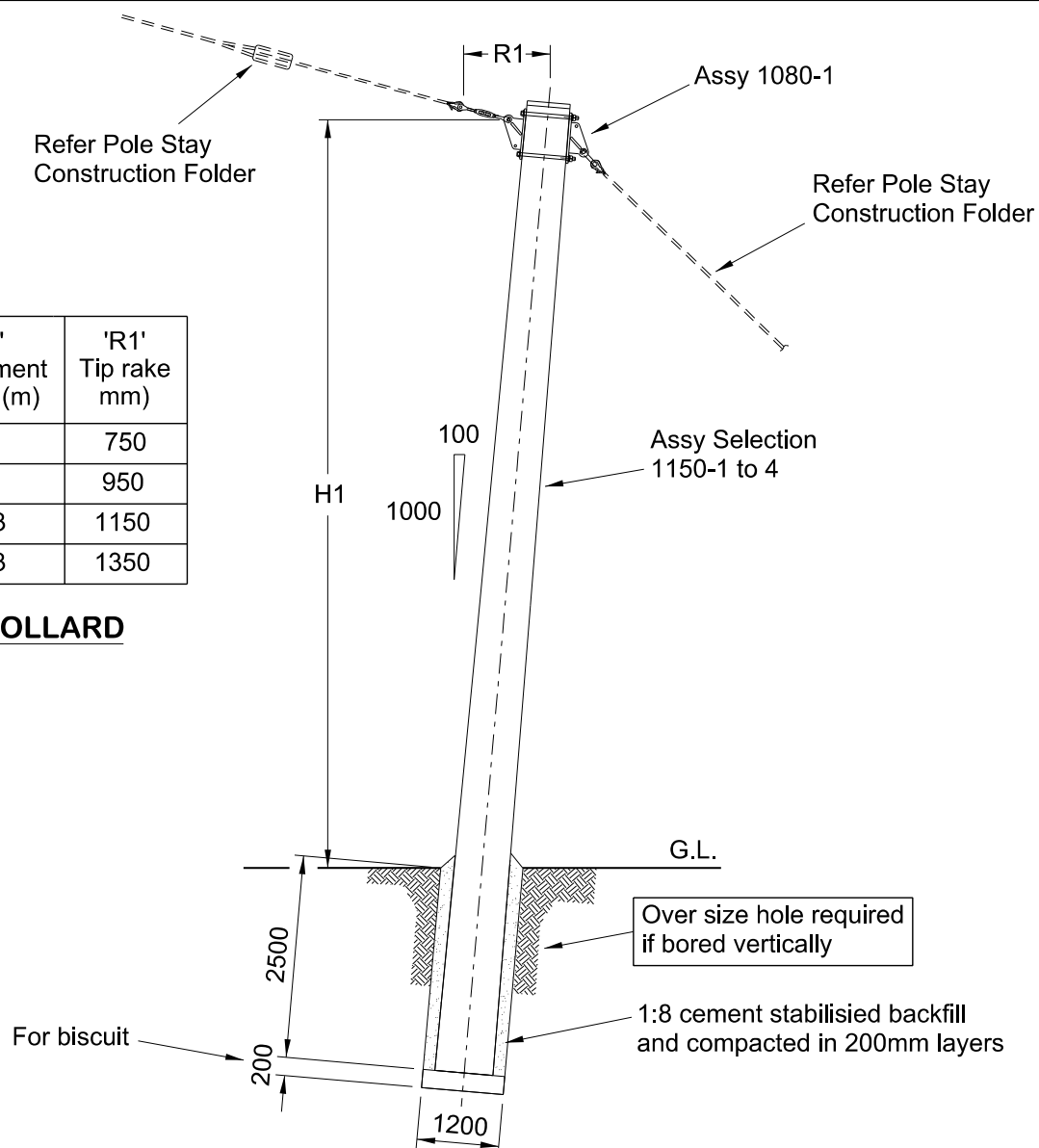
DRAWING NUMBER: 5-11-3-1

VOLUME	FOLDER	PAGE	ISSUE
5	11	3-1	0C

SUPERSEDES:

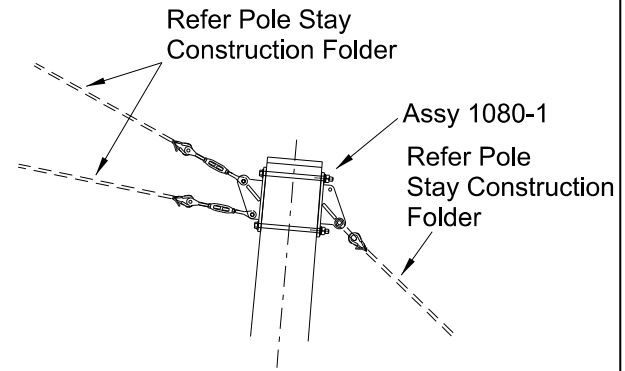
Overall bollard length (m)	'H1' Attachment height (m)	'R1' Tip rake mm
10	7.3	750
12	9.3	950
14	11.3	1150
16	13.3	1350

STAYED BOLLARD



Stayed Bollard

Tip of C6S0L / C6RSDI30kN Pole



Twin Aerial Stay Arrangement

Strength limit state tip capacity determined by number of ground stays

Construction Code

- CB101SN**
- CB121SN**
- CB141SN**
- CB161SN**

Notes

1. Foundation design for cohesive soils with shear strengths of 100kPa or greater

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**OVERHEAD SUB-TRANSMISSION
BOLLARD CONSTRUCTION
100kN STAYED BOLLARD
CONSTRUCTION**

DRAWING NUMBER: 5-11-3-2	VOLUME	FOLDER	PAGE	ISSUE
	5	11	3-2	0C

SUPERSEDES:

MATERIAL

ASSY	DESCRIPTION	CB101UN	CB121UN	CB141UN	CB161UN
1079-8	Stay brackets & backing plate (700)	1			
1079-7	Stay brackets & backing plate (650)		1	1	
1079-6	Stay brackets & backing plate (600)				1
1151-1	10m x unstayed bollard concrete pole	1			
1151-2	12m x unstayed bollard concrete pole		1		
1151-3	14m x unstayed bollard concrete pole			1	
1151-4	16m x unstayed bollard concrete pole				1

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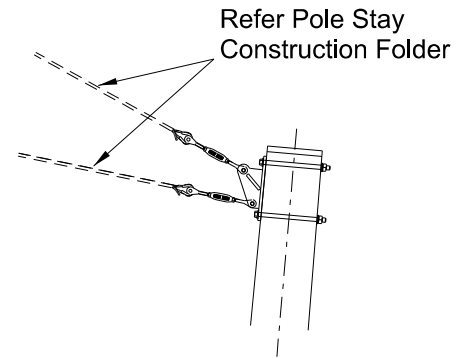
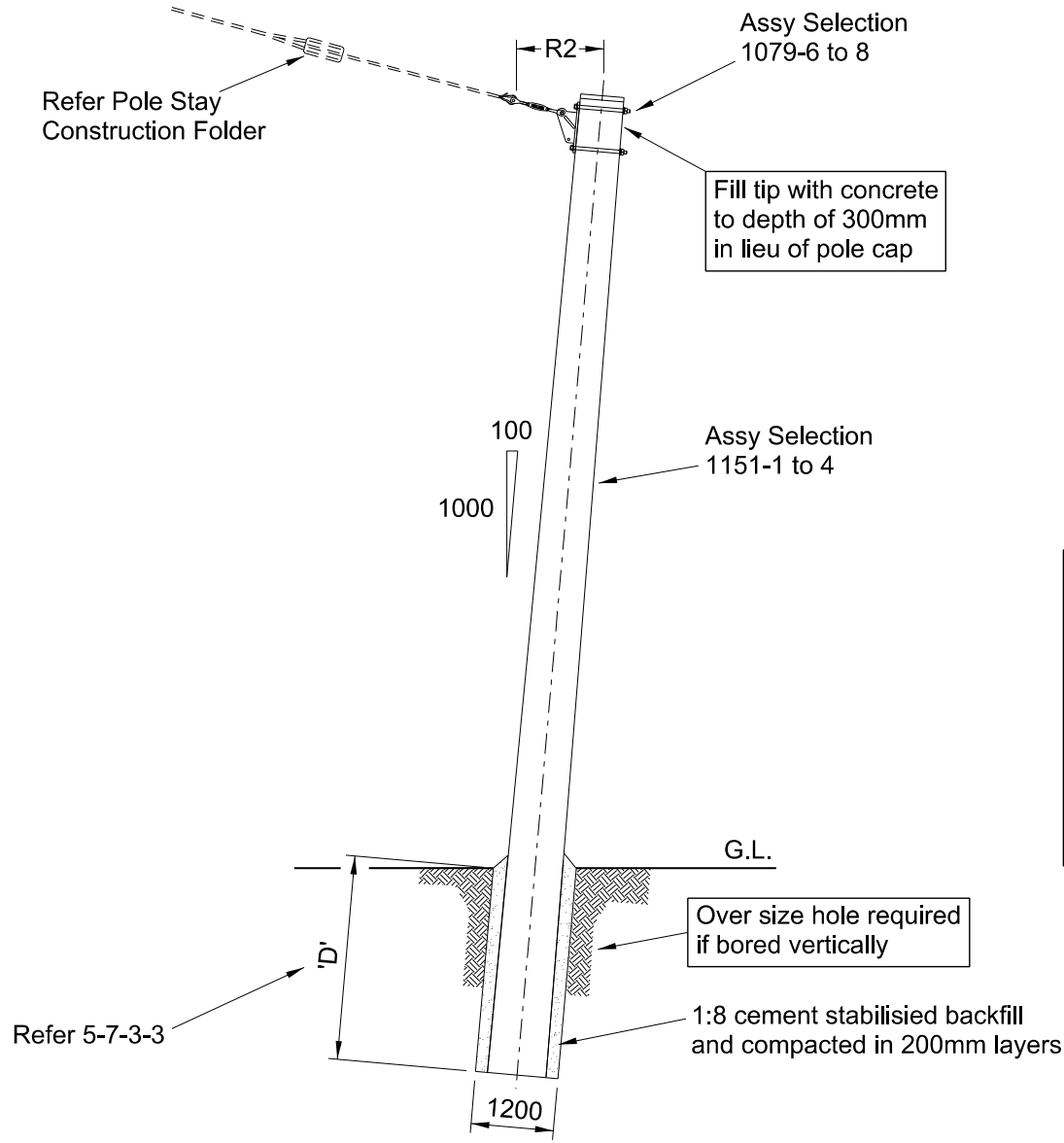
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K STOLZ

**OVERHEAD SUB-TRANSMISSION
BOLLARD CONSTRUCTION
100kN UNSTAYED BOLLARD
MATERIAL**

DRAWING NUMBER: 5-11-4-1

VOLUME	FOLDER	PAGE	ISSUE
5	11	4-1	0C

SUPERSEDES:



Twin Aerial Stay Arrangement

Overall bollard length 'L' (m)	'T' Tip Ø (mm)	'R2' Tip rake (mm)
10	435	610
12	465	770
14	465	930
16	495	1090

Unstayed Bollard
Base of 80kN Pole

Construction Code
CB101UN
CB121UN
CB141UN
CB161UN

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A JOHNSTON

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BOLLARD CONSTRUCTION
100kN UNSTAYED BOLLARD
CONSTRUCTION

DRAWING NUMBER: 5-11-4-2	VOLUME	FOLDER	PAGE	ISSUE
	5	11	4-2	0C

SUPERSEDES:

MATERIAL

ASSY	DESCRIPTION	CB102SN	CB122SN	CB142SN	CB162SN
1080-1	Reverse back to back stay brackets	1	1	1	1
1150-1	10m x stayed bollard concrete pole	1			
1150-2	12m x stayed bollard concrete pole		1		
1150-3	14m x stayed bollard concrete pole			1	
1150-4	16m x stayed bollard concrete pole				1

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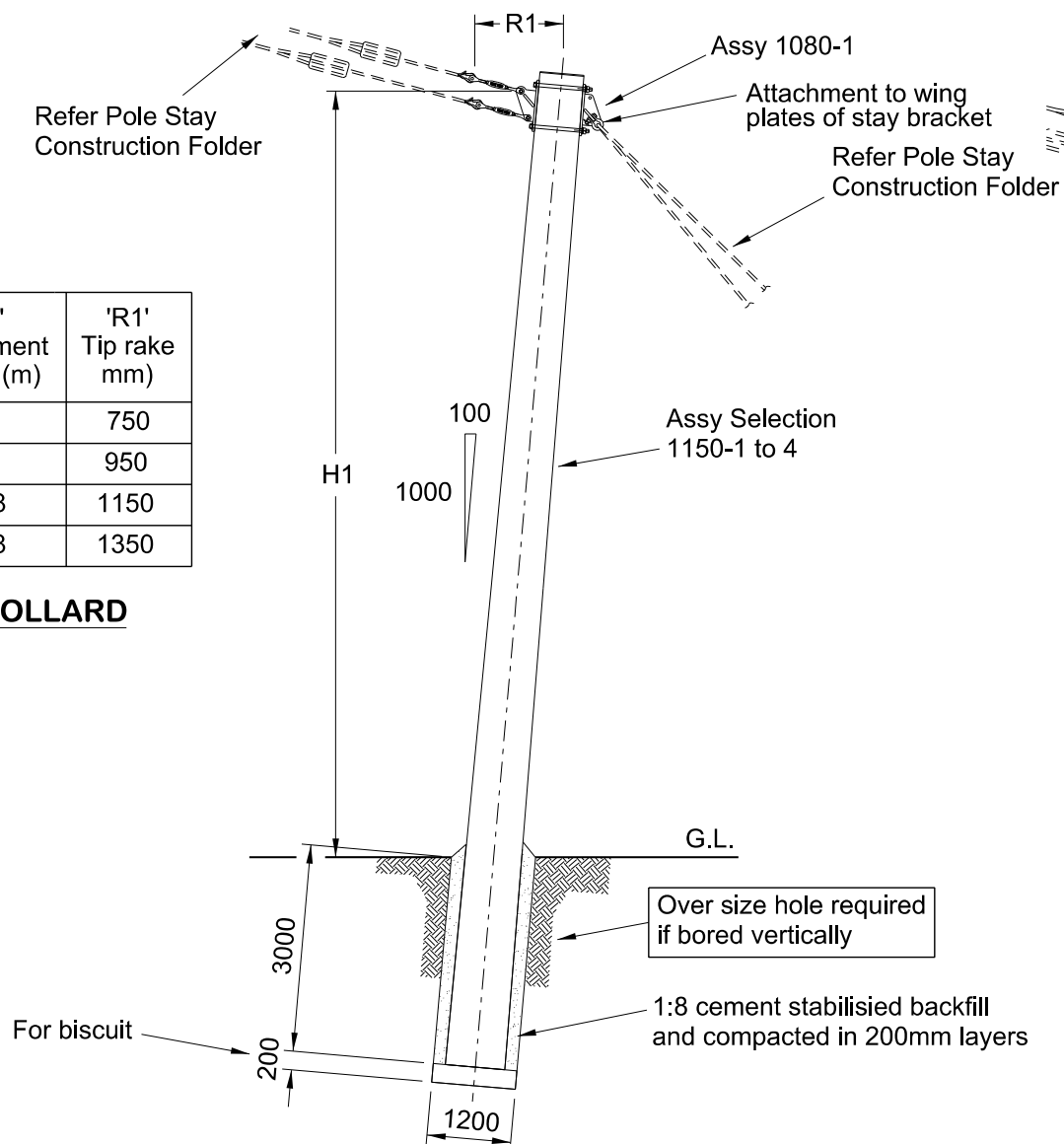
**OVERHEAD SUB-TRANSMISSION
BOLLARD CONSTRUCTION
200kN STAYED BOLLARD
MATERIAL**

DRAWING NUMBER: 5-11-5-1	VOLUME	FOLDER	PAGE	ISSUE
	5	11	5-1	0A

SUPERSEDES:

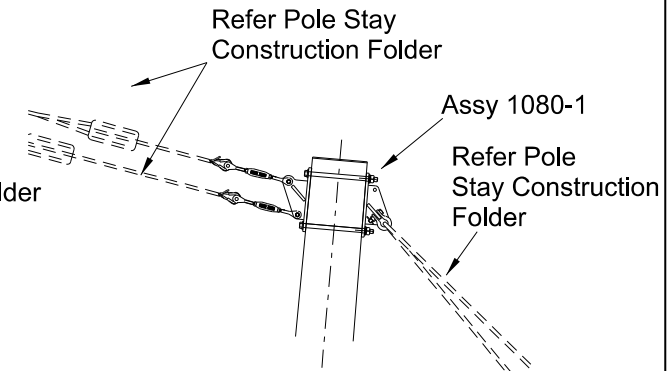
Overall bollard length (m)	'H1' Attachment height (m)	'R1' Tip rake mm
10	6.8	750
12	8.8	950
14	10.8	1150
16	12.8	1350

STAYED BOLLARD



Stayed Bollard

Tip of C6S0L / C6RSDI30kN Pole



Twin Aerial Stay Arrangement

Strength limit state tip capacity determined by number of ground stays

Notes

1. Foundation design for cohesive soils with shear strengths of 100kPa or greater

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- CB122SN**
- CB142SN**
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BOLLARD CONSTRUCTION
200kN STAYED BOLLARD
CONSTRUCTION**

DRAWING NUMBER: 5-11-5-2	VOLUME	FOLDER	PAGE	ISSUE
	5	11	5-2	0A

SUPERSEDES: