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TEST REPORT

REPORT NO.: 2012CB5789

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Applicant

WINABUMI SDN BHD

Batu 7, Jalan Tuaran

89357 Inanam, Kota Kinabalu

Sabah

Manufacturer.

: WINABUMI SDN BHD

Product

Prestressed Spun Concrete Pole

Reference Standard/

JIS A 5309: 1992,

Method of test

Prestressed Spun Concrete Poles

Description of sample

: Four (4) numbers of Prestressed Spun Concrete Poles were tested at

manufacturer's premise in Kota Kinabalu, Sabah.

Type: a) 7.5 m - 10 - 1.1 kN (1 no's)

Construc

b) 9.0 m - 14 - 2.0 kN (1 no's)

c) 10.0 m - 19 - 5.0 kN (1 no's) d) 10.0 m - 19 - 8.4 kN (1 no's)

Date received

: 20th September 2012

Job no./Ref. no.

J20121265789/SQAS/CCST/T.REC/CSL/07

Issued date

1 6 OCT 2012

Approved Signatories

(HANON NAZIR MOHD BASIR)

Senior Technical Executive

YM RAJA NOR SIHA RAJA ABD. HANAN)

Head

Civil & Construction Section Testing Services Department

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TEST RESULTS:

Product

: Prestressed Spun Concrete Pole

Type

: 7.5 m - 10 -1.1 kN

Method of Test

: JIS A 5309: 1992, Prestressed Spun Concrete Poles

Date of Testing

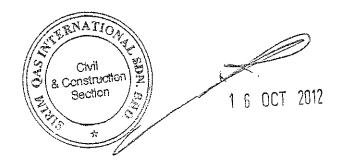
: 08.10.2012

Date of Production

: 10.09.2012

Pole No

| Clauses | Specification /Requirements | Test Results | Remark |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|----------|
| 2.0 | Classification | Class 1 | Complied |
| 3.0 | Quality | | |
| 3.1 | Appearance | | |
| | The pole shall be free from the defects, such as harmful flaws and cracks and have a smooth surface. | Satisfactory | Complied |
| | (1) Design Load Test | | |
| | When the design load 112 kgf is applied, no cracks exceeding 0.25 mm in width shall be generated. When the design load is removed, no cracks exceeding 0.05 mm. | Cracks width 0.02 mm was observed at design load and no crack was observed after removal of the load. | Complied |
| | (2) Breaking Load Test | | |
| | Breaking load of Class 1 poles shall be not less than 2 times the design load: 224 kgf. | The pole withstood a load of 285 kgf. | Complied |
| 4.0 | Shapes, dimension & dimensional tolerance | | |
| 4.1 | Shapes | Hollow frustrum | Complied |



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TEST RESULTS:

Product

: Prestressed Spun Concrete Pole

Type

: 7.5 m - 10 - 1.1 kN

Method of Test

: JIS A 5309: 1992, Prestressed Spun Concrete Poles

Date of Testing

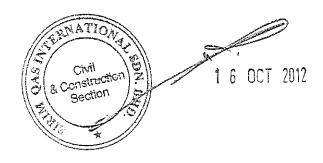
: 08.10.2012

Date of Production

: 10.09.2012

Pole No

| Clauses | Specification /Requirements | Test Results | Remark |
|------------|------------------------------------------------------------------------------------------------------------------|-----------------------|----------|
| 4.2 | Dimensions & dimensional tolerance Dimensional Tolerances Outside diameter: + 4 mm | Top Diameter : 0 mm | Complied |
| | - 2 mm | Bottom Diameter: 0 mm | Complied |
| | Length: +50 mm - 2 mm | Length: +5 mm | Complied |
| 6.0 6.1 | Manufacture (1) PC Steel and Reinforcements a) P.C Wire: PC Wire Diameter: | 5.0 | |
| | No. of PC Steel: | 5.0 mm 6 numbers | |
| | b) R.E Wire: RE Wire Diameter: No. of RE Steel: | 6.0 mm 4 numbers | |
| | (3) Spiral Diameter: Not smaller than 2.7mm Spiral Interval: Not larger than 150 mm | 2.7 mm 100 mm | Complied |
| | 4) Concrete Cover: Not smaller than 9 mm and not smaller than the diameters of the PC steels and reinforcements. | 13.5 mm | Complied |



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TEST RESULTS:

Product

: Prestressed Spun Concrete Pole

Type

: 9.0 m - 14 - 2.0 kN

Method of Test

: JIS A 5309: 1992, Prestressed Spun Concrete Poles

Date of Testing

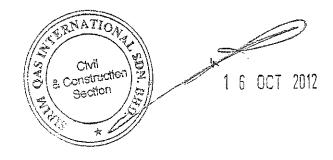
: 08102.2012

Date of Production

: 10.09.2012

Pole No

| Clauses | Specification /Requirements | Test Results | Remark |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|----------|
| 2.0 | Classification | Class 1 | Complied |
| 3.0 | Quality | | |
| 3.1 | Appearance | | |
| | The pole shall be free from the defects, such as harmful flaws and cracks and have a smooth surface. | Satisfactory | Complied |
| | (1) Design Load Test | | |
| | When the design load 200 kgf is applied, no cracks exceeding 0.25 mm in width shall be generated. When the design load is removed, no cracks exceeding 0.05 mm. | Cracks width 0.04 mm was observed at design load and no crack was observed after removal of the load. | Complied |
| | (2) Breaking Load Test | wio loddi | |
| | Breaking load of Class 1 poles shall be not less than 2 times the design load: 400 kgf . | The pole withstood a load of 540 kgf. | Complied |
| 4.0 | Shapes, dimension & dimensional tolerance | | |
| 4.1 | Shapes | Hollow frustrum | Complied |



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TEST RESULTS:

Product

: Prestressed Spun Concrete Pole

Type

: 9.0 m - 14 - 2.0 kN

Method of Test

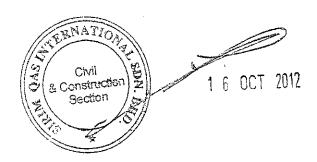
: JIS A 5309: 1992, Prestressed Spun Concrete Poles

Date of Testing Date of Production : 08102.2012

: 10.09.2012

Pole No

| Clauses | Specification /Requirements | Test Results | Remark |
|---------|------------------------------------------------------------------------------------------------------------------|-----------------------|----------|
| 4.2 | Dimensions & dimensional tolerance Dimensional Tolerances Outside diameter: + 4 mm | Top Diameter : + 1 mm | Complied |
| | - 2 mm | Bottom Diameter: 0 mm | Complied |
| | Length: + 50 mm - 2 mm | Length: +8 mm | Complied |
| 6.0 | Manufacture | | |
| 6.1 | (1) PC Steel and Reinforcements | | |
| | a) P.C Wire: | | |
| | PC Wire Diameter: | 5.0 mm | |
| | No. of PC Steel: | 6 numbers | |
| | b) R.E Wire: | | : |
| | RE Wire Diameter: | 6.0 mm | |
| | No. of RE Steel: | 8 numbers | |
| | (3) Spiral Diameter: Not smaller than 2.7mm Spiral Interval: Not larger than 150 mm | 2.7 mm 140 mm | Complied |
| : | Sphar micryar. Not larger than 150 him | | |
| | 4) Concrete Cover: Not smaller than 9 mm and not smaller than the diameters of the PC steels and reinforcements. | 13.5 mm | Complied |



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TEST RESULTS:

Product

: Prestressed Spun Concrete Pole

Type

: 10.0 m - 19 - 5.0 kN

Method of Test

: JIS A 5309: 1992, Prestressed Spun Concrete Poles

Date of Testing

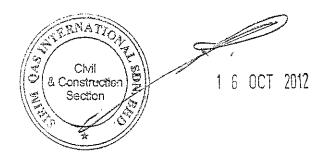
: 08.10.2012

Date of Production

: 10.09.2012

Pole No

| Clauses | Specification /Requirements | Test Results | Remark |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|----------|
| 2.0 | Classification | Class 1 | Complied |
| 3.0 | Quality | | |
| 3.1 | Appearance | | |
| | The pole shall be free from the defects, such as harmful flaws and cracks and have a smooth surface. | Satisfactory | Complied |
| | (1) Design Load Test | | |
| | When the design load 500 kgf is applied, no cracks exceeding 0.25 mm in width shall be generated. When the design load is removed, no cracks exceeding 0.05 mm. | No crack was observed at design load and upon removal of the load. | Complied |
| | (2) Breaking Load Test | | |
| | Breaking load of Class 1 poles shall be not less than 2 times the design load: 1000 kgf. | The pole withstood a load of 1290 kgf. | Complied |
| 4.0 | Shapes, dimension & dimensional tolerance | | |
| 4.1 | Shapes | Hollow frustrum | Complied |



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TEST RESULTS:

Product

: Prestressed Spun Concrete Pole

Type

: 10.0 m - 19 - 5.0 kN

Method of Test

: JIS A 5309: 1992, Prestressed Spun Concrete Poles

Date of Testing

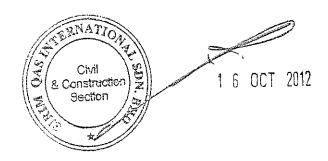
: 08.10.2012

Date of Production

: 10.09.2012

Pole No

| Clauses | Specification /Requirements | Test Results | Remark |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|----------------------|
| 4.2 | Dimensions & dimensional tolerance Dimensional Tolerances Outside diameter: + 4 mm - 2 mm | Top Diameter : 0 mm Bottom Diameter: 0 mm | Complied Complied |
| | Length: +50 mm - 2 mm | Length: +3 mm | Complied |
| 6.0 6.1 | Manufacture (1) PC Steel and Reinforcements a) P.C Wire: PC Wire Diameter: No. of PC Steel: | 7.0 mm 12 numbers | |
| | b) R.E Wire: RE Wire Diameter: No. of RE Steel: (3) Spiral Diameter: Not smaller than 2.7mm Spiral Interval: Not larger than 150 mm | 9.0 mm 8 numbers 2.7 mm 140 mm | Complied |
| | 4) Concrete Cover: Not smaller than 9 mm and not smaller than the diameters of the PC steels and reinforcements. | 13.7 mm | Complied |



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TEST RESULTS:

Product

: Prestressed Spun Concrete Pole

Type

: 10.0 m - 19 - 8.4 kN

Method of Test

: JIS A 5309: 1992, Prestressed Spun Concrete Poles

Date of Testing

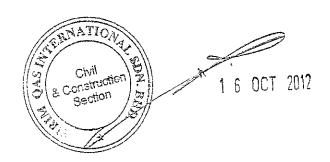
: 08.10.2012

Date of Production

: 10.09.2012

Pole No

| Clauses | Specification /Requirements | Test Results | Remark |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|----------|
| 2.0 | Classification | Class 1 | Complied |
| 3.0 | Quality | | |
| 3.1 | Appearance | | |
| | The pole shall be free from the defects, such as harmful flaws and cracks and have a smooth surface. | Satisfactory | Complied |
| | (1) Design Load Test | | |
| | When the design load 840 kgf is applied, no cracks exceeding 0.25 mm in width shall be generated. When the design load is removed, no cracks exceeding 0.05 mm. | Cracks width 0.01 mm was observed at design load and no crack was observed after removal of the load | Complied |
| | (2) Breaking Load Test | | |
| | Breaking load of Class 1 poles shall be not less than 2 times the design load: 1680 kgf. | The pole withstood a load of 1760 kgf. | Complied |
| 4.0 | Shapes, dimension & dimensional tolerance | | |
| 4.1 | Shapes | Hollow frustrum | Complied |



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TEST RESULTS:

Product

: Prestressed Spun Concrete Pole

Type

: 10.0 m - 19 - 8.4 kN

Method of Test

: JIS A 5309: 1992, Prestressed Spun Concrete Poles

Date of Testing

: 08.10.2012

Date of Production

: 10.09.2012

Pole No

| Clauses | Specification /Requirements | Test Results | Remark |
|------------|------------------------------------------------------------------------------------------------------------------|----------------------------------------------|----------------------|
| 4.2 | Dimensions & dimensional tolerance Dimensional Tolerances | | |
| | Outside diameter: +4 mm -2 mm | Top Diameter : 0 mm Bottom Diameter: 0 mm | Complied Complied |
| | Length: +50 mm - 2 mm | Length: +2 mm | Complied |
| 6.0 6.1 | Manufacture (1) PC Steel and Reinforcements a) P.C Wire: PC Wire Diameter: No. of PC Steel: | 7.0 mm 16 numbers | |
| | b) R.E Wire: RE Wire Diameter: No. of RE Steel: (3) Spiral Diameter: Not smaller than 2.7mm | 9.0 mm 16 numbers 3.0 mm | Complied |
| | Spiral Interval: Not larger than 150 mm | 140 mm | |
| | 4) Concrete Cover: Not smaller than 9 mm and not smaller than the diameters of the PC steels and reinforcements. | 13.6 mm | Complied |

