



CHAND ENGINEERING CONSULTANTS LTD.

CONSULTING ENGINEERS & PROJECT MANAGERS

**CYCLONE WINSTON PRELIMINARY ASSESSMENT
SCHOOLS, HEALTH FACILITIES AND PUBLIC BUILDINGS
FOR
FIJI INSTITUTION OF ENGINEERS &
DEPARTMENT OF NATIONAL PLANNING
(MINISTRY OF FINANCE)**



NAME OF FACILITY: Nailuva District School
TYPE: Primary School
LOCATION: Rakiraki
DATE OF ASSESSMENT: 22 March 2016

JOB NO: 16-110
GOVERNMENT FACILITY NUMBER: GFN-120

**RAPID ASSESSMENT TEMPLATE: CYCLONE WINSTON DAMAGED BUILDINGS
SCHOOLS, PUBLIC BUILDINGS & HEALTH FACILITIES**

INSPECTOR: AAC/ AAD/ RK
FIRM/COMPANY: CHAND ENGINEERING CONSULTANTS LIMITED

GENERAL INFORMATION

Building Name: Nailuva District School
Type: School Block
Location: Nailuva, Rakiraki
No. of Buildings: 4
Ariel Plan Available: ~~YES~~ / NO

Extent of Damage Rating Description

1	Minor/Cosmetic/Water
2	Some Damage
3	Extensive but Repairable
4	Irreparable

Types of Buildings

- School Block
- Staff Quarters
- Toilet Block
- Utility Building (FEA, Services, etc)
- Divisional Hospital
- Sub-Divisional Hospital
- Health Centre
- Nursing Station
- Public Building or Facility

REPORT

Page No. : 1
Building No. : 1
Building Approx Age: 60 years + (established 1955)
No. of Storeys: 1

EVALUATION

Type of Construction	Description	Build Quality	Damage	Extent of Damage Rating	Photo No.
Floor	new blocks have reinforced concrete slab on ground and old blocks have timber floor.	1 Good 2 Average 3 Poor	100% damage on old blocks.	4	N/A
Foundations	old block is on concrete piles and the new block is not visible.	1 Good 2 Average 3 Poor	No visible damage (concealed) for the new block. Signs of cracks and rust on concrete timber piles.	4	1
Walls	150mm blockwall for the new blocks and with corrugated cladding for the old block.	1 Good 2 Average 3 Poor	100% damage on old blocks.	4	2,3,4
Rafters	100x50 timber rafter	1 Good 2 Average 3 Poor	100% damage on old blocks.	4	N/A
Purlins	75x50 timber purlins	1 Good 2 Average 3 Poor	100% damage on old blocks.	4	N/A
Roof	corrugated roof cladding	1 Good 2 Average 3 Poor	100% damage on old blocks.	4	2
Electrical	typical standard switches, GPO's and fluorescent tubelights and bulbs.	1 Good 2 Average 3 Poor	100% damage on old blocks.	4	N/A
Hydraulics	None	1 Good 2 Average 3 Poor	N/A	N/A	
Windows/Doors	louver windows on standard carriers typically for all windows and timber doors.	1 Good 2 Average 3 Poor	100% damage on old blocks.	2	N/A
Shutters	50 x 50mm mesh observed for a few windows - no shutters also observed to a few windows	1 Good 2 Average 3 Poor	100% damage on old blocks.	4	2,3,5
Ceilings	Ply board ceiling typically throughout- 80% of the ceiling blown out and the remainin of the ceiling is water damaged-painted for the old block	1 Good 2 Average 3 Poor	100% damage on old blocks.	4	5
Terraces/Verandah	wooden floor with 100mm x 50mm timber post and 100% of the roof is blown out for the old building verandah.	1 Good 2 Average 3 Poor	100% damage on old blocks.	4	3,4
Tiles/Floor Covering	Concrete plaster	1 Good 2 Average 3 Poor	100% damage on old blocks.	4	N/A
Gutters	Standard PVC gutters with proprietary PVC straps fixed to the outside of the gutter.	1 Good 2 Average 3 Poor	100% damage on old blocks. 50% damage in the new block	4	2,3,4
Downpipes	100mm PVC downpipes with PVC straps fixed to the columns at 9m crs.	1 Good 2 Average 3 Poor	100% damage on old blocks. 50% damage in the new block	4	2,3,4
Fascia Boards	250x30mm timber fascia board.	1 Good 2 Average 3 Poor	100% damage on old blocks.	4	2,3,4
Furniture/Desks etc.		1 Good 2 Average 3 Poor			
Possible Intermediate Solution	Demolish the timber blocks and re-construct the whole building in accordance to the NBCF.				
Possible Long Term Solution	N/A				

Damage Assessment (\$) \$300,000.00 Intermediate
Basis of Calculation Engineers Estimate-TBC (note can be QS assisted)

FEES ESTIMATE:

Design/Documentation: TBC
Tender/Approval: TBC
Inspection/End Construction: TBC

**RAPID ASSESSMENT TEMPLATE: CYCLONE WINSTON DAMAGED BUILDINGS
SCHOOLS, PUBLIC BUILDINGS & HEALTH FACILITIES**

INSPECTOR: AAC/ AAD/ RK
FIRM/COMPANY: CHAND ENGINEERING CONSULTANTS LIMITED

GENERAL INFORMATION

Building Name: Nailuva District School
Type: Staff Quarters
Location: Nailuva, Rakiraki
No. of Buildings: 9
Ariel Plan Available: YES / NO

REPORT

Page No. : 2
Building No. : 2
Building Approx Age: 60 years + (established 1955)
No. of Storeys: 1

Extent of Damage Rating Description

1	Minor/Cosmetic/Water
2	Some Damage
3	Extensive but Repairable
4	Irreparable

Types of Buildings

- School Block
- Staff Quarters
- Toilet Block
- Utility Building (FEA, Services, etc)
- Divisional Hospital
- Sub-Divisional Hospital
- Health Centre
- Nursing Station
- Public Building or Facility

EVALUATION

Type of Construction	Description	Build Quality		Damage	Extent of Damage Rating	Photo No.
Floor	new quarters have reinforced concrete slab on ground and old quarters is on timber floor	1 2 3	Good Average Poor	2 quarters 100% damaged	4	7
Foundations	old quarters is on concrete piles and the new quarters is not visible.	1 2 3	Good Average Poor	No visible damage -concealed 2 quarters 100% damaged	4	7
Walls	150mm blockwall for the new quarters and with corrugated cladding for the old quarters	1 2 3	Good Average Poor	2 quarters 100% damaged	4	6,7
Rafters	100x50 timber rafter	1 2 3	Good Average Poor	2 quarters 100% damaged	4	N/A
Purlins	75x50 timber purlins	1 2 3	Good Average Poor	2 quarters 100% damaged	4	N/A
Roof	corrugated roof cladding	1 2 3	Good Average Poor	2 quarters 100% damaged with roof blown out for some	4	7
Electrical	typical standard switches, GPO's and fluorescent tubelights and bulbs.	1 2 3	Good Average Poor	2 quarters 100% damaged	4	N/A
Hydraulics	None	1 2 3	Good Average Poor	N/A	N/A	N/A
Windows/Doors	louver windows on standard carriers typically for all windows and timber doors.	1 2 3	Good Average Poor	2 quarters 100% damaged	2	6,7
Shutters	50 x 50mm mesh observed for a few windows - no shutters also observed to a few windows	1 2 3	Good Average Poor	2 quarters 100% damaged	4	6,7
Ceilings	Ply board ceiling typically throughout- 80% of the ceiling blown out and the remainin of the ceiling is water damaged-painted for the old block	1 2 3	Good Average Poor	2 quarters 100% damaged	4	N/A
Terraces/Verandah	wooden floor with 100mm x 50mm timber post and 100% of the roof is blown out for the old building verandah.	1 2 3	Good Average Poor	2 quarters 100% damaged	4	N/A
Tiles/Floor Covering	Concrete plaster	1 2 3	Good Average Poor	2 quarters 100% damaged	4	N/A
Gutters	Standard PVC gutters with proprietary PVC straps fixed to the outside of the gutter.	1 2 3	Good Average Poor	2 quarters 100% damaged 50% damage in the new block	4	6,7
Downpipes	100mm PVC downpipes with PVC straps fixed to the columns at 9m crs.	1 2 3	Good Average Poor	2 quarters 100% damaged 50% damage in the new block	4	6,7
Fascia Boards	250x30mm timber fascia board.	1 2 3	Good Average Poor	2 quarters 100% damaged	4	6,7
Furniture/Desks etc.		1 2 3	Good Average Poor			
Possible Intermediate Solution	Demolish the timber blocks and re-construct the whole building in accordance to the NBCF with new roof trusses, walls, foundation, purlins, gutters, downpipes, fascia. Damaged buildings to have new flashings, fascia, gutterings, downpipes.					
Possible Long Term Solution	N/A					

Damage Assessment (\$) \$100,000.00 Intermediate
Basis of Calculation Engineers Estimate-TBC (note can be QS assisted)

FEES ESTIMATE:

Design/Documentation: TBC
Tender/Approval: TBC
Inspection/End Construction: TBC

**RAPID ASSESSMENT TEMPLATE: CYCLONE WINSTON DAMAGED BUILDINGS
SCHOOLS, PUBLIC BUILDINGS & HEALTH FACILITIES**

INSPECTOR: AAC/ AAD/ RK
FIRM/COMPANY: CHAND ENGINEERING CONSULTANTS LIMITED

GENERAL INFORMATION

Building Name: Nailuva District School
Type: Toilet Block
Location: Nailuva, Rakiraki
No. of Buildings: 2
Ariel Plan Available: ~~YES~~ / NO

REPORT

Page No. : _____ 3
Building No. : _____ 3
Building Approx Age: _____ 60 years + (established 1955)
No. of Storeys: _____ 1

Extent of Damage Rating Description

1	Minor/Cosmetic/Water
2	Some Damage
3	Extensive but Repairable
4	Irreparable

Types of Buildings

- School Block
- Staff Quarters
- Toilet Block
- Utility Building (FEA, Services, etc)
- Divisional Hospital
- Sub-Divisional Hospital
- Health Centre
- Nursing Station
- Public Building or Facility

EVALUATION

Type of Construction	Description	Build Quality	Damage	Extent of Damage Rating	Photo No.
Floor	reinforced concrete slab on ground.	1 Good 2 Average 3 Poor	Cracks observed	4	8
Foundations	Not visible	1 Good 2 Average 3 Poor	Not Visible - concealed	4	N/A
Walls	Not visible	1 Good 2 Average 3 Poor	100% damaged	4	8
Rafters	Not visible	1 Good 2 Average 3 Poor	100% damaged	4	N/A
Purlins	Not visible	1 Good 2 Average 3 Poor	100% damaged	4	N/A
Roof	Not visible	1 Good 2 Average 3 Poor	100% damaged	4	N/A
Electrical	Not visible	1 Good 2 Average 3 Poor	100% damaged	4	N/A
Hydraulics	N/A	1 Good 2 Average 3 Poor	N/A	N/A	N/A
Windows/Doors	Not visible	1 Good 2 Average 3 Poor	100% damaged	4	N/A
Shutters	Not visible	1 Good 2 Average 3 Poor	100% damaged	4	N/A
Ceilings	Not visible	1 Good 2 Average 3 Poor	100% damaged	4	N/A
Terraces/Verandah	Not visible	1 Good 2 Average 3 Poor	100% damaged	4	N/A
Tiles/Floor Covering	Not visible	1 Good 2 Average 3 Poor	100% damaged	4	N/A
Gutters	Not visible	1 Good 2 Average 3 Poor	100% damaged	4	N/A
Downpipes	Not visible	1 Good 2 Average 3 Poor	100% damaged	4	N/A
Fascia Boards	Not visible	1 Good 2 Average 3 Poor	100% damaged	4	N/A
Furniture/Desks etc.		1 Good 2 Average 3 Poor			
Possible Intermediate Solution	Re-construct the whole of the toilet block in accordance to the NBCF.				
Possible Long Term Solution	N/A				

Damage Assessment (\$) \$25,000.00 Intermediate
Basis of Calculation Engineers Estimate-TBC (note can be QS assisted)

FEES ESTIMATE:

Design/Documentation: TBC
Tender/Approval: TBC
Inspection/End Construction: TBC

**RAPID ASSESSMENT TEMPLATE: CYCLONE WINSTON DAMAGED BUILDINGS
SCHOOLS, PUBLIC BUILDINGS & HEALTH FACILITIES**

INSPECTOR: AAC/ AAD/ RK
FIRM/COMPANY: CHAND ENGINEERING CONSULTANTS LIMITED

GENERAL INFORMATION

Building Name: Nailuva District School
Type: Utility Building (Ablution Blocks)
Location: Nailuva, Rakiraki
No. of Buildings: 3
Ariel Plan Available: YES- / NO

REPORT

Page No. : 4
Building No. : 4
Building Approx Age: 60 years + (established 1955)
No. of Storeys: 1

Extent of Damage Rating Description

1	Minor/Cosmetic/Water
2	Some Damage
3	Extensive but Repairable
4	Irreparable

Types of Buildings

School Block
Staff Quarters
Toilet Block
Utility Building (FEA, Services, etc)
Divisional Hospital
Sub-Divisional Hospital
Health Centre
Nursing Station
Public Building or Facility

EVALUATION

Type of Construction	Description	Build Quality			Damage	Extent of Damage Rating	Photo No.
		1	2	3			
Floor	reinforced concrete slab on ground.	1 Good	2 Average	3 Poor	2 old blocks 100% damaged	4	N/A
Foundations	100% damage on 2 old ablution blocks and not visible for the new block	1 Good	2 Average	3 Poor	2 old blocks 100% damaged	4	N/A
Walls	150mm blockwall for the new block and not visible for the 2 old blocks	1 Good	2 Average	3 Poor	2 old blocks 100% damaged	4	N/A
Rafters	100mm x 50mm timber rafter for new block and not visible for the 2 old blocks.	1 Good	2 Average	3 Poor	2 old blocks 100% damaged	4	N/A
Purlins	75mm x 50mm timber purlins for the new block and not visible for the 2 old blocks.	1 Good	2 Average	3 Poor	2 old blocks 100% damaged	4	N/A
Roof	corrugated cladding for the new block and not visible for the 2 old blocks.	1 Good	2 Average	3 Poor	2 old blocks 100% damaged	4	N/A
Electrical	typically standard switches, GPO's and fluorescent tubelights and bulb for the new block and not visible for the 2 old blocks.	1 Good	2 Average	3 Poor	2 old blocks 100% damaged	4	N/A
Hydraulics	N/A	1 Good	2 Average	3 Poor	N/A	N/A	
Windows/Doors	louver windows on standard carriers typically for all windows and timber doors for the new block and not visible for the 2 old blocks.	1 Good	2 Average	3 Poor	2 old blocks 100% damaged	4	N/A
Shutters	50 x 50mm mesh observed for a few windows - no shutters also observed to a few windows	1 Good	2 Average	3 Poor	2 old blocks 100% damaged	4	
Ceilings	Ply board ceiling typically throughout- painted- water damage to the ply and not visible for the 2 old blocks.	1 Good	2 Average	3 Poor	2 old blocks 100% damaged	4	
Terraces/Verandah	typically concrete floor with timber columns supporting the roof structure for the new block and not visible for the 2 old blocks.	1 Good	2 Average	3 Poor	2 old blocks 100% damaged	4	
Tiles/Floor Covering	Concrete plaster for the new block and not visible for the old block	1 Good	2 Average	3 Poor	2 old blocks 100% damaged	4	
Gutters	Standard PVC gutters with proprietary PVC straps fixed to the outside of the gutter for the new block and not visible for the 2 old blocks.	1 Good	2 Average	3 Poor	2 old blocks 100% damaged gutters and downpipes blown out for the new block	4	
Downpipes	Not visible	1 Good	2 Average	3 Poor	2 old blocks 100% damaged gutters and downpipes blown out for the new block	4	
Fascia Boards	250 x 30mm timber fascia board for the old block and not visible for the old blocks.	1 Good	2 Average	3 Poor	2 old blocks 100% damaged	4	
Furniture/Desks etc.		1 Good	2 Average	3 Poor			
Possible Intermediate Solution	Re-construct the whole of the 2 blocks in accordance to the NBCF with new roof trusses, purlins, fascia, gutters, downpipes with gutters strapped for adequate hold down.						
Possible Long Term Solution	Detailed investigation for roof framing recommended along with checks on wall capacity for uplift/lateral loads for more tolerance towards Cat.4. Much dependent upon detailed investigation by an Engineer. Considering the building age and with 2 of the ablution blocks blown out, possibly demolish and re-build all of the ablution blocks to comply with NBCF. Estimated cost currently around \$200,000.00 for all new ablution blocks.						

Damage Assessment (\$) \$100,000.00 Intermediate
Basis of Calculation Engineers Estimate-TBC (note can be QS assisted)

FEES ESTIMATE:

Design/Documentation: TBC
Tender/Approval: TBC
Inspection/End Construction: TBC

**GENERAL DAMAGE
SCHOOLS, PUBLIC BUILDINGS & HEALTH FACILITIES**

INSPECTOR: AAC/AAD/RK
 FIRM/COMPANY: Chand Engineering Consultants Limited

GENERAL INFORMATION

Building Name: Nailuva District School
 Location: _____
 No. of Buildings: 12
 Ariel Plan Available: YES / NO

1 FENCING / GATES / DRIVEWAY / RETAINING WALLS ETC (INCLUDE TYPE / LENGTH ETC)
Fencing at the frontage of the compound is damaged.

2 WATER TANKS/METERS/PLUMBING
1 x 5000l water tank is damaged.
All piping works needs to be re-placed

3 POWER LINES / METERS / WIRING
Underground wiring has to be re-placed and re-wired with electricity not available for all the buildings via a generator.

4 OTHER ITEMS
Currently, 2 UNICEF tent has been provided with multiple classes running in tent. Long term solution would require decent time of 6 months to 1 year of staged construction depending on material availability for a complete long term solution subject to additional cost consideration. Depending on immediate need and capacity, minimum 6 months to construct the new buildings for the main school building for full use again and 6 month to construct the new ablution block, 1 month for the construction for the toilet blocks and 3 month to repair the staff quarters. 1 staff quarters is currently used as a dining hall and 1 hostel is currently used a quarters.

TOTAL COST ESTIMATE:		TOTAL FEE ESTIMATE:	
DESCRIPTION	FEE	DESCRIPTION	FEE
School Building	\$200,000.00	TBC	TBC
Staff Quarters	\$100,000.00	TBC	TBC
Toilet Blocks	\$50,000.00	TBC	TBC
Ablution	\$100,000.00	TBC	TBC
General	\$50,000.00	TBC	TBC
TOTAL:	\$500,000.00	TOTAL:	

PHOTOS- BUILDING 1



Photo 1: View of the Concrete and Timber Piles



Photo 2: View of Corrugated Cladding Building



Photo 3: View of Timber Cladding Building



Photo 4:View of New Concrete Blockwall Building



Photo 5: Overall View of Water Damaged Ceiling

PHOTO-BUILDING 2



Photo 6: View of Corrugated Teachers Quarters with Damaged Roof



Photo 7: View of the Water Damaged Ceiling

PHOTOS- BUILDING 3



Photo 8: View of the Toilet Blocks

PHOTOS- BUILDING 4



Photo 10: View of the Toilet Block



Photo 11: Water Damaged Ceiling

PHOTOS- BUILDING 5



Photo 12: Showing Overall View of Staff Quarters- Very Minor Damage- Guttering, Downpipes ,Flashings

GENERAL SITE PHOTOS



Photo 13: Showing Damaged Walkway



Photo 14: Showing Damaged Walkway



Photo 15: Showing Overall View of the Bus-Stop