



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: Nalaba District School
TYPE: Primary School
LOCATION: Rakiraki
DATE OF ASSESSMENT: 22 March 2016

JOB NO: 16-111
GOVERNMENT FACILITY NUMBER: GFN-113

DISCLAIMER: THIS REPORT HAS BEEN PREPARED FOR THE BENEFIT OF FIJI INSTITUTION OF ENGINEERS & MINISTRY OF FINANCE TO ESTABLISH THE EXTENT OF DAMAGES BASED ON A HIGH LEVEL PRELIMINARY ASSESSMENT. IN NO CIRCUMSTANCES IS THE REPORT TO BE USED FOR SCOPING OR ESTABLISHMENT OF DETAILED COSTS FOR DAMAGES. NO RESPONSIBILITY SHALL BE TAKEN FOR ANY INCORRECT OR INCOMPLETE INFORMATION DUE TO THE SHORT TIME IN CARRYING OUT THE INITIAL ASSESSMENT AS PART OF VOLUNTARY PRO-BONO SERVICE OFFERED BY CHAND ENGINEERING CONSULTANT LTD. DETAILED ASSESSMENT SHOULD BE CARRIED OUT FOR DETAILED COST AND SCOPE FOR REPAIR AND REINSTATEMENT WORKS

**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: Nalaba District School
Type: School Block 1 (20x10) School Block 2 (40x10)
Location: Rakiraki
No. of Buildings: 2
Ariel Plan Available: YES / ~~NO~~ (Attached NTS)

REPORT

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

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 and timber floor with suspended timber frame for basement library and timber floor for the open hall.	1 Good 2 Average 3 Poor	Cracks observed	2	N/A
Foundations	Not visible	1 Good 2 Average 3 Poor	No visible damage-concealed	0	N/A
Walls	150mm blockwall and timber cladding with steel "I" column.	1 Good 2 Average 3 Poor	20% damage on timber wall and cracks observed on concrete walls	2	N/A
Rafters	Steel beam for the timber cladded walls and not visible for the other buildings.	1 Good 2 Average 3 Poor	No visible damage on timber block and 20% damage on concrete wall	2	N/A
Purlins	150 x 50 timber purlins for the timber cladded walls and not visible for other buildings.	1 Good 2 Average 3 Poor	70% damage on timber blocks and 20% damage on concrete wall	3	N/A
Roof	combination of corrugated roof cladding and trim-dek and not visible for the open hall	1 Good 2 Average 3 Poor	100% damage on timber blocks and 40% damage on concrete wall	4	N/A
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	louvers shattered on timber blocks.	3	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	No damage	0	
Ceilings	Ply board ceiling typically throughout-timber wall ceiling is 100% blown and concrete wall is water damaged-painted	1 Good 2 Average 3 Poor	100% damage on timber blocks and with water damage on other block.	4	
Terraces/Verandah	combination of wooden floor with 150mm diameter timber post and concrete floor with 50mm diameter steel post.	1 Good 2 Average 3 Poor	100% damage on verahdah and on open hall	4	
Tiles/Floor Covering	Concrete plaster and timber flooring	1 Good 2 Average 3 Poor	Cracks observed	4	
Gutters	Standard PVC gutters with proprietary PVC straps fixed to the outside of the gutter.	1 Good 2 Average 3 Poor	100% damage on timber blocks. 50% damage in the new block	4	
Downpipes	100mm PVC downpipes with PVC straps fixed to the wall	1 Good 2 Average 3 Poor	100% damage on old blocks. 50% damage in the new block	4	
Fascia Boards	250x30mm timber fascia board.	1 Good 2 Average 3 Poor	100% damage on old blocks and 50% damage in the new block	4	
Furniture/Desks etc.		1 Good 2 Average 3 Poor			
Possible Intermediate Solution	Demolish school building 1 and re-construct it with concrete- \$508,200.00 Re-construct the roof of school building 2 with new truss, purlins, gutters, downpipes, fascia, flashings.				
Possible Long Term Solution	The long term solution for building 1 is intermediate solution. Building 2 from timber to concrete- \$254,100.00				

Damage Assessment (\$) \$559,200.00 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: Nalaba District School
Type: Staff Quarters
Location: Nailuva, Rakiraki
No. of Buildings: 8
Ariel Plan Available: YES / -NO (Attached NTS)

REPORT
Page No. : 1
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	combination of timber floor and concrete floor.	1 Good 2 Average 3 Poor	2 quarters 100% damaged and the remaining is water damaged	4	N/A
Foundations	Not visible.	1 Good 2 Average 3 Poor	No visible damage -concealed 2 quarters 100% damaged	4	N/A
Walls	combination of timber cladding and corrugated cladding.	1 Good 2 Average 3 Poor	2 quarters 100% damaged	4	N/A
Rafters	100x50 timber rafter	1 Good 2 Average 3 Poor	2 quarters 100% damaged	4	N/A
Purlins	75x50 timber purlins	1 Good 2 Average 3 Poor	2 quarters 100% damaged	4	N/A
Roof	corrugated roof cladding	1 Good 2 Average 3 Poor	2 quarters 100% damaged with roof blown out for some	4	N/A
Electrical	typical standard switches, GPO's and fluorescent tubelights and bulbs.	1 Good 2 Average 3 Poor	2 quarters 100% damaged	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	2 quarters 100% damaged	4	N/A
Shutters	no shutters observed	1 Good 2 Average 3 Poor	2 quarters 100% damaged	4	
Ceilings	Ply board ceiling typically throughout- 2 quarters is blown out and the remaining of the ceiling is water damaged-painted	1 Good 2 Average 3 Poor	2 quarters 100% damaged	4	
Terraces/Verandah	wooden floor on piles with 100mm timber post and with a combination of timber and corrugated cladding.	1 Good 2 Average 3 Poor	2 quarters 100% damaged	4	
Tiles/Floor Covering	N/A	1 Good 2 Average 3 Poor	2 quarters 100% damaged	4	
Gutters	Standard PVC gutters with proprietary PVC straps fixed to the outside of the gutter.	1 Good 2 Average 3 Poor	100% damage	4	
Downpipes	Downpipes blown out.	1 Good 2 Average 3 Poor	100% damage	4	
Fascia Boards	250x30mm timber fascia board.	1 Good 2 Average 3 Poor	2 quarters 100% damaged	4	
Furniture/Desks etc.		1 Good 2 Average 3 Poor			
Possible Intermediate Solution	Re-construct the roof of 6 damaged quarters- \$54,400.00 Re-construct the 6 quarters- \$362,400.00				
Possible Long Term Solution	the long term solution for 6 quarters is intermediate solution Quarters 7&8 from timber to concrete- \$305,000.00				

Damage Assessment (\$) \$416,800.00 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: Nalaba District School
Type: Toilet Block
Location: Nailuva, Rakiraki
No. of Buildings: 1
Ariel Plan Available: YES / -NO (Attached NTS)

REPORT
Page No. : 1
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	N/A
Foundations	Not visible	1 Good 2 Average 3 Poor	Not Visible - concealed	4	N/A
Walls	150mm blockwall	1 Good 2 Average 3 Poor	100% damaged	4	N/A
Rafters	Completely blown out	1 Good 2 Average 3 Poor	100% damaged	4	N/A
Purlins	Completely blown out	1 Good 2 Average 3 Poor	100% damaged	4	N/A
Roof	Completely blown out	1 Good 2 Average 3 Poor	100% damaged	4	N/A
Electrical	Completely blown out	1 Good 2 Average 3 Poor	100% damaged	4	N/A
Hydraulics	N/A	1 Good 2 Average 3 Poor	N/A	N/A	
Windows/Doors	Completely blown out	1 Good 2 Average 3 Poor	100% damaged	4	N/A
Shutters	Completely blown out	1 Good 2 Average 3 Poor	100% damaged	4	
Ceilings	Completely blown out	1 Good 2 Average 3 Poor	100% damaged	4	
Terraces/Verandah	Completely blown out	1 Good 2 Average 3 Poor	100% damaged	4	
Tiles/Floor Covering	Completely blown out	1 Good 2 Average 3 Poor	100% damaged	4	
Gutters	Completely blown out	1 Good 2 Average 3 Poor	100% damaged	4	
Downpipes	Completely blown out	1 Good 2 Average 3 Poor	100% damaged	4	
Fascia Boards	Completely blown out	1 Good 2 Average 3 Poor	100% damaged	4	
Furniture/Desks etc.		1 Good 2 Average 3 Poor			
Possible Intermediate Solution	Re-construct the toilet block- \$55,750.00				
Possible Long Term Solution	The long term solution is the intermediate solution				

Damage Assessment (\$) \$55,750.00 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: Nalaba District School
Type: Utility Building (Dining Hall)
Location: Nailuva, Rakiraki
No. of Buildings: 1
Ariel Plan Available: YES / ~~NO~~ (Attached NTS)

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

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	3	N/A
Foundations	Not visible	1 Good 2 Average 3 Poor	Not Visible - concealed	4	N/A
Walls	Completely blown out	1 Good 2 Average 3 Poor	100% damaged	4	N/A
Rafters	Completely blown out	1 Good 2 Average 3 Poor	100% damaged	4	N/A
Purlins	Completely blown out	1 Good 2 Average 3 Poor	100% damaged	4	N/A
Roof	Completely blown out	1 Good 2 Average 3 Poor	100% damaged	4	N/A
Electrical	Completely blown out	1 Good 2 Average 3 Poor	100% damaged	4	N/A
Hydraulics	N/A	1 Good 2 Average 3 Poor	N/A	N/A	
Windows/Doors	Completely blown out	1 Good 2 Average 3 Poor	100% damaged	4	N/A
Shutters	Completely blown out	1 Good 2 Average 3 Poor	100% damaged	4	
Ceilings	Completely blown out	1 Good 2 Average 3 Poor	100% damaged	4	
Terraces/Verandah	Completely blown out	1 Good 2 Average 3 Poor	100% damaged	4	
Tiles/Floor Covering	Completely blown out	1 Good 2 Average 3 Poor	100% damaged	4	
Gutters	Completely blown out	1 Good 2 Average 3 Poor	100% damaged	4	
Downpipes	Completely blown out	1 Good 2 Average 3 Poor	100% damaged	4	
Fascia Boards	Completely blown out	1 Good 2 Average 3 Poor	100% damaged	4	
Furniture/Desks etc.		1 Good 2 Average 3 Poor			
Possible Intermediate Solution	Re-construct the dining hall- \$209,100.00				
Possible Long Term Solution	the long term solution is the intermediate solution				

Damage Assessment (\$) \$209,100.00 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: Nalaba District School
Type: Utility Building (Boys and Girls Domitory)
Location: Nailuva, Rakiraki
No. of Buildings: 2
Ariel Plan Available: YES / -NO (Attached NTS)

REPORT
Page No. : 1
Building No. : 5
Building Approx Age: 60 years + (established 1955)
No. of Storeys: 1

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	3	N/A
Foundations	Not visible	1 Good 2 Average 3 Poor	Not Visible - concealed	4	N/A
Walls	150mm blockwall	1 Good 2 Average 3 Poor	100% damaged	4	N/A
Rafters	100 x 50mm timber rafter for boys domitory-not known for girls domitory- Completely blown out	1 Good 2 Average 3 Poor	100% damaged	4	N/A
Purlins	75 x 50mm timber rafter for boys domitory-not known for girls domitory- Completely blown out	1 Good 2 Average 3 Poor	100% damaged	4	N/A
Roof	Completely blown out	1 Good 2 Average 3 Poor	100% damaged	4	N/A
Electrical	Typical standard switches, GPO's on walls with most light intact for the boys domitory and completely blown out for the girls domitory.	1 Good 2 Average 3 Poor	100% damaged	4	N/A
Hydraulics	N/A	1 Good 2 Average 3 Poor	N/A	N/A	
Windows/Doors	Typical louver panes with standard carriers mostly intact for the boys dorm and louvers shattered for the girls dorm.	1 Good 2 Average 3 Poor	100% damaged	4	N/A
Shutters	No provisions or shutters	1 Good 2 Average 3 Poor	100% damaged	4	
Ceilings	Completely blown out for the girls dorm with 20% blown out for the boys dorm and the rest is water damaged.	1 Good 2 Average 3 Poor	100% damaged	4	
Terraces/Verandah	No provision or verandah for boys dorm and roof blown out for girls dorm	1 Good 2 Average 3 Poor	100% damaged	4	
Tiles/Floor Covering	concrete plaster	1 Good 2 Average 3 Poor	100% damaged	4	
Gutters	Only 20% remaining from te boys dorm and the rest is completely blown out.	1 Good 2 Average 3 Poor	100% damaged	4	
Downpipes	Completely blown out	1 Good 2 Average 3 Poor	100% damaged	4	
Fascia Boards	Completely blown out from the girls dorm.	1 Good 2 Average 3 Poor	100% damaged	4	
Furniture/Desks etc.		1 Good 2 Average 3 Poor			
Possible Intermediate Solution	Re-construct the whole roof of the both the dormitories- \$122,400.00				
Possible Long Term Solution	the long term solution is intermediate solution				

Damage Assessment (\$) \$122,400.00 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: Nalaba 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 all around the compound is damaged.
2 WATER TANKS/METERS/PLUMBING
All piping works needs to be re-placed
3 POWER LINES / METERS / WIRING
Wiring has to be re-placed and re-wired with electricity. Electric poles fallen down.
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 10 months 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 teachers quarters, 1 month for the construction for the toilet blocks and 3 month for the construction of the boys and girls dormitories and 1 month for the construction of the dining hall.

TOTAL COST ESTIMATE:	
DESCRIPTION	FEE
School Building	\$559,200.00
Staff Quarters	\$416,800.00
Dormitory	\$80,000.00
General	\$50,000.00
TOTAL:	\$1,106,000.00

TOTAL FEE ESTIMATE:	
DESCRIPTION	FEE
TBC	TBC
TBC	TBC
TBC	TBC
School Building	\$762,300.00
Staff Quarters	\$667,400.00
Toilet Blocks	\$55,750.00
Dining	\$209,100.00
Dormitory	\$122,400.00
TOTAL:	\$1,816,950.00 (long term solution)

PHOTOS- BUILDING 1



Photo 1:View of the Damaged School Block



Photo 2: View of Damaged School Building



Photo 3: View of Damaged School Basement



Photo 4:View of the Steel Columns and Beam in School Building

PHOTO- BUILDING 2



Photo 5: Overall View of Damaged Dining Hall

PHOTO- BUILDING 3



Photo 6: View of the Damaged Boys Dormitory



Photo 7: View of the Damaged Girls Dormitory

PHOTO- BUILDING 4



Photo 8: View of the Toilet Blocks

PHOTO-BUILDING 5



Photo 7: View of the Teachers Quarters



Photo 10: View of the Teachers Quarters



Photo 11: View of the Teachers Quarters



Photo 12:View of the Damaged Teachers Quarters

GENERAL SITE PHOTOS

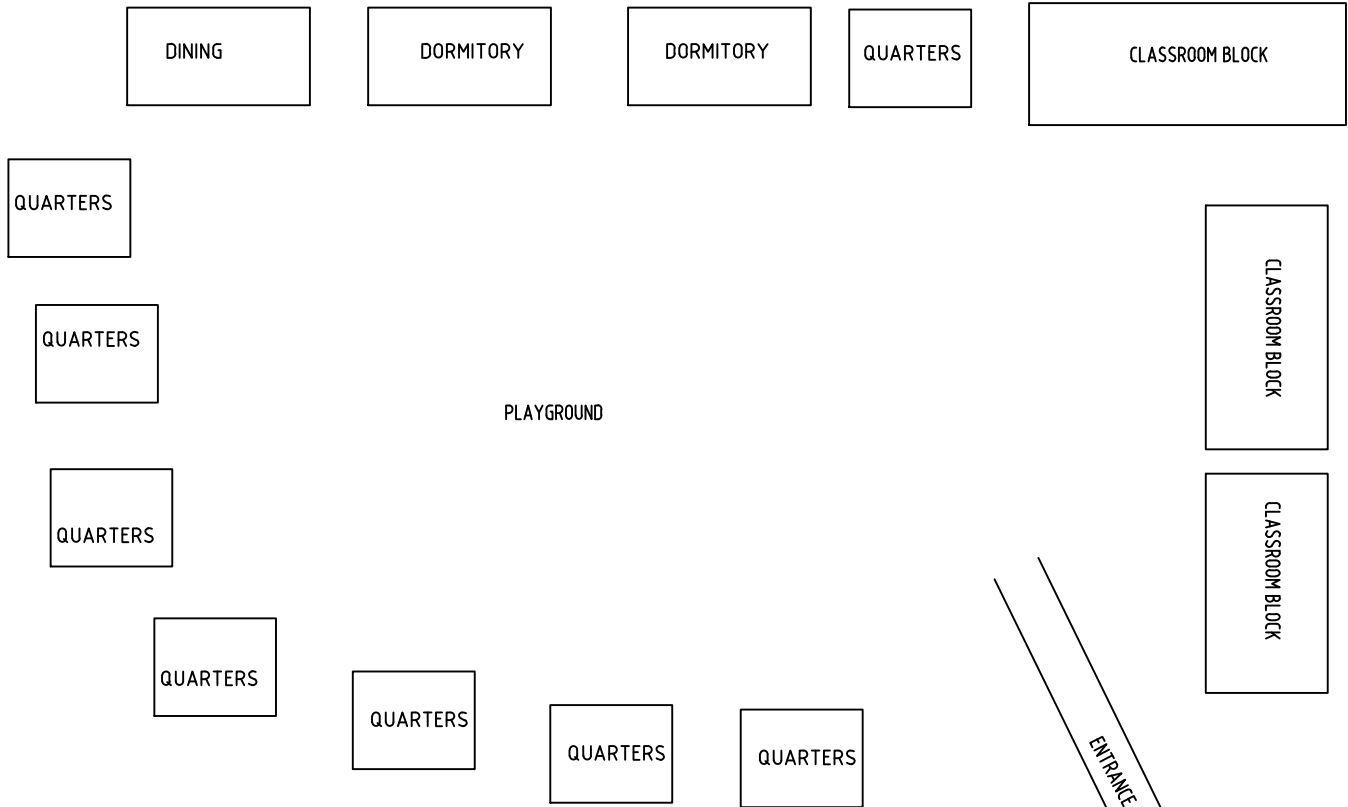


Photo 13: View of Damaged FEA Post and Electric Cables



Photo 14: Tents are used as Temporary Classrooms

THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS ON SITE PRIOR TO SETTING OUT THE WORKS AND SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES AND/OR ERRORS. THE LOCATION OF UNDERGROUND SERVICES ARE, APPROPRIATE ONLY AND THEIR EXACT POSITION SHALL BE PROVEN ON SITE BY THE CONTRACTOR



SITE PLAN
NTS



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CONSULTING ENGINEERS & PROJECT MANAGERS
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CLIENT:
NALABA DISTRICT SCHOOL

DESIGNED AAC	DESIGN CHECK	SCALE AS SHOWN
DRAFTED AAD	DRAWING NO. A01	ISSUE DATE 12/04/16
PROJECT NO. 16-112	DRAWING SHEET A-01	REVISION -

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