

# KADUNA CLINICS – SOLAR SITE SURVEY REPORT

Sept 10, 2015

Prepared for:

Crown Agents Limited

Prepared by:

The logo for EM-ONE Energy Solutions, featuring the text "EM-ONE" in a bold, sans-serif font with a red circle around the "O" and a horizontal line through it. Below "EM-ONE" is the text "ENERGY SOLUTIONS" in a smaller, all-caps font with a red dot before "LUTIONS".

EM-ONE  
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## 1. Introduction

This solar site Physical Survey Report is in line with the Scope of Services defined in the Terms of Reference (TORs). While some of the Healthcare Centers are in the urban area, many of the Primary Healthcare Centers are located in the rural areas and are in deplorable states.

With the exception of certain health centers, the major challenge observed was an absence of road access to very remote centers and low hanging power lines. Difficult road access will cause the heavy vehicles, which will be engaged to deliver the required equipment, to travel through rough terrains.

## 2. Site Survey Objectives

The objective of this survey is to verify the site survey data provided by SNP and to collect additional data, as required, that will be used for the construction of the proposed solar systems.

The following tools will be used in the solar site survey:

- Compass.
- 100m measuring tape.
- Digital camera.
- Note book
- Mobile Phone with sim cards for MTN, Airtel and Etisalat
- Reporting worksheets

## 3. Methodology

The site survey was performed by 4 teams and 2 survey personnel per team. The teams used survey worksheets to document observations, record findings, and to make recommendations using the following methodology:

- The available space suitable for siting the solar cabin was measured and recorded on a draft site layout drawing. Future possible use of available space by the PHC was also noted.
- The overall site direction highlighting the North -South direction (using the compass) was taken and recorded.
- All key features were highlighted (trees, bore holes topography etc. of the free space available)
- A detailed sketch of the entire site (the buildings, the roads, the trees, everything present on the site) was completed, the sketch shows the site direction.
- Photographs of all observations were taken and recorded as part of this report. The pictures will be useful for the design team during the design phase.

- The locations of overhead lines, water tank stands, trees etc. were all noted and shown on the detailed sketch.
- The team checked the availability of water supply that will be necessary during the civil construction and for cleaning the PV panels during the O&M stage
- The team checked the availability of internet coverage from mobile company such as MTN, Etisalat, and Airtel.
- The height and clearance of surrounding buildings and structures (to determine shading etc.) was measured and noted for shading analysis.
- Checks were made for shading by high rise buildings or trees and a record of features that could cause obstruction and shading to the proposed PV array for the proposed solar Systems was made.

#### 4. General Observations

1. Most of the PHC's are located in very remote areas with poor accessibility, which will cause issues for vehicles to deliver the required equipment.
2. Certain PHCs in areas with electricity supply, have low hanging overhead lines which may cause problems when heavy vehicles make deliveries to the site to install equipment. These overhead lines will have to be relocated prior to constructions. See the summary table for details.
3. There will be security issues for the proposed solar systems when installed, as many of the PHCs do not have boundary walls.
4. There are space constraints and issues of accessibility within PHC in following clinics; PHC Abdu Kwari, PHC Makarfi, Television Garage, Badarawa and Rimin Doko Revisit to the sites are required to finalize the location of the Solar systems in these PHCs. EM-ONE will revisit these sites immediately to carry out new measurements and checks to locate the systems, taking into consideration the space constraints and construction challenges.

#### 5. General Recommendations

From the documented site survey, the following will have to be considered:

1. Access roads must be constructed in PHCs with accessibility issues.
2. Overhead powerlines must be relocated inside certain PHCs and along the access roads.
3. Sites with space constraints must have special designs and considerations during the installation of the solar system.
4. Construction of boundary walls or security measures must be taken in PHCs that do not have boundary walls.
5. Detailed geotechnical investigation must be carried out for the PHCs to properly design the foundations of the solar system. This should be carried out by the EPC contractor during the construction phase.

6. A value range of 100KN/m<sup>2</sup> to 400KN/m<sup>2</sup> at 1m depth may be used for the foundation design in the bidding stage.
7. Certain PHC sites located in vegetative farm lands must have sites cleared.
8. In very remote areas, where telecommunication services are not available, alternative telecommunication services must be considered for system remote monitoring.

## 6. Definitions

1. Sandy Soil: Observed soil is very loose.
2. Sloppy Surface: Observed surface is not level and may require earth work to level the site, such as: cutting and filling to make it level.
3. Flat surface: Site requires minimal earth work like normal site clearing, no cutting and filling required.
4. Overhead lines: Distribution Power lines.

## 7. Attachments.

- a. Site Summary General Summary
- b. Site Survey Issue Summary
- c. Space Comparison
- d. Site-Specific PHC Summary with Site Layout Sketch.

# APPENDIX

1. SITE SUMMARY GENERAL SUMMARY
2. SITE SURVEY ISSUE SUMMARY
3. SPACE COMPARISON
4. SITE-SPECIFIC PHC SUMMARY WITH SITE LAYOUT SKETCH.

**SITE SURVEY SUMMARY**

S/No.	PHC	Secure Empty Space		Size of Available Space		Any Building Shading		No. of Building in PHC	Height of tallest Building (m)	Telecommunication network available	Site Topography	Remark/Issues
		Yes	No	L(m)	B (m)	Yes	No					
1	BADARAWA PHC	√		25	23		√	6	5	MTN/AIRTEL/GLO/ETISALAT	FLAT SURFACE /WITH LOAMY SOIL OBSERVED	Road access to the free space behind the main PHC building has obstruction by a soak away pit, this may cause issues for heavy vehicles accessing the available space at the back of the PHC main building.
2	JERE PHC	√		28	12.9		√	3	5	MTN/GLO	UNEVEN SURFACE /WITH LOAMY SOIL OBSERVED	1. Telecommunication issues may be experienced due to weak signal reception on the available service providers. 2. Availability of overhead line at the entrance into the PHC may cause a problem to heavy vehicle entering the PHC.
3	PHC ABDU KWARI		√	34	10		√	3	4	MTN/AITEL/GLO/ETISALAT	FLAT SURFACE /WITH LOAMY SOIL OBSERVED	1. Telecommunication issues may be experienced due to weak signal reception on the available service providers. 2. Availability of overhead line at the entrance into the PHC may cause a problem to heavy vehicle entering the PHC. 3. Site need revisit to check available space
4	PHC ASSO	√		30	13		√	2	4.5	GLO/ETISALAT	FLAT SURFACE /WITH LOAMY SOIL	The PHC has no security Boundary wall.
5	PHC AWON	√		76	71		√	4	5	MTN, AIRTEL, ETISALAT, GLO & STARCOMS	FLAT SURFACE /WITH LOAMY SOIL OBSERVED	1. There is an overhead power line (indicated as EP on layout) crossing the PHC that needs to be relocated. 2. Available space is being used for farming.
6	PHC BADIKO	√		24	11		√	4	5	MTN/AIRTEL	FLAT SURFACE /WITH LOAMY SOIL OBSERVED	1. Rough PHC access road
7	PHC DADDU	√		33	32		√	5	3.7	MTN/GLO/ETISALAT	FLAT SURFACE /WITH SANDY CLAY SOIL OBSERVED	1. No boundary wall in the PHC.
8	PHC DAMA KASUWA	√		100	40		√	7	4.4	MTN/AIRTEL/GLO	FLAT SURFACE /WITH SANDY STONE SOIL OBSERVED	1. Boundary wall in the PHC was done half way, the whole front is left open.

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S/No.	PHC	Secure Empty Space		Size of Available Space		Any Building Shading		No. of Building in PHC	Height of tallest Building (m)	Telecommunication network available	Site Topography	Remark/Issues
		Yes	No	L(m)	B (m)	Yes	No					
9	PHC DAMAU	√		35	15		√	1	5	MTN	FLAT SURFACE /WITH MUDDY SOIL	Security Boundary wall available but no No gate into the PHC
10	PHC DAN ALHAJI	√		65	38		√	5	5	MTN/GLO	FLAT SURFACE /WITH LOAMY SOIL	
11	PHC DAN JINJIRI	√		20	6		√	2	4.3	MTN/AITEL/GLO/ETISALAT	SLOPED SURFACE /WITH ROCKY SOIL OBSERVED	Gate may need relocation
12	PHC DANGUZURI	√		333	100		√	7	4	MTN/AIRTEL	FLAT SURFACE /WITH SANDY SOIL OBSERVED	1. Boundary wall was done half way. 2. Free space used as farmland. 3. More trees available in the proposed free space.
13	PHC DANWATA	√		44	25		√	2	4.5	ETISALAT	FLAT SURFACE /WITH MUDDY SOIL OBSERVED	1. The PHC has no gate.
14	PHC FAI	√		108	40		√	3	3.5	AIRTEL/GLO	FLAT SURFACE /WITH CLAY SOIL OBSERVED	1. The PHC has no boundary wall.
15	PHC Galadimawa	√		41	16		√	4	6	MTN/ETISALAT	UNEVEN SURFACE /WITH SANDY LOAM SOIL OBSERVED	
16	PHC GANGARA	√		36	34	√		4	5	MTN/GLO/ETISALAT	FLAT SURFACE /WITH SANDY LOAM SOIL OBSERVED	
17	PHC GARU KURAMA	√		29	15		√	8	5	AIRTEL/GLO	FLAT SURFACE /WITH SANDY SOIL OBSERVED	1. Narrow access road within the PHC.
18	PHC GESHERE	√		50	15		√	1	3.5	AIRTEL/GLO	FLAT SURFACE /WITH LOAMY OBSERVED	1. The PHC has no boundary wall.
19	PHC GIDAN TAGWAI	√		46	25		√	1	5	GLO	FLAT SURFACE /WITH LOAMY OBSERVED	1. The PHC has no boundary wall. 2. Overhead lines cause obstruction when assessing the site.
20	PHC GIDAN WAYA	√		102	30		√	3	4	MTN/AIRTEL/GLO/ETISALAT	FLAT SURFACE /WITH SANDY CLAY SOIL OBSERVED	1. The PHC has no boundary wall.
21	PHC GWARAJI	√		44	16		√	1	5	GLO & ETISALAT	FLAT SURFACE /WITH LOAMY SOIL OBSERVED	1. The PHC has no boundary wall. 2. Free space used for farming.

**SITE SURVEY SUMMARY**

S/No.	PHC	Secure Empty Space		Size of Available Space		Any Building Shading		No. of Building in PHC	Height of tallest Building (m)	Telecommunication network available	Site Topography	Remark/Issues
		Yes	No	L(m)	B (m)	Yes	No					
22	PHC HANWA	√		32	18		√	2	5	MTN/AIRTEL/GLO/ETISALAT	SLOPED SURFACE /WITH ROCKY SOIL OBSERVED	
23	PHC KADAGE	√		23	17		√	1	5	GLO	FLAT SURFACE /WITH SANDY SOIL OBSERVED	1. PHC has no boundary wall. 2. Free proposed space is located in the front of the PHC.
24	PHC KAMURU (IKUKLU)	√		40	21		√	3	5	GLO	FLAT SURFACE /WITH SANDY-LOAMY SOIL OBSERVED	1. Entrance gate is narrow. 2. Overhead lines may cause obstruction by heavy vehicle when entering the PHC.
25	PHC KASAYA	√		45	43		√	7		AIRTEL/ETISALAT	FLAT SURFACE /WITH SANDY-LOAMY SOIL OBSERVED	1. PHC has no boundary wall. 2. Free space used as farmland.
26	PHC KURMIN KOGI	√		14	10		√	3	4	ETISALAT	FLAT SURFACE /WITH SANDY SOIL OBSERVED	1. Overhead lines cause obstruction into the PHC. 2. Good possibilities of shading from high rise buildings. 3. The ETISALAT telecommunication has poor reception.
27	PHC KURMIN-BI	√		52	17		√	2	3.5	MTN/AIRTEL/GLO/ETISALAT	FLAT SURFACE /WITH SANDY-LOAM SOIL OBSERVED	1. PHC has no boundary wall.
28	PHC LIKORO	√		47	16	√		4	7	AIRTEL/GLO/ESTARCOM/VISAFONETISALAT/	FLAT SURFACE /WITH SANDY SOIL OBSERVED	1. PHC's entrance gate is narrow for heavy trucks passage. 2. Neighbouring boundary wall will cause obstruction to site for construction vehicle to PHC.
29	PHC MADAKIYA	√		32	19		√	3	4.4	MTN/AIRTEL/GLO/ETISALAT	FLAT SURFACE /WITH SANDY SOIL OBSERVED	1. PHC has no boundary wall.
30	PHC MAH	√		39	26	√		1	5	GLO/ETISALAT	FLAT SURFACE /WITH SANDY SOIL OBSERVED	
31	PHC MANCHOCK	√		30	19		√	5	3.6	MTN/AIRTEL/GLO/ETISALAT	FLAT SURFACE /LOAMY CLAY SOIL OBSERVED	PHC has no boundary wall.



**SITE SURVEY SUMMARY**

S/No.	PHC	Secure Empty Space		Size of Available Space		Any Building Shading		No. of Building in PHC	Height of tallest Building (m)	Telecommunication network available	Site Topography	Remark/Issues
		Yes	No	L(m)	B (m)	Yes	No					
32	PHC MARO	√		55	23	√	√	2	5	AIRTEL/GLO/ETISALAT	FLAT SURFACE /LOAMY SOIL OBSERVED	There are trees that could cause shading of the installation.
33	PHC RAFIN GUZA	√		24	17		√	2	3.5	MTN/AIRTEL/GLO/ETISALAT	FLAT SURFACE /LOAMY SOIL OBSERVED	
34	PHC RIMIN DOKO KAURA WARD		√	25	14		√	3	4.5	ETISALAT	FLAT SURFACE /LOAMY SOIL OBSERVED	1. Overhead concrete obstruction at the PHC entrance gate which may prevent heavy truck from gaining access to the PHC. 2. A tree is located at the available proposed free space.
35	PHC RUZIA	√		54	50		√	1	5	MTN/AIRTEL/GLO	FLAT SURFACE /LOAMY SOIL OBSERVED	1. PHC has no boundary wall 2. Airtel telecommunication service is poor.
36	PHC TASHAN KADE (dandako)	√		30	14			2	4	MTN/AIRTEL/GLO/ETISALAT	FLAT SURFACE /SANDY SOIL OBSERVED	1. PHC has no boundary wall
37	PHC TELEVISION GARAGE		√	17	10		√	6	5	MTN/AIRTEL/GLO/ETISALAT	FLAT SURFACE /SANDY SOIL OBSERVED	1. PHC has access issues within the PHC for heavy vehicles.
38	PHC TURAWA	√		30	19		√	1	5	MTN	FLAT SURFACE /SANDY SOIL OBSERVED	1. No Space to install the solar system.
39	PHC ZANGO AYA	√		36	15		√	7	5	AIRTEL & ETISALAT	SLOPY SURFACE /SANDY SOIL OBSERVED	1. Obstruction by overhead lines along the access road to the PHC.
40	PHC MAKARFI (HC Tudun Wada)		√	14	12	√		3	4	MTN/AIRTEL/GLO/ETISALAT	SLOPY SURFACE /SANDY SOIL OBSERVED	1. PHC is surrounded by built up areas. 2. No boundary wall

**SITE SURVEYED ISSUES**

S/No.	Primary Health care center	No Space	No Boundary Wall	Access Issues	Power line obstruction	Recommendation
1	BADARAWA PHC			√		Access within the PHC to be repaired (obstruction by Soak away pit needs to be repaired).
2	JERE PHC				√	Need to Raise higher or relocate obstructing over head line
3	PHC ABDU KWARI	√	√	√		PHC need revisiting for thorough assesment as the survey space may not be sufficient, also access road may need widening.
4	PHC ASSO		√			Boundary wall coonstruction is required
5	PHC AWON				√	Line relocation is required within the PHC
6	PHC BADIKO			√		Rough access road
7	PHC DADDU		√			Boundary wall construction is required
8	PHC DAMA KASUWA		√			Boundary wall needs to be constructed
9	PHC DAMAU		√			Entrance gate needs to be installed
10	PHC DAN ALHAJI					
11	PHC DAN JINJIRI		√	√		Access road clearing is required. Gate may need relocation, need revisit
12	PHC DANGUZURI		√			Boundary wall needs to be constructed, extra site clearing by removal of trees is required.
13	PHC DANWATA		√			Entrance gate needs to be installed.
14	PHC FAI		√			Boundary wall needs to be constructed
15	PHC Galadimawa					
16	PHC GANGARA					
17	PHC GARU KURAMA			√		Need to further check the accesibility within the PHC by heavy trucks.
18	PHC GESHERE		√			Boundary Wall needs to be constructed
19	PHC GIDAN TAGWAI		√	√		Boundary wall needs to be constructed and power line needs to be relocated
20	PHC GIDAN WAYA		√			Boundary wall needs to be constructed.
21	PHC GWARAJI		√			Boundary Wall need to be constructed and additional site clearing.
22	PHC HANWA					
23	PHC KADAGE		√			Boundary wall needs to be constructed

**SITE SURVEYED ISSUES**

S/No.	Primary Health care center	No Space	No Boundary Wall	Access Issues	Power line obstruction	Recommendation
24	PHC KAMURU (IKUKLU)			√		Gate needs to be widened further and overhead line needs to be raised or relocated along the access road into the PHC.
25	PHC KASAYA		√			Boundary wall needs to be constructed and additional works in site clearing
26	PHC KURMIN KOGI			√	√	Overhead lines need to be relocated or raised higher along the access road to PHC,
27	PHC KURMIN-BI		√			Boundary Wall need to be constructed.
28	PHC LIKORO			√		Entrance gate needs to be widened and alternative route needs to be sought out for.
29	PHC MADAKIYA		√			Boundary wall needs to be constructed.
30	PHC MAH					
31	PHC MANCHOCK		√			Boundary wall needs to be constructed
32	PHC MARO					Tree cutting will be required to avoid shading
33	PHC RAFIN GUZA					
34	PHC RIMIN DOKO KAURA WARD	√		√		The entrance gate requires widening and trees need to be cut down at the proposed free space.
35	PHC RUZIA		√			Boundary wall needs to be constructed and the telecommunication networks need to be further checked
36	PHC TASHAN KADE (dandako)		√			Boundary wall need to be constructed
37	PHC TELEVISION GARAGE	√		√		PHC needs further evaluation on the available access road within the PHC
38	PHC TURAWA		√			
39	PHC ZANGO AYA				√	Relocation or raising of over head lines
40	PHC MAKARFI (HC Tudun Wada)	√				Detailed space analysis required as PHC surrounded by built up areas

## SITE USABLE SPACE COMPARED TO REQUIRED SPACE BASED ON DESIGNED SYSTEMS

S/N	PHC Clinics	System No.	PV Size (KWp)	Required space(m)	Available free space(m)	Remark
1	BADARAWA PHC	7	116.48	4No.s 15X12m	25X23m, & 38X13m	Space located At front and back of PHC
2	JERE PHC	5	28.08	2 No.s of 15X12m	28X12.9m	At the Back of PHC and to the right over the building, need access road to the back.
3	PHC ABDU KWARI	4	28.08	15mX12m	34X10m	located at the right side of the main building need revisit
4	PHC ASSO	1	13.26	17X5m	30X13m	In front of PHC main building
5	PHC AWON	4,4,4,4	112.32	4 No.s 15X12m	76X71m	Right side of the main building, behind the staff quarters
6	PHC BADIKO	5	28.08	2No.s 15X12m	24X11m	In front of the PHC main Building
7	PHC DADDU	4,4,4	84.24	3 No.s 15X12m	33X22m	Behind the general ward of PHC.
8	PHC DAMA KASUWA	6	84.24	3No.s 15X12m	100X40m	In front of the main building in the PHC.
9	PHC DAMAU	4	28.08	15X12m	35X15m	By the right of the main PHC building.
10	PHC DAN ALHAJI	6	84.24	3 No.s 15X12m	65X38m	By the right side of the old clinic building.
11	PHC DAN JINJIRI	1	13.26	17X5m	20X6m	In front of the Main Building (gate may need relocation)
12	PHC DANGUZURI	4	28.08	15X12m	333X100m	Open space behind the clinic and some in front of PHC
13	PHC DANWATA	1	13.26	17X5m	44X25m	Open space in front of PHC
14	PHC FAI	1	13.26	17X5m	108X40m	In front of the main clinic
15	PHC Galadimawa	4,4,	56.16	2No.s 15X12m	41X16m	In front of the PHC
16	PHC GANGARA	6	84.24	3No.s 15X12m	36X34m	Open space to the left and front of PHC
17	PHC GARU KURAMA	4,4	56.16	4 No.s 15X12m	29X15m	Beside the old quarters
18	PHC GESHERE	1,4	41.34	1No.s 17X5m, 1No.s 15X12m	50X15m	To the right of the PHC
19	PHC GIDAN TAGWAI	4	28.08	15X12m	46X25m	To the right of the PHC
20	PHC GIDAN WAYA	6	84.24	3 No.s 15X12m	102X30m	Behind the PHC
21	PHC GWARAJI	4	28.08	15X12m	44X16m & 32X15m	At the front and to the right of the PHC
22	PHC HANWA	3	23.40	18X9m	32X18m	Behind the PHC
23	PHC KADAGE	4	28.08	15X12m	23X17m	In front of the PHC
24	PHC KAMURU (IKUKLU)	4,4	56.16	2No.s 15X12m	40X21m	To the left of the PHC
25	PHC KASAYA	3	23.40	18X9m	45X43m & 48X19m	Behind the ward and by the right of the PHC
26	PHC KURMIN KOGI	2	21.06	15X9m	14X10m	In front of PHC
27	PHC KURMIN-BI	2	21.06	15X9m	52X17m	In front of PHC
28	PHC LIKORO	4,4	56.16	4 No.s 15X12m	47X16m	To the right of the PHC
29	PHC MADAKIYA	1	13.26	17X5m	32X19m	In front of PHC
30	PHC MAH	1	13.26	17X5m	39X26m	By the left of the PHC
31	PHC MANCHOCK	4,4	56.16	4 No.s 15X12m	30X19m	Behind the clinic
32	PHC MARO	3	23.40	18X9m	55X23m	Left of the PHC

33	PHC RAFIN GUZA	5	28.08	2No.s 15X12m	26X13m & 24X17m	In front and behind the PHC
34	PHC RIMIN DOKO KAURA WARD	4,4	56.16	4 No.s 15X12m	25X14m	Need Re-visit
35	PHC RUZIA	2	13.26	15X9m	54X50m & 50X39m	Left and right of the PHC building
36	PHC TASHAN KADE (dandako)	3	23.40	18X9m	30X14m & 36X8m	In front and to the right of the PHC
37	PHC TELEVISION GARAGE	6	84.24	3 No.s 15X12m	17X10m & 13X7m	At the right and left between main building and staff quarters need revisit
38	PHC TURAWA	1	13.26	17X5m	30X19m	Right of the PHC main Building
39	PHC ZANGO AYA	6	84.24	3 No.s 15X12m	36X15m & 25X13m	Open space behind the quarters and to the right of the quarters
40	PHC MAKARFI (HC Tudun Wada)	6	84.24	3 No.s 15X12m	14X12m	In front of PHC, need revisit

KADUNA SOLAR  
SITE SPECIFIC SURVEY REPORTS  
FOR 40 CLINICS IN KADUNA STATE

## SUMMARY FOR BADARAWA PHC

This summary report is based on the findings of the site survey team of EM-ONE on September 1, 2015.

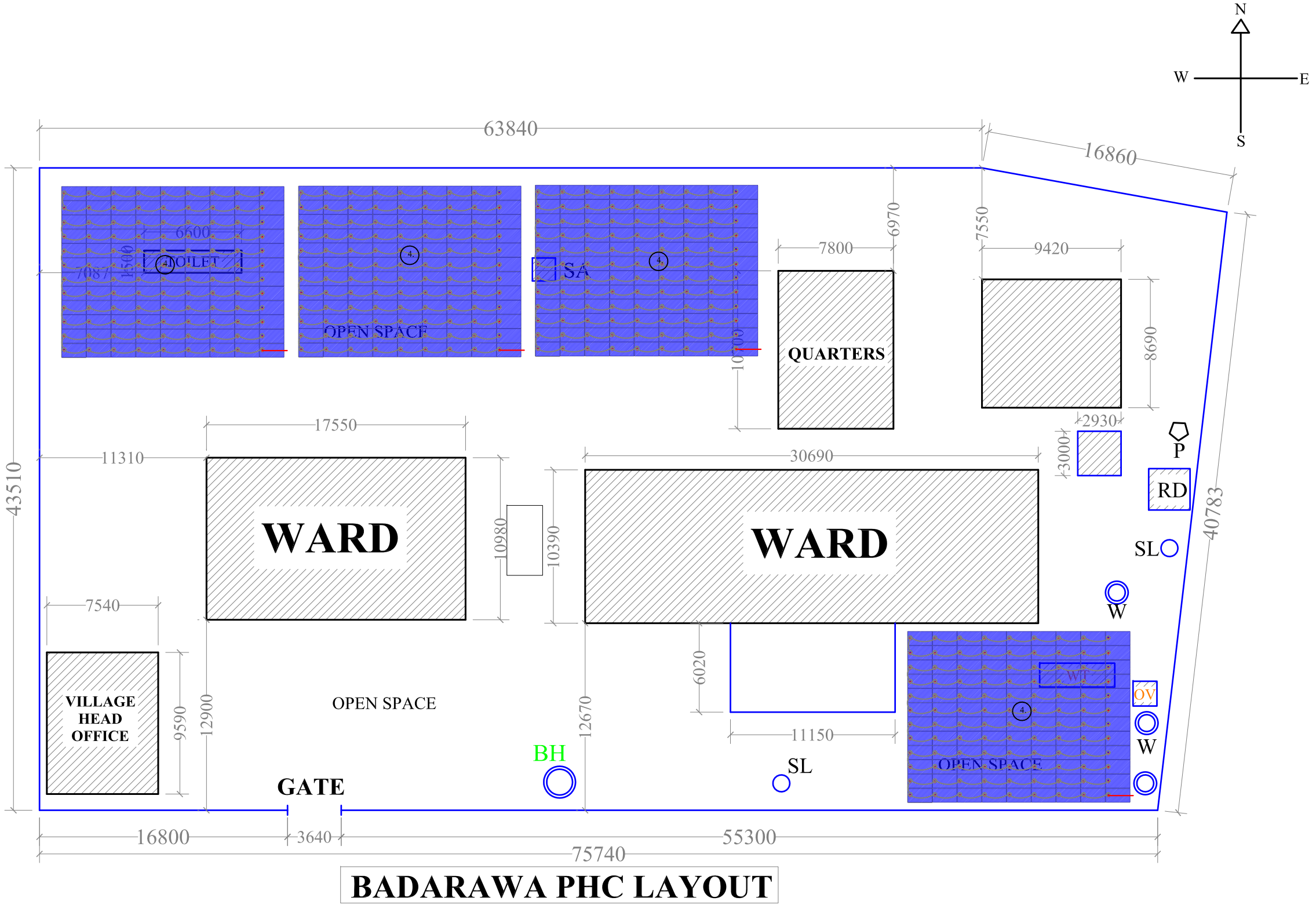
Secure Empty Space	Size of available space		Building Shading	Number of buildings in PHC	Height of tallest building (m)
	L (m)	B (m)			
Yes	25	23	No	6	5
Telecommunication network available			Site Topography		
MTN/AIRTEL/GLO/ETISALAT			FLAT SURFACE /WITH LOAMY SOIL OBSERVED		

### Notes

1. Available space for the installation of a proposed solar system is located at the front and back of the PHC building.
2. Access to the available space behind the main PHC building is obstructed by a soak away pit. This will cause access problems for heavy vehicles.

### Recommendations

1. The soak away pit obstructing the available space must be reinforced.
2. The available space may be used for the installation of a solar system.



CLIENT:	
PROJECT NAME	KADUNA SOLAR PROJECT
REFERENCE DRAWING:	
DRAWING NO:	
TITLE:	BADARAWA PHC LAYOUT
DESCRIPTION:	
DRAWN:	
CHECKED BY:	
DATE:	Sept. 2015

NO	NAME	DATE
A		
B		
C		
D		

SHEET NO:	1	TOTAL SHEETS:	1
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Scale:

LEGEND:

LEGEND	
BH	BORE HOLE
SL	SOLAR LIGHT
SA	SOAK AWAY
RD	REFUSE DUMP
T	TOILET
P	POLE
OV	OVER HEAD TANK
WT	WATER TANK

APPROVAL	<input type="checkbox"/> APPROVED	<input type="checkbox"/> APPROVED WITH COMMENTS
	<input type="checkbox"/> NOT APPROVED	<input checked="" type="checkbox"/> FOR INFORMATION
	<input type="checkbox"/> FOR APPROVAL	
	DATE:	SIGNATURE / STAMP



## SUMMARY FOR JERE PHC

This summary report is based on the findings of the site survey team of EM-ONE on September 1, 2015.

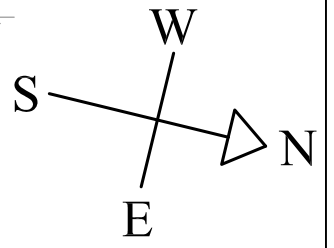
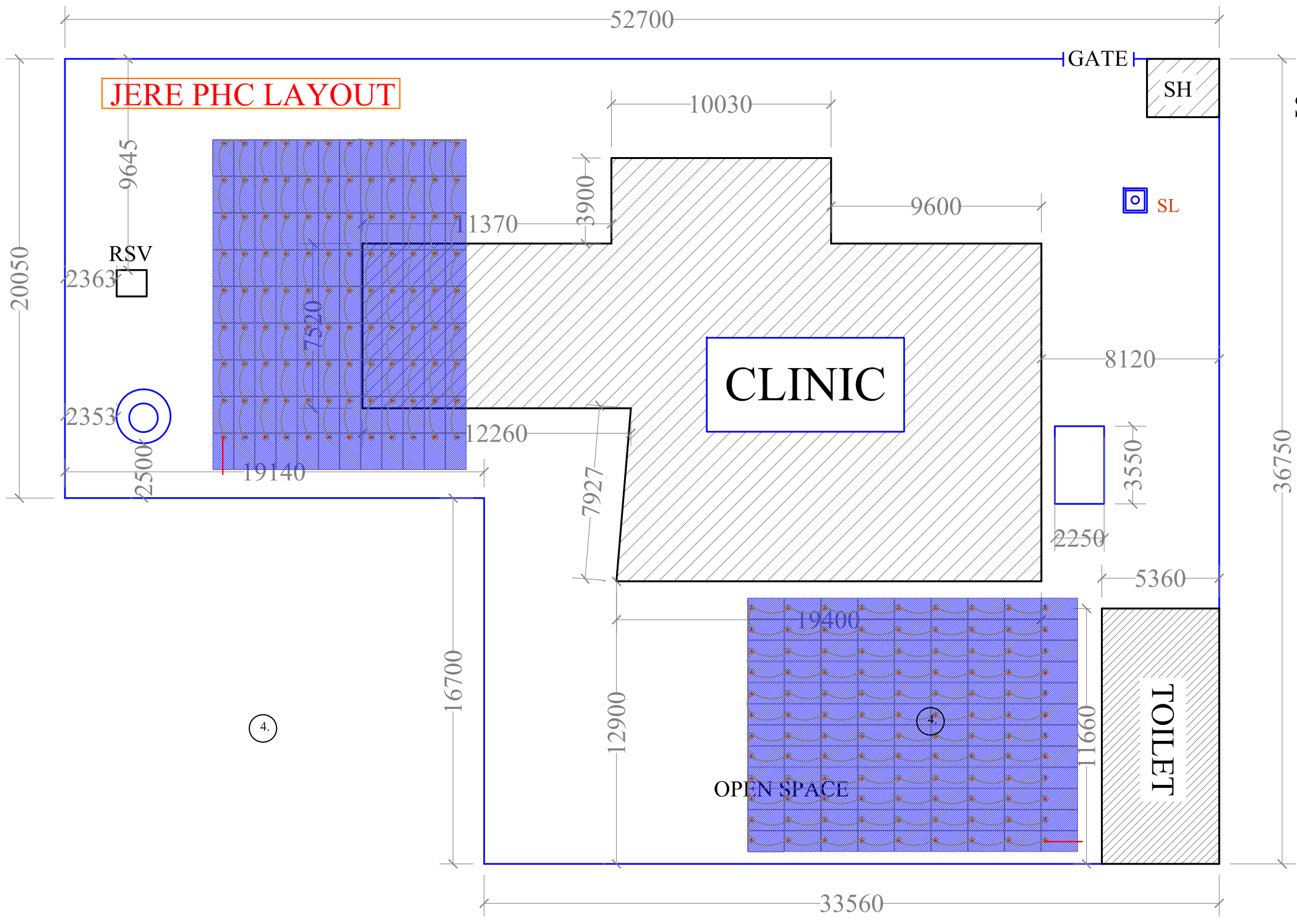
Secure Empty Space	Size of available space		Building Shading	Number of buildings in PHC	Height of tallest building (m)
	L (m)	B (m)			
Yes	28	12	No	3	5
Telecommunication network available			Site Topography		
MTN/GLO			UNEVEN SURFACE /WITH LOAMY SOIL OBSERVED		

### Notes

1. Due to weak signal reception at the PHC, there will be telecommunication issues.
2. Overhead lines at the entrance of the PHC will cause problems for heavy vehicles entering the PHC.

### Recommendations

1. Alternative telecommunication services must be considered for system remote monitoring.
2. Overhead powerlines must be relocated or raised higher for vehicle access.



CLIENT:

PROJECT NAME	KADUNA SOLAR PROJECT
REFERENCE DRAWING:	
DRAWING NO:	
TITLE:	
DESCRIPTION:	
DRAWN:	
CHECKED BY:	
DATE:	Sept. 2015

NO	NAME	DATE
A		
B		
C		
D		

SHEET NO: 1 TOTAL SHEETS: 1

Scale:

LEGEND:

LEGEND	
RSV	RESERVOIR
SL	SOLAR LIGHT
SH	SECURITY HOUSE

APPROVAL

<input type="checkbox"/> APPROVED	<input type="checkbox"/> APPROVED WITH COMMENTS
<input type="checkbox"/> NOT APPROVED	<input checked="" type="checkbox"/> FOR INFORMATION
<input type="checkbox"/> FOR APPROVAL	

DATE: \_\_\_\_\_ SIGNATURE / STAMP \_\_\_\_\_

## SUMMARY FOR ABDU KWARI PHC

This summary report is based on the findings of the site survey team of EM-ONE on September 1, 2015.

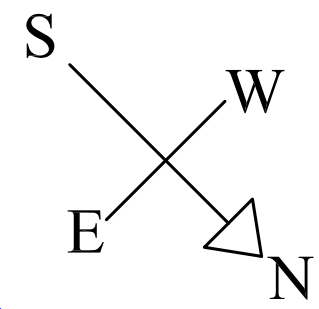
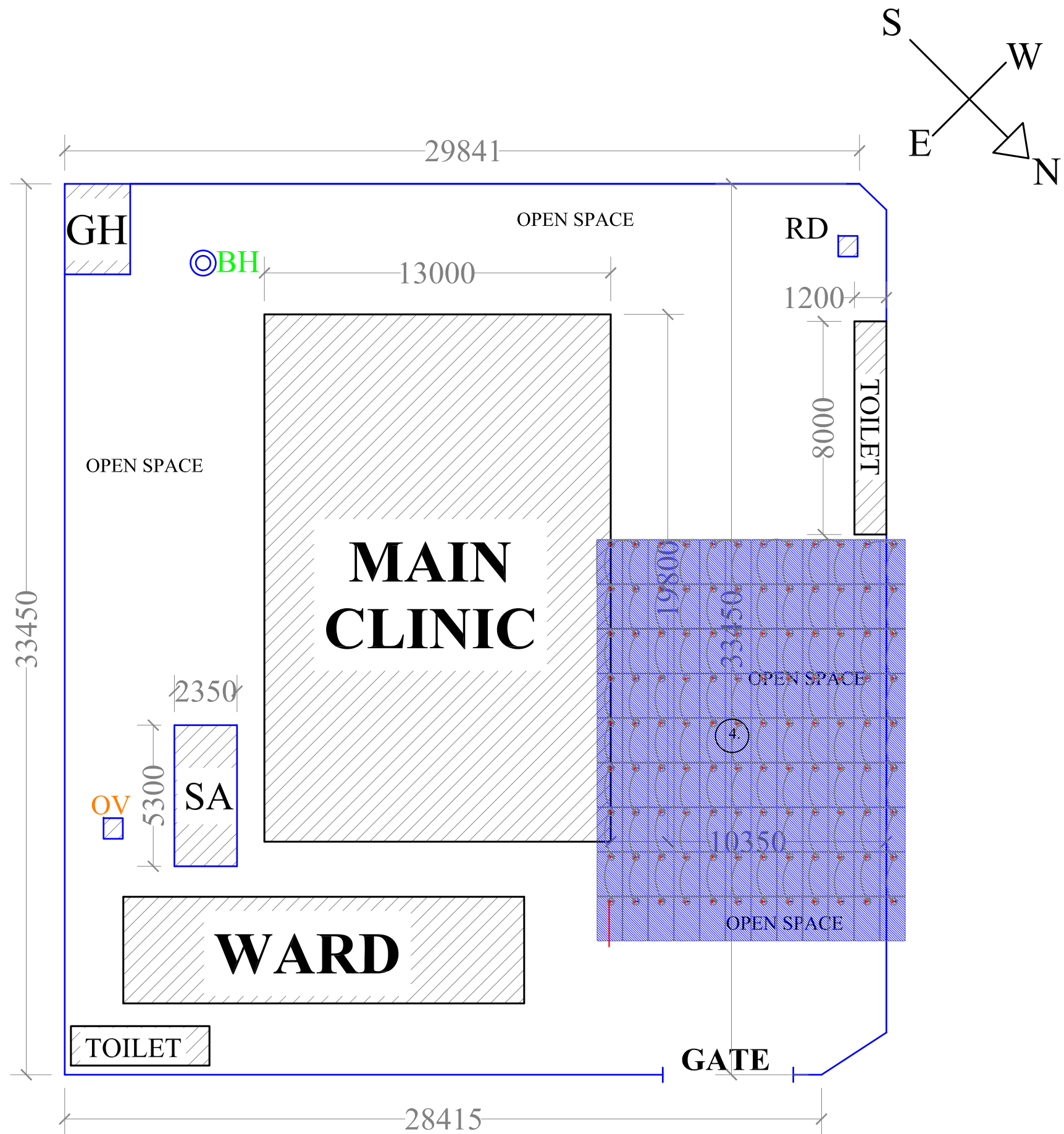
Secure Empty Space	Size of available space		Building Shading	Number of buildings in PHC	Height of tallest building (m)
	L (m)	B (m)			
No	34	10	No	3	4
Telecommunication network available			Site Topography		
MTN/GLO/AIRTEL/ETISALAT			FLAT SURFACE /WITH LOAMY SOIL OBSERVED		

### Notes

1. Weak signal reception at this PHC will cause telecommunication problems of the available service providers.
2. Overhead powerlines hanging at the entrance into the PHC may cause problems for heavy vehicles entering the PHC.

### Recommendations

1. Alternative telecommunication services must be considered for system remote monitoring.
2. Overhead lines must be relocated or raised higher for ease of vehicle access.



CLIENT:

DRAWING DETAILS	PROJECT NAME	KADUNA SOLAR PROJECT																
	REFERENCE DRAWING:																	
	DRAWING NO:																	
	TITLE:	ABDU KWARI PHC LAYOUT																
	DESCRIPTION:																	
	DRAWN:																	
	CHECKED BY:																	
DATE:	Sept. 2015																	
REVISIONS	NO	NAME	DATE															
	A																	
	B																	
	C																	
	D																	
SHEET NO:	1	TOTAL SHEETS:	1															
Scale:																		
LEGEND:	<table border="1"> <thead> <tr> <th colspan="2">LEGEND</th> </tr> </thead> <tbody> <tr> <td>BH</td> <td>BORE HOLE</td> </tr> <tr> <td>GH</td> <td>GEN HOUSE</td> </tr> <tr> <td>SA</td> <td>SOAK AWAY</td> </tr> <tr> <td>RD</td> <td>REFUSE DUMP</td> </tr> <tr> <td>T</td> <td>TOILET</td> </tr> <tr> <td>OV</td> <td>OVER HEAD TANK</td> </tr> </tbody> </table>				LEGEND		BH	BORE HOLE	GH	GEN HOUSE	SA	SOAK AWAY	RD	REFUSE DUMP	T	TOILET	OV	OVER HEAD TANK
LEGEND																		
BH	BORE HOLE																	
GH	GEN HOUSE																	
SA	SOAK AWAY																	
RD	REFUSE DUMP																	
T	TOILET																	
OV	OVER HEAD TANK																	
APPROVAL	<input type="checkbox"/> APPROVED	<input type="checkbox"/> APPROVED WITH COMMENTS																
	<input type="checkbox"/> NOT APPROVED	<input checked="" type="checkbox"/> FOR INFORMATION																
	<input type="checkbox"/> FOR APPROVAL																	
	DATE:	SIGNATURE / STAMP																

**ABDU KWARI PHC LAYOUT**

## SUMMARY FOR ASSO PHC

This summary report is based on the findings of the site survey team of EM-ONE on September 1, 2015.

Secure Empty Space	Size of available space		Building Shading	Number of buildings in PHC	Height of tallest building (m)
	L (m)	B (m)			
Yes	30	13	No	2	4.5
Telecommunication network available			Site Topography		
GLO/ETISALAT			FLAT SURFACE /WITH LOAMY SOIL OBSERVED		

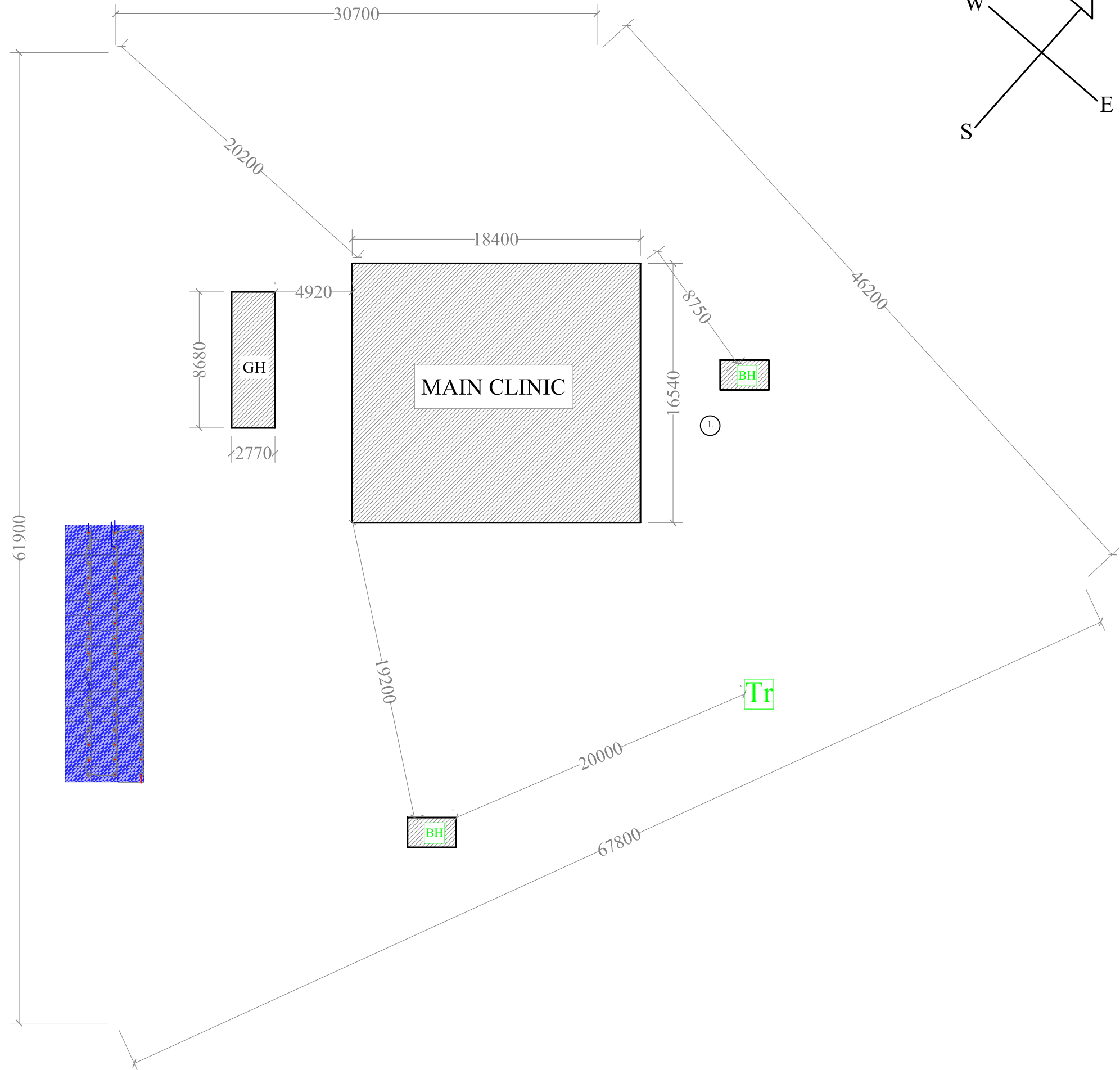
### Notes

1. This PHC has no boundary wall.

### Recommendations

1. Boundary wall must be constructed to secure PHC and installation.

**ASSO PHC LAYOUT**



CLIENT:

DRAWING DETAILS	PROJECT NAME	KADUNA SOLAR PROJECT
	REFERENCE DRAWING:	
	DRAWING NO:	
	TITLE:	ASSO PHC SITE LAYOUT
	DESCRIPTION:	
	DRAWN:	
	CHECKED BY:	
DATE:	Sept. 2015	

NO	NAME	DATE
A		
B		
C		
D		

SHEET NO:	1	TOTAL SHEETS:	1
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Scale:

LEGEND:

LEGEND	
	BORE HOLE
	TREE
	GENERATOR HOUSE

APPROVAL	<input type="checkbox"/> APPROVED	<input type="checkbox"/> APPROVED WITH COMMENTS
	<input type="checkbox"/> NOT APPROVED	<input checked="" type="checkbox"/> FOR INFORMATION
	<input type="checkbox"/> FOR APPROVAL	
	DATE: _____	SIGNATURE / STAMP _____

## SUMMARY FOR AWON PHC

This summary report is based on the findings of the site survey team of EM-ONE on September 1, 2015.

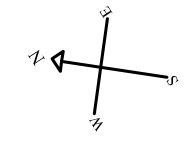
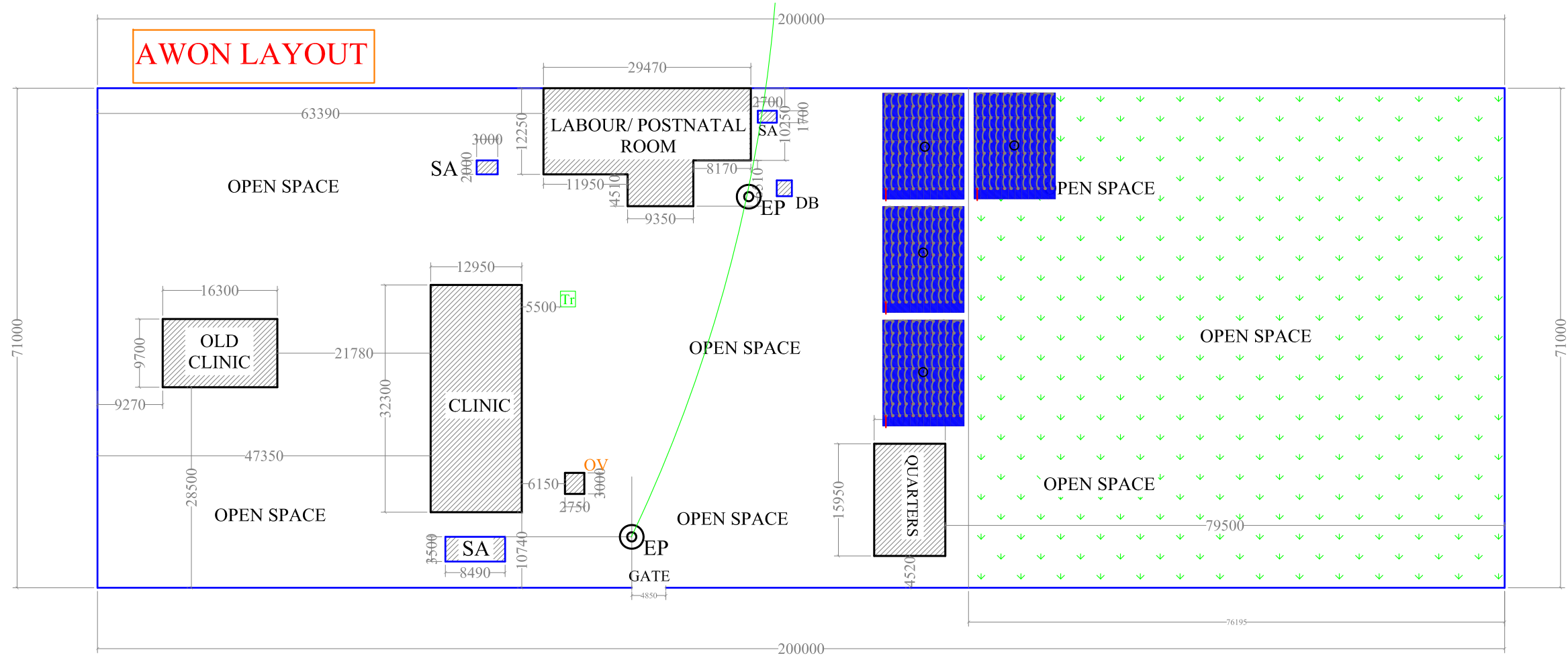
Secure Empty Space	Size of available space		Building Shading	Number of buildings in PHC	Height of tallest building (m)
	L (m)	B (m)			
Yes	76	71	No	4	5
Telecommunication network available			Site Topography		
MTN/GLO/ETISALAT/STARCOMS			FLAT SURFACE /WITH LOAMY SOIL OBSERVED		

### Notes

1. Overhead powerline crossing the PHC must be relocated (indicated as EP on layout)
2. Available space is used for farming.

### Recommendations

1. Overhead powerlines must be relocated.
2. Available space must be cleared of vegetation.



**CLIENT:**

<b>PROJECT NAME:</b>	KADUNA SOLAR PROJECT
<b>REFERENCE DRAWING:</b>	
<b>DRAWING NO:</b>	
<b>TITLE:</b>	AWON PHC LAYOUT
<b>DESCRIPTION:</b>	
<b>DRAWN:</b>	
<b>CHECKED BY:</b>	
<b>DATE:</b>	Sept. 2015

NO	NAME	DATE
A		
B		
C		
D		

**SHEET NO:** 1      **TOTAL SHEETS:** 1

**Scale:**

**LEGEND:**

<b>LEGEND</b>	
Tr	TREE
DB	DUST BIN
OV	OVERHEAD TANK
SA	SOAK AWAY
EP	ELECTRIC POLE

**APPROVAL**

<input type="checkbox"/> APPROVED	<input type="checkbox"/> APPROVED WITH COMMENTS
<input type="checkbox"/> NOT APPROVED	<input checked="" type="checkbox"/> FOR INFORMATION
<input type="checkbox"/> FOR APPROVAL	

DATE: \_\_\_\_\_ SIGNATURE / STAMP: \_\_\_\_\_



## SUMMARY FOR BADIKO PHC

This summary report is based on the findings of the site survey team of EM-ONE on September 1, 2015.

Secure Empty Space	Size of available space		Building Shading	Number of buildings in PHC	Height of tallest building (m)
	L (m)	B (m)			
Yes	24.46	11.65	No	4	5
Telecommunication network available			Site Topography		
MTN/AIRTEL			FLAT SURFACE /WITH LOAMY SOIL OBSERVED		

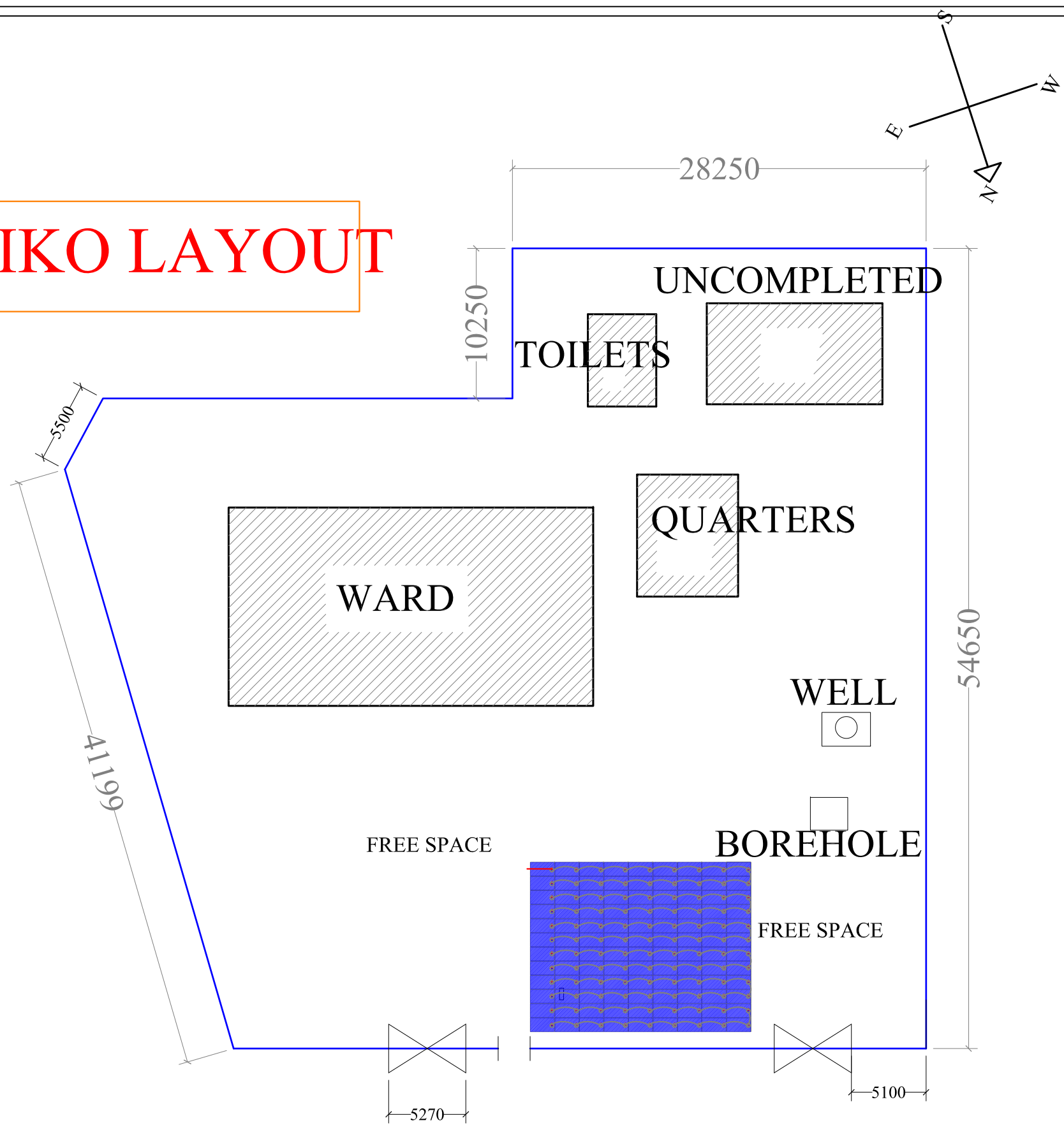
### Notes

1. Access road to PHC is rough terrain.

### Recommendations

1. Access road must be repaired.
2. Carport design proposed in the front of the PHC.

# BADIKO LAYOUT



CLIENT:

DRAWING DETAILS	PROJECT NAME	KADUNA SOLAR PROJECT		
	REFERENCE DRAWING:			
	DRAWING NO:			
	TITLE:	BADIKO PHC LAYOUT		
	DESCRIPTION:			
	DRAWN:			
	CHECKED BY:			
DATE:	Sept. 2015			
REVISIONS	NO	NAME	DATE	
	A			
	B			
	C			
	D			
SHEET NO:	1	TOTAL SHEETS:	1	
Scale:				
LEGEND:				
APPROVAL	<input type="checkbox"/> APPROVED	<input type="checkbox"/> APPROVED WITH COMMENTS		
	<input type="checkbox"/> NOT APPROVED	<input checked="" type="checkbox"/> FOR INFORMATION		
	<input type="checkbox"/> FOR APPROVAL			
	DATE:	SIGNATURE / STAMP		

## SUMMARY FOR DADDU PHC

This summary report is based on the findings of the site survey team of EM-ONE on September 1, 2015.

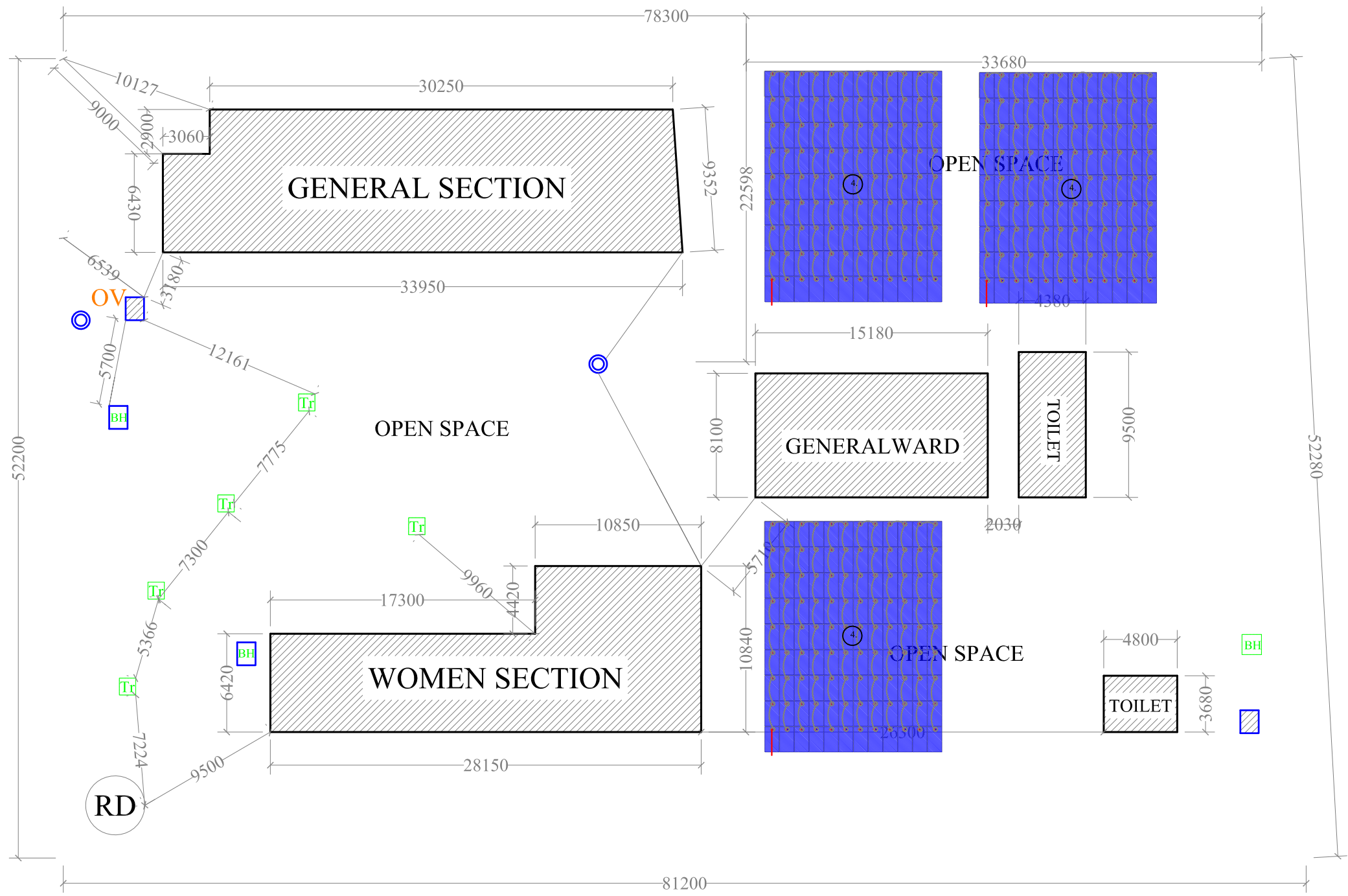
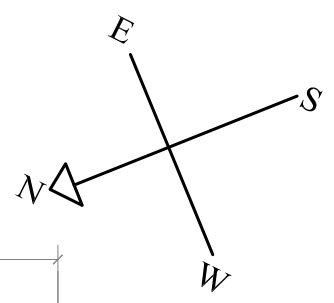
Secure Empty Space	Size of available space		Building Shading	Number of buildings in PHC	Height of tallest building (m)
	L (m)	B (m)			
Yes	35.7	27.5	No	5	3.7
Telecommunication network available			Site Topography		
MTN/GLO/ETISALAT			FLAT SURFACE /WITH SANDY CLAY SOIL OBSERVED		

### Notes

1. This PHC has no boundary wall.

### Recommendations

1. Boundary wall must be constructed to secure the installed system.



**DADDU PHC LAYOUT**

CLIENT:	
PROJECT NAME	KADUNA SOLAR PROJECT
REFERENCE DRAWING:	
DRAWING NO:	
TITLE:	DADDU PHC SITE LAYOUT
DESCRIPTION:	
DRAWN:	
CHECKED BY:	
DATE:	Sept. 2015

NO	NAME	DATE
A		
B		
C		
D		

SHEET NO:	1	TOTAL SHEETS:	1
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Scale:

LEGEND:

LEGEND	
	REFUSE DUMP
	OVERHEAD TANK
	TREE
	BORE HOLE

APPROVAL	<input type="checkbox"/> APPROVED	<input type="checkbox"/> APPROVED WITH COMMENTS
	<input type="checkbox"/> NOT APPROVED	<input checked="" type="checkbox"/> FOR INFORMATION
	<input type="checkbox"/> FOR APPROVAL	
	DATE:	SIGNATURE / STAMP

## SUMMARY FOR DAMAKASUWA PHC

This summary report is based on the findings of the site survey team of EM-ONE on September 1, 2015.

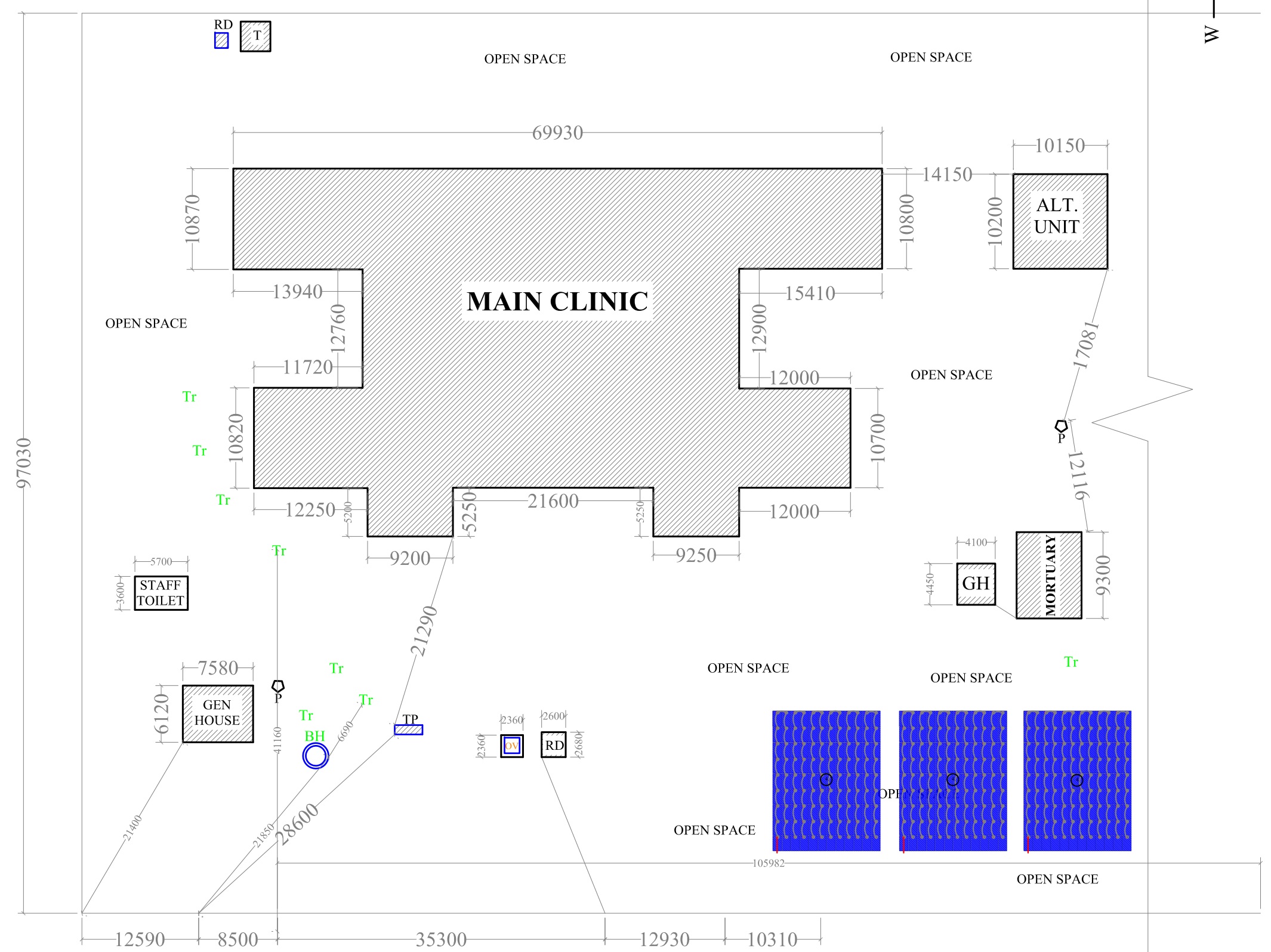
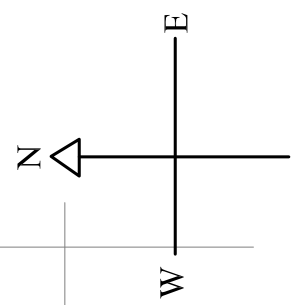
Secure Empty Space	Size of available space		Building Shading	Number of buildings in PHC	Height of tallest building (m)
	L (m)	B (m)			
Yes	100	40	No	7	4.4
Telecommunication network available			Site Topography		
MTN/GLO/AIRTEL			FLAT SURFACE /WITH SANDY STONE SOIL OBSERVED		

### Notes

1. Boundary wall in the PHC is not complete with front of wall missing.

### Recommendations

1. Boundary wall must be completed to secure installation and PHC.



**DMAKASUWA PHC LAYOUT**

CLIENT:	
PROJECT NAME	KADUNA SOLAR PROJECT
REFERENCE DRAWING:	
DRAWING NO:	
TITLE:	DAMAKASUWA PHC LAYOUT
DESCRIPTION:	
DRAWN:	
CHECKED BY:	
DATE:	Sept. 2015

NO	NAME	DATE
A		
B		
C		
D		

SHEET NO:	1	TOTAL SHEETS:	1
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Scale:

LEGEND:

LEGEND	
BH	BORE HOLE
Tr	TREE
P	POLE
RD	REFUSE DUMP
T	TOILET
OV	OVERHEAD TANK
TP	TAP

APPROVAL	<input type="checkbox"/> APPROVED	<input type="checkbox"/> APPROVED WITH COMMENTS
	<input type="checkbox"/> NOT APPROVED	<input checked="" type="checkbox"/> FOR INFORMATION
	<input type="checkbox"/> FOR APPROVAL	
	DATE:	SIGNATURE / STAMP

## SUMMARY FOR DAMAU PHC

This summary report is based on the findings of the site survey team of EM-ONE on September 1, 2015.

Secure Empty Space	Size of available space		Building Shading	Number of buildings in PHC	Height of tallest building (m)
	L (m)	B (m)			
Yes	35	15	No	1	5
Telecommunication network available			Site Topography		
MTN			FLAT SURFACE /WITH MUDDY SOIL OBSERVED		

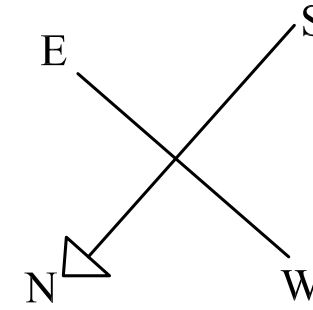
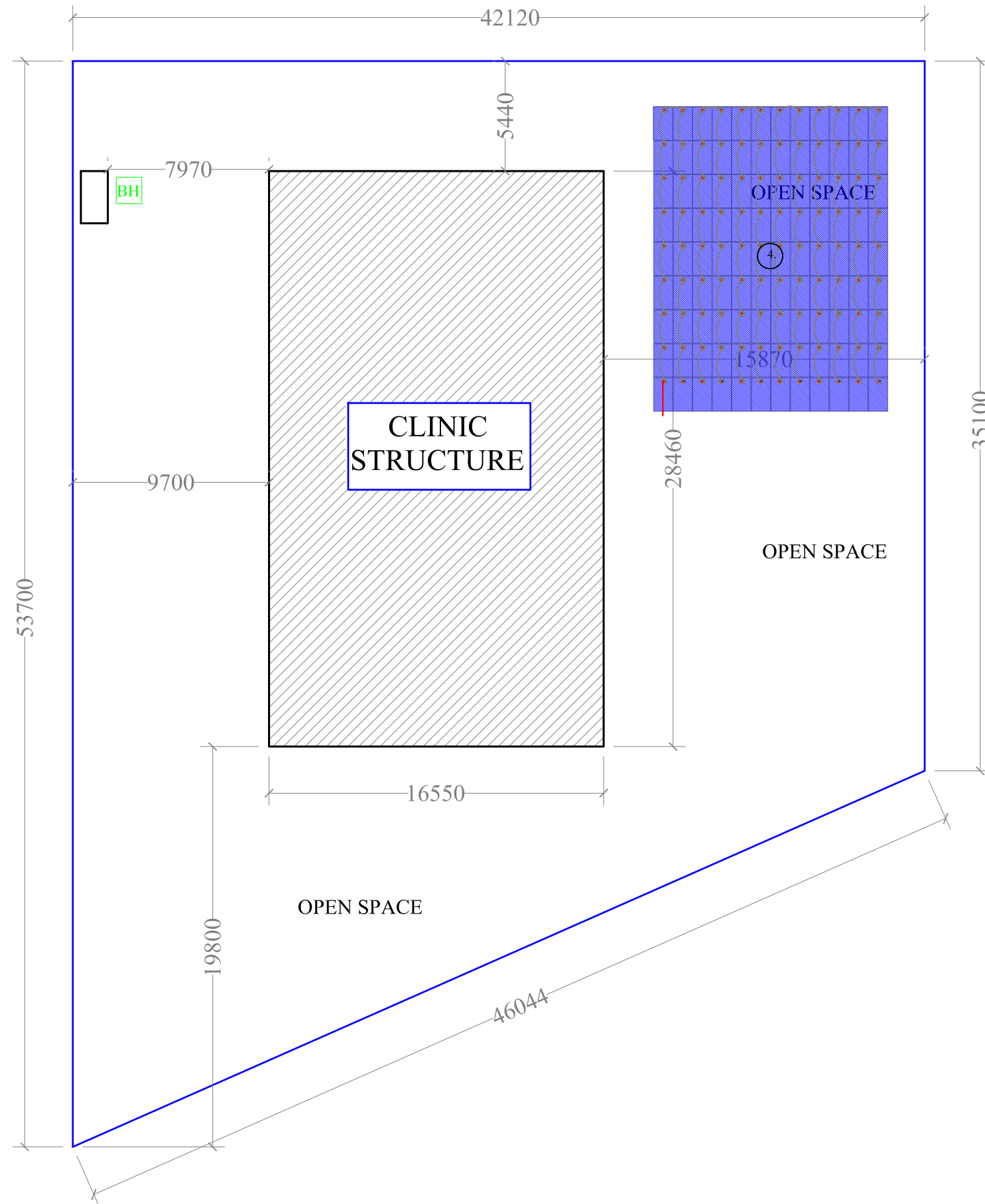
### Notes

1. Boundary wall in the PHC available but is missing an entrance gate.

### Recommendations

1. Entrance gate must be constructed to secure installation and PHC.

**DAMAU PHC LAYOUT**



CLIENT:											
DRAWING DETAILS	PROJECT NAME	KADUNA SOLAR PROJECT									
	REFERENCE DRAWING:										
	DRAWING NO:										
	TITLE:	DAMAU PHC									
	DESCRIPTION:										
	DRAWN:										
	CHECKED BY:										
DATE:	Sept. 2015										
REVISIONS	NO	NAME	DATE								
	A										
	B										
	C										
	D										
SHEET NO:	1	TOTAL SHEETS:	1								
Scale:											
LEGEND:											
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LEGEND											
RSV	RESERVOIR										
SL	SOLAR LIGHT										
SH	SECURITY HOUSE										
<table border="1"> <tr> <th colspan="2">LEGEND</th> </tr> <tr> <td>BH</td> <td>BORE HOLE</td> </tr> </table>				LEGEND		BH	BORE HOLE				
LEGEND											
BH	BORE HOLE										
APPROVAL	<input type="checkbox"/> APPROVED	<input type="checkbox"/> APPROVED WITH COMMENTS									
	<input type="checkbox"/> NOT APPROVED	<input checked="" type="checkbox"/> FOR INFORMATION									
	<input type="checkbox"/> FOR APPROVAL										
	DATE:	SIGNATURE / STAMP									

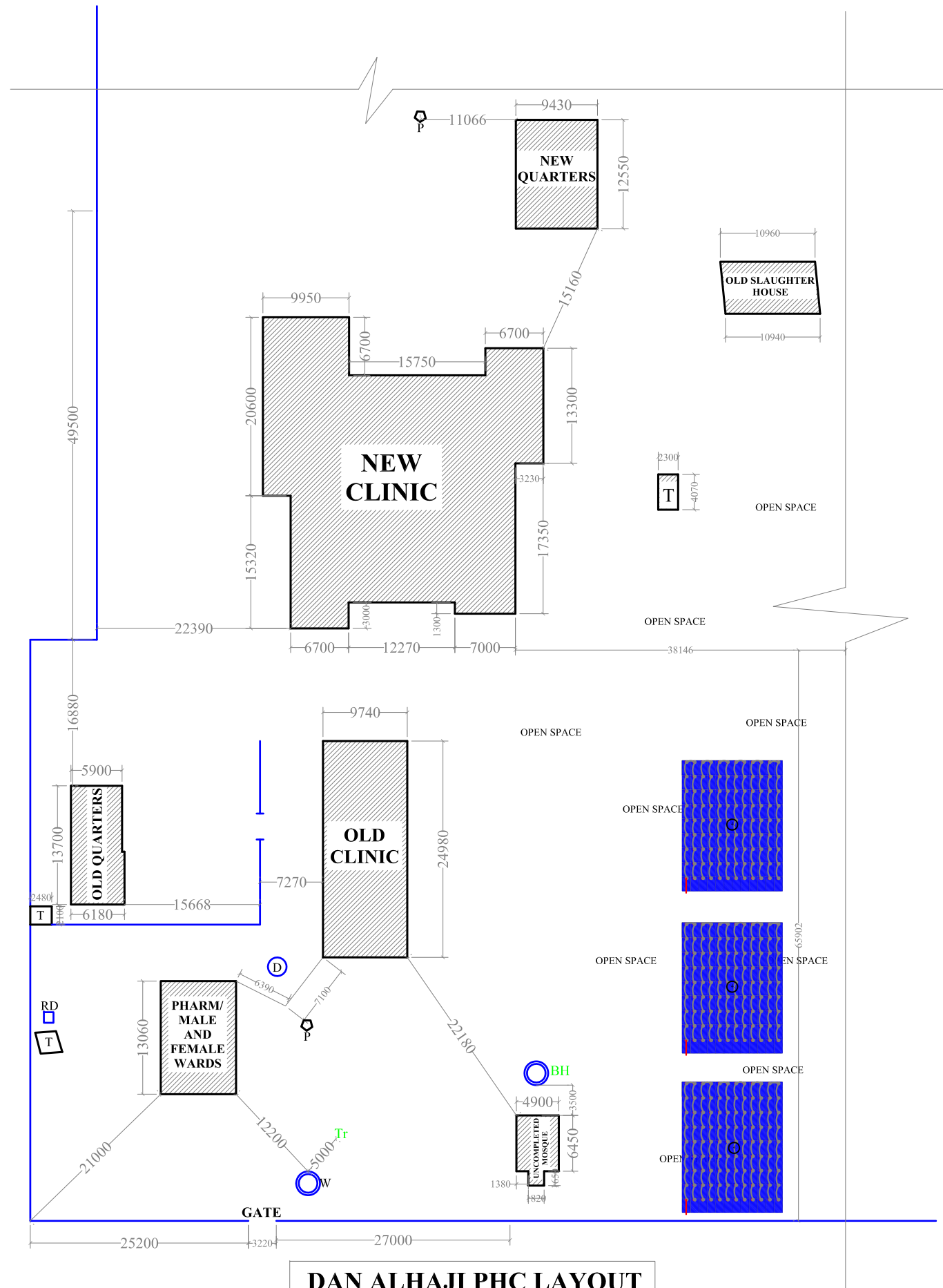


## SUMMARY FOR DAN ALHAJI PHC

This summary report is based on the findings of the site survey team of EM-ONE on September 1, 2015.

Secure Empty Space	Size of available space		Building Shading	Number of buildings in PHC	Height of tallest building (m)
	L (m)	B (m)			
Yes	65	38	No	5	5
Telecommunication network available			Site Topography		
MTN/GLO			FLAT SURFACE /WITH LOAMY SOIL OBSERVED		

### Notes



**DAN ALHAJI PHC LAYOUT**

**CLIENT:**

<b>DRAWING DETAILS</b>	<b>PROJECT NAME</b>	<b>KADUNA SOLAR PROJECT</b>
	<b>REFERENCE DRAWING:</b>	
	<b>DRAWING NO:</b>	
	<b>TITLE:</b>	<b>DAN ALHAJI PHC LAYOUT</b>
	<b>DESCRIPTION:</b>	
	<b>DRAWN:</b>	
	<b>CHECKED BY:</b>	
<b>DATE:</b>	Sept. 2015	

<b>REVISIONS</b>	<b>NO</b>	<b>NAME</b>	<b>DATE</b>
	A		
	B		
	C		
	D		

**SHEET NO:** 1      **TOTAL SHEETS:** 1

**Scale:**

**LEGEND:**

<b>LEGEND</b>	
BH	BORE HOLE
Tr	TREE
P	POLE
RD	REFUSE DUMP
T	TOILET
D	SATELLITE DISH
W	WELL

**APPROVAL**

<input type="checkbox"/> APPROVED	<input type="checkbox"/> APPROVED WITH COMMENTS
<input type="checkbox"/> NOT APPROVED	<input checked="" type="checkbox"/> FOR INFORMATION
<input type="checkbox"/> FOR APPROVAL	

DATE: \_\_\_\_\_ SIGNATURE / STAMP \_\_\_\_\_

## SUMMARY FOR DAN JINJIRI PHC

This summary report is based on the findings of the site survey team of EM-ONE on September 1, 2015.

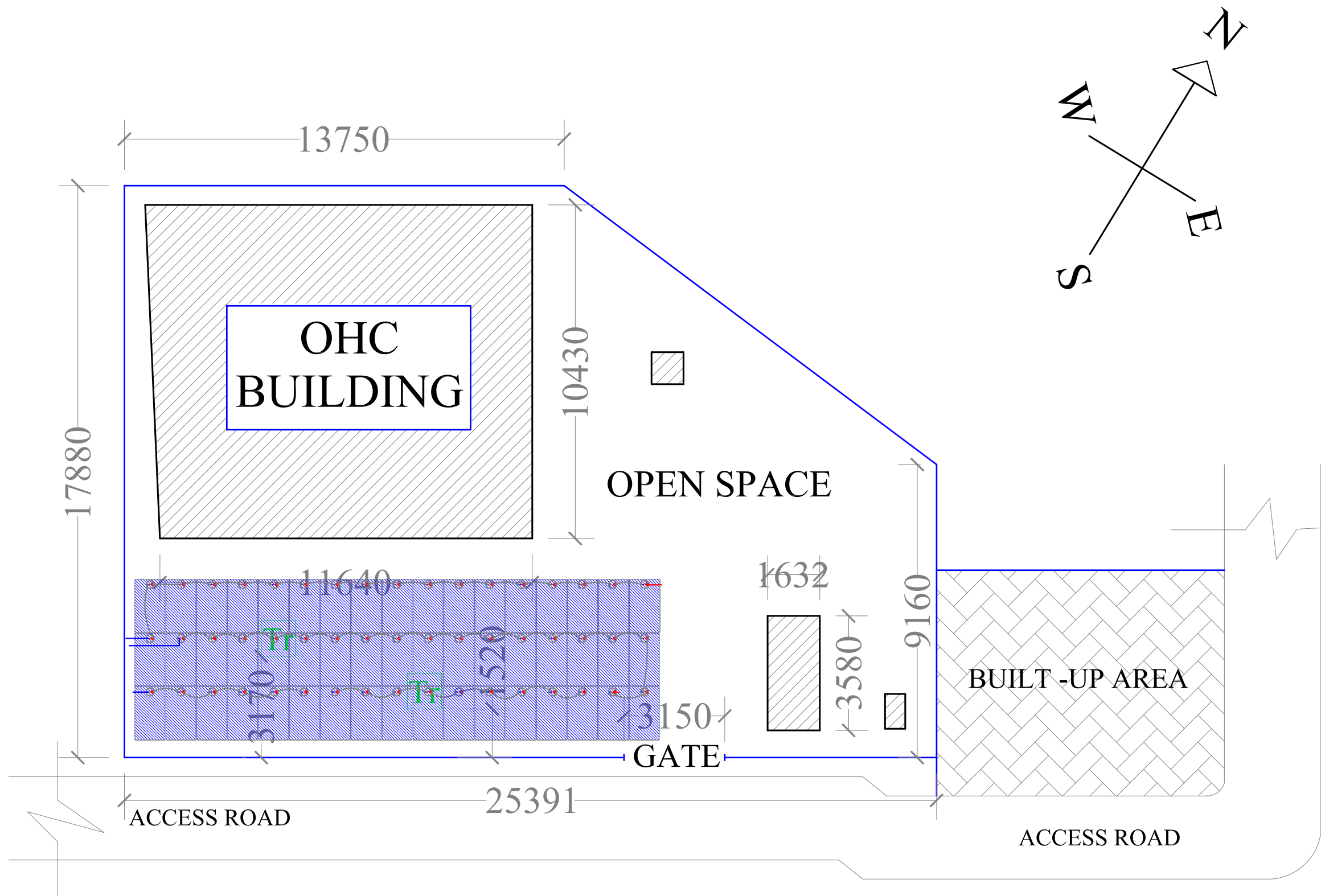
Secure Empty Space	Size of available free space		Building Shading	Number of buildings in PHC	Height of tallest building (m)
	L (m)	B (m)			
Yes	20	10	No	7	4
Telecommunication network available			Site Topography		
MTN/AIRTEL			FLAT SURFACE /WITH SANDY SOIL OBSERVED		

### Notes:

1. Boundary wall is not complete.
2. Available space is used for farming.
3. Available space has trees.

### Recommendations:

1. Boundary Wall must be completed for security.
2. Available space used for farming must be cleared of vegetation for a solar system to be installed.
3. Trees will cause obstruction and shading and must be cut down.



**DANJINJIRI**

CLIENT:			
PROJECT NAME	KADUNA SOLAR PROJECT		
REFERENCE DRAWING:			
DRAWING NO:			
TITLE:			
DESCRIPTION:			
DRAWN:			
CHECKED BY:			
DATE:	Sept. 2015		
NO	NAME	DATE	
A			
B			
C			
D			
SHEET NO:	1	TOTAL SHEETS:	1
Scale:			
LEGEND:			
<b>LEGEND</b>			
Tr	TREE		
APPROVAL	<input type="checkbox"/> APPROVED <input type="checkbox"/> APPROVED WITH COMMENTS <input type="checkbox"/> NOT APPROVED <input checked="" type="checkbox"/> FOR INFORMATION <input type="checkbox"/> FOR APPROVAL		
DATE: _____ SIGNATURE / STAMP _____			

## SUMMARY FOR DAN GUZURI PHC

This summary report is based on the findings of the site survey team of EM-ONE on September 1, 2015.

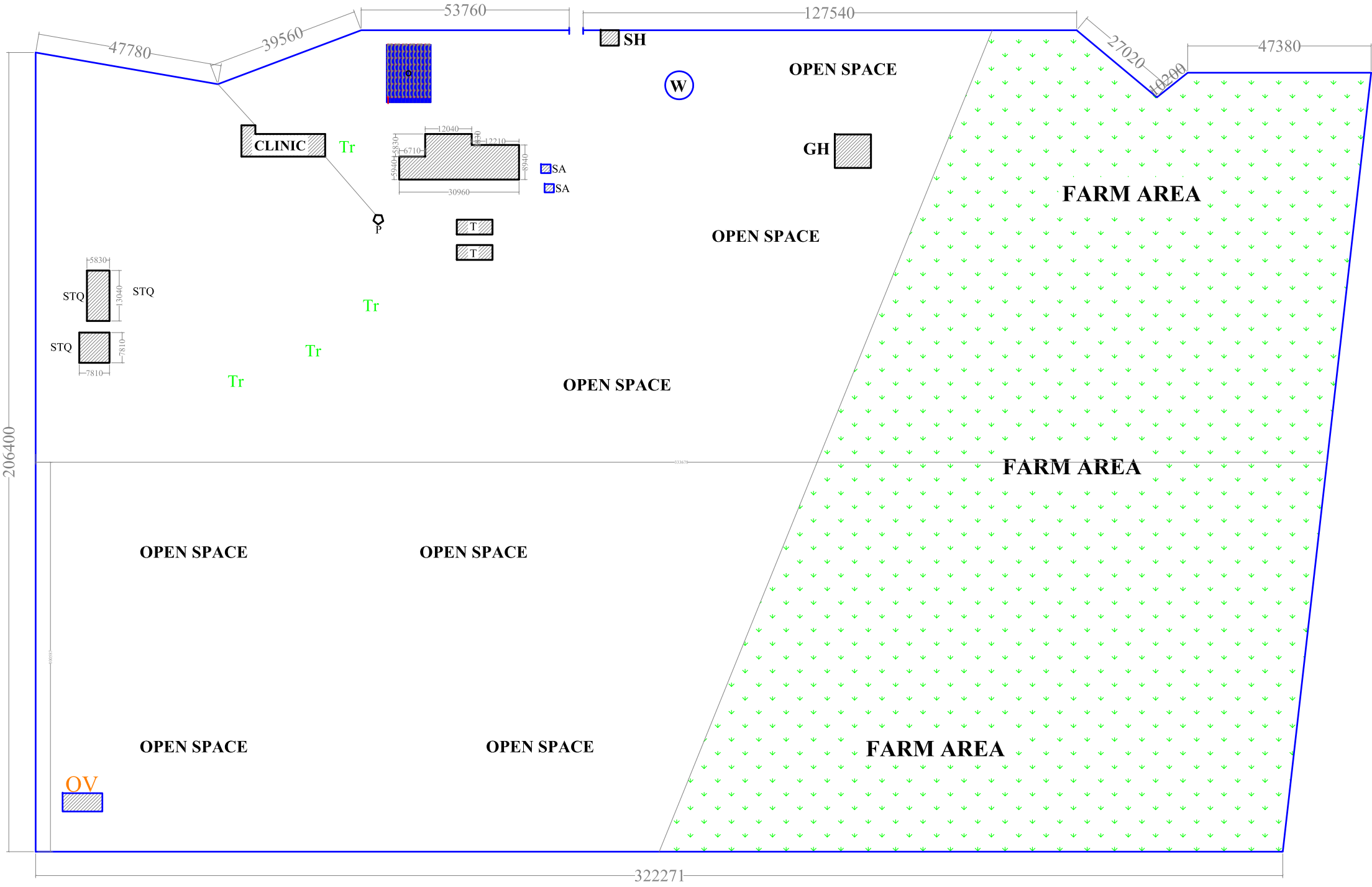
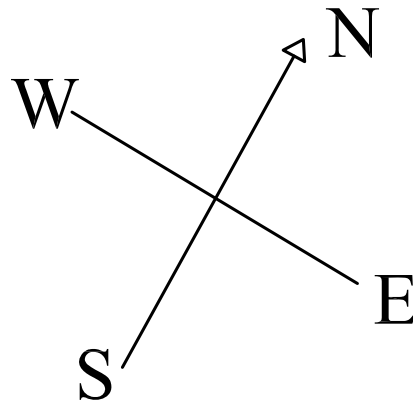
Secure Empty Space	Size of available free space		Building Shading	Number of buildings in PHC	Height of tallest building (m)
	L (m)	B (m)			
Yes	333	100	No	7	4
Telecommunication network available			Site Topography		
MTN/AIRTEL			FLAT SURFACE /WITH SANDY SOIL OBSERVED		

### Notes:

1. Boundary wall is not complete.
2. Available space is used for farming.
3. Available space has trees.

### Recommendations:

1. Boundary Wall must be completed for security.
2. Available space used for farming must be cleared of vegetation for a solar system to be installed.
3. Trees will cause obstruction and shading and must be cut down.



**DANGUZRI PHC LAYOUT**

CLIENT:

PROJECT NAME	KADUNA SOLAR PROJECT
REFERENCE DRAWING:	
DRAWING NO:	
TITLE:	DAN GUZIRI PHC LAYOUT
DESCRIPTION:	
DRAWN:	
CHECKED BY:	
DATE:	Sept. 2015

NO	NAME	DATE
A		
B		
C		
D		

SHEET NO: 1 TOTAL SHEETS: 1

Scale:

LEGEND:

LEGEND	
Tr	TREE
GH	GEN HOUSE
SA	SOAK AWAY
RD	REFUSE DUMP
T	TOILET
OV	OVER HEAD TANK
P	POLE
SH	SECURITY HOUSE
STQ	QUARTERS

APPROVAL

<input type="checkbox"/> APPROVED	<input type="checkbox"/> APPROVED WITH COMMENTS
<input type="checkbox"/> NOT APPROVED	<input checked="" type="checkbox"/> FOR INFORMATION
<input type="checkbox"/> FOR APPROVAL	

DATE: \_\_\_\_\_ SIGNATURE / STAMP \_\_\_\_\_

## SUMMARY FOR DAN WATA PHC

This summary report is based on the findings of the site survey team of EM-ONE on September 1, 2015.

Secure Empty Space	Size of available free space		Building Shading	Number of buildings in PHC	Height of tallest building (m)
	L (m)	B (m)			
Yes	44	25	No	2	4.5
Telecommunication network available			Site Topography		
ETISALAT			FLAT SURFACE /WITH MUDDY SOIL OBSERVED		

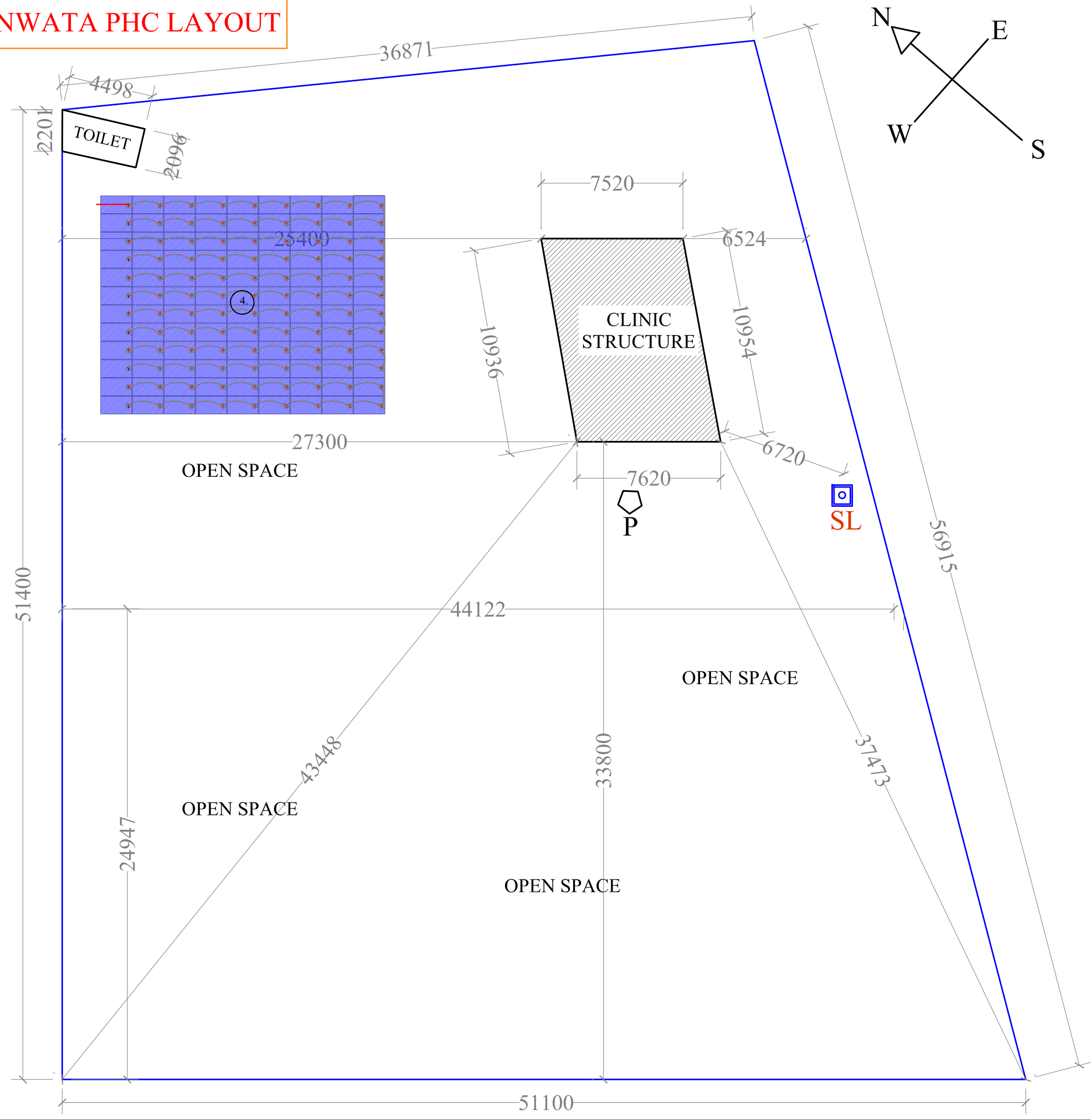
### Notes:

1. This PHC has no gate.

### Recommendations:

1. Entrance gate must be provided to secure the facility.

**DANWATA PHC LAYOUT**



CLIENT:

DRAWING DETAILS	PROJECT NAME	KADUNA SOLAR PROJECT		
	REFERENCE DRAWING:			
	DRAWING NO:			
	TITLE:	DANWATA PHC LAYOUT		
	DESCRIPTION:			
	DRAWN:			
CHECKED BY:				
DATE:	Sept. 2015			

REVISIONS	NO	NAME	DATE	
	A			
	B			
	C			
	D			

SHEET NO: 1 TOTAL SHEETS: 1

Scale:

LEGEND:

LEGEND	
	BORE HOLE
	TREE
	FAMILY PLANNING ROOM
	SECURITY HOUSE

APPROVAL

<input type="checkbox"/> APPROVED	<input type="checkbox"/> APPROVED WITH COMMENTS
<input type="checkbox"/> NOT APPROVED	<input checked="" type="checkbox"/> FOR INFORMATION
<input type="checkbox"/> FOR APPROVAL	

DATE: \_\_\_\_\_ SIGNATURE / STAMP \_\_\_\_\_



## SUMMARY FOR FAI PHC

This summary report is based on the findings of the site survey team of EM-ONE on September 1, 2015.

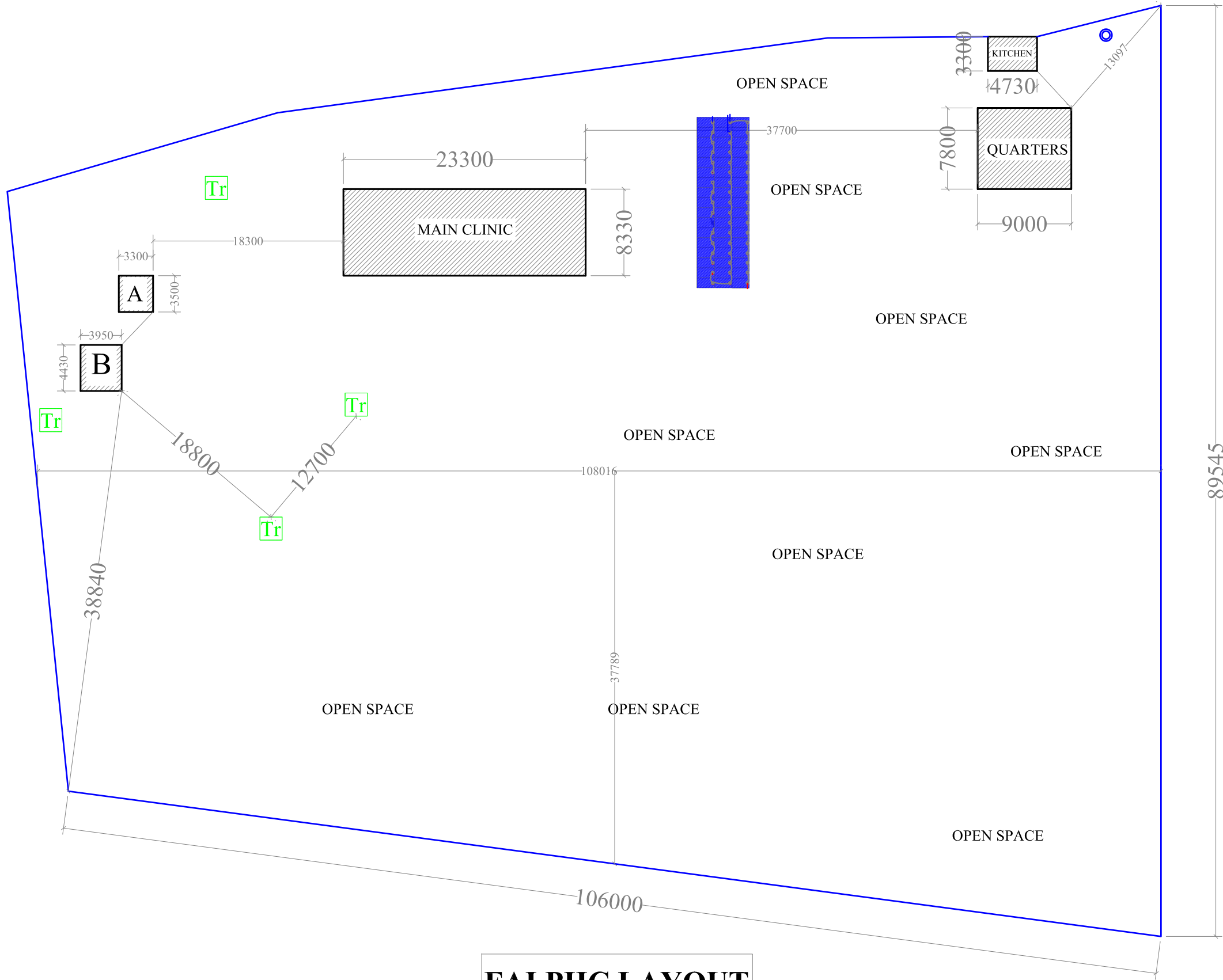
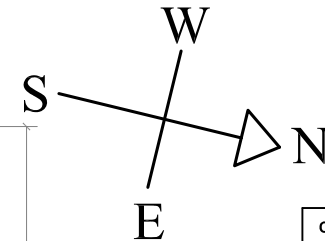
Secure Empty Space	Size of available free space		Building Shading	Number of buildings in PHC	Height of tallest building (m)
	L (m)	B (m)			
Yes	108	40	No	3	3.5
Telecommunication network available			Site Topography		
AIRTEL/GLO			FLAT SURFACE /WITH CLAY SOIL OBSERVED		

### Notes:

1. This PHC has no boundary wall.

### Recommendations:

1. Boundary wall must be constructed to secure facility.



**FAI PHC LAYOUT**

CLIENT:	
PROJECT NAME	KADUNA SOLAR PROJECT
REFERENCE DRAWING:	
DRAWING NO:	
TITLE:	FAI PHC LAYOUT
DESCRIPTION:	
DRAWN:	
CHECKED BY:	
DATE:	Sept. 2015

NO	NAME	DATE
A		
B		
C		
D		

SHEET NO:	1	TOTAL SHEETS:	1
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Scale:

**LEGEND:**

LEGEND	
A	TOILET
B	URINE AREA
Tr	TREE

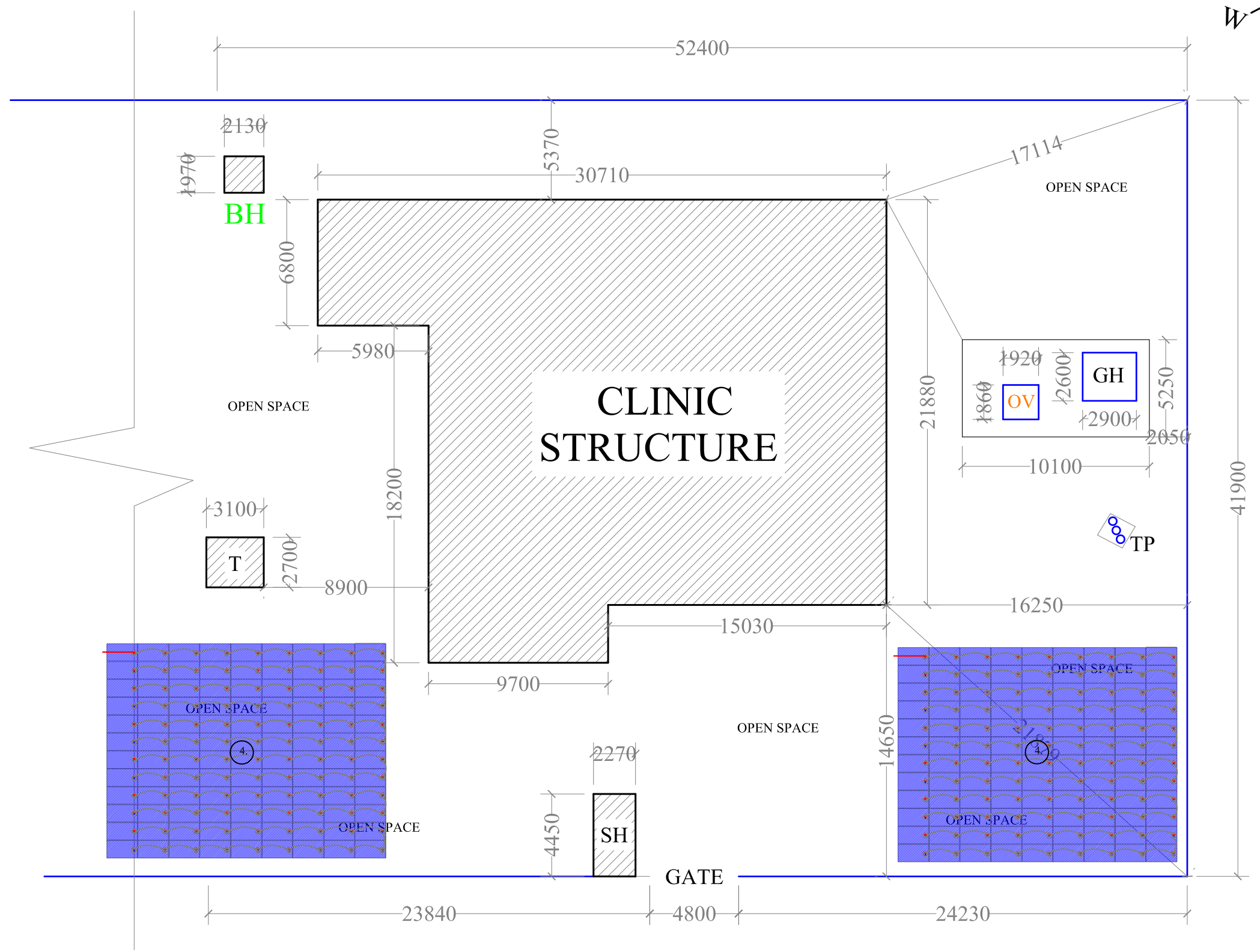
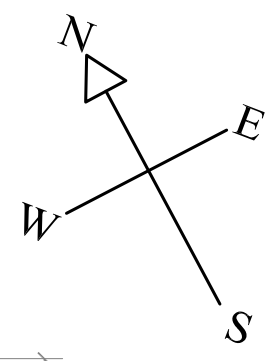
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	<input type="checkbox"/> NOT APPROVED	<input checked="" type="checkbox"/> FOR INFORMATION
	<input type="checkbox"/> FOR APPROVAL	
	DATE:	SIGNATURE / STAMP

## SUMMARY FOR GALADIMAWA PHC

This summary report is based on the findings of the site survey team of EM-ONE on September 1, 2015.

Secure Empty Space	Size of available free space		Building Shading	Number of buildings in PHC	Height of tallest building (m)
	L (m)	B (m)			
Yes	41	16	No	4	6
Telecommunication network available			Site Topography		
MTN/ETISALAT			UNEVEN SURFACE /WITH SANDY LOAM SOIL OBSERVED		

**Notes:**



**GALADIMAWA PHC LAYOUT**

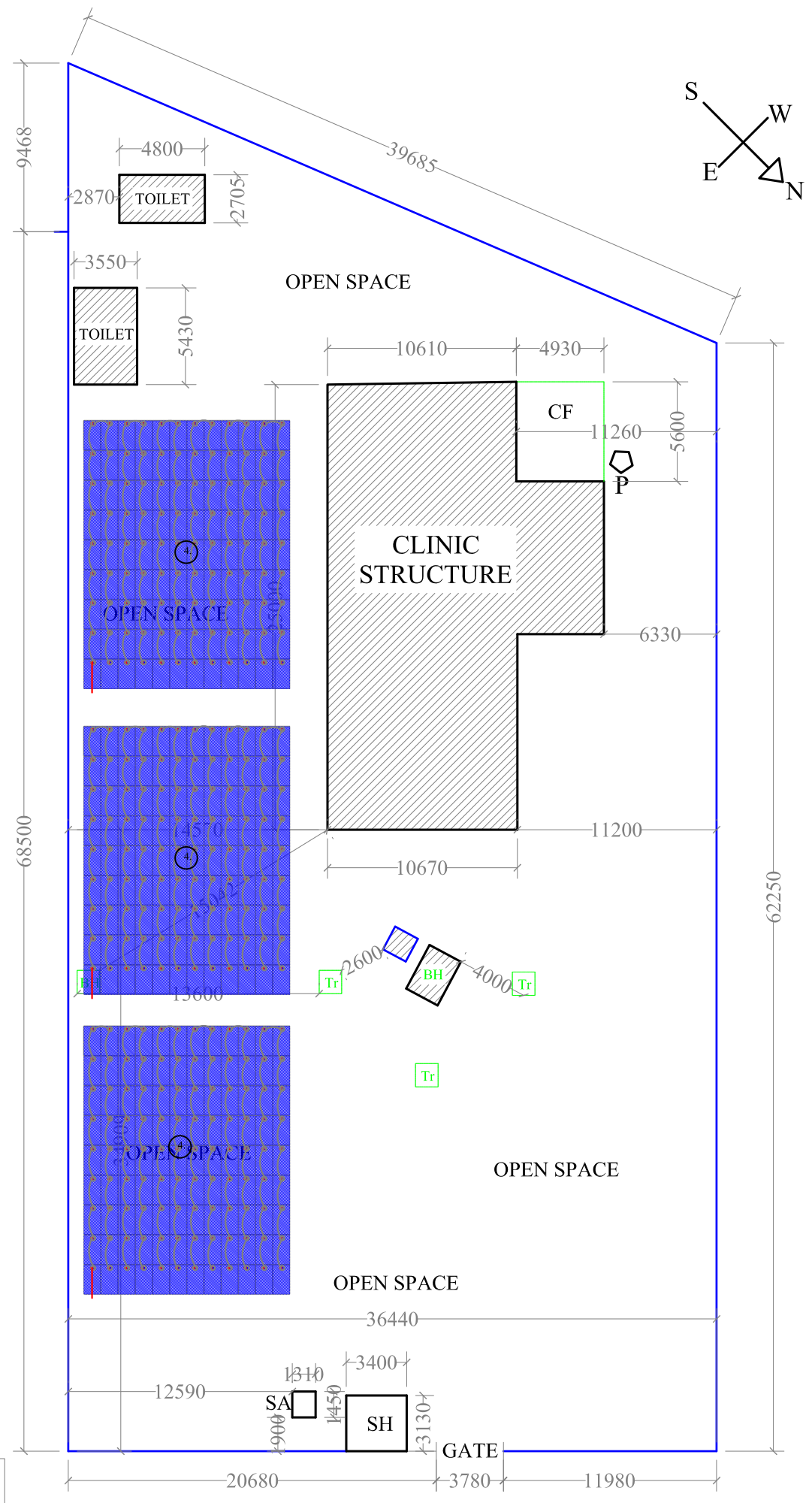
CLIENT:															
PROJECT NAME	KADUNA SOLAR PROJECT														
REFERENCE DRAWING:															
DRAWING NO:															
TITLE:	GALADIMAWA PHC														
DESCRIPTION:															
DRAWN:															
CHECKED BY:															
DATE:	Sept. 2015														
NO	NAME	DATE													
A															
B															
C															
D															
SHEET NO:	1	TOTAL SHEETS:	1												
Scale:															
LEGEND:															
<table border="1"> <tr> <th colspan="2">LEGEND</th> </tr> <tr> <td>OV</td> <td>OVERHEAD TANK</td> </tr> <tr> <td>BH</td> <td>BORE HOLE</td> </tr> <tr> <td>SH</td> <td>SECURITY HOUSE</td> </tr> <tr> <td>TP</td> <td>TAPS</td> </tr> <tr> <td>GH</td> <td>GUARD HOUSE</td> </tr> <tr> <td>T</td> <td>TOILET</td> </tr> </table>		LEGEND		OV	OVERHEAD TANK	BH	BORE HOLE	SH	SECURITY HOUSE	TP	TAPS	GH	GUARD HOUSE	T	TOILET
LEGEND															
OV	OVERHEAD TANK														
BH	BORE HOLE														
SH	SECURITY HOUSE														
TP	TAPS														
GH	GUARD HOUSE														
T	TOILET														
APPROVAL	<input type="checkbox"/> APPROVED <input type="checkbox"/> NOT APPROVED <input type="checkbox"/> FOR APPROVAL	<input type="checkbox"/> APPROVED WITH COMMENTS <input checked="" type="checkbox"/> FOR INFORMATION													
	DATE:	SIGNATURE / STAMP													

## SUMMARY FOR GANGARA PHC

This summary report is based on the findings of the site survey team of EM-ONE on September 1, 2015.

Secure Empty Space	Size of available free space		Building Shading	Number of buildings in PHC	Height of tallest building (m)
	L (m)	B (m)			
Yes	36	34	No	4	5
Telecommunication network available			Site Topography		
MTN/ETISALAT/GLO			FLAT SURFACE /WITH SANDY LOAM SOIL OBSERVED		

**Notes:**



**GANGARA PHC LAYOUT**

CLIENT:

DRAWING DETAILS	PROJECT NAME	KADUNA SOLAR PROJECT
	REFERENCE DRAWING:	
	DRAWING NO:	
	TITLE:	GANGARA PHC LAYOUT
	DESCRIPTION:	
	DRAWN:	
	CHECKED BY:	
DATE:	Sept. 2015	

REVISIONS	NO	NAME	DATE	
	A			
	B			
	C			
	D			

SHEET NO: 1 TOTAL SHEETS: 1

Scale:

LEGEND:

LEGEND	
BH	BORE HOLE
Tr	TREE
P	POLE
CF	CONCRETE FLOOR
SA	SOAK AWAY
SH	SECURITY HOUSE

<input type="checkbox"/> APPROVED	<input type="checkbox"/> APPROVED WITH COMMENTS
<input type="checkbox"/> NOT APPROVED	<input checked="" type="checkbox"/> FOR INFORMATION
<input type="checkbox"/> FOR APPROVAL	

DATE: \_\_\_\_\_ SIGNATURE / STAMP \_\_\_\_\_

## SUMMARY FOR GARU KURAMA PHC

This summary report is based on the findings of the site survey team of EM-ONE on September 1, 2015.

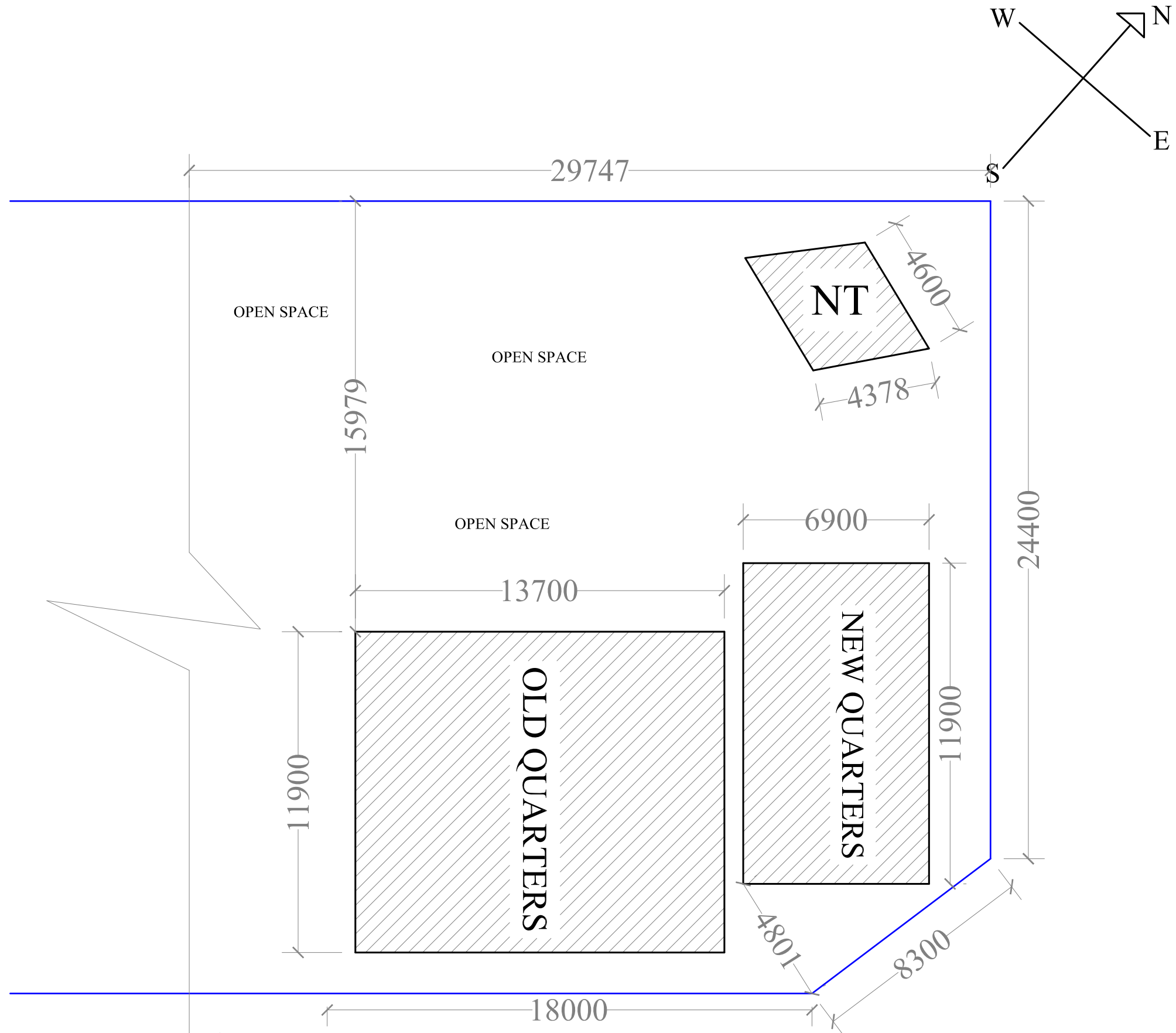
Secure Empty Space	Size of available free space		Building Shading	Number of buildings in PHC	Height of tallest building (m)
	L (m)	B (m)			
Yes	29	15	No	8	5
Telecommunication network available			Site Topography		
AIRTEL/GLO			FLAT SURFACE /WITH SANDY SOIL OBSERVED		

### Notes:

1. Access road to PHC is narrow.

### Recommendations:

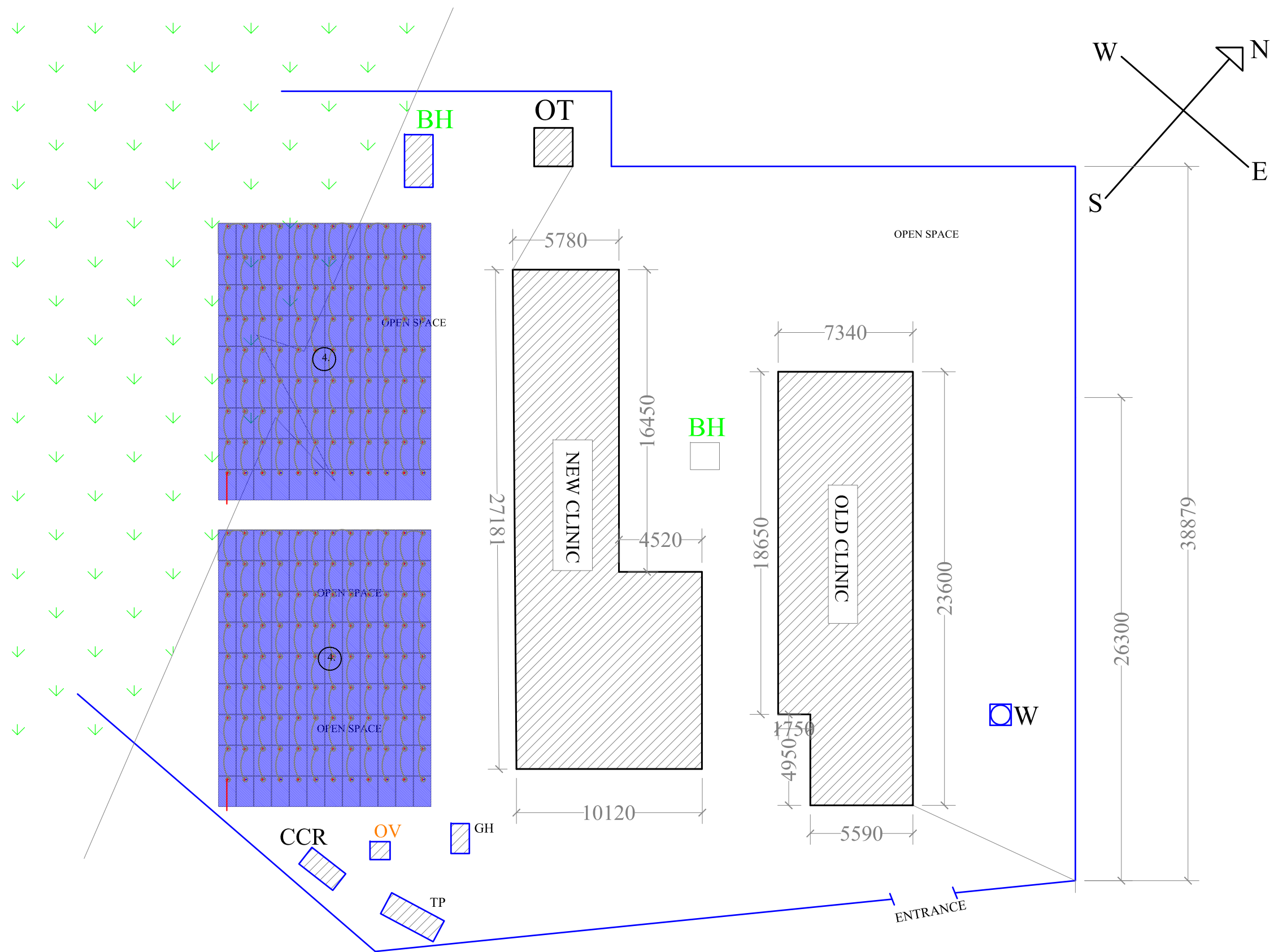
1. Alternative access to PHC must be established for material and equipment drop off.



**GARUN KURAMA PHC LAYOUT 2**

CLIENT:				
DRAWING DETAILS	PROJECT NAME	KADUNA SOLAR PROJECT		
	REFERENCE DRAWING:			
	DRAWING NO:			
	TITLE:	GARU KURAMA PHC LAYOUT 2		
	DESCRIPTION:			
	DRAWN:			
	CHECKED BY:			
DATE:	Sept. 2015			
REVISIONS	NO	NAME	DATE	
	A			
	B			
	C			
	D			
SHEET NO:	1	TOTAL SHEETS:	1	
Scale:				
LEGEND:				
<b>LEGEND</b>				
NT		NEW TOILET		
APPROVAL	<input type="checkbox"/> APPROVED	<input type="checkbox"/> APPROVED WITH COMMENTS		
	<input type="checkbox"/> NOT APPROVED	<input checked="" type="checkbox"/> FOR INFORMATION		
	<input type="checkbox"/> FOR APPROVAL			
	DATE:		SIGNATURE / STAMP	





**GARUN KURAMA PHC LAYOUT 1**

CLIENT:			
DRAWING DETAILS	PROJECT NAME	KADUNA SOLAR PROJECT	
	REFERENCE DRAWING:		
	DRAWING NO:		
	TITLE:	GARU KURAMA PHC 1 LAYOUT	
	DESCRIPTION:		
	DRAWN:		
REVISIONS	CHECKED BY:		
	DATE:	Sept. 2015	
	NO	NAME	DATE
	A		
B			
C			
D			

SHEET NO:	1	TOTAL SHEETS:	1
Scale:			

**LEGEND:**

LEGEND	
BH	BORE HOLE
W	WELL
CCR	COLD CHAIN ROOM
GH	GEN HOUSE
OT	OLD TOILET
OV	OVERHEAD TANK
TP	TAP

APPROVAL	<input type="checkbox"/> APPROVED	<input type="checkbox"/> APPROVED WITH COMMENTS
	<input type="checkbox"/> NOT APPROVED	<input checked="" type="checkbox"/> FOR INFORMATION
	<input type="checkbox"/> FOR APPROVAL	
	DATE:	SIGNATURE / STAMP

## SUMMARY FOR GESHERE PHC

This summary report is based on the findings of the site survey team of EM-ONE on September 1, 2015.

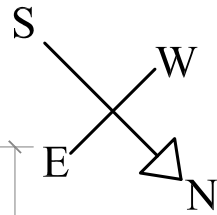
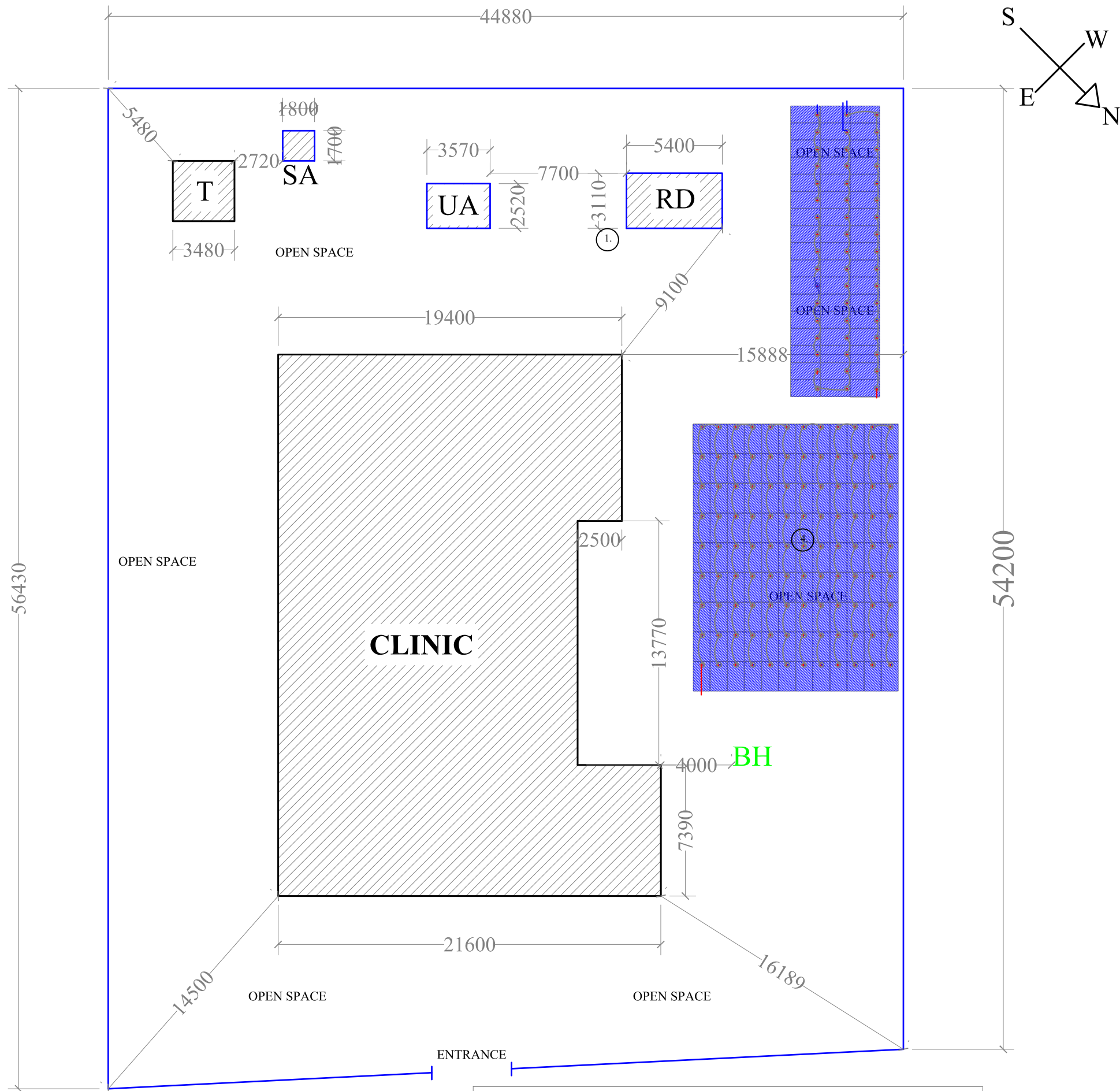
Secure Empty Space	Size of available free space		Building Shading	Number of buildings in PHC	Height of tallest building (m)
	L (m)	B (m)			
Yes	50	15	No	1	3.5
Telecommunication network available			Site Topography		
AIRTEL/GLO			FLAT SURFACE /WITH LOAMY OBSERVED		

### Notes:

1. This PHC has no boundary wall.

### Recommendations:

1. Boundary wall must be completed to secure installations and the PHC.



CLIENT:

DRAWING DETAILS	PROJECT NAME	KADUNA SOLAR PROJECT
	REFERENCE DRAWING:	
	DRAWING NO:	
	TITLE:	GESHERE PHC LAYOUT
	DESCRIPTION:	
	DRAWN:	
	CHECKED BY:	
DATE:	Sept. 2015	

NO	NAME	DATE
A		
B		
C		
D		

SHEET NO:	1	TOTAL SHEETS:	1
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Scale:

LEGEND:

LEGEND	
BH	BORE HOLE
UA	URINE AREA
SA	SOAK AWAY
RD	REFUSE DUMP
T	TOILET

APPROVAL	<input type="checkbox"/> APPROVED	<input type="checkbox"/> APPROVED WITH COMMENTS
	<input type="checkbox"/> NOT APPROVED	<input checked="" type="checkbox"/> FOR INFORMATION
	<input type="checkbox"/> FOR APPROVAL	
	DATE:	SIGNATURE / STAMP

# GESHERE PHC LAYOUT

## SUMMARY FOR GIDAN TAGWAI PHC

This summary report is based on the findings of the site survey team of EM-ONE on September 1, 2015.

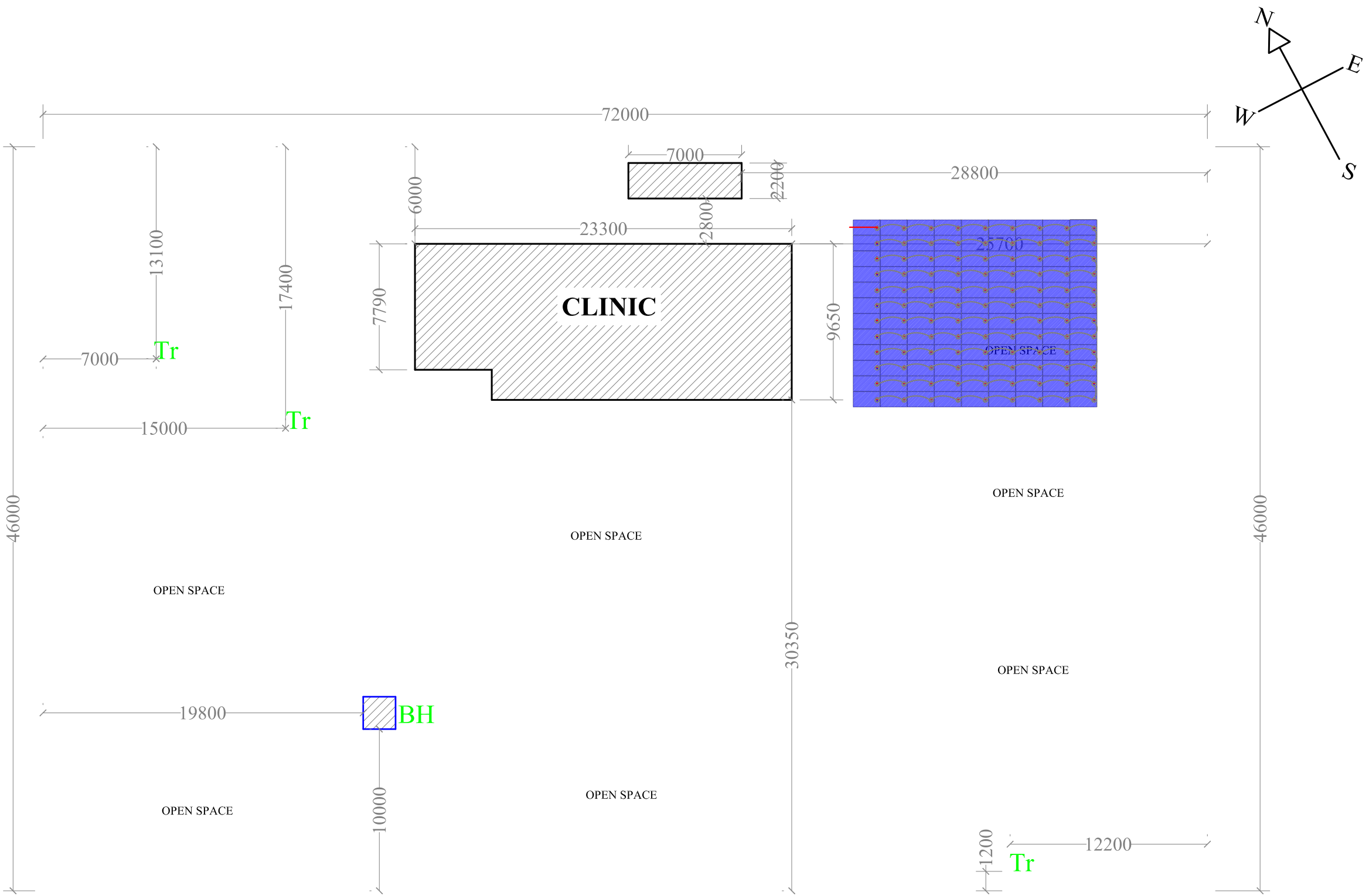
Secure Empty Space	Size of available free space		Building Shading	Number of buildings in PHC	Height of tallest building (m)
	L (m)	B (m)			
Yes	46	25	No	1	5
Telecommunication network available			Site Topography		
GLO			FLAT SURFACE /WITH LOAMY OBSERVED		

### Notes:

1. This PHC has no boundary wall.
2. Overhead lines will cause obstruction when accessing the site.

### Recommendations:

1. Boundary wall must be completed to secure installations and the PHC.
2. Overhead lines must be raised higher or relocated.



**GIDAN TAGWAI PHC LAYOUT**

CLIENT:

DRAWING DETAILS	PROJECT NAME	KADUNA SOLAR PROJECT		
	REFERENCE DRAWING:			
	DRAWING NO:			
	TITLE:	GIDAN TAGWAI PHC LAYOUT		
	DESCRIPTION:			
	DRAWN:			
CHECKED BY:				
DATE:	Sept. 2015			

REVISIONS	NO	NAME	DATE	
	A			
	B			
	C			
	D			

SHEET NO: 1 TOTAL SHEETS: 1

Scale:

LEGEND:

LEGEND	
BH	BORE HOLE
Tr	TREE

APPROVAL

<input type="checkbox"/> APPROVED	<input type="checkbox"/> APPROVED WITH COMMENTS
<input type="checkbox"/> NOT APPROVED	<input checked="" type="checkbox"/> FOR INFORMATION
<input type="checkbox"/> FOR APPROVAL	

DATE: \_\_\_\_\_ SIGNATURE / STAMP \_\_\_\_\_

## SUMMARY FOR GIDAN WAYA PHC

This summary report is based on the findings of the site survey team of EM-ONE on September 1, 2015.

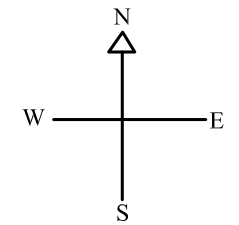
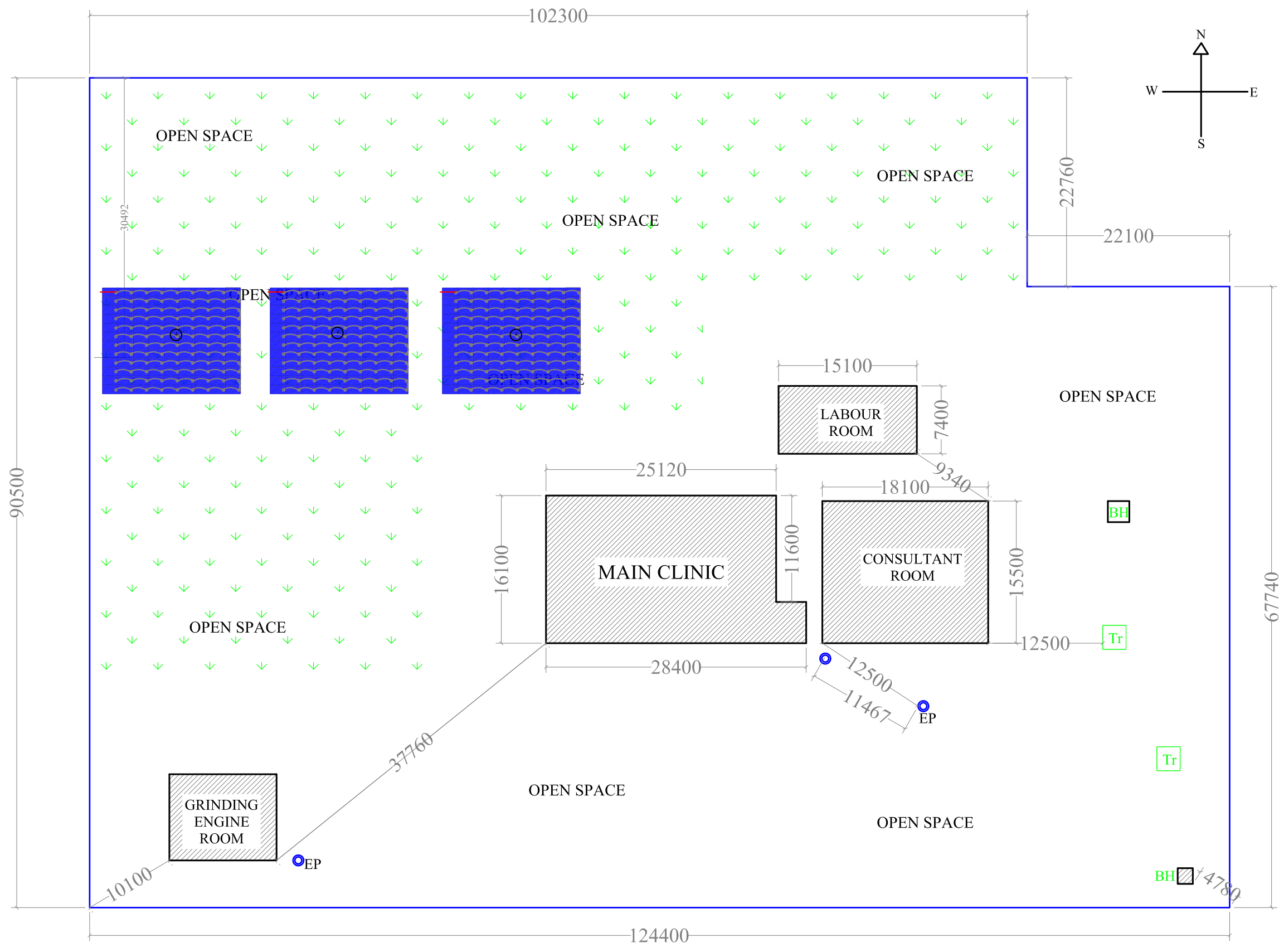
Secure Empty Space	Size of available free space		Building Shading	Number of buildings in PHC	Height of tallest building (m)
	L (m)	B (m)			
Yes	102	30	No	3	4
Telecommunication network available			Site Topography		
MTN/AIRTEL/ETISALAT/GLO			FLAT SURFACE /WITH SANDY CLAY SOIL OBSERVED		

### Notes:

1. This PHC has no boundary wall.

### Recommendations:

1. Boundary wall must be completed to secure installations and the PHC.



# GIDAN WAYA PHC LAYOUT

CLIENT:				
DRAWING DETAILS	PROJECT NAME	KADUNA SOLAR PROJECT		
	REFERENCE DRAWING:			
	DRAWING NO:			
	TITLE:	GIDAN WAYA PHC LAYOUT		
	DESCRIPTION:			
	DRAWN:			
	CHECKED BY:			
DATE:	Sept. 2015			
REVISIONS	NO	NAME	DATE	
	A			
	B			
	C			
	D			
SHEET NO:	1	TOTAL SHEETS:	1	
Scale:				
LEGEND:				
<b>LEGEND</b>				
BH	BORE HOLE			
Tr	TREE			
⊙	EP			
<input type="checkbox"/> APPROVED		<input type="checkbox"/> APPROVED WITH COMMENTS		
<input type="checkbox"/> NOT APPROVED		<input checked="" type="checkbox"/> FOR INFORMATION		
<input type="checkbox"/> FOR APPROVAL				
DATE:		SIGNATURE / STAMP		

## SUMMARY FOR GWARAJI PHC

This summary report is based on the findings of the site survey team of EM-ONE on September 1, 2015.

Secure Empty Space	Size of available free space		Building Shading	Number of buildings in PHC	Height of tallest building (m)
	L (m)	B (m)			
Yes	40	16	No	1	5
Telecommunication network available			Site Topography		
ETISALAT/GLO			FLAT SURFACE /WITH LOAMY SOIL OBSERVED		

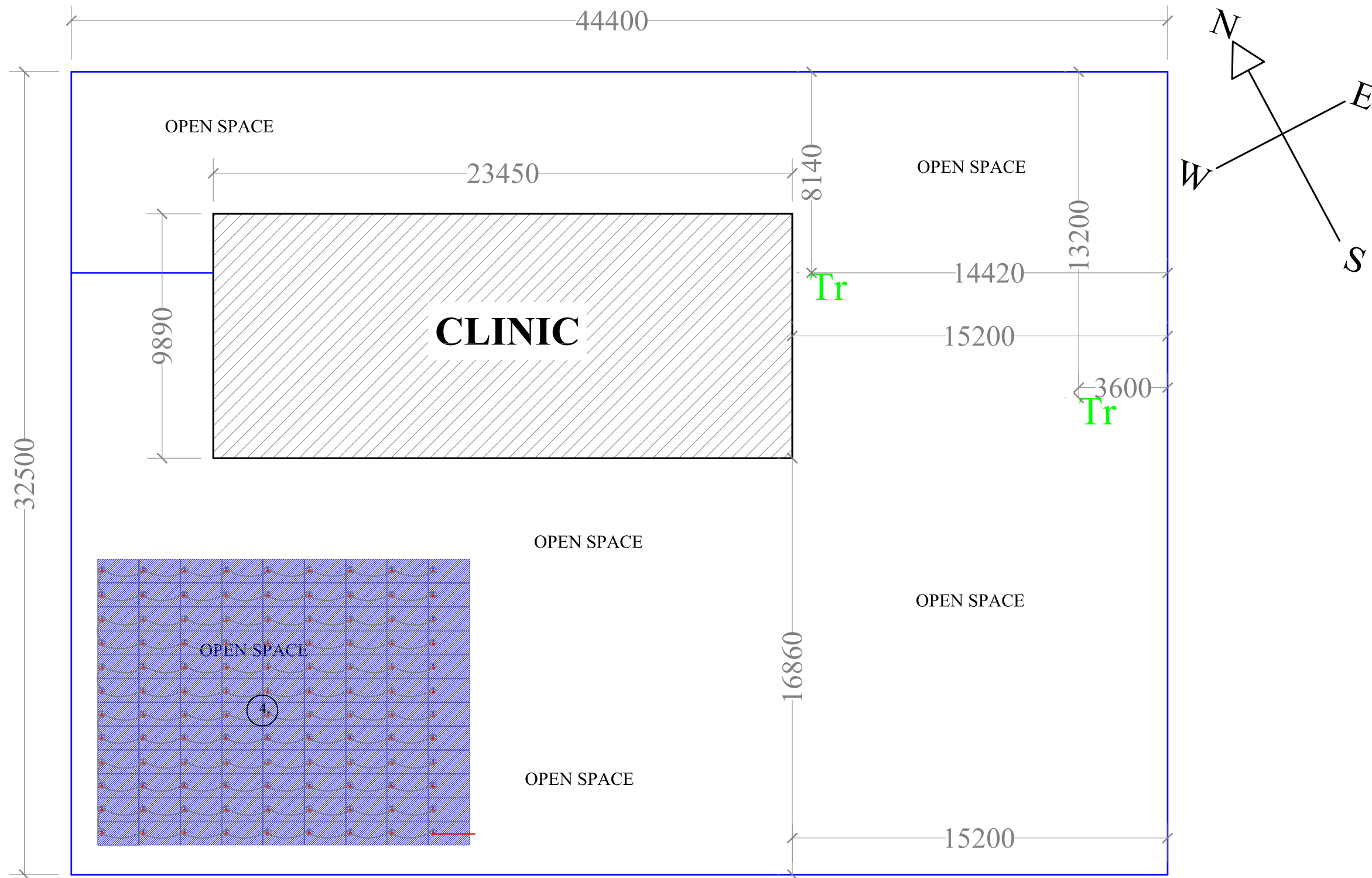
### Notes:

1. This PHC has no boundary wall.
2. Available space is used for farming.

### Recommendations:

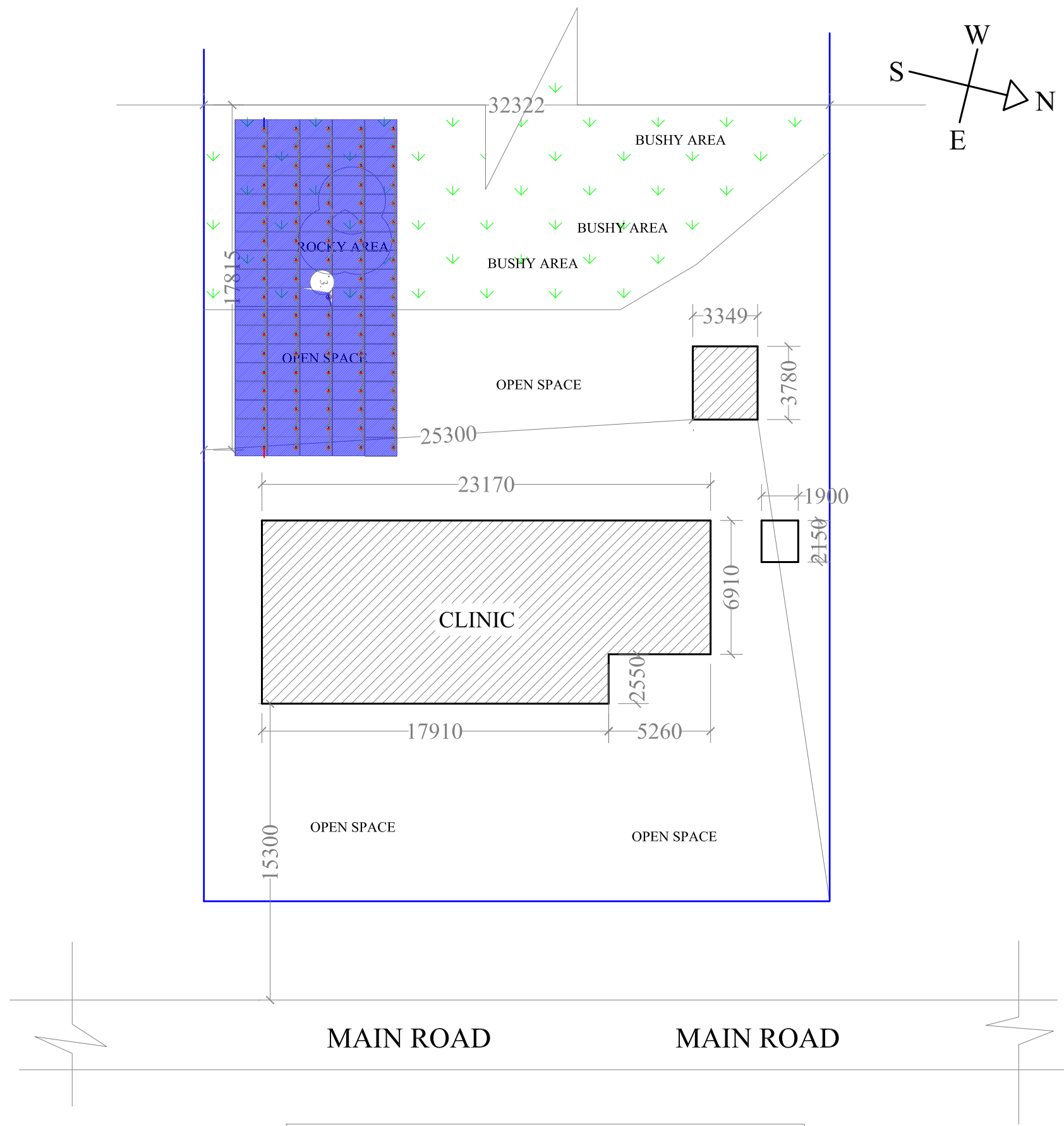
1. Boundary wall must be completed to secure installations and the PHC.
2. Available space must be cleared of vegetation for system installation.





# GWARAJI PHC LAYOUT

CLIENT:								
DRAWING DETAILS	PROJECT NAME	KADUNA SOLAR PROJECT						
	REFERENCE DRAWING:							
	DRAWING NO:							
	TITLE:	GWARAJI PHC LAYOUT						
	DESCRIPTION:							
	DRAWN:							
	CHECKED BY:							
DATE:	Sept. 2015							
REVISIONS	NO	NAME	DATE					
	A							
	B							
	C							
	D							
SHEET NO:	1	TOTAL SHEETS:	1					
Scale:								
LEGEND:								
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LEGEND								
Tr	TREE							
APPROVAL	<input type="checkbox"/> APPROVED	<input type="checkbox"/> APPROVED WITH COMMENTS						
	<input type="checkbox"/> NOT APPROVED	<input checked="" type="checkbox"/> FOR INFORMATION						
	<input type="checkbox"/> FOR APPROVAL							
	DATE:		SIGNATURE / STAMP					



**HANWA PHC LAYOUT**

CLIENT:

DRAWING DETAILS	PROJECT NAME	KADUNA SOLAR PROJECT
	REFERENCE DRAWING:	
	DRAWING NO:	
	TITLE:	HANWA PHC LAYOUT
	DESCRIPTION:	
	DRAWN:	
	CHECKED BY:	
DATE:	Sept. 2015	

NO	NAME	DATE	
A			
B			
C			
D			

SHEET NO:	1	TOTAL SHEETS:	1
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Scale:

LEGEND:

LEGEND	
	BORE HOLE
	TREE
	POLE
CF	CONCRETE FLOOR
SA	SOAK AWAY
SH	SECURITY HOUSE

- APPROVED
- NOT APPROVED
- FOR APPROVAL
- APPROVED WITH COMMENTS
- FOR INFORMATION

DATE: \_\_\_\_\_ SIGNATURE / STAMP \_\_\_\_\_

## SUMMARY FOR HANWA PHC

This summary report is based on the findings of the site survey team of EM-ONE on September 1, 2015.

Secure Empty Space	Size of available free space		Building Shading	Number of buildings in PHC	Height of tallest building (m)
	L (m)	B (m)			
No	32	18	No	2	5
<b>Telecommunication network available</b>			<b>Site Topography</b>		
MTN/AIRTEL/ETISALAT/GLO			SLOPED SURFACE /WITH ROCKY SOIL OBSERVED		

### Notes:

1. Available space for solar system installation is 32m x 18m.

## SUMMARY FOR KADAGE PHC

This summary report is based on the findings of the site survey team of EM-ONE on September 1, 2015.

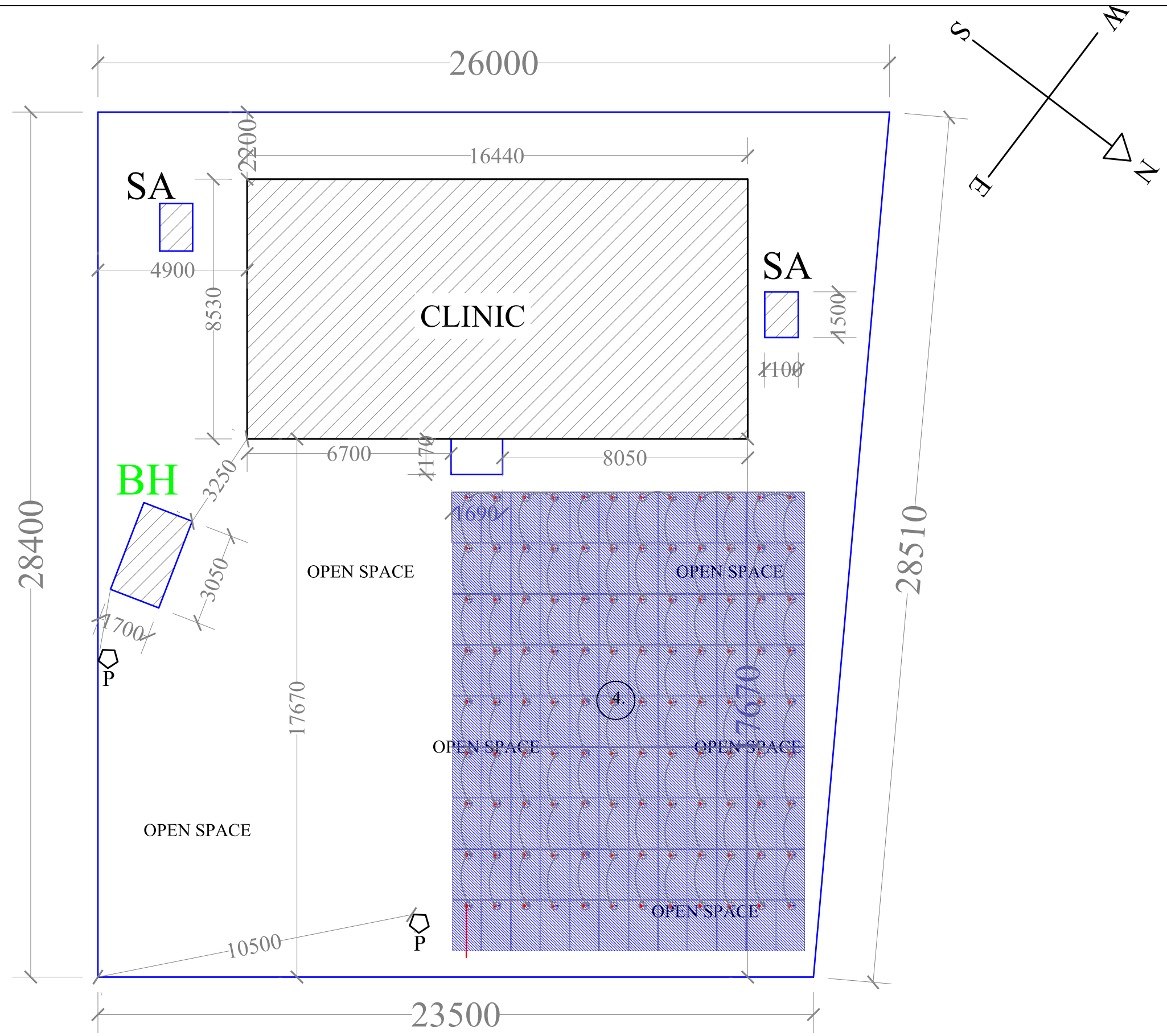
Secure Empty Space	Size of available free space		Building Shading	Number of buildings in PHC	Height of tallest building (m)
	L (m)	B (m)			
Yes	23	17	No	1	5
Telecommunication network available			Site Topography		
GLO			FLAT SURFACE /WITH SANDY SOIL OBSERVED		

### Notes:

1. This PHC has no boundary wall.
2. Available space is located in front of the PHC.

### Recommendations:

1. Boundary wall must be constructed to secure installation and PHC.



**KADAGE PHC LAYOUT**

CLIENT:

PROJECT NAME	KADUNA SOLAR PROJECT
REFERENCE DRAWING:	
DRAWING NO:	
TITLE:	KADAGE PHC LAYOUT
DESCRIPTION:	
DRAWN:	
CHECKED BY:	
DATE:	Sept. 2015

NO	NAME	DATE
A		
B		
C		
D		

SHEET NO:	1	TOTAL SHEETS:	1
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Scale:

LEGEND:

LEGEND	
SA	SOAK AWAY
P	POLE
BH	BORE HOLE

APPROVAL	<input type="checkbox"/> APPROVED	<input type="checkbox"/> APPROVED WITH COMMENTS
	<input type="checkbox"/> NOT APPROVED	<input checked="" type="checkbox"/> FOR INFORMATION
	<input type="checkbox"/> FOR APPROVAL	

DATE: \_\_\_\_\_ SIGNATURE / STAMP \_\_\_\_\_

## SUMMARY FOR KAMURU IKULU PHC

This summary report is based on the findings of the site survey team of EM-ONE on September 1, 2015.

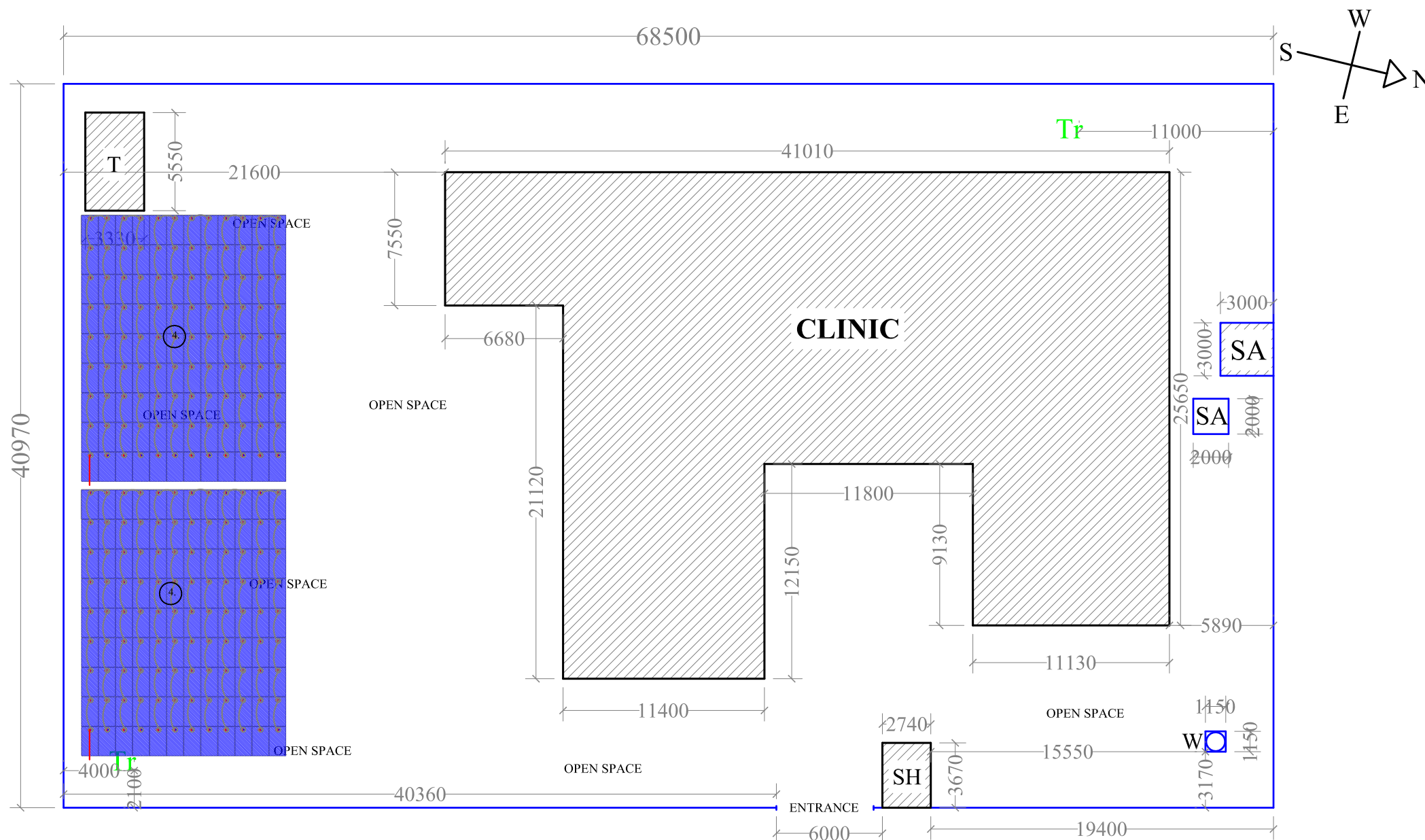
Secure Empty Space	Size of available free space		Building Shading	Number of buildings in PHC	Height of tallest building (m)
	L (m)	B (m)			
Yes	40	21	No	3	5
Telecommunication network available			Site Topography		
GLO			FLAT SURFACE /WITH SANDY-LOAMY SOIL OBSERVED		

### Notes:

1. Entrance gate is narrow.
2. Overhead powerlines will cause obstruction for heavy vehicles when entering the PHC.

### Recommendations:

1. Entrance gate must be expanded.
2. Overhead powerlines must be relocated or raised higher.



**KAMARU PHC LAYOUT**

CLIENT:															
DRAWING DETAILS	PROJECT NAME	KADUNA SOLAR PROJECT													
	REFERENCE DRAWING:														
	DRAWING NO:														
	TITLE:	KAMURU PHC LAYOUT													
	DESCRIPTION:														
	DRAWN:														
	CHECKED BY:														
DATE:	Sept. 2015														
REVISIONS	NO	NAME	DATE												
	A														
	B														
	C														
	D														
SHEET NO:	1	TOTAL SHEETS:	1												
Scale:															
LEGEND:															
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LEGEND															
W	WELL														
SA	SOAK AWAY														
SH	SECURITY HOUSE														
T	TOILET														
Tr	TREE														
APPROVAL	<input type="checkbox"/> APPROVED	<input type="checkbox"/> APPROVED WITH COMMENTS													
	<input type="checkbox"/> NOT APPROVED	<input checked="" type="checkbox"/> FOR INFORMATION													
	<input type="checkbox"/> FOR APPROVAL														
	DATE:		SIGNATURE / STAMP												

## SUMMARY FOR KASAYA PHC

This summary report is based on the findings of the site survey team of EM-ONE on September 1, 2015.

Secure Empty Space	Size of available free space		Building Shading	Number of buildings in PHC	Height of tallest building (m)
	L (m)	B (m)			
Yes	45	43	No	7	5
Telecommunication network available			Site Topography		
AIRTEL/ETISALAT			FLAT SURFACE /WITH SANDY-LOAMY SOIL OBSERVED		

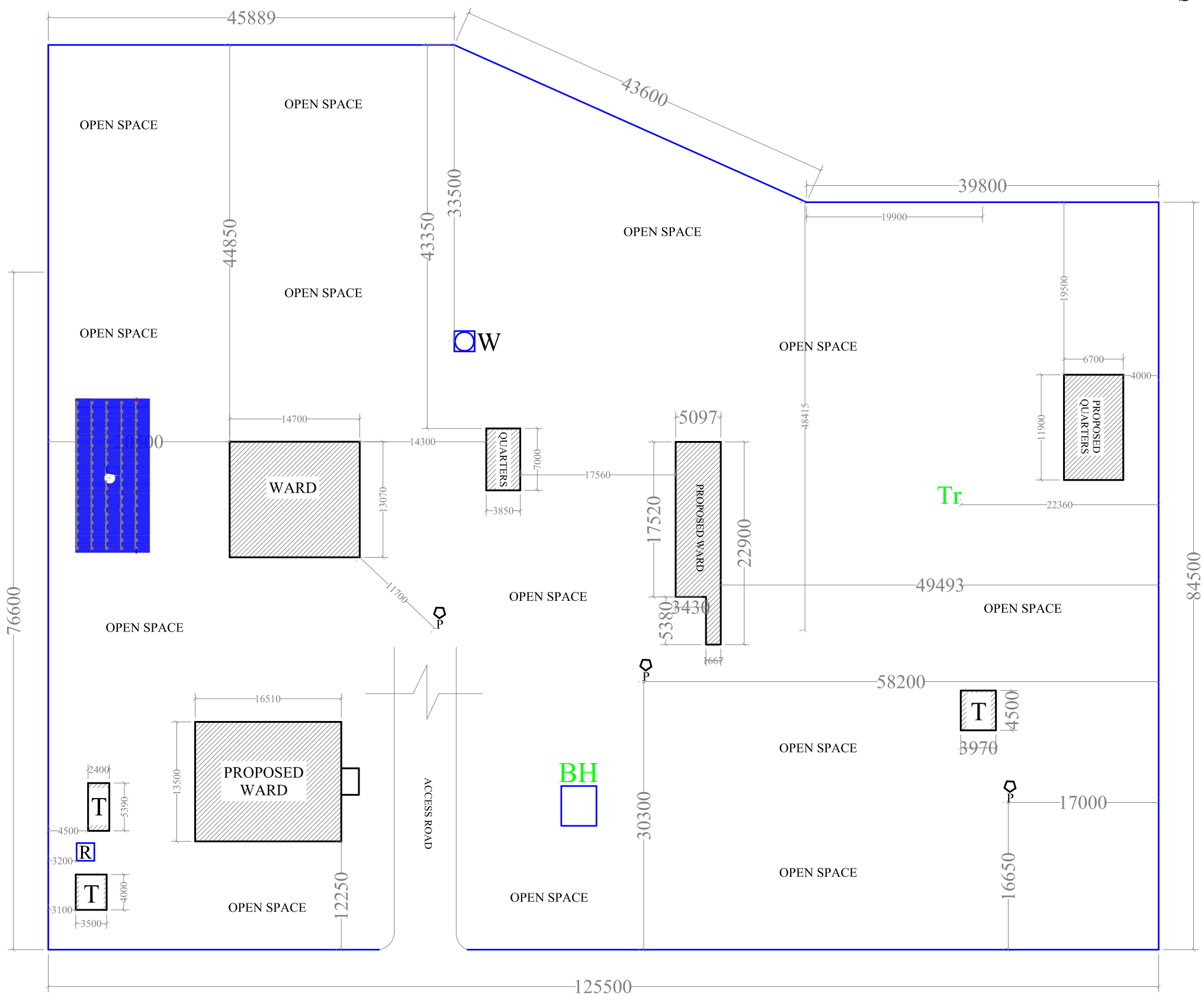
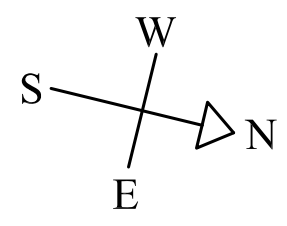
### Notes:

1. This PHC has no boundary wall.
2. Available space used for farming.

### Recommendations:

1. Boundary wall must be completed for security of installations.
2. Available space must be cleared for systems to be installed.





**DAMBA KASAYA PHC LAYOUT 2**

CLIENT:			
PROJECT NAME	KADUNA SOLAR PROJECT		
REFERENCE DRAWING:			
DRAWING NO:			
TITLE:	DAMBA KASAYA PHC LAYOUT		
DESCRIPTION:			
DRAWN:			
CHECKED BY:			
DATE:	Sept. 2015		
NO	NAME	DATE	
A			
B			
C			
D			
SHEET NO:	1	TOTAL SHEETS:	1
Scale:			

LEGEND	
BH	BORE HOLE
W	WELL
R	RESERVOIR
T	TOILET
Tr	TREE
P	POLE

APPROVAL	<input type="checkbox"/> APPROVED	<input type="checkbox"/> APPROVED WITH COMMENTS
	<input type="checkbox"/> NOT APPROVED	<input checked="" type="checkbox"/> FOR INFORMATION
	<input type="checkbox"/> FOR APPROVAL	
	DATE:	SIGNATURE / STAMP

## SUMMARY FOR KURMIN KOGI PHC

This summary report is based on the findings of the site survey team of EM-ONE on September 1, 2015.

Secure Empty Space	Size of available free space		Building Shading	Number of buildings in PHC	Height of tallest building (m)
	L (m)	B (m)			
No	14	10	No	3	4
Telecommunication network available			Site Topography		
ETISALAT			FLAT SURFACE /WITH SANDY SOIL OBSERVED		

### Notes:

1. Overhead lines will cause obstruction for vehicles accessing the PHC.
2. High rise buildings may cause shading in available space.
3. The ETISALAT telecommunication has poor reception.

### Recommendations:

1. Overhead powerlines will need to be relocated or raised higher for heavy vehicle passage to the PHC.
2. Alternative to ETISALAT telecommunication network must be sourced.



**CLIENT:**

DRAWING DETAILS	PROJECT NAME	KADUNA SOLAR PROJECT		
	REFERENCE DRAWING:			
	DRAWING NO:			
	TITLE:	KURMIN KOGI PHC LAYOUT		
	DESCRIPTION:			
	DRAWN:			
	CHECKED BY:			
DATE:	Sept. 2015			

REVISIONS	NO	NAME	DATE	
	A			
	B			
	C			
	D			

SHEET NO:	1	TOTAL SHEETS:	1
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Scale:

**LEGEND:**

APPROVAL	<input type="checkbox"/> APPROVED	<input type="checkbox"/> APPROVED WITH COMMENTS
	<input type="checkbox"/> NOT APPROVED	<input checked="" type="checkbox"/> FOR INFORMATION
	<input type="checkbox"/> FOR APPROVAL	
	DATE:	SIGNATURE / STAMP

## SUMMARY FOR KURMIN BI PHC

This summary report is based on the findings of the site survey team of EM-ONE on September 1, 2015.

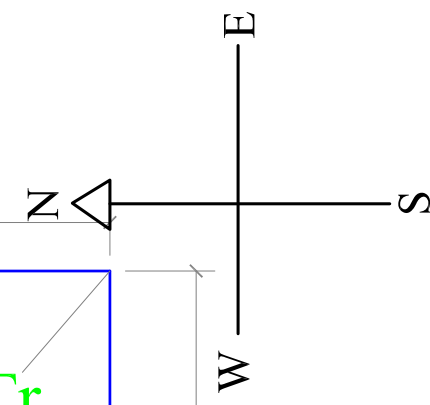
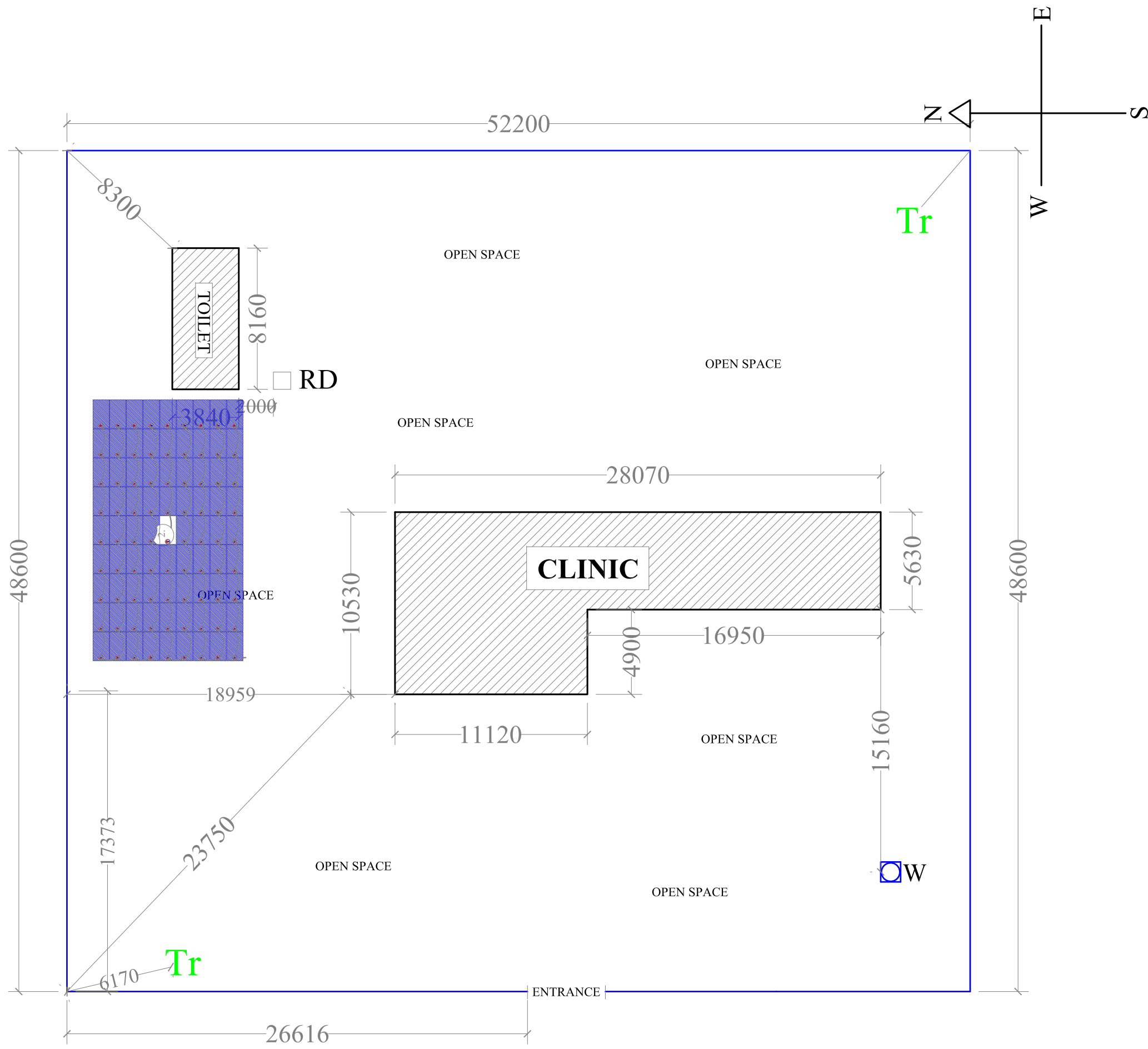
Secure Empty Space	Size of available free space		Building Shading	Number of buildings in PHC	Height of tallest building (m)
	L (m)	B (m)			
Yes	52	17	No	2	3.5
Telecommunication network available			Site Topography		
MTN/AIRTEL/GLO/ETISALAT			FLAT SURFACE /WITH SANDY-LOAM SOIL OBSERVED		

### Notes:

1. This PHC has no boundary wall.

### Recommendations:

1. Boundary wall must be constructed to secure the installations and PHC.



CLIENT:	
PROJECT NAME	KADUNA SOLAR PROJECT
REFERENCE DRAWING:	
DRAWING NO:	
TITLE:	KURMIN BI PHC LAYOUT
DESCRIPTION:	
DRAWN:	
CHECKED BY:	
DATE:	Sept. 2015

NO	NAME	DATE
A		
B		
C		
D		

SHEET NO:	1	TOTAL SHEETS:	1
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Scale:

LEGEND:

LEGEND	
W	WELL
RD	REFUSE DUMP
T	TOILET
Tr	TREE

APPROVAL	<input type="checkbox"/> APPROVED	<input type="checkbox"/> APPROVED WITH COMMENTS
	<input type="checkbox"/> NOT APPROVED	<input checked="" type="checkbox"/> FOR INFORMATION
	<input type="checkbox"/> FOR APPROVAL	
DATE:		SIGNATURE / STAMP

# KURMINBI PHC LAYOUT

## SUMMARY FOR LIKORO PHC

This summary report is based on the findings of the site survey team of EM-ONE on September 1, 2015.

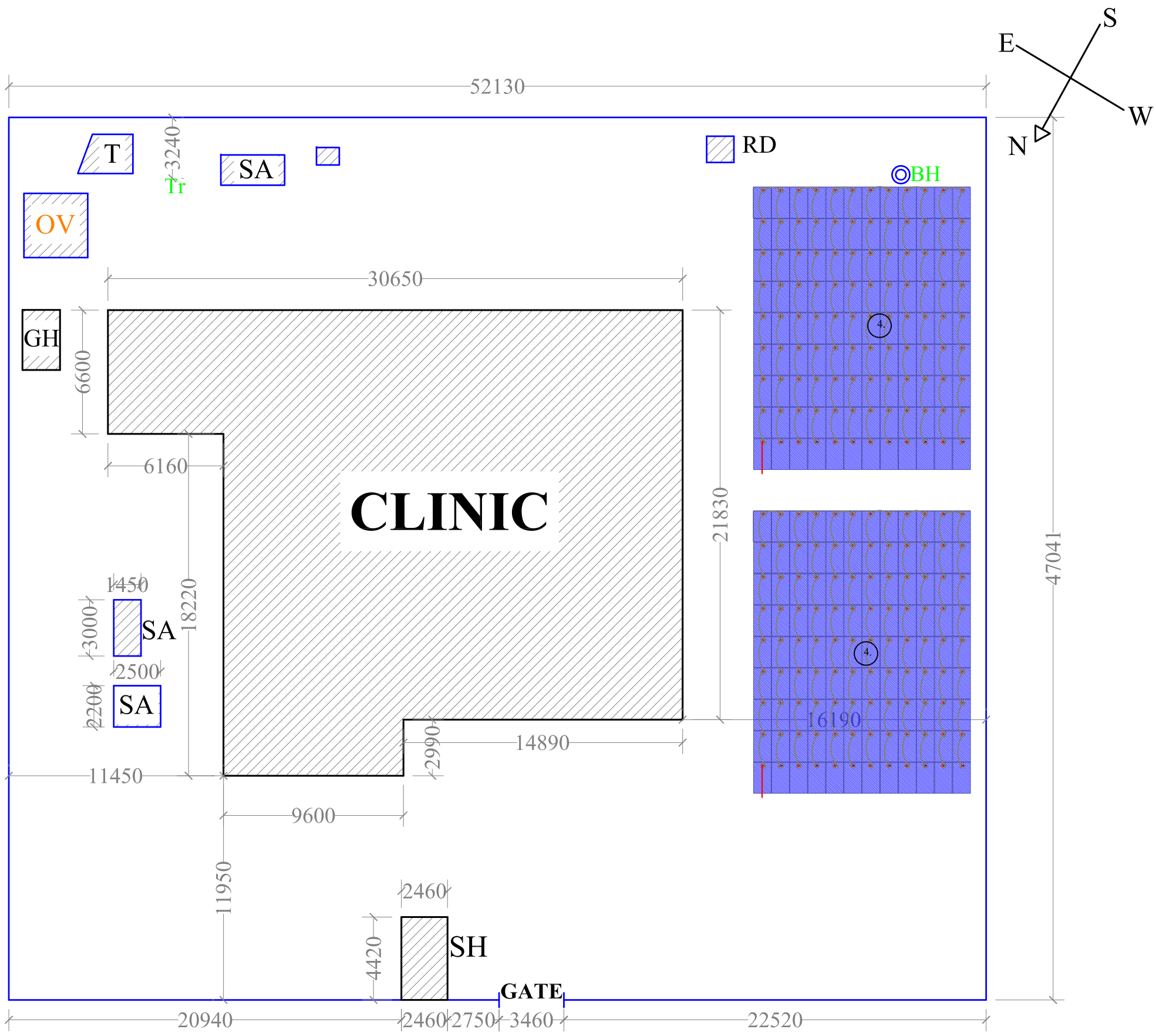
Secure Empty Space	Size of available free space		Building Shading	Number of buildings in PHC	Height of tallest building (m)
	L (m)	B (m)			
Yes	47	16	Yes	4	5
<b>Telecommunication network available</b>			<b>Site Topography</b>		
STARCOMS/AIRTEL/GLO/ETISALAT/VISAFONE			FLAT SURFACE /WITH SANDY SOIL OBSERVED		

### Notes:

1. PHC entrance gate is narrow.
2. Neighbouring boundary wall will cause obstructions for vehicles to the site.

### Recommendations:

1. PHC entrance gate must be expanded.
2. Neighbouring boundary wall must be broken down and reconstructed to allow trucks to move into the PHC.



**LIKORO PHC LAYOUT**

CLIENT:				
DRAWING DETAILS	PROJECT NAME	KADUNA SOLAR PROJECT		
	REFERENCE DRAWING:			
	DRAWING NO:			
	TITLE:	LIKORO PHC LAYOUT		
	DESCRIPTION:			
	DRAWN:			
	CHECKED BY:			
DATE:	Sept. 2015			
REVISIONS	NO	NAME	DATE	
	A			
	B			
	C			
	D			
SHEET NO:	1	TOTAL SHEETS:	1	
Scale:				
LEGEND:				
<b>LEGEND</b>				
GH	GEN HOUSE			
SA	SOAK AWAY			
RD	REFUSE DUMP			
T	TOILET			
OV	OVER HEAD TANK			
BH	BORE HOLE			
SH	SECURITY HOUSE			
APPROVAL	<input type="checkbox"/> APPROVED	<input type="checkbox"/> APPROVED WITH COMMENTS		
	<input type="checkbox"/> NOT APPROVED	<input checked="" type="checkbox"/> FOR INFORMATION		
	<input type="checkbox"/> FOR APPROVAL			
	DATE:		SIGNATURE / STAMP	

## SUMMARY FOR MADAKIYA PHC

This summary report is based on the findings of the site survey team of EM-ONE on September 1, 2015.

Secure Empty Space	Size of available free space		Building Shading	Number of buildings in PHC	Height of tallest building (m)
	L (m)	B (m)			
Yes	32	19	No	3	4.4
Telecommunication network available			Site Topography		
MTN/AIRTEL/GLO/ETISALAT			FLAT SURFACE /WITH SANDY SOIL OBSERVED		

### Notes:

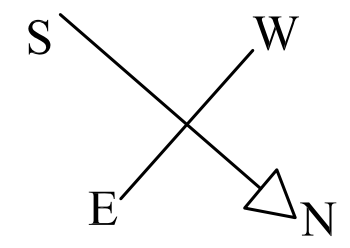
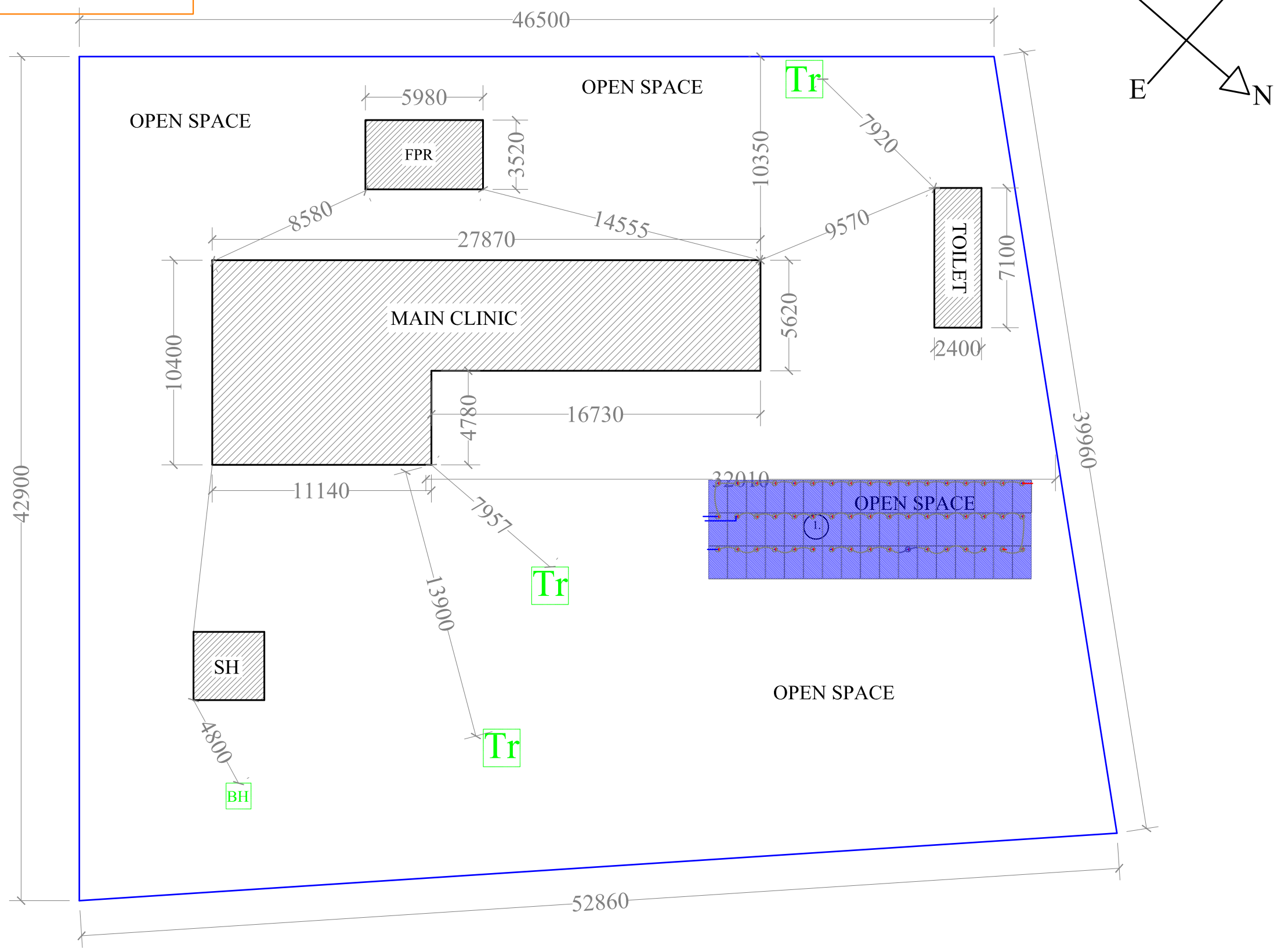
1. This PHC has no boundary wall.

### Recommendations:

1. Boundary wall must be constructed to installations and PHC.



**MADAKIYA PHC LAYOUT**



CLIENT:

DRAWING DETAILS	PROJECT NAME	KADUNA SOLAR PROJECT		
	REFERENCE DRAWING:			
	DRAWING NO:			
	TITLE:	MADAKIYA PHC LAYOUT		
	DESCRIPTION:			
	DRAWN:			
	CHECKED BY:			
DATE:	Sept. 2015			

REVISIONS	NO	NAME	DATE	
	A			
	B			
	C			
	D			

SHEET NO: 1 TOTAL SHEETS: 1

Scale:

LEGEND:

LEGEND	
BH	BORE HOLE
Tr	TREE
FPR	FAMILY PLANNING ROOM
SH	SECURITY HOUSE

APPROVAL

<input type="checkbox"/> APPROVED	<input type="checkbox"/> APPROVED WITH COMMENTS
<input type="checkbox"/> NOT APPROVED	<input checked="" type="checkbox"/> FOR INFORMATION
<input type="checkbox"/> FOR APPROVAL	

DATE: \_\_\_\_\_ SIGNATURE / STAMP \_\_\_\_\_

## SUMMARY FOR MAH PHC

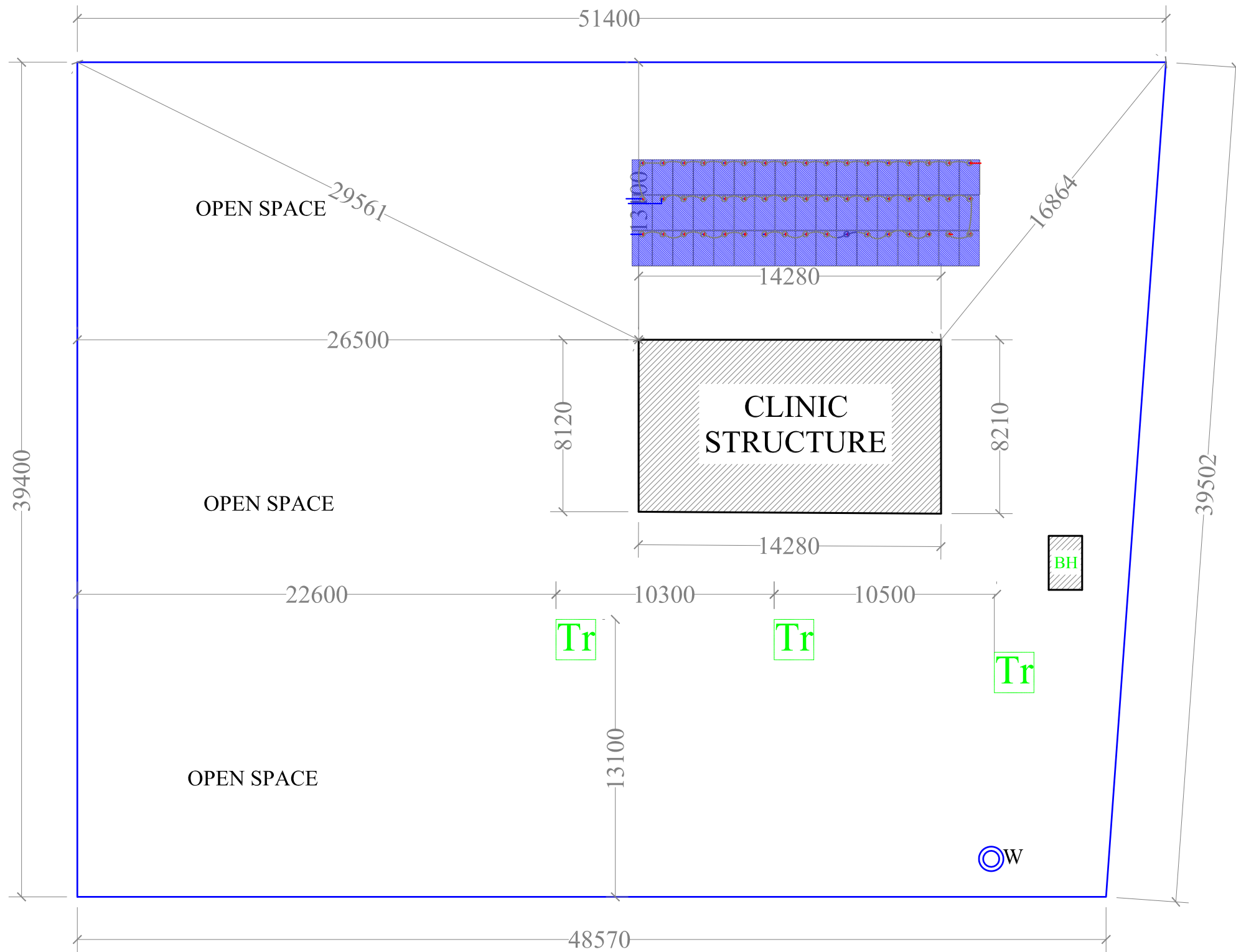
This summary report is based on the findings of the site survey team of EM-ONE on September 1, 2015.

Secure Empty Space	Size of available free space		Building Shading	Number of buildings in PHC	Height of tallest building (m)
	L (m)	B (m)			
Yes	39	26	No	1	5
Telecommunication network available			Site Topography		
GLO/ETISALAT			FLAT SURFACE /WITH SANDY SOIL OBSERVED		

### Notes:

1. Available space needs further observation.

**MAH PHC LAYOUT**



CLIENT:

DRAWING DETAILS	PROJECT NAME	KADUNA SOLAR PROJECT
	REFERENCE DRAWING:	
	DRAWING NO:	
	TITLE:	MAH PHC LAYOUT
	DESCRIPTION:	
	DRAWN:	
	CHECKED BY:	
DATE:	Sept. 2015	

REVISIONS	NO	NAME	DATE	
	A			
	B			
	C			
	D			

SHEET NO: 1 TOTAL SHEETS: 1

Scale:

LEGEND:

LEGEND	
BH	BORE HOLE
Tr	TREE
W	WELL

APPROVAL

<input type="checkbox"/> APPROVED	<input type="checkbox"/> APPROVED WITH COMMENTS
<input type="checkbox"/> NOT APPROVED	<input checked="" type="checkbox"/> FOR INFORMATION
<input type="checkbox"/> FOR APPROVAL	

DATE: \_\_\_\_\_ SIGNATURE / STAMP \_\_\_\_\_

## SUMMARY FOR MANCHOK PHC

This summary report is based on the findings of the site survey team of EM-ONE on September 1, 2015.

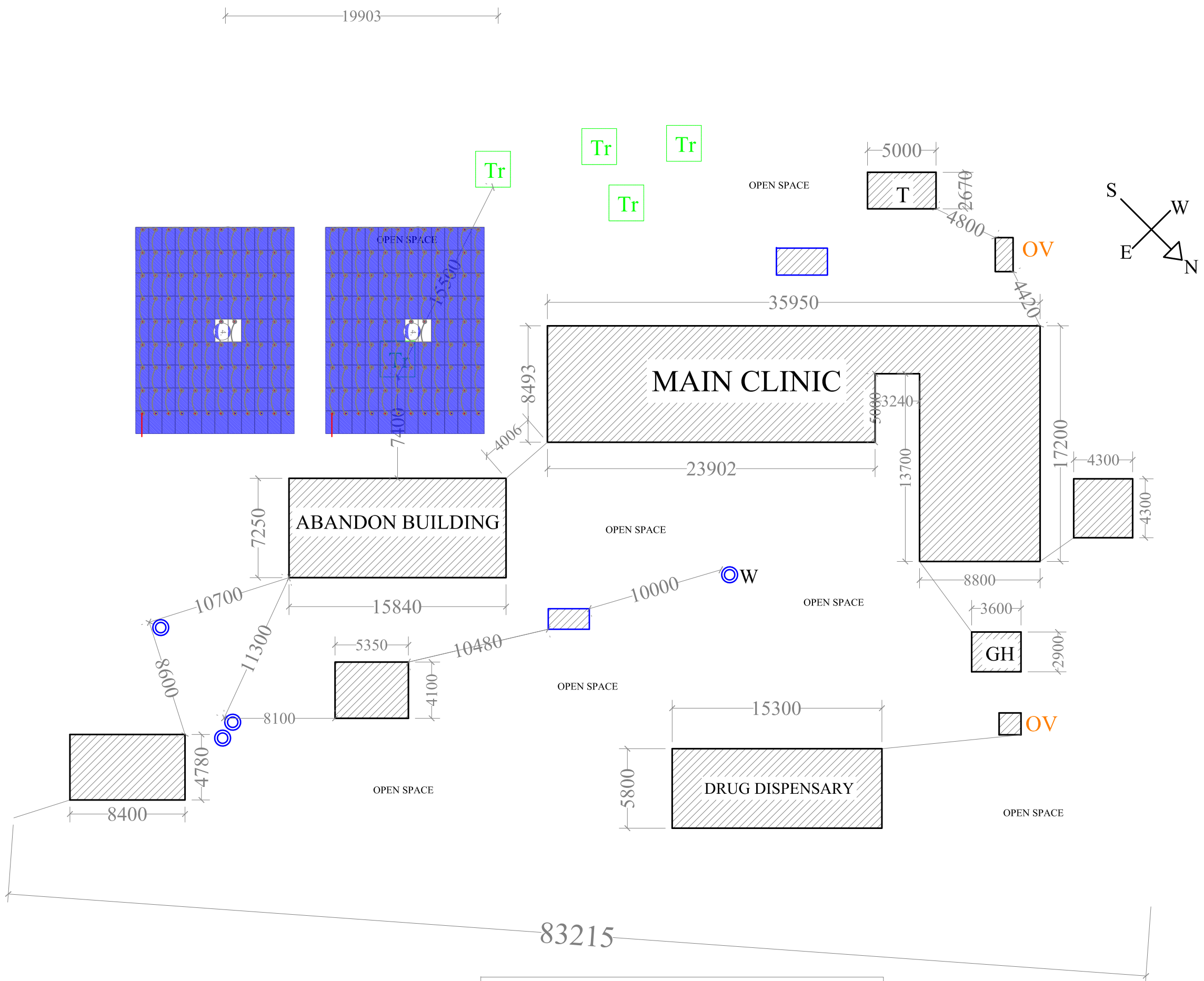
Secure Empty Space	Size of available free space		Building Shading	Number of buildings in PHC	Height of tallest building (m)
	L (m)	B (m)			
Yes	30	19	No	5	3.6
Telecommunication network available			Site Topography		
MTN/AIRTEL/GLO/ETISALAT			FLAT SURFACE /LOAMY CLAY SOIL OBSERVED		

### Notes:

1. This PHC has no boundary wall.

### Recommendation:

1. Boundary wall must be constructed to secure PHC and installation.



**MANCHOK PHC LAYOUT**

**CLIENT:**

<b>PROJECT NAME:</b>	KADUNA SOLAR PROJECT
<b>REFERENCE DRAWING:</b>	
<b>DRAWING NO.:</b>	
<b>TITLE:</b>	MANCHOK PHC
<b>DESCRIPTION:</b>	
<b>DRAWN:</b>	
<b>CHECKED BY:</b>	
<b>DATE:</b>	Sept. 2015

NO	NAME	DATE
A		
B		
C		
D		

**SHEET NO:** 1 **TOTAL SHEETS:** 1

**Scale:**

**LEGEND:**

<b>Tr</b>	TREE
<b>W</b>	WELL
<b>OV</b>	OVERHEAD TANK
<b>T</b>	TOILET
<b>GH</b>	GEN HOUSE

<input type="checkbox"/> APPROVED	<input type="checkbox"/> APPROVED WITH COMMENTS
<input type="checkbox"/> NOT APPROVED	<input checked="" type="checkbox"/> FOR INFORMATION
<input type="checkbox"/> FOR APPROVAL	

DATE: \_\_\_\_\_ SIGNATURE / STAMP: \_\_\_\_\_

## SUMMARY FOR MARO PHC

This summary report is based on the findings of the site survey team of EM-ONE on September 1, 2015.

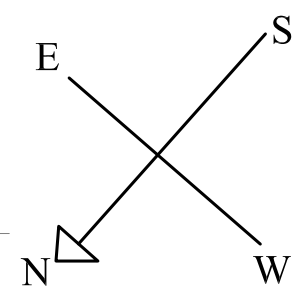
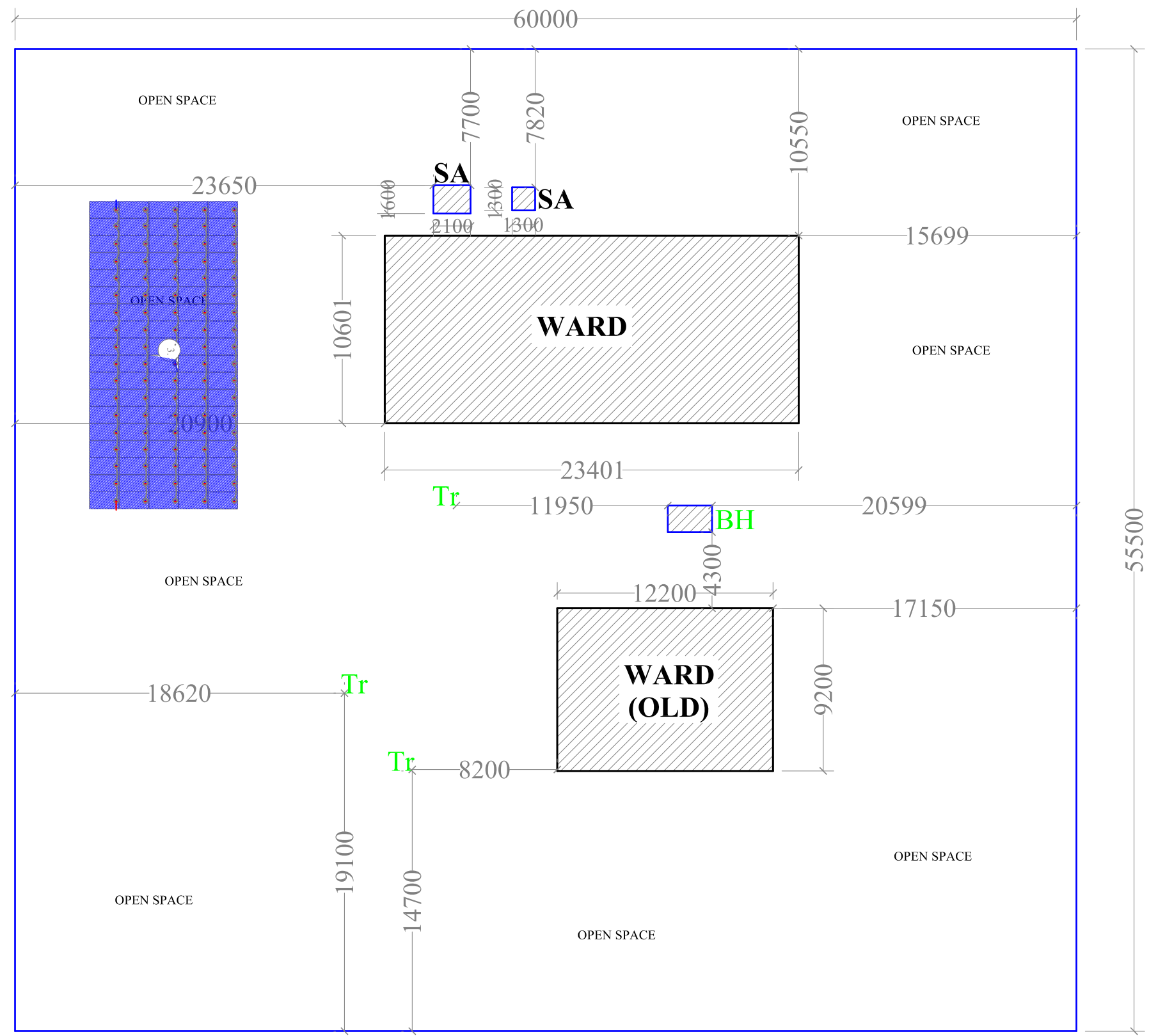
Secure Empty Space	Size of available free space		Building Shading	Number of buildings in PHC	Height of tallest building (m)
	L (m)	B (m)			
Yes	55	23	No	2	5
Telecommunication network available			Site Topography		
AIRTEL/GLO/ETISALAT			FLAT SURFACE /LOAMY SOIL OBSERVED		

### Notes:

1. Trees south of the PHC will cause shading of the installation.

### Recommendation:

1. Proposed solar system installation must be positioned away from the trees or have the trees cut down.



**MARO PHC LAYOUT**

**CLIENT:**

<b>DRAWING DETAILS</b>	<b>PROJECT NAME</b>	<b>KADUNA SOLAR PROJECT</b>
	<b>REFERENCE DRAWING:</b>	
	<b>DRAWING NO:</b>	
	<b>TITLE:</b>	<b>MARO PHC</b>
	<b>DESCRIPTION:</b>	
	<b>DRAWN:</b>	
<b>CHECKED BY:</b>		
<b>DATE:</b>	Sept. 2015	

<b>REVISIONS</b>	<b>NO</b>	<b>NAME</b>	<b>DATE</b>	
	A			
	B			
	C			
	D			

**SHEET NO:** 1      **TOTAL SHEETS:** 1

**Scale:**

**LEGEND:**

<b>LEGEND</b>	
<b>BH</b>	BORE HOLE
<b>Tr</b>	TREE
<b>SA</b>	SOAK AWAY

**APPROVAL**

<input type="checkbox"/> APPROVED	<input type="checkbox"/> APPROVED WITH COMMENTS
<input type="checkbox"/> NOT APPROVED	<input checked="" type="checkbox"/> FOR INFORMATION
<input type="checkbox"/> FOR APPROVAL	

DATE: \_\_\_\_\_ SIGNATURE / STAMP: \_\_\_\_\_

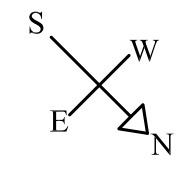
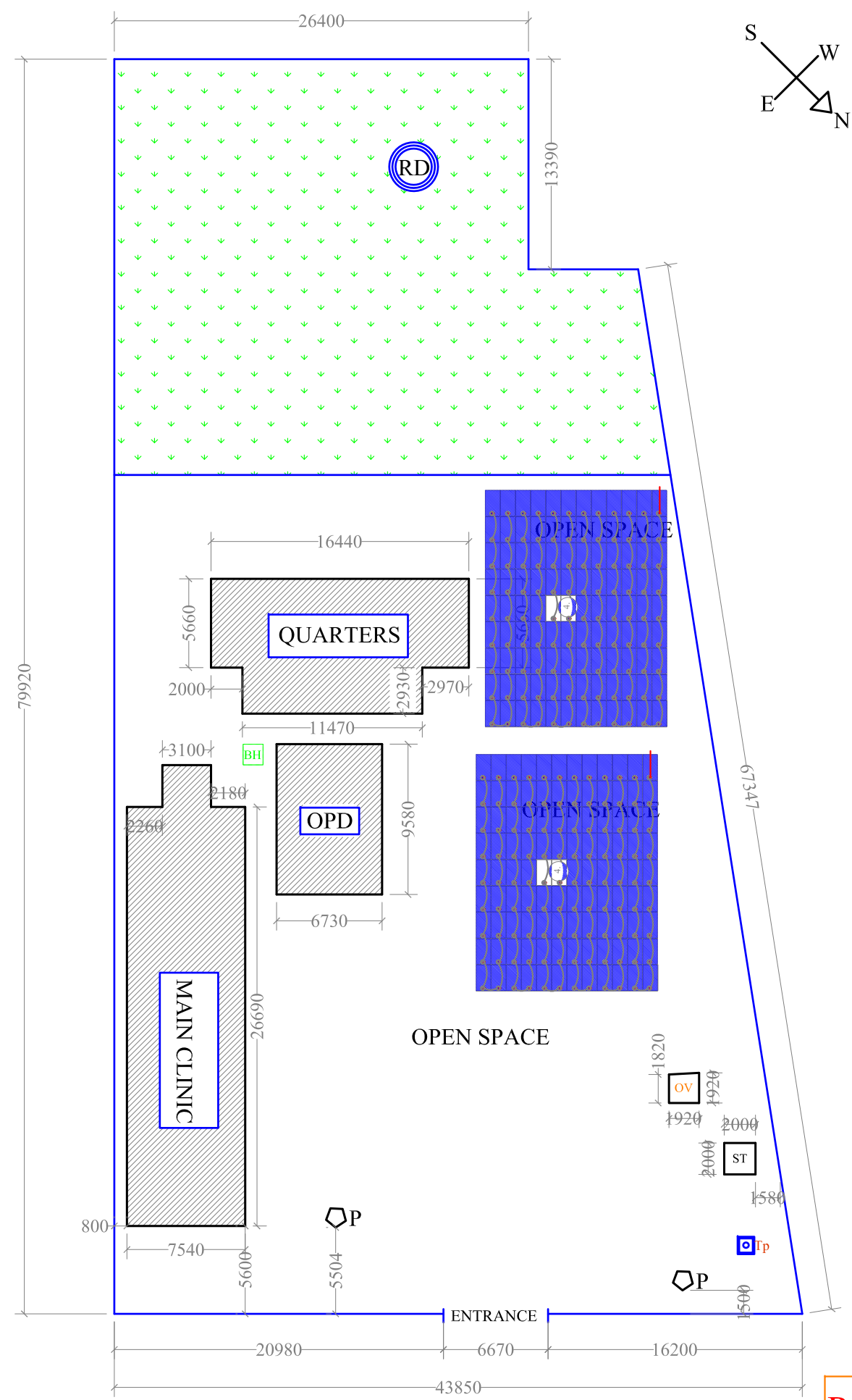
## SUMMARY FOR RAFIN GUZA PHC

This summary report is based on the findings of the site survey team of EM-ONE on September 1, 2015.

Secure Empty Space	Size of available free space		Building Shading	Number of buildings in PHC	Height of tallest building (m)
	L (m)	B (m)			
Yes	24	17	No	2	3.5
<b>Telecommunication network available</b>			<b>Site Topography</b>		
MTN/AIRTEL/GLO/ETISALAT			FLAT SURFACE /LOAMY SOIL OBSERVED		

**Notes:**





**RAFIN GUZA**

CLIENT:

DRAWING DETAILS	PROJECT NAME	KADUNA SOLAR PROJECT		
	REFERENCE DRAWING:			
	DRAWING NO:			
	TITLE:			
	DESCRIPTION:			
	DRAWN:			
	CHECKED BY:			
DATE:	Sept. 2015			

REVISIONS	NO	NAME	DATE	
	A			
	B			
	C			
	D			

SHEET NO: 1 TOTAL SHEETS: 1

Scale:

LEGEND:

LEGEND	
	REFUSE DUMP
	OVERHEAD TANK
	STORE
	DEAD TAP
	POLE
	BORE HOLE

APPROVAL

<input type="checkbox"/> APPROVED	<input type="checkbox"/> APPROVED WITH COMMENTS
<input type="checkbox"/> NOT APPROVED	<input checked="" type="checkbox"/> FOR INFORMATION
<input type="checkbox"/> FOR APPROVAL	

DATE: \_\_\_\_\_ SIGNATURE / STAMP \_\_\_\_\_

## SUMMARY FOR RIMIN DOKO PHC

This summary report is based on the findings of the site survey team of EM-ONE on September 1, 2015.

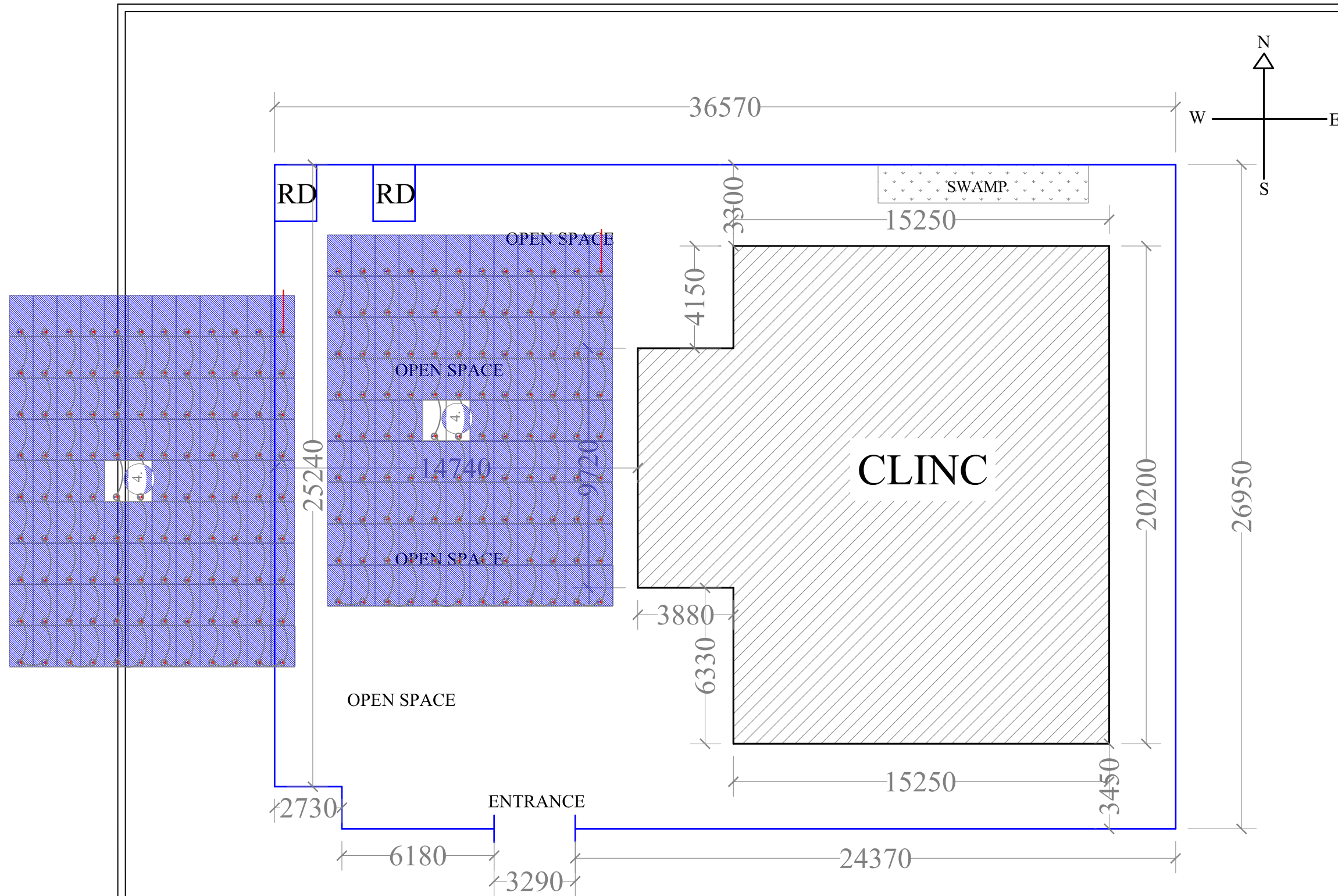
Secure Empty Space	Size of available free space		Building Shading	Number of buildings in PHC	Height of tallest building (m)
	L (m)	B (m)			
No	25	14	No	3	4.5
Telecommunication network available			Site Topography		
ETISALAT			FLAT SURFACE /LOAMY SOIL OBSERVED		

### Notes:

1. Overhead concrete obstructions at the entrance gate will prevent heavy trucks from gaining access to the PHC.
2. A tree that will cause obstruction and shading is in the available space.

### Recommendations:

1. Overhead concrete obstructions must be broken down and reconstructed to allow heavy vehicles to access the PHC.
2. The tree located in the available space will have to be cut down and uprooted.



CLIENT:		
DRAWING DETAILS	PROJECT NAME	KADUNA SOLAR PROJECT
	REFERENCE DRAWING:	
	DRAWING NO:	
	TITLE:	RIMIN DOKO PHC LAYOUT
	DESCRIPTION:	
	DRAWN:	
REVISIONS	CHECKED BY:	
	DATE:	Sept. 2015
NO	NAME	DATE
A		
B		
C		
D		

SHEET NO:	1	TOTAL SHEETS:	1
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Scale:

LEGEND:

**LEGEND**

RD	REFUSE DUMP
----	-------------

**RIMIN DOKO PHC LAYOUT 1**

APPROVAL	<input type="checkbox"/> APPROVED	<input type="checkbox"/> APPROVED WITH COMMENTS
	<input type="checkbox"/> NOT APPROVED	<input checked="" type="checkbox"/> FOR INFORMATION
	<input type="checkbox"/> FOR APPROVAL	
	DATE: _____ SIGNATURE / STAMP _____	

## SUMMARY FOR RUZIA PHC

This summary report is based on the findings of the site survey team of EM-ONE on September 1, 2015.

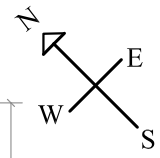
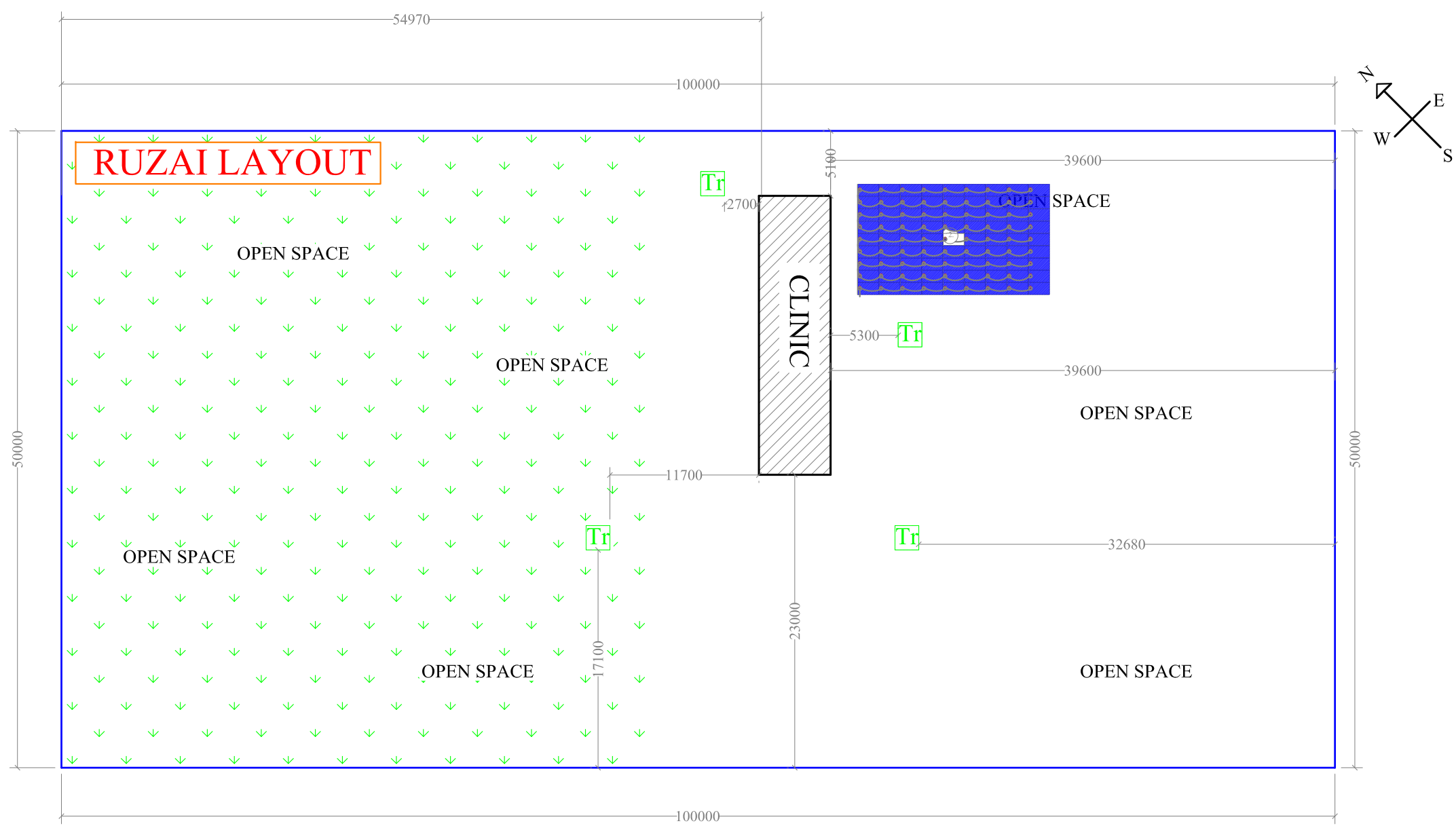
Secure Empty Space	Size of available free space		Building Shading	Number of buildings in PHC	Height of tallest building (m)
	L (m)	B (m)			
No	54	50	No	1	5
<b>Telecommunication network available</b>			<b>Site Topography</b>		
MTN/AIRTEL/GLO			FLAT SURFACE /LOAMY SOIL OBSERVED		

### Notes:

1. This PHC has no boundary wall
2. Airtel telecommunication service is poor.

### Recommendations:

1. Boundary wall must be constructed to secure PHC and installation.



CLIENT:

DRAWING DETAILS	PROJECT NAME	KADUNA SOLAR PROJECT		
	REFERENCE DRAWING:			
	DRAWING NO:			
	TITLE:	RUZAI PHC LAYOUT		
	DESCRIPTION:			
	DRAWN:			
	CHECKED BY:			
DATE:	Sept. 2015			

REVISIONS	NO	NAME	DATE	
	A			
	B			
	C			
	D			

SHEET NO: 1 TOTAL SHEETS: 1

Scale:

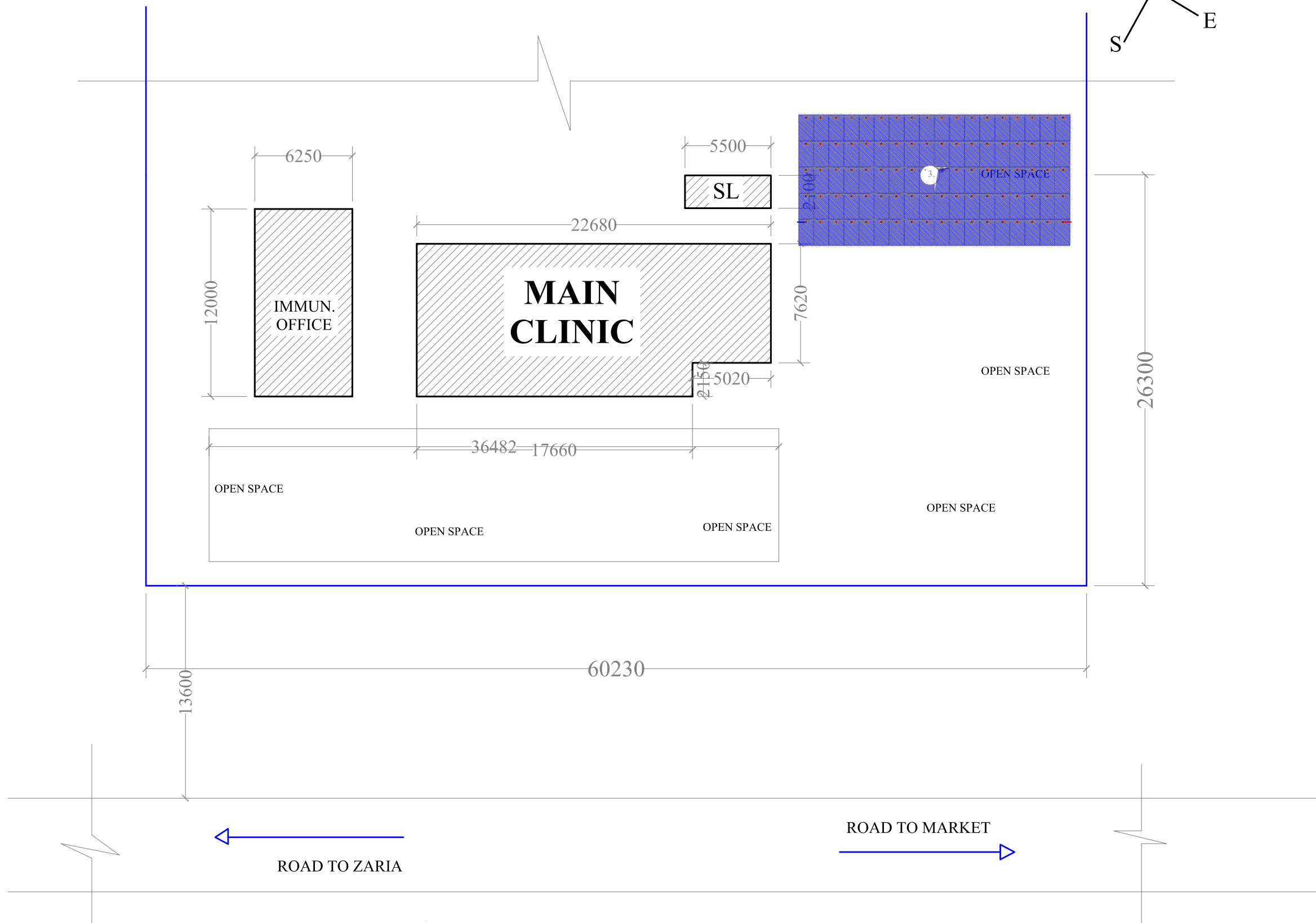
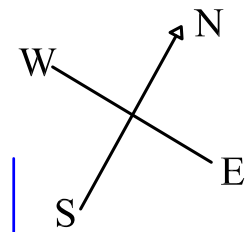
LEGEND:

LEGEND	
Tr	TREE

APPROVAL

<input type="checkbox"/> APPROVED	<input type="checkbox"/> APPROVED WITH COMMENTS
<input type="checkbox"/> NOT APPROVED	<input checked="" type="checkbox"/> FOR INFORMATION
<input type="checkbox"/> FOR APPROVAL	

DATE: \_\_\_\_\_ SIGNATURE / STAMP \_\_\_\_\_



**TASHAN KADE PHC LAYOUT**

CLIENT:	
PROJECT NAME	KADUNA SOLAR PROJECT
REFERENCE DRAWING:	
DRAWING NO:	
TITLE:	TASHEN KADE PHC LAYOUT
DESCRIPTION:	
DRAWN:	
CHECKED BY:	
DATE:	Sept. 2015

NO	NAME	DATE
A		
B		
C		
D		

SHEET NO:	1	TOTAL SHEETS:	1
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Scale:

**LEGEND:**

<b>LEGEND</b>	
SL	SOLAR LIGHT

**APPROVAL**

APPROVED                       APPROVED WITH COMMENTS  
 NOT APPROVED                 FOR INFORMATION  
 FOR APPROVAL

DATE: \_\_\_\_\_ SIGNATURE / STAMP \_\_\_\_\_

## SUMMARY FOR TASHEN KADE PHC

This summary report is based on the findings of the site survey team of EM-ONE on September 1, 2015.

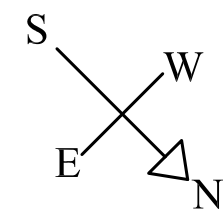
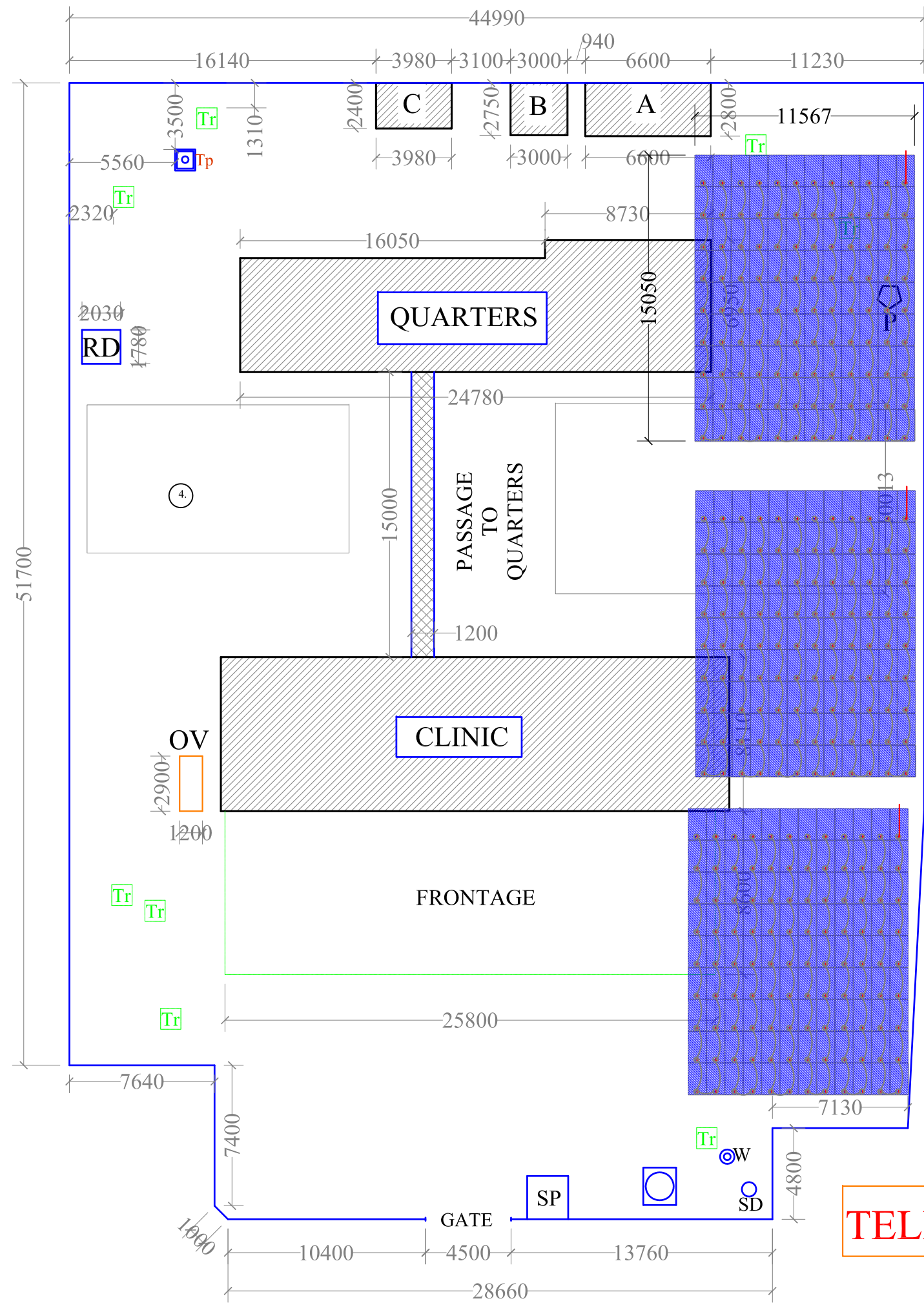
Secure Empty Space	Size of available free space		Building Shading	Number of buildings in PHC	Height of tallest building (m)
	L (m)	B (m)			
Yes	30	14	No	2	4
Telecommunication network available			Site Topography		
MTN/AIRTEL/GLO/ETISALAT			FLAT SURFACE /SANDY SOIL OBSERVED		

### Notes:

1. This PHC has no boundary wall

### Recommendations:

1. Boundary wall must be constructed to secure PHC and installation.



# TELEVISION GARAGE

CLIENT:				
DRAWING DETAILS	PROJECT NAME	KADUNA SOLAR PROJECT		
	REFERENCE DRAWING:			
	DRAWING NO:			
	TITLE:	TELEVISION GARAGE PHC		
	DESCRIPTION:			
	DRAWN:			
CHECKED BY:				
DATE:	Sept. 2015			
REVISIONS	NO	NAME	DATE	
	A			
	B			
	C			
D				
SHEET NO:	1	TOTAL SHEETS:	1	
Scale:				
LEGEND:				
<b>LEGEND</b>				
Tr	TREE	A	QUARTERS	
B	QUARTERS	C	QUARTERS	
RD	REFUSE DUMP	OV	OVERHEAD TANK	
SD	SATELLITE DISH	Tp	DEAD TAP	
P	POLE	W	WELL	
SP	SECURITY POST			
APPROVAL	<input type="checkbox"/> APPROVED	<input type="checkbox"/> APPROVED WITH COMMENTS		
	<input type="checkbox"/> NOT APPROVED	<input checked="" type="checkbox"/> FOR INFORMATION		
	<input type="checkbox"/> FOR APPROVAL			
DATE:		SIGNATURE / STAMP		



## SUMMARY FOR TELEVISION GARAGE PHC

This summary report is based on the findings of the site survey team of EM-ONE on September 1, 2015.

Secure Empty Space	Size of available free space		Building Shading	Number of buildings in PHC	Height of tallest building (m)
	L (m)	B (m)			
Yes	17	10	No	6	5
Telecommunication network available			Site Topography		
			FLAT SURFACE /SANDY SOIL OBSERVED		

### Notes:

1. This PHC contains access problems for heavy vehicles.

## SUMMARY FOR TURAWA PHC

This summary report is based on the findings of the site survey team of EM-ONE on September 1, 2015.

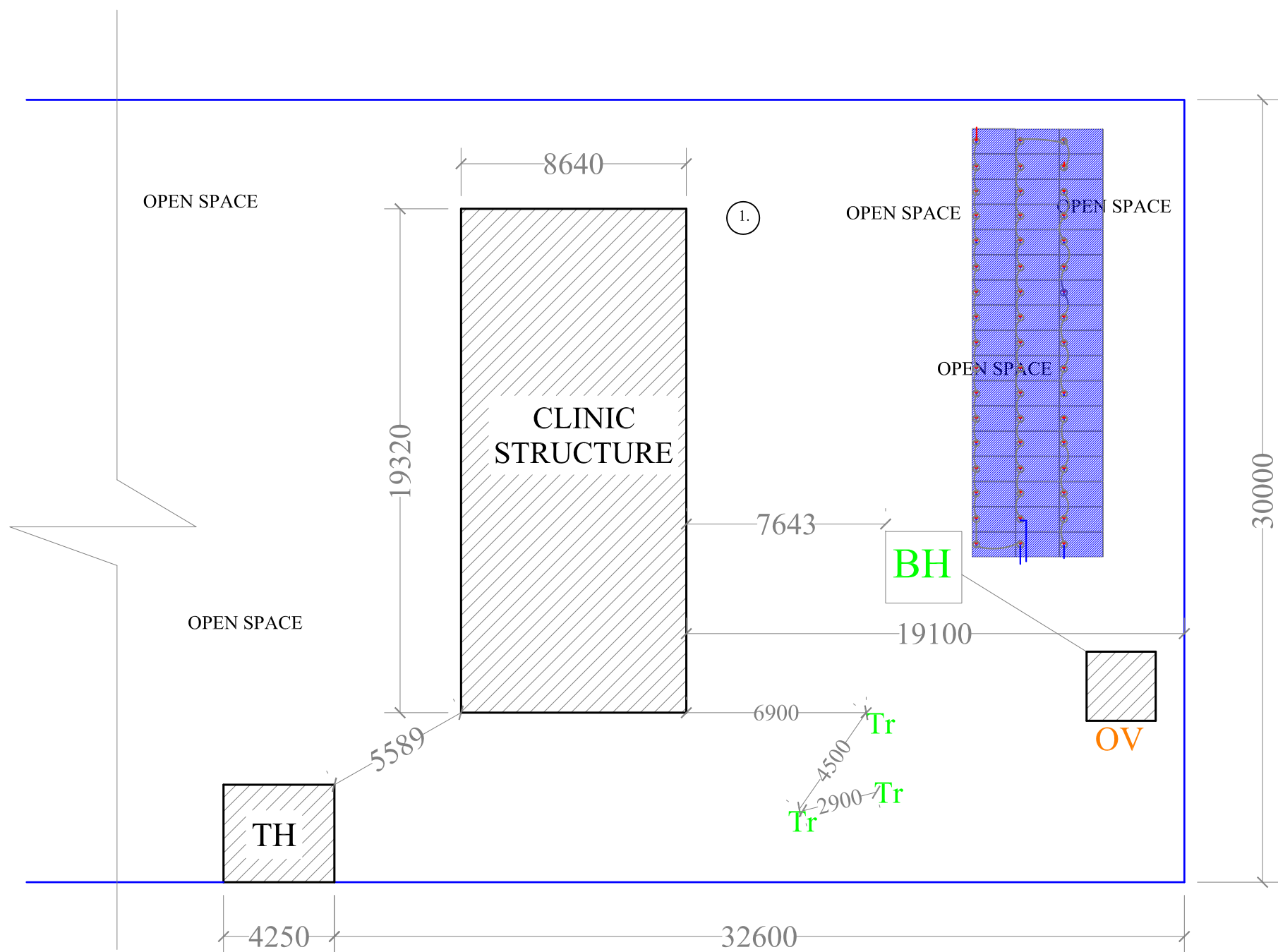
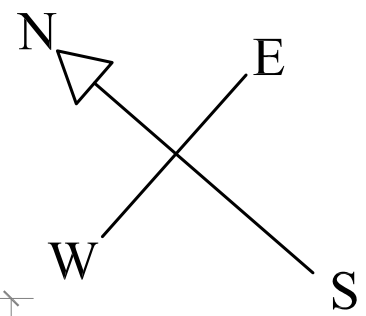
Secure Empty Space	Size of available free space		Building Shading	Number of buildings in PHC	Height of tallest building (m)
	L (m)	B (m)			
No	30	19	Yes	1	5
Telecommunication network available			Site Topography		
MTN			FLAT SURFACE /SANDY SOIL OBSERVED		

### Notes:

1. Available space is limited

### Recommendations:

1. This PHC must be re-visited for another assessment.



**TURAWA PHC LAYOUT**

CLIENT:			
PROJECT NAME	KADUNA SOLAR PROJECT		
REFERENCE DRAWING:			
DRAWING NO:			
TITLE:	TURAWA PHC LAYOUT		
DESCRIPTION:			
DRAWN:			
CHECKED BY:			
DATE:	Sept. 2015		
NO	NAME	DATE	
A			
B			
C			
D			
SHEET NO:	1	TOTAL SHEETS:	1

Scale:

LEGEND:

LEGEND	
Tr	TREE
OV	OVERHEAD TANK
TH	TRANSFORMER HOUSE
BH	BORE HOLE

APPROVAL	<input type="checkbox"/> APPROVED	<input type="checkbox"/> APPROVED WITH COMMENTS
	<input type="checkbox"/> NOT APPROVED	<input checked="" type="checkbox"/> FOR INFORMATION
	<input type="checkbox"/> FOR APPROVAL	
	DATE:	SIGNATURE / STAMP

## SUMMARY FOR ZANGON AYA PHC

This summary report is based on the findings of the site survey team of EM-ONE on September 1, 2015.

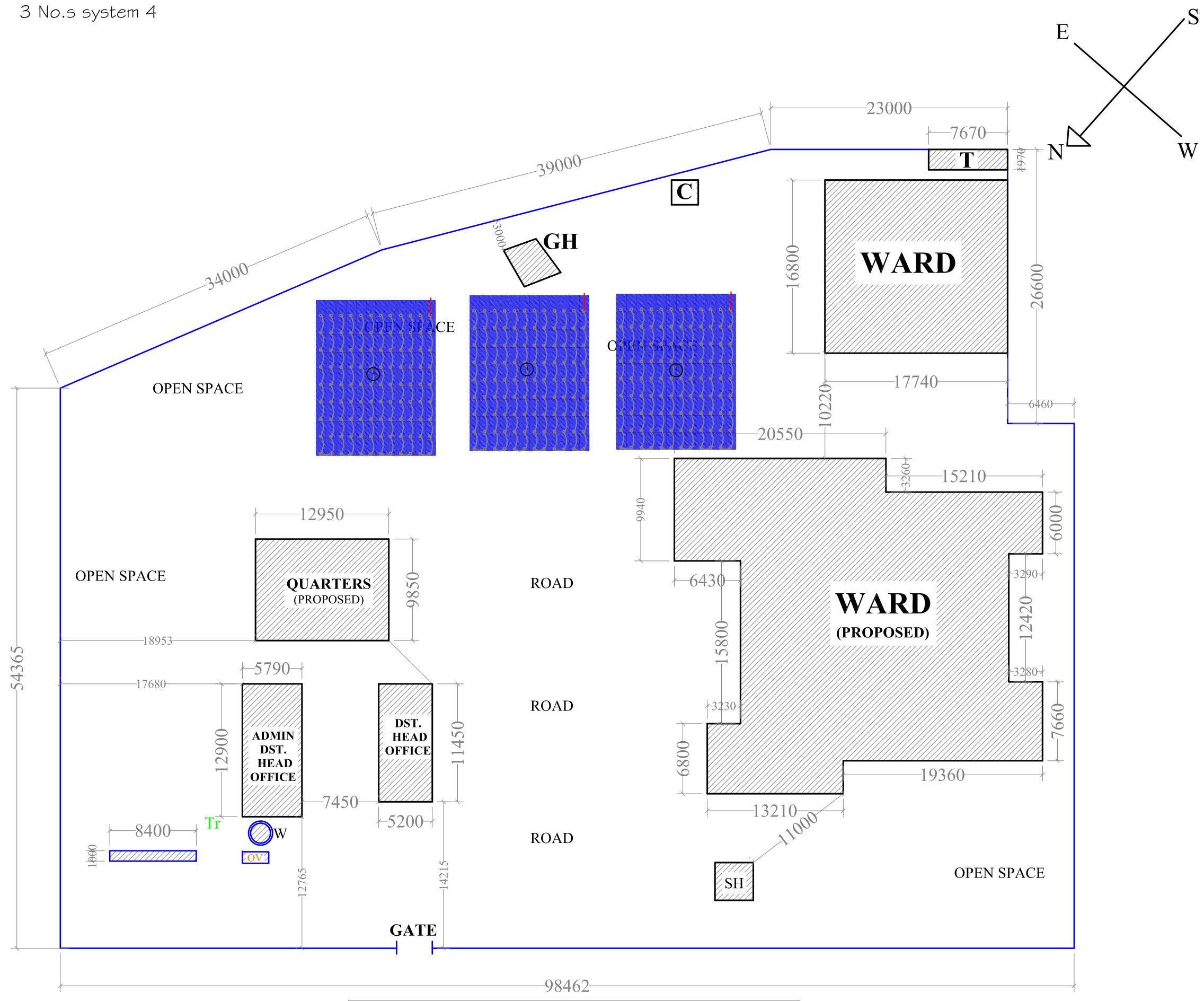
Secure Empty Space	Size of available free space		Building Shading	Number of buildings in PHC	Height of tallest building (m)
	L (m)	B (m)			
Yes	36	15	No	7	5
Telecommunication network available			Site Topography		
AIRTEL/ETISALAT			SLOPY SURFACE /SANDY SOIL OBSERVED		

### Notes:

1. Overhead powerlines obstruct the access road to the PHC.

### Recommendations:

1. Obstructing overhead powerlines must be raised higher or relocated for movement of heavy vehicles making deliveries to the PHC.



**ZANGON AYA PHC LAYOUT**

CLIENT:

PROJECT NAME	KADUNA SOLAR PROJECT
REFERENCE DRAWING:	
DRAWING NO:	
TITLE:	ZANGON AYA PHC LAYOUT
DESCRIPTION:	
DRAWN:	
CHECKED BY:	
DATE:	Sept. 2015

NO	NAME	DATE
A		
B		
C		
D		

SHEET NO: 1 TOTAL SHEETS: 1

Scale:

LEGEND:

LEGEND	
W	WELL
GH	GEN HOUSE
SH	SECURITY HOUSE
T	TOILET
Tr	TREE
C	CAGE

APPROVAL

<input type="checkbox"/> APPROVED	<input type="checkbox"/> APPROVED WITH COMMENTS
<input type="checkbox"/> NOT APPROVED	<input checked="" type="checkbox"/> FOR INFORMATION
<input type="checkbox"/> FOR APPROVAL	

DATE: \_\_\_\_\_ SIGNATURE / STAMP \_\_\_\_\_

## SUMMARY FOR MAKARFI PHC

This summary report is based on the findings of the site survey team of EM-ONE on September 1, 2015.

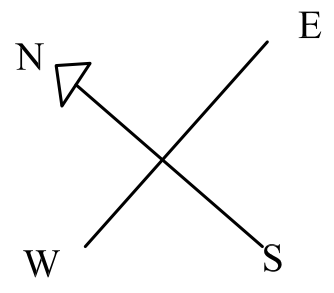
Secure Empty Space	Size of available free space		Building Shading	Number of buildings in PHC	Height of tallest building (m)
	L (m)	B (m)			
No	14	12	Yes	3	4
Telecommunication network available			Site Topography		
MTN/GLO/AIRTEL/ETISALAT			SLOPY SURFACE /SANDY SOIL OBSERVED		

### Notes:

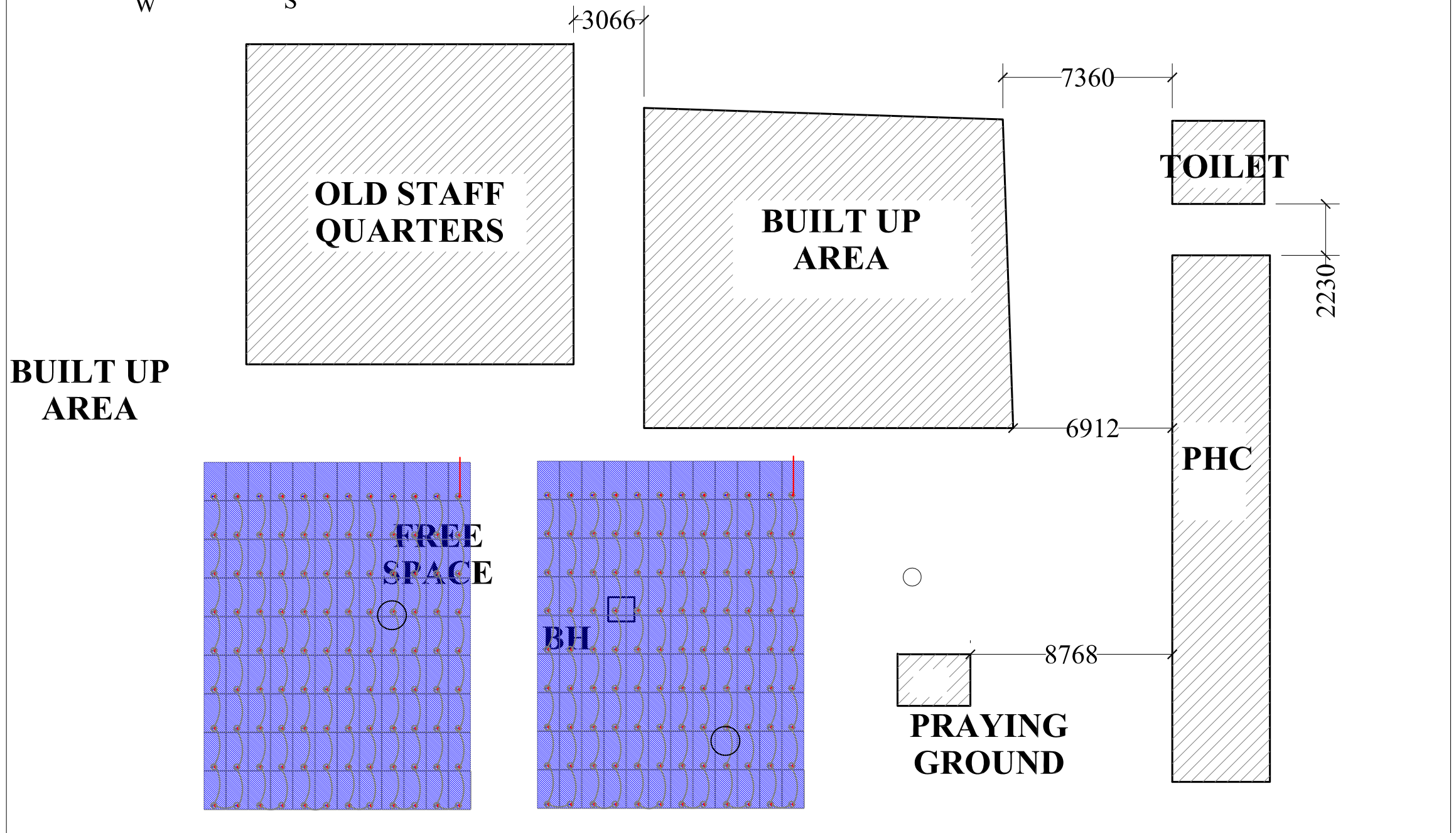
1. Available space has no boundary wall and is surrounded by built up areas.

### Recommendations:

1. Excessive buildings may have to be used as equipment housing or demolished.



# MAKARFI PHC LAYOUT



CLIENT:				
DRAWING DETAILS	PROJECT NAME	KADUNA SOLAR PROJECT		
	REFERENCE DRAWING:			
	DRAWING NO:			
	TITLE:	MAKARFI PHC LAYOUT		
	DESCRIPTION:			
	DRAWN:			
	CHECKED BY:			
DATE:	Sept. 2015			
REVISIONS	NO	NAME	DATE	
	A			
	B			
	C			
	D			
SHEET NO:	1	TOTAL SHEETS:	1	
Scale:				
LEGEND:				
APPROVAL	<input type="checkbox"/> APPROVED	<input type="checkbox"/> APPROVED WITH COMMENTS		
	<input type="checkbox"/> NOT APPROVED	<input checked="" type="checkbox"/> FOR INFORMATION		
	<input type="checkbox"/> FOR APPROVAL			
	DATE:		SIGNATURE / STAMP	