

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT			1. CONTRACT ID CODE	PAGE OF PAGES 1 32
2. AMENDMENT/MODIFICATION NO. 0005	3. EFFECTIVE DATE 27-Feb-2012	4. REQUISITION/PURCHASE REQ. NO.		5. PROJECT NO.(If applicable) PSPS060801PS
6. ISSUED BY AFGHANISTAN DISTRICT SOUTH (AES) US ARMY CORPS OF ENGINEERS APO AE 09355	CODE W5J9LE	7. ADMINISTERED BY (If other than item 6) See Item 6		
8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)		X	9A. AMENDMENT OF SOLICITATION NO. W5J9LE-12-R-0024	
		X	9B. DATED (SEE ITEM 11) 02-Jan-2012	
			10A. MOD. OF CONTRACT/ORDER NO.	
			10B. DATED (SEE ITEM 13)	
CODE	FACILITY CODE			
11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS				
<input checked="" type="checkbox"/> The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer <input type="checkbox"/> is extended, <input checked="" type="checkbox"/> is not extended. Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning <u>1</u> copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.				
12. ACCOUNTING AND APPROPRIATION DATA (If required)				
13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.				
A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.				
B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).				
C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:				
D. OTHER (Specify type of modification and authority)				
E. IMPORTANT: Contractor <input type="checkbox"/> is not, <input type="checkbox"/> is required to sign this document and return _____ copies to the issuing office.				
14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.) Project No: PSPS060801PS - Ministry of Interior Supply Point @ Qalat. The purpose of this amendment is to provide revisions to sections 00010 and 01010, replace drawing 00 Concept Site Plan in Appendix A, and add drawing 05b Pump House to Appendix A. The proposal due date of 7 March 2012 @ 5:00 pm remains unchanged. See continuation page, block 14 for detail.				
Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.				
15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)		
		TEL: _____ EMAIL: _____		
15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA		16C. DATE SIGNED
_____ (Signature of person authorized to sign)		BY _____ (Signature of Contracting Officer)		

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

The following have been added by full text:

Section 00010 (Proposal Schedule) provided in this amendment replaces all previous versions issued in their entirety.

Summary of changes:

Corrected CLIN numbering and added CLIN for Pump House

Section 01010 (Scope of Work) provided in this amendment replaces all previous versions issued in their entirety.

Summary of Changes:

Corrected paragraph numbering from previous version.

Added paragraph 2.5.9 Pump House.

Appendix A (Standard Design Drawings) is changed as follows:

Drawing 00 Concept Site Plan provided in this amendment replaces all previous versions issued in their entirety.

Drawing 05b Pump House provided in this amendment is added.

See pages following for revised/added documents referenced above.

**SECTION 00010 (AMENDMENT 0005)
PROPOSAL SCHEDULE**

The Contractor shall provide a price for all items, including any labeled “Optional Items”.

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>QTY</u>	<u>UNIT</u>	<u>Unit Price</u>	<u>AMOUNT</u>
0001	GENERAL				
0001AA	Mobilization/Demobilization	1	LS	XXX	\$ _____
0001AB	Security	1	LS	XXX	\$ _____
0001AC	Unexploded Ordinance (UXO) Removal and Clearance	1	LS	XXX	\$ _____
0002	DESIGN PROGRAM				
0002AA	Site Survey	1	LS	XXX	\$ _____
0002AB	Geotechnical Report	1	LS	XXX	\$ _____
0002AC	A/E Design	1	LS	XXX	\$ _____
0002AD	Record Drawings	1	LS	XXX	\$ _____
0003	SITE DEVELOPMENT				
0003AA	Site Demolition	1	LS	XXX	\$ _____
0003AB	Site Grading and Stormwater Management	1	LS	XXX	\$ _____
0003AC	Well	1	LS	XXX	\$ _____
0003AD	Potable Water System and Storage	1	LS	XXX	\$ _____
0003AE	Wastewater Collection and Treatment Plant	1	LS	XXX	\$ _____
0003AF	Electrical Generation and Distribution System	1	LS	XXX	\$ _____
0003AG	Communication System	1	LS	XXX	\$ _____
0003AH	Fuel Storage, Generator Canopy, and Vehicle Fuel Point	1	LS	XXX	\$ _____
0003AJ	Concrete Sidewalks	1	LS	XXX	\$ _____

0003AK	Concrete Loading Dock, Ramp and Apron	1	LS	XXX	\$_____
0003AL	Asphalt Roadways/Driveways	1	LS	XXX	\$_____
0003AM	Aggregate Roadways, Parking and Groundcover	1	LS	XXX	\$_____
0003AN	Flagpoles	4	LS	XXX	\$_____
0004	FORCE PROTECTION				
0004AA	Perimeter Security Wall	1	LS	XXX	\$_____
0004AB	Fencing, Gates and Barriers	1	LS	XXX	\$_____
0005	FACILITIES				
0005AA	Administration Bldg	2	EA	\$_____	\$_____
0005AB	Wood Stove annex	2	EA	\$_____	\$_____
0005AC	FRU Building	1	EA	\$_____	\$_____
0005AD	Small Women's Barracks	1	EA	\$_____	\$_____
0005AE	Senior Barracks	1	EA	\$_____	\$_____
0005AF	Well House	1	EA	\$_____	\$_____
0005AG	Pump House	1	EA	\$_____	\$_____
0005AH	MMT Buildings	2	EA	\$_____	\$_____
0005AJ	Warehouse (Small)	1	EA	\$_____	\$_____
0005AK	Warehouse, Large (RMTC)	1	EA	\$_____	\$_____
0005AL	Secure Storage Building (ASP)	1	EA	\$_____	\$_____
0005AM	Latrine	1	EA	\$_____	\$_____
0005AN	Gate House	1	EA	\$_____	\$_____
0005AP	Guard Shacks	4	EA	\$_____	\$_____
0005AQ	Guard Towers	4	EA	\$_____	\$_____
0005AR	Trash Collection Point	3	EA	\$_____	\$_____
0005AS	Clothesline	2	EA	\$_____	\$_____

0006	DBA Insurance SUBCLINS 0001- 0005	1	LS	XXX	\$ _____
<p>The amount listed by the offeror on this CLIN is the estimated DBA insurance premium (estimated payroll of the offeror and its subcontractors, multiplied by the applicable rate(s)). The actual amount paid by the government under this CLIN will be based on the amount of the Rutherford invoice submitted by the offeror after contract award. In the event of recalculation of the premium by CNA based on actual payroll amounts, the Contracting Officer will adjust this CLIN by contract modification to reflect actual premium amounts paid.</p>					

	TOTAL BASE BID ITEMS:				\$ _____
	OPTIONAL BID ITEMS				
0007	FACILITIES				
0007AA	Vehicle Maintenance Facility and POL Bldg.	1	LS	\$ _____	\$ _____
0007AB	DBA Insurance, SUBCLIN 0008AA	1	LS	\$ _____	\$ _____
<p>The amount listed by the offeror on this CLIN is the estimated DBA insurance premium (estimated payroll of the offeror and its subcontractors, multiplied by the applicable rate(s)). The actual amount paid by the government under this CLIN will be based on the amount of the Rutherford invoice submitted by the offeror after contract award. In the event of recalculation of the premium by CNA based on actual payroll amounts, the Contracting Officer will adjust this CLIN by contract modification to reflect actual premium amounts paid.</p>					
0007AC	Warehouse (Large)	1	LS	\$ _____	\$ _____
0007AD	DBA Insurance for SUBCLIN 0008AC	1	LS	\$ _____	\$ _____
<p>The amount listed by the offeror on this CLIN is the estimated DBA insurance premium (estimated payroll of the offeror and its subcontractors, multiplied by the applicable rate(s)). The actual amount paid by the government under this CLIN will be based on the amount of the Rutherford invoice submitted by the offeror after contract award. In the event of recalculation of the premium by CNA based on actual payroll amounts, the Contracting Officer will adjust this CLIN by contract modification to reflect actual premium amounts paid.</p>					
	TOTAL OPTIONAL BID ITEMS				\$ _____

SCHEDULE TOTAL:

\$ _____

PROPOSAL SCHEDULE NOTES:

1. Offeror shall submit prices on all items. Scope of Work for each item are described in Section 01010.
2. Only one contract for the entire schedule will be awarded under this solicitation. This project will be awarded as a single contract.
3. EVALUATION OF OPTIONAL BID ITEMS: The award will be made to the offeror whose proposal represents the lowest, responsive and responsible bidder. For pricing purposes the Government will evaluate both the Base Proposals and Option Proposals. The Government is not obligated to exercise the options.
4. EXERCISE OF OPTIONAL BID ITEMS: Optional Bid Items may, at the option of the Government, be added to the contract at any time within one-hundred eighty (180) calendar days after receipt of the Notice to Proceed.
5. PERIOD OF PERFORMANCE AND LIQUIDATED DAMAGES: See Section 00150 for performance schedule. Period of performance is defined as the number of calendar days from receipt of Notice to Proceed. Liquidated Damages are included in this contract. See FAR Clause 52.211-12.

6. Abbreviations:

LS = Lump Sum
EA = Each
LM = Linear meters
SM = Square meters
m² = square meters
kPa = kilopascals
m = meters
cm = centimeters
l = liters
kVA = kilo volt amps

- END OF SECTION-

SECTION 01010 SCOPE OF WORK

1.0 PROJECT REQUIREMENTS

This project consists of the design and construction of site improvements and construction of facilities to support the Afghanistan National Police (ANP) program for one (1) Ministry of Interior Supply Point with Police Precinct (MSP) Compound to be located in Qalat, Zabul Province, Afghanistan.

This project is defined as the management, planning, design, material, labor, and equipment, to site adapt and construct all utilities, vehicular access, buildings, force protection measures, site security, mine clearance activities, and all other features as required herein.

1.1 CODES AND STANDARDS

The work within this contract shall meet and be constructed in accordance with this Section 01010 Scope of Work, Government provided drawings located in Appendix A, Section 01015 Technical Requirements, Technical Specifications located in Appendix B, and the most recent Life Safety and building codes including:

Current U.S. design and International Building Code

NFPA-101

UFC 4-010-01, DoD Anti-Terrorism Standards: Force Protection and Security Standards for Buildings

AED Design Guides

1.2 LOCATION

The site is located in Zabul Province, Afghanistan, as shown on the attached site assessment. The coordinates of it's boundaries are:

<u>Corner</u>	<u>Latitude (N)</u>	<u>Longitude (E)</u>
1	32 04 26.8N	66 52 25.6E
2	32 04 21.7N	66 52 30.5E
3	32 04 27.9N	66 52 38.4E
4	32 04 34.1N	66 52 33.0E

1.3 GENERAL REQUIREMENTS

1.3.1 DESIGN POPULATION

Compound shall have a design population of 200 personnel for purposes of utility designs.

1.3.2 EQUIVALENCE

Any standard that can be determined to be substantially equivalent to the standards specified in this document may be used, but it is the Contractor's responsibility to show the equivalency of the alternate standard. Reviewable documentation must be provided to the Contracting Officer (KO) for approval prior to use; no part of any time lost due to such actions shall be made the subject of claim for extension of time, excess costs, or damages by the Contractor.

1.3.3 AFGHAN LABOR AND MATERIALS

The Contractor is encouraged to use Afghan labor and subcontractors to the maximum extent possible commensurate with technical, security or other requirements or necessary considerations. The intent of this Contract is also to use locally procured materials and labor to the maximum extent possible, but this does not allow the

Contractor to make changes to the Standard Design drawings, Technical Specifications or design analysis, except where specifically indicated herein.

1.3.4 SITE ADAPTING OF GOVERNMENT STANDARD DRAWINGS

Government-furnished drawings may require adaptation to conform to actual existing site conditions. All such adaptations shall be designed and constructed in accordance with current U.S. and International Building Codes and all requirements herein. The contractor must submit any changes to the Government-provided Drawings or Specifications in accordance with Contract Section 01335, Paragraph "Variations." Adaptations shall be approved by the Contracting Officer's Representative (COR) prior to the start of work.

Verify all site dimensions and all existing conditions described both herein and in Appendices drawings prior to the start of any construction. The Contractor is highly encouraged to verify existing site conditions before submitting proposals.

Structural foundations in Government provided Standard designs have been designed for a maximum soil bearing capacity of 0.75 kg/cm². The geotechnical investigation shall confirm bearing capacity to be no less than 0.75 kg/cm²; or if investigation determines capacity to be less than 0.75 kg/cm², Contractor shall redesign all foundations based on the values provided in the geotechnical investigations.

All standard construction amenities such as underground utilities, site grading, electrical, communications infrastructure, detailing etc. shall be implied as design and construction requirements.

1.3.5 ORDER OF PRECEDENCE

For questions of conflict or ambiguity in contract documents or drawings refer to Section 00555 DESIGN CONCEPT DOCUMENTS for Order of Precedence.

1.3.6 ENGLISH LANGUAGE REQUIREMENT

All information shall be presented in English. The Contractor shall have a minimum of one English-speaking representative present to communicate with the COR at all times when work is in progress.

1.3.7 SUBMITTALS

Refer to Section 01335 SUBMITTAL PROCEDURES for all Submittal and Submittal Register requirements.

1.3.8 CQM TRAINING REQUIREMENT

Refer to Section 01451 CONTRACTOR QUALITY CONTROL for Construction Quality Management (CQM) Training requirements.

2.0 SUMMARY OF WORK

2.1 GENERAL

2.1.1 MOBILIZATION / DEMOBILIZATION

Mobilization and Demobilization shall consist of all labor, equipment, supplies and facilities required to stage all equipment and facilities needed for construction of this project. Requirements for mobilization and temporary structures are set forth in Section 01015 Technical Requirements and 01060 Special Requirements.

2.1.2 SECURITY

Security is critical to construction in Afghanistan, especially on roads and remote areas away from Coalition Force bases. The Contractor must have an appropriate amount of security/protection to match the threat in the project area and along the supply routes. A detailed security plan in accordance with Section 01040 Security shall be approved by the Government before being issued a Clearance For Construction.

The Contractor shall be responsible for physical security of all materials, supplies, and equipment of every description, including property which may be Government-furnished or owned, for all areas occupied jointly by the Contractor and the Government, as well as for all work performed.

The Contractor shall provide perimeter force protection security for the developing site. Security may include, but is not limited to, a perimeter fence and private security guards. Perimeter security shall prevent unauthorized site access and provide safety protection to the Contractor work force and government personnel for the duration of the project. The Contractor is solely responsible for security; however, local police shall be coordinated with regarding security.

2.1.3 UNEXPLODED ORDINANCE (UXO) REMOVAL AND CLEARANCE

Contractor IS responsible for initial clearance/removal.

The Contractor shall search for, identify and clear all mines and unexploded ordnance (UXO) from the entire site. The contractor may only provide clearance/removal services via UN Mine Action Center for Afghanistan (UNMACA) accredited entities, and clearance shall be accomplished to the anticipated foundation depth as indicated in the contract. If sub-surface construction activities are to be performed on this site the minimum clearance depth will be 1 meter. Sub-surface clearance for construction activities in excess of 1 meter as defined by the contract parameters will also be the responsibility of the contractor. Clearance by definition is an investigation and clearance of all sub-surface metallic anomalies on the site. Clearance/removal may only be undertaken in accordance with International Mine Action Standards (IMAS), Afghanistan Mine Action Standards (AMAS), and applicable U.S. Army Corps of Engineer (USACE) Ordnance & Explosives (OE) safety standards. When mines and/or UXO's are identified, the Contractor shall place them in a location in accordance with IMAS/AMAS/USACE until destruction of the items can take place. Construction work shall not occur inside the safety exclusion zone based on the most probable munition (MPM) expected on the site. Construction will not commence in any area that has not been cleared to the specified depth.

The contractor will provide a standard UXO/Mine Clearance safety work plan to the US Army Corps of Engineers UXO / Mine Clearance COR for review prior to commencement of all UXO/mine clearance activities on the project sites. Once the UXO/ Mine Clearance has concluded, the contractor shall provide the US Army Corps of Engineers UXO / Mine Clearance COR a clearance certificate for review and approval before any construction activities are to commence.

NOTE 1: The USACE does not need written clearance certificate approval from the UNMACA to approve the construction start activities. However, the contractor is responsible for providing a copy of the clearance certificate to the UNMACA for entry into their country wide database. A final signed copy of the UNMACE certificate must then be provided to the USACE UXO/Mine Clearance COR.

It is the responsibility of the Contractor to be aware of the risk of encountering UXO/mines and to take all actions necessary to assure a safe work area to perform the requirements of this contract. The Contractor assumes the risk of any and all personal injury, property damage or other liability arising out of or resulting from any Contractor action taken hereunder. The Contractor and its subcontractors may not handle, work with, move, transport, render safe, or disarm any UXO/mine, unless they have appropriate accreditations under the IMAS/AMAS from the UNMACA.

If a UXO/mine is encountered after a UNMACA-approved clearance certificate is provided to the Government, UXO/mine disposal shall be handled in accordance with Section 01015, Technical Requirements.

NOTE 2: Point of Contact for UXO/Mine Clearance Safety Work Plan review and approval shall be directed to the US Army Corps of Engineers Mine Clearance Safety/COR:

UXO Safety/ Demining COR, USACE

tas.uxo.demining.safety@usace.army.mil, Roshan:079-403-1452 Comm:540-723-6129

2.2 DESIGN PROGRAM

2.2.1 SITE SURVEY

The Site Survey shall consist of all labor, equipment and supplies necessary to produce the topographical and other data in accordance with the requirements specified in Sections 01015 and 01335.

2.2.2 GEOTECHNICAL REPORT

The Geotechnical Report shall contain the results of a geotechnical investigation conducted in accordance with the requirements specified in Section 01015. All labor, equipment and supplies necessary to conduct a geotechnical investigation shall be considered a part of the Geotechnical Report.

2.2.3 A/E DESIGN

A/E (Architectural/Engineering) Design shall consist of all labor, equipment and supplies required to furnish a completed project design in accordance with the requirements specified herein, and in Section 01015 and Section 01335.

2.2.3.1 MASTER PLAN

The Contractor shall prepare a programmatic Master (Site) Plan, designed to include all requirements (including planned locations for Optional Bid Items) required herein. The Master Plan shall include all locations of construction office/storage containers, lay-down and construction debris removal area.

Development of the compound should utilize the most suitable land for construction, and shall be planned in accordance with the Concept Site Plan. Facilities shall not be located in wadis or dry river beds. The sidewalk network as illustrated on the Concept Site Plan shall be modified so that sidewalks are located to connect to building entrances.

Contractor is required to plant new trees equal to the quantity of demolished trees.

The proposed costs of the Master Plan shall be included as part of the line item "A/E Design" in the 00010 Bid Schedule.

2.2.4 RECORD DRAWINGS

Record Drawings shall consist of all labor, equipment and supplies required to produce Record (As-Built) Drawings in accordance with the requirements specified in Section 01335 and 01780A.

2.3 SITE DEVELOPMENT

2.3.1 SITE DEMOLITION

The Contractor shall dispose of all existing vegetation and debris and demolish any and all existing structures which may be present on site including all concrete, foundations and utilities prior to commencement of new work.

2.3.2 SITE GRADING AND STORMWATER MANAGEMENT

Site grading and drainage features shall conform to the requirements and references as specified in Section 01015 Technical Requirements. All drainage shall be conveyed off site; stormwater retention is not permitted as a drainage solution. Site grading shall not adversely impact the drainage on neighboring properties.

2.3.2.1 MITIGATION OF ONSITE WADIS (NOTE: ONLY USE IF SITE ASSESSMENT SHOWS MAJOR WADIS)

Contractor shall provide additional backfill and compaction to elevate and slope finish grade, or design and construct other engineered means, to divert wadi and flood waters away from the compound.

The proposed costs of this item shall be included as part of the line item "Site Grading and Stormwater Management" in the 00010 Bid Schedule.

2.3.3 WELL

Design, drill and construct one water Well to a minimum depth of 75 meters, and a maximum depth of 100 meters in accordance with Section 01015. The water Well should have a minimum capacity of 35,000 liters per day.

2.3.4 POTABLE WATER SYSTEM AND STORAGE

Design and construct a Potable Water System (PWS), served by the Well, to include the water well pump, elevated water storage tank, ground water storage tank, water Well piping, water meters, disinfection/chlorination system, and an underground pipe distribution network system.

Elevated Storage Tank: Construct one (1) elevated water tank of 26,500 liters (7,000gal.) minimum storage capacity in accordance with the Standard Design Drawings titled "05a 20m Water Tower" located adjacent to the water well as illustrated on Concept Site Plan.

Ground Storage Tank: Contractor shall design and construct circular steel ground level tank of 67,000 liters minimum storage capacity located near the Water well as illustrated on Concept site Plan.

Storage tanks and piping shall be designed to incorporate passive insulation measures as much as possible to prevent water from freezing during cold periods. Examples of passive measures include limiting the length of above-grade inlet piping and siting tanks where inlet piping has maximum exposure to winter sunlight. Systems shall not incorporate electrical heat wrapped tape or exterior tank insulation, as they do not conform to life expectancy of twenty (20) years.

The water system shall be constructed in conformance with Section 01015, the government provided drawings, Technical Specifications, AED Design Requirements, and UFC 3-230-03A Water Supply.

2.3.5 WASTEWATER COLLECTION AND TREATMENT SYSTEM

The Wastewater Collection and Treatment system shall be designed and constructed in accordance with 01015 Technical Requirements and shall consist of a gravity sewer pipe network and all accessories such as manholes, cleanouts, and building service connections. The Collection System shall connect to the Wastewater Treatment System, which shall be a septic tank absorption field effluent disposal system. The waste water system shall be designed using an average daily flow of 38,000 liters per day and the septic tank shall have a capacity of 75,000 liters. Geotechnical investigation of the proposed sewage treatment site is required and the Contractor shall design the sewage treatment system to be compatible with site and soil conditions.

2.3.6 ELECTRICAL GENERATION AND DISTRIBUTION SYSTEM

Design and construct an Electrical Generation and Distribution system.

Design and construct all components of an Electrical Generation and Distribution System, to include generator(s), fuel tank(s), switchgear, and all other components. Design all parts of the system in accordance with Section 01015, and the referenced codes/publications. Generator(s), fuel tank(s), and switchgear shall be located at the Generator Canopy and Vehicle Fuel Point as approximately illustrated on Concept Site Plan Appendix A.

The Contractor shall fill generator tank(s) with fuel at project turnover, after successful completion of commissioning.

2.3.7 COMMUNICATION SYSTEM

Design and construct the communications infrastructure. The communications ductbank system shall extend from the Administration Building to all Guard Towers, Guard Shacks and Guard Houses. The communications wiring shall be installed by others. Communication infrastructure shall be designed and constructed in accordance with Section 01015, Technical Requirements.

Backbone Pathway: Telecommunication pathways from the telecommunications entrance facility to telecommunications room(s), and, telecommunications equipment rooms (backbone conduits) shall be installed.

2.3.8 FUEL STORAGE, GENERATOR CANOPY AND VEHICLE FUEL POINT

Contractor shall design and construct a diesel (vehicle) fuel storage and dispensing system, including all pertinent components and installation of all required equipment and tanks in accordance with Section 01015 and standard Appendix drawings titled "19 Fuel Generator Canopy" in Appendix. Standard drawings shall be amended to provide 50,000 liters of vehicle diesel fuel storage and 5,000 liters of MOGAS storage. Dispenser with a single dispensing pump shall be located adjacent to interior roadway as illustrated per Concept Site Plan. The 50,000 liters of diesel fuel storage for vehicles shall be in addition to the fuel storage requirements for the generators as presented in the 1015. The 50,000 liters of vehicle storage shall be split evenly among the 3 diesel storage tanks, as shown in the Appendix drawings.

Sizing of the generator fuel storage tanks shall be in accordance with requirements as described in Section 01015.

Contractor shall fill each fuel tank with fuel at project turnover after successful completion of commissioning.

Contractor shall design and construct a canopy and enclosures to house the Fuel Tanks, Electrical generator(s) and switchgear as conceptually illustrated in Appendix drawings titled "Fuel Generator Canopy" and as follows:

Canopy: All equipment, Fuel Tanks, Generators and Switchgear shall be housed under one common steel canopy structure as illustrated in standard drawings Appendix A. Canopy height shall be 1m minimum clear above wall enclosure below.

Containment Dike: All fuel tanks shall be enclosed within a containment dike consisting of a concrete slab on grade and a fully grouted non-structural continuous 200mm masonry block wall as illustrated on Concept Site Plan in Appendix A. Wall shall be 3m tall and maintain a minimum 1 meter clearance from all tanks and components within. Provide (1) fixed steel access ladder on the inside of the enclosure wall.

Fencing: Generators and Switchgear shall be provided with a continuous 2m tall chainlink fence and lockable gate with triple-strand concertina wire.

2.3.9 CONCRETE SIDEWALKS

Design and construct a network of unreinforced concrete sidewalks of 1.5m minimum width in accordance with Section 01015 of approximate configuration as illustrated on Concept Site Plan.

2.3.10 CONCRETE LOADING DOCK, RAMP AND APRON

Design and construct a reinforced concrete loading dock, ramp and apron at Large Warehouse Facilities in accordance with Section 01015 and of configuration as approximately illustrated in the Concept Site Plan.

2.3.11 ASPHALT ROADWAYS

Construct asphalt-surfaced roadways in accordance with Section 01015 for all roads located inside the perimeter security wall, ECP areas and Convoy Assembly Area as illustrated in the Concept Site Plan.

2.3.12 AGGREGATE ROADWAYS, PARKING AND GROUND COVER

Construct aggregate roadways and parking areas in accordance with Section 01015 Technical Requirements and of approximate configuration as illustrated on Concept Site Plan.

All perimeter roadways, driveways, and truck waiting area located outside the Perimeter Security Wall shall be aggregate. Aggregate shall extend to limits of construction at ingress and egress roads.

All Secure Vehicle Storage areas located within the compound shall be aggregate surface.

Vehicular parking areas shall match sizes, quantities and configurations as approximately illustrated on the Concept Site Plan.

Native crushed stone, 100 mm depth, shall be placed around a 2-meter perimeter of all buildings and structures.

2.3.13 FLAG POLES

Construct four (4) 10m-tall flagpoles with a common at-grade reinforced concrete base in accordance with provided standard drawings titled "20 Flagpoles" at locations as illustrated on the Concept Site Plan.

2.4 FORCE PROTECTION

2.4.1 PERIMETER SECURITY WALL

Construct Perimeter Security Walls of configuration as illustrated on the Concept Site Plan in accordance with provided drawings titled "15 Site Details".

2.4.2 FENCING, GATES, AND BARRIERS

Provide chain-link fencing in accordance with standard drawings titled "21 Fence and Gate Details-Typical" at each of the following locations as illustrated on the Concept Site Plan: at kitchen service yard of the Administration Buildings, surrounding the Truck Waiting Area, surrounding leachfield, surrounding the Secure Vehicle Storage areas, surrounding Women's Barracks and FRU facilities, surrounding electrical generators and surrounding Well house and Water Towers. Provide double-leaf swinging lockable chain-link gates at fences where approximately located per the Concept Site Plan. Each gate opening shall be 4m wide

Provide two (2) Entrance and two (2) Personnel (Man) Gates in the Perimeter Wall at the locations illustrated on the Concept Site Plan and constructed in accordance with the Standard drawings "ECP Gates".

Hesco Barrier walls shall be provided in locations as illustrated on the Concept Site Plan.

Provide and install Drop-Arm Barriers in accordance with standard drawings "17 Drop Arm Barrier" at locations as illustrated on the Concept Site Plan. Gates shall be constructed in accordance with the Standard Design drawings.

2.5 FACILITIES

2.5.1 GENERAL

Construct all facilities in accordance with the provided Standard drawings and Technical Specifications in the Appendix.

Window screens shall be provided only at Kitchen area of Administration Buildings, all other screens shall be omitted from design.

2.5.2 LIFE SAFETY REQUIREMENTS

Fire sprinkler systems are not required. Install hardwired smoke detectors per the requirements referenced herein; fire alarm control panels are not required. Wall-mounted A-B-C 6kg fire extinguishers shall be provided and

installed for every 100 square meters of floor space in each building. The facilities shall comply with all other safety requirements as required within the Standard Design drawings and applicable references.

2.5.3 DISTRICT HEADQUARTERS BUILDINGS

Construct two (2) District Headquarters Buildings.

District Headquarters Building #01A as denoted on the Concept Site Plan shall be constructed in accordance with provided standard drawings titled “01A ANP District Headquarters Compounds – 1 Story”.

District Headquarters Building #01B as denoted on the Concept site plan shall be constructed in accordance with provided drawings titled “01 ANP District Headquarters Compounds – 1 Story with DB reqs” with the following Design/Build requirements as is conceptually illustrated on Sht A/A-1 of the drawings:

Prisoners room 112, 113 shall be revised as follows:

Latrines shall be omitted from Prisoners rooms 112, 113 including all fixtures, piping, floor drains and sloped floor slab. Wall construction at Prisoners rooms 112, 113 shall not be cast-in-place concrete as indicated: all wall construction shall be 200mm CMU. A split-pack unit shall be added to Room 113. Room 112 shall be provided with one (1) double-leaf exterior steel door and heavy duty hardware in accordance with Section 01015.

2.5.4 WOOD STOVE ANNEX

Construct two (2) Wood Stove Annexes in accordance with standard drawings titled “01c,d Wood Stove Annex”, located as approximately illustrated on Concept site plan.

2.5.5 FRU BUILDING

Construct one (1) Family Response Unit (FRU) Building in accordance with the provided Standard drawings titled “02 Family Response Unit Offices AD20 (Western Toilets)”, located as approximately illustrated on the Concept Site plan.

2.5.6 SMALL WOMEN’S BARRACKS

Construct one (1) Small Women’s Barracks in accordance with the provided Standard drawings titled “03 Small Women’s Barracks”, located as approximately illustrated on the Concept Site Plan.

2.5.7 SENIOR BARRACKS

Construct one (1) Senior Barracks in accordance with the provided Standard drawings titled “04 Barrack Bldg Type 1 (862gsm) ER”, located as approximately illustrated on the Concept Site Plan.

2.5.8 WELL HOUSE

Construct one (1) Well House in accordance with the provided Standard drawings entitled “05 Well House”. Well house shall be constructed at location of drilled water well as approximately illustrated on the Concept Site Plan.

2.5.9 PUMP HOUSE

Construct one (1) Pump House in accordance with the provided Standard drawings entitled “05b Pump House” located as approximately illustrated on Concept Site Plan.

2.5.10 MMT BUILDINGS

Construct two (2) Mobile Maintenance Team (MMT) Buildings in accordance with the provided Standard drawings titled “06 Mobile Maintenance Team Building”, located as approximately illustrated on the Concept Site plan.

MMT Building #06b as denoted on Concept Site Plan shall be constructed according to standard drawings. MMT Building #06a as denoted on Concept Site Plan shall be constructed according to standard drawings with Toilet Room omitted from design, including all piping and fixtures.

2.5.11 WAREHOUSE (SMALL)

Construct one (1) Warehouse, located as approximately illustrated on Concept Site Plan. Warehouse shall be constructed in accordance with the provided Standard Drawings titled “07 Warehouse, Small with DB Workshop, Eyewash” with the following additional requirements as is conceptually illustrated on Sht A1 of the drawings.

Design and Construct an “Enclosed Workshop” consisting of 200mm CMU interior partitions full height to underside of structure with one steel door and heavy duty hardware in accordance with Section 01015.

Design and install one eyewash station in accordance with Section 01015 at approximate location as shown provided standard drawings.

2.5.12 WAREHOUSE (LARGE)

Construct one (1) Warehouse located as approximately illustrated on Concept site plan. Construct warehouse in accordance with standard drawings titled “08 RMTC Storage (Warehouse Large)” with the following additional requirements:

Design and construct chainlink fences extending full height to underside of structure with lockable gates enclosing two separate areas of 7m x 7m and 4m x 4m respectively within warehouse. Both fenced areas shall be provided with 2m wide x 4m tall lockable gates.

Design and install one eyewash station in accordance with Section 01015.

2.5.13 SECURE STORAGE BUILDING (ASP)

Construct one (1) Secure Storage Building (or Ammunition Supply Point, or ASP), located as approximately illustrated on Concept Site Plan. Secure Storage Building shall be constructed in accordance with the provided Standard drawings titled “09 Secure Storage”. No other regularly-occupied buildings shall be located within a 45 meter standoff distance from the Secure Storage Buildings.

2.5.14 LATRINE

Construct one (1) Latrine in accordance with the provided Standard Building Design drawings entitled “10 L01 - Latrine Building Small”, located as approximately illustrated on Concept Site Plan.”.

2.5.15 GATE HOUSE

Construct one (1) Gate House in accordance with the provided Standard drawings titled “ 11Gate House”, located as approximately illustrated on Concept Site Plan.

2.5.16 GUARD SHACKS

Construct four (4) Guard Shacks in accordance with the provided Standard Building Design drawings titled “12 Guard Shack”, located as approximately illustrated on Concept Site Plan.

2.5.17 GUARD TOWERS

Construct four (4) Guard Towers, located in accordance with the Concept Site Plan. Guard Towers shall be constructed in accordance with the provided Standard Building Design drawings, entitled “ 13 Guard Tower”.

The design of the Guard Tower shall be flipped or mirrored for particular locations, so that its orientation matches to the Concept Site Plan.

2.5.18 TRASH COLLECTION POINT

Construct three (3) Trash Collection Points, located in accordance with the Concept Site Plan. Trash Collection Points shall be constructed in accordance with the provided Standard drawings titled "14 Trash Point".

2.5.19 CLOTHESLINE

Install two (2) clotheslines per standard drawing titled "22 Clothesline" at locations as approximately indicated on Concept Site plan.

3.0 OPTIONAL ITEMS

3.1 VEHICLE MAINTENANCE AND POL BUILDING

Construct one (1) Vehicle Maintenance and (1) POL building located as approximately illustrated per the Concept Site Plan. The Vehicle Maintenance and POL buildings shall be constructed in accordance with provided standard drawings titled "23 Option V10 Vehicle Maintenance (3-Bay) and POL Building" with the following exceptions: Contractor is to design and construct a loft space above the office areas as conceptually illustrated in the provided standard drawings. Loft space shall be provided with steel stairs and railing configured as per code and a continuous 2m tall fence along perimeter above maintenance area. Loft space shall also be divided into two (2) separate areas by fence with lockable gate.

Design and construct a Small Arms Repair room as conceptually illustrated in standard drawings consisting of 200mm CMU interior partitions full height to underside of structure with one steel door and heavy duty hardware in accordance with Section 01015.

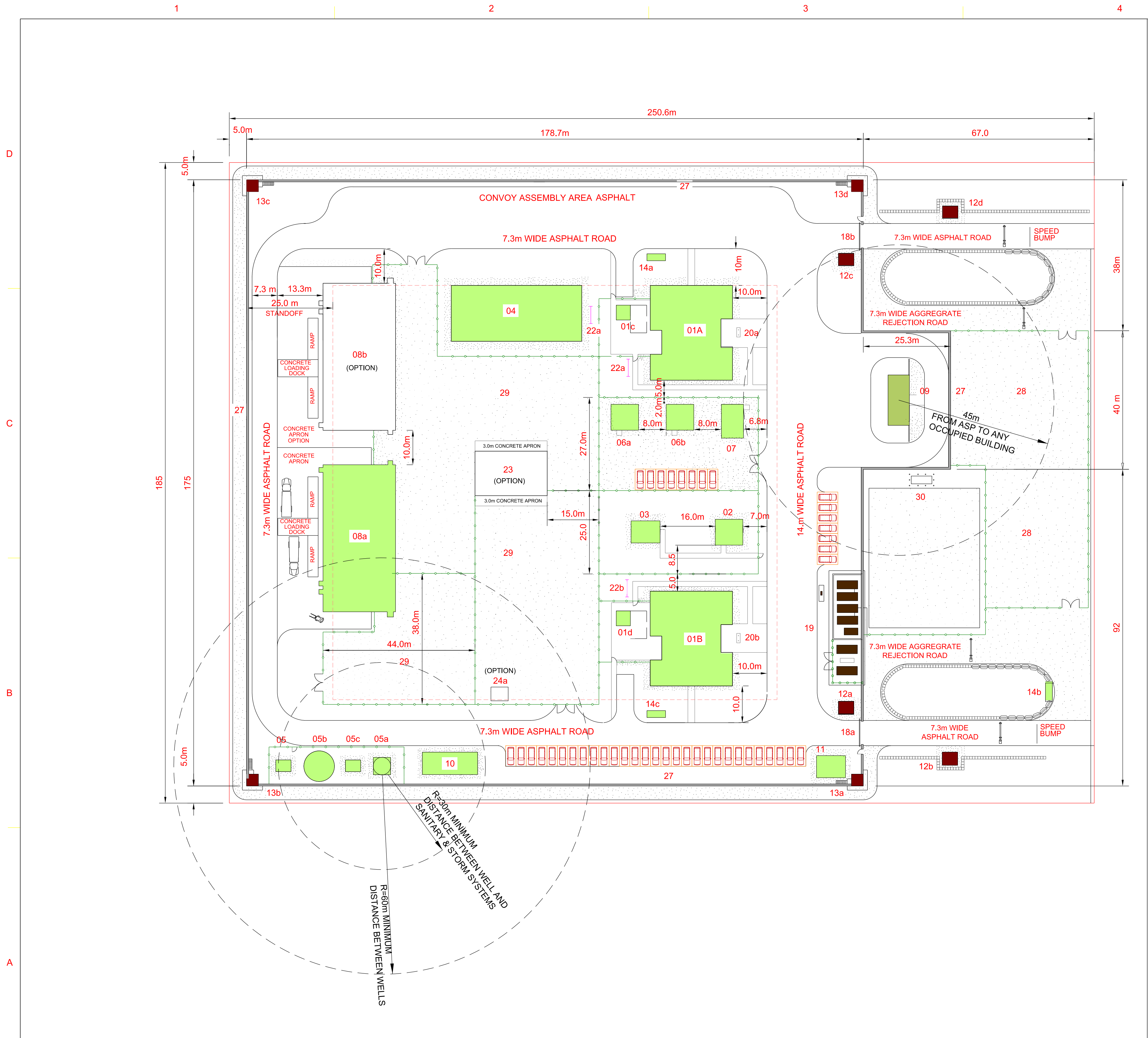
Design and construct one eyewash station in accordance with Section 01015 at approximate location as shown provided standard drawings.

3.2 WAREHOUSE (LARGE)

Construct one (1) Warehouse (Large) in accordance with the provided Standard drawings titled "08 RMTC Storage (Warehouse Large)" located as illustrated on Concept Site plan.

-- END OF SECTION --

(End of Summary of Changes)



MSP - CONCEPT SITE PLAN

- 01A DISTRICT HEADQUARTERS BUILDING
- 01B DISTRICT HEADQUARTERS BUILDING with DESIGN BUILD REQUIREMENTS
- 01c,d WOOD STOVE ANNEX
- 02 FRU BUILDING
- 03 SMALL WOMEN'S BARRACKS
- 04 BARRACKS TYPE 1 (862GSM) ER
- 05 WELL HOUSE
- 05a ELEVATED STORAGE WATER TANK & TOWER
- 05b GROUND STORAGE WATER TANK
- 05c BOOSTER PUMP HOUSE
- 06a,b MMT BUILDING
- 07 WAREHOUSE SMALL with DESIGN BUILD REQUIREMENTS
- 08a WAREHOUSE - LARGE (RMTc STORAGE)
- 08b WAREHOUSE - LARGE (RMTc STORAGE) (OPTION)
- 09 SECURE STORAGE BUILDING (ASP)
- 10 L01 LATRINE BUILDING SMALL
- 11 GATE HOUSE
- 12a-d GUARD SHACKS
- 13a-f GUARD TOWERS
- 14a-c TRASH COLLECTION POINT
- 15 not used
- 16 not used
- 17 DROP ARM BARRIER
- 18a,b ECP GATE
- 19 FUEL STORAGE, FUEL POINT, GENERATOR, CANOPY
- 20a,b FLAGPOLE
- 21 not used
- 22a,b CLOTHESLINE
- 23 VEHICLE MAINTENANCE VM10 (3-BAY) with DESIGN BUILD REQUIREMENTS (OPTION)
- 24a POL BUILDING (OPTION)
- 25 not used
- 26 not used
- 27 PERIMETER SECURITY WALL
- 28 TRUCK WAITING AREA
- 29 SECURE VEHICLE STORAGE
- 30 SEPTIC TANK/LEACHFIELD

- HESCO BARRIER
- VEHICLE PARKING
- DROP-ARM GATE
- CONCRETE BARRIER
- BOLLARDS (at SEPTIC TANK)

Ministry of Interiors Supply Point (MSP) Concept Site Plan



DATE	DESCRIPTION	MARK	APPR.	DATE

DESIGNED BY:	DATE:	SOLICITATION NO.:
DWN BY:	CHK'D BY:	CONTRACT NO.:
SUBMITTED BY:	PLotted BY:	FILE NUMBER:
PLOT SCALE:	SDATES:	FILE NAME:
1:1	1:1	\$PFILE\$:
ANSI D:	ANSI D:	ANSI D:

U.S. ARMY CORPS OF ENGINEERS
AFGHANISTAN DISTRICT
APO AE 09386

AFGHAN NATIONAL POLICE
MINISTRY OF INTERIOR SUPPLY POINT (MSP)
QALAT, ZABUL PROVINCE, AFGHANISTAN
CONCEPT SITE PLAN

SHEET IDENTIFICATION
MP001
SHEET 1 OF 1



US Army Corps of Engineers
Afghanistan Engineer District

05 b

STANDARD BUILDING DESIGNS

PUMP HOUSE

SYMBOL	DESCRIPTION	DATE	APP

SHEET INDEX

- G1 COVER SHEET

- S1 GENERAL NOTES
- S2 DESIGN CRITERIA & SCHEDULES
- S3 FOUNDATION & ROOF FRAMING PLANS
- S4 SECTIONS AND DETAILS
- S5 TYPICAL DETAILS

- A1 FLOOR AND ROOF PLANS AND DETAILS
- A2 EXTERIOR ELEVATIONS
- A3 DOOR & WINDOW & FINISH TYPES & DETAILS

- P101 WATER BOOSTER STATION WATER BOOSTER/WELLHOUSE PLAN

- M1 HVAC PLAN

- E0 ELECTRICAL SYMBOLS AND ABBREVIATIONS
- E101 BOOSTER STATION ELECTRICAL PLAN
- E2 DETAILS
- E3 LIGHT FIXTURE SCHEDULE
- E4 PANEL SCHEDULES AND RISER DIAGRAM

DESIGNED BY: JDS	DATE: 09-30-09	SUBMITTED BY: BAKER	FILE NO.: ANPSDG-001XXX
DWN BY: JDS		CHK BY: JDS	
Michael Baker Jr., Inc. A unit of Michael Baker Corporation Airside Business Park 100 Airside Drive Moon Township PA 15108 www.mbakercorp.com			

STANDARD DESIGN
WELL HOUSE
COVER SHEET

SHEET
REFERENCE
NUMBER:
G1

100% SUBMISSION

STRUCTURAL ABBREVIATIONS:

ACI	AMERICAN CONCRETE INSTITUTE
ASC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ALT	ALTERNATE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWS	AMERICAN WELDING SOCIETY
ARCH	ARCHITECTURAL
B	BOTTOM
BLDG	BUILDING
BOTT	BOTTOM
CL	CENTER LINE
CFMF	COLD FORM METAL FRAME
CFS	COLD FORMED STEEL
CIP	CAST IN PLACE
CIPL	CAST-IN-PLACE LINTEL
CJ	CONTROL JOINT
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
COEFF	COEFFICIENT
COL	COLUMN
CONC	CONCRETE
CONT	CONTINUOUS
COORD	COORDINATE
CSJ	CONSTRUCTION JOINT
CTJ	CONTROL JOINT
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DWG	DRAWING
DWL	DOWEL
EA	EACH
ELEC	ELECTRICAL
ELEV	ELEVATION
EMBED	EMBEDMENT
EQUIV	EQUIVALENT
ETC	ET CETERA
EW	EACH WAY
EXT	EXTERIOR
FTG	FOOTING
GA	GAUGE
HORIZ	HORIZONTAL
HRS	HOURS
IBC	INTERNATIONAL BUILDING CODE
INT	INTERIOR
Kg	KILOGRAM
KIP	KIPS (1 KIP = 1,000 POUNDS)
KN	KILONEWTON
KPa	KILOPASCAL
L#	ANGLE (# INDICATES SIZE)
LLV	LONG LEG VERTICAL
M	METER
MAX	MAXIMUM
MBM	METAL BUILDING MANUFACTURER
MECH	MECHANICAL
MFG	MANUFACTURER
MID	MIDDLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MM	MILLIMETER
MPa	MEGAPASCAL
MTL	METAL
MWFRS	MAIN WIND FORCE RESISTING SYSTEM
N	NEWTON
N	NORTH
N/A	NOT APPLICABLE
#	NUMBER SYMBOL FOR REBAR SIZE
NTS	NOT TO SCALE
OC	ON CENTER
OPNG	OPENING
R or PL	PLATE
PRE-ENG	PRE-ENGINEERED
REINF	REINFORCED
REQ'D	REQUIRED
SIM	SIMILAR
SPECS	SPECIFICATIONS
STD	STANDARD
STRUCT	STRUCTURAL
SW	SHIELD WALL
T	TOP
T/	TOP OF
T/ELEV	TOP ELEVATION
T&B	TOP AND BOTTOM
THK	THICK
TM	TRADE MARK
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
VERT	VERTICAL
W	WIDTH
W/	WITH

GENERAL NOTES

- THIS PROJECT HAS BEEN DESIGNED FOR THE WEIGHTS AND MATERIALS INDICATED ON THE SHEETS AND FOR THE LIVE LOADS INDICATED IN THE DESIGN DATA. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ALLOWABLE CONSTRUCTION LOADS AND TO PROVIDE PROPER DESIGN AND CONSTRUCTION OF FALSEWORK, FORMWORK, STAGING, BRACING, SHEETING AND SHORING, ETC.
- COORDINATE THESE SHEETS WITH THE ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, AND CIVIL SHEETS. ALL DIMENSIONS SHOWN ON THE SHEETS ARE MILLIMETERS UNLESS NOTED OTHERWISE.
- THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL FLOOR AND ROOF OPENING SIZES AND LOCATIONS, EQUIPMENT PAD SIZES AND LOCATIONS, ANCHOR BOLT LAYOUTS, ETC WITH EQUIPMENT SELECTED. THE CONTRACTOR SHALL MAKE ANY REQUIRED MODIFICATIONS AT NO ADDITIONAL COST.
- THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL, MECHANICAL, ELECTRICAL AND PLUMBING SHEETS FOR SLEEVES, CURBS, INSERTS OR OPENINGS, ETC. NOT HEREIN INDICATED.
- SLAB OPENINGS SMALLER THAN 250mm DIA TO BE CORE DRILLED IN FIELD UON. SEE MECHANICAL, ELECTRICAL AND PLUMBING SHEETS FOR LOCATIONS OF THESE OPENINGS.
- WORK NOT INCLUDED ON THE SHEETS BUT IMPLIED TO BE SIMILAR TO THAT SHOWN AT CORRESPONDING PLACES ELSEWHERE ON THE SHEETS SHALL BE REPEATED.
- IN CASE OF CONFLICT BETWEEN THE NOTES, DETAILS AND SPECIFICATIONS THE MOST RIGID REQUIREMENTS SHALL GOVERN.
- SEE ARCHITECTURAL SHEETS FOR LOCATIONS OF MASONRY AND DRYWALL NON-LOAD BEARING PARTITIONS. PROVIDE COMPRESSIBLE FIRSAFING AT TOP OF WALL AS REQUIRED BY ARCHITECTURAL SHEETS.
- COORDINATE FINISHED FLOOR DATUM ELEVATION 0.0m WITH THE CIVIL SHEETS.
- FOUNDATION NOTES**
- THE GEOTECHNICAL ANALYSIS FOR THIS PROJECT IS THE RESPONSIBILITY OF THE CONTRACTOR AWARDED THE WORK. DESIGN VALUES USED IN THE STRUCTURAL ANALYSIS OF THE BUILDINGS HEREIN INDICATED HAVE BEEN ASSUMED AND SHALL BE CONFIRMED AND VERIFIED AS PART OF THE GEOTECHNICAL INVESTIGATION. VALUES WHICH DO NOT MEET THE REQUIREMENTS INDICATED ON SHEET S2 SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE CONTRACTING OFFICER FOR CONSIDERATION AND DETERMINATION ON THE NEXT APPROPRIATE COURSE OF ACTION.
- SEE THE SPECIFICATION FOR ADDITIONAL REQUIREMENTS TO THOSE OUTLINED IN THE GEOTECHNICAL INVESTIGATION FOR EXCAVATION AND PREPARATION OF THE FOUNDATION AND THE SLAB ON GRADE SUBGRADE INCLUDING COMPACTION PROCEDURES.
- EXCAVATIONS FOR FOOTINGS SHALL HAVE THE SIDES AND BOTTOMS TEMPORARILY LINED WITH 0.25mm POLYETHYLENE IF PLACEMENT OF CONCRETE DOES NOT OCCUR WITHIN 24 HRS OF THE EXCAVATION OF THE FOOTING.
- FOUNDATION CONDITIONS NOTED DURING CONSTRUCTION WHICH DIFFER FROM THOSE DESCRIBED IN THE GEOTECHNICAL REPORT SHALL BE REPORTED TO THE GENERAL CONTRACTOR BEFORE FURTHER CONSTRUCTION IS ATTEMPTED. SEE PROJECT SPECIFICATIONS.
- NO FOOTINGS OR SLABS SHALL BE POURED INTO OR AGAINST SUBGRADE CONTAINING FREE WATER, FROST, ICE OR LOOSE MATERIAL. FROST DEPTH ASSUMED TO BE 800MM
- ALL SLAB-ON-GRADE, TRENCH BOTTOMS AND OTHER ON-GRADE INTERIOR HORIZONTAL SURFACES SHALL BE PLACED OVER A 0.25mm VAPOR RETARDER OVER A 100mm #57 STONE WATER BARRIER PLACED ON SUBGRADE PROPERLY PREPARED IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS. (UON)
- SEE PLUMBING, ELECTRICAL & CIVIL SHEETS FOR REQUIRED UNDERSLAB UTILITIES.
- SEE ARCHITECTURAL SHEETS FOR ALL WATERPROOFING DETAILS AND MATERIALS.
- IF UNDERMINING OF FOOTINGS OCCURS, FILL VOIDS WITH 15MPa CONCRETE. DO NOT ATTEMPT TO REPLACE AND RECOMPACT SOIL.
- CONCRETE**
- CONCRETE SHALL HAVE THE UNIT WEIGHT AND THE MINIMUM COMPRESSIVE STRENGTHS (f'c) AT 28 DAYS AS SHOWN IN THE CONCRETE MATERIALS SCHEDULE ON THIS SHEET. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION. ENTRAIN AIR TO PRODUCE TOTAL AIR CONTENT ACCORDING TO THE SPECIFICATIONS FOR CONCRETE EXPOSED TO FREEZING TEMPERATURES (EXTERIOR FOOTINGS, SLAB TURNDOWNS, EXTERIOR SLABS AND SLABS-ON-GRADE, EXTERIOR RETAINING WALLS, AND EXTERIOR GRADE BEAMS.)
- GROUT FOR BASE PLATES SHALL BE NON-SHRINKABLE GROUT AND SHALL HAVE A MINIMUM SPECIFIED COMPRESSIVE STRENGTH AT 28 DAYS OF 35MPa, UNLESS NOTED OTHERWISE.
- NO CALCIUM CHLORIDE SHALL BE USED IN ANY CONCRETE.
- MIXING, TRANSPORTING AND PLACING OF CONCRETE SHALL CONFORM TO ACI 301M-05.
- ALL CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICAN CONCRETE INSTITUTE (ACI) 318M MANUAL (metric), "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", AND REQUIREMENTS OUTLINED IN THE CONTRACT SPECIFICATIONS. WHEN THERE IS A CONFLICT BETWEEN ACI AND THE SPECIFICATIONS, THE MORE STRINGENT SHALL GOVERN.
- CHAMFER ALL EXPOSED EXTERNAL CORNERS OF CONCRETE WITH 20mm x45 DEGREE CHAMFER UON.
- CONCRETE REINFORCEMENT BARS SHALL CONFORM TO ASTM A615M, GRADE 420, REINFORCING BARS SHALL NOT BE TACK WELDED, WELDED, HEATED OR CUT, UNLESS INDICATED ON THE CONTRACT DOCUMENTS. ALL LAP SPLICES SHALL BE CLASS "B" UON.
- HORIZONTAL FOOTING AND HORIZONTAL WALL REINFORCEMENT SHALL BE CONTINUOUS AND SHALL HAVE 90 DEGREE BENDS AND EXTENSIONS, OR CORNER BARS OF EQUIVALENT SIZE LAPPED WITH A CLASS B TENSION SPLICE AT CORNERS AND INTERSECTIONS. TOP BAR CRITERIA SHALL APPLY IF 300mm OR MORE OF FRESH CONCRETE IS PLACED BELOW BAR.
- SLABS-ON-GRADE SHALL HAVE CONSTRUCTION JOINTS OR CRACK CONTROL JOINTS AS SHOWN ON THE SHEETS. CONSTRUCTION JOINTS CAN BE USED AT CONTROL JOINT LOCATIONS AT CONTRACTORS OPTION. SEE SLAB PLANS & JOINT DETAILS FOR ADDITIONAL INFORMATION. FOR AREAS NOT SHOWN ON THE SHEETS, THE MAXIMUM SPACING OF CONSTRUCTION/ CRACK CONTROL JOINTS SHALL BE 4800 mm.

- SEE SPECIFICATIONS FOR ALL WATERPROOFING/DAMP-PROOFING REQUIREMENT.
- ALL CONCRETE REINFORCEMENT SHALL BE DETAILED, FABRICATED, LABELED, SUPPORTED, AND SPACED IN FORMS AND SECURED IN PLACE IN ACCORDANCE WITH THE PROCEDURES AND REQUIREMENTS OUTLINED IN THE LATEST EDITION OF THE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", ACI 318M, AND THE "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", ACI 315M, LATEST EDITION.
- SHOP DRAWINGS SHOWING REINFORCING DETAILS, INCLUDING STEEL SIZES, SPACING AND PLACEMENT, SHALL BE SUBMITTED FOR REVIEW PRIOR TO FABRICATION.
- ALL DOWELS SHALL MATCH SIZE AND NUMBER OF MAIN REINFORCING, UNLESS NOTED OTHERWISE ON THE SHEETS.
- ADDITIONAL BARS SHALL BE PROVIDED AROUND ALL FLOOR AND WALL OPENINGS AS SHOWN ON THE SHEETS.
- SEE ARCHITECTURAL SHEETS FOR TYPE AND LOCATION OF ALL FLOOR FINISHES.
- THE CONTRACTOR SHALL COORDINATE ADDITIONAL WALL/SLAB OPENINGS NOT SHOWN ON STRUCTURAL SHEETS. SEE MECHANICAL, ELECTRICAL, PLUMBING AND CIVIL SHEETS.
- THE SUB-CONTRACTOR SHALL VERIFY ALL OPENINGS, PAD SIZES, AND ANCHOR BOLTS WITH EQUIPMENT SELECTED.
- FOR ALL WALLS & PIERS, PROVIDE DOWELS INTO FOOTING AT EACH VERT REINF BAR, UON DOWEL SIZE SHALL BE SAME AS VERT REINF.
- ALL REINFORCING INDICATED TO BE WELDED SHALL BE IN ACCORDANCE WITH ASTM A706M. "LOW ALLOY STEEL DEFORMED BARS FOR CONCRETE REINFORCEMENT". ANY INSTALLATIONS USING MANUFACTURER'S EQUIPMENT SHALL BE PER MANUFACTURER'S RECOMMENDATIONS.
- PROVIDE CONCRETE POUR STOPS OR FORMED AS REQUIRED FOR INSTALLATION OF ALL CONCRETE WORK.
- PROVIDE ADDITIONAL (2)-#13 x 600mm REINFORCING BARS IN SLAB-ON GRADE AT ALL RE-ENTRANT CORNERS. PLACE BARS AT MID-DEPTH OF SLAB WITH A CLEARANCE OF 50mm FROM CORNER UON.
- CONCRETE MASONRY**
- MASONRY CONSTRUCTION AND MATERIALS SHALL CONFORM TO ALL REQUIREMENTS OF THESE CONTRACT DOCUMENTS AND THE PROJECT SPECIFICATIONS.
- THE SPECIFIED ULTIMATE COMPRESSIVE STRENGTH OF CONCRETE MASONRY (f'm) ON THE NET AREA IS A MINIMUM OF 10.4 MPa.
- PROVIDE TWO #16 BARS CONTINUOUS IN ALL CMU AND CAST-IN-PLACE BOND BEAMS UON ON THE SHEETS. BOND BEAMS SHALL BE CONTINUOUS AND SPACED AT A MAXIMUM OF 1200mm OC VERTICALLY. PROVIDE BOND BEAM STARTER COURSE AT BOTTOM OR FIRST COURSE ON ALL MASONRY WALLS AND PARTITIONS. ALL BOND BEAMS SHALL BE A MINIMUM OF 200mm IN DEPTH WITH REINFORCING BEING CONTINUOUS AND HAVING STANDARD ACI 180° HOOKS AT EACH END. PROVIDE STANDARD BAR SPLICES AS SPECIFIED.
- FOR WALL REINFORCING, SEE DETAIL 7 ON SHEET S5
- CMU CELLS THAT REQUIRE VERTICAL REINFORCING BARS AS INDICATED ON THE CONTRACT DRAWINGS AND/OR SPECS SHALL HAVE REINF BARS PLACED IN CENTERS OF CMU CELLS AND CONTINUOUSLY GROUTED UON.
- PROVIDE LADDER TYPE JOINT REINFORCEMENT AT (200mm EXTERIOR & 400mm INTERIOR) ON CENTER MAXIMUM UON MINIMUM ROD SIZE USED SHALL BE 9 GA. DEFORMED WIRE AND CONFORM TO ASTM A82M, UON.
- PROVIDE CONTROL JOINTS AS INDICATED ON THE ARCHITECTURAL SHEETS.
- GROUT FOR MASONRY SHALL BE NORMAL WEIGHT AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 25 MPa AT 28 DAYS. GROUT SHALL CONFORM TO ASTM C476M. GROUT LIFTS SHALL NOT EXCEED 1400mm.
- USE MORTAR TYPE S CONFORMING TO ASTM C270M, SEE SPECIFICATIONS.
- CONCRETE MASONRY UNITS SHALL BE NORMAL WEIGHT AND CONFORM TO ASTM C90M.
- ALL CMU CELLS, OPEN CAVITIES, AND AIR SPACES SHALL BE GROUTED TO STOP FRAGMENTS FROM MORTAR BLAST
- BOND BEAM REINFORCING SHALL BE DISCONTINUOUS AT CONTROL JOINTS (UON). MAXIMUM CONTROL JOINT SPACING SHALL BE AS INDICATED ON THE ARCHITECTURAL SHEETS.
- CONTRACTOR SHALL COORDINATE LOCATION OF ALL OPENINGS SEE ARCH, MECH, ELEC, AND PLUMBING SHEETS. FOR SIZE AND LOCATION OF OPENINGS.
- MASONRY WALLS SHALL NOT BE BACK FILLED PRIOR TO THE MORTAR AND GROUT ATTAINING THEIR RESPECTIVE MAXIMUM DESIGN STRENGTHS PER SPECIFICATIONS.

- CFMFR - COLD FORM METAL ROOF FRAMING SYSTEM**
- CFMFR SHALL BE DESIGNED BY CFMFR MANUFACTURER'S ENGINEER FOR ALL LOADING PER CODE AND AS INDICATED ON THE SHEETS.
- FOR WIND LOADS, SEE THE DESIGN CRITERIA ON SHEET S2.
- SUBMIT VENDOR'S PUBLISHED LITERATURE, TEST DATA AND INSTALLATION INSTRUCTIONS FOR METAL STUD ASSEMBLY AND ACCESSORIES INCLUDING OTHER DATA AS MAY BE REQUIRED TO CERTIFY COMPLIANCE WITH PERFORMANCE REQUIREMENTS SPECIFIED HEREIN.
- SHOP DRAWINGS AND DESIGN ANALYSIS SHALL BE STAMPED AND APPROVED BY A LICENSED PROFESSIONAL ENGINEER. CONNECTIONS AND GAUGE SIZES ARE MINIMUM AND SHALL BE INCREASED AS NECESSARY TO PROVIDE A STRUCTURALLY ADEQUATE SYSTEM. KICKERS MAY BE ADDED TO REDUCE THE STUD HEIGHTS WHERE ACCEPTABLE AND COORDINATED WITH THE ARCHITECTURAL DRAWINGS.
- CFMFR SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES:

STUD/RAFTER/EAVE STRUT:

Fy = 344 MPa
GAUGE = 18
DEPTH = 152.3 mm
WIDTH = 34.8 mm
MOMENT OF INERTIA, Ix = 847x10³ mm⁴
SECTION MODULUS, Sx = 11.2x10³ mm³

TRACK:

Fy = 344 MPa
GAUGE = 16
DEPTH = 152.3 mm
WIDTH = 38 mm
MOMENT OF INERTIA, Ix = 1083x10³ mm⁴
SECTION MODULUS, Sx = 13.8x10³ mm³

PURLIN:

Fy = 393 MPa
GAUGE = 16
MOMENT OF INERTIA (TOP COMPRESSION), Ixt = 23.7x10³ mm⁴
MOMENT OF INERTIA (BOTT COMPRESSION), Ixb = 22.7x10³ mm⁴
SECTION MODULUS (TOP COMPRESSION), Sxt = 1.8x10³ mm³
SECTION MODULUS (BOTT COMPRESSION), Sxb = 1.7x10³ mm³

STRUCTURAL ELEMENT	f'c CONCRETE COMPRESSIVE STRENGTH @ 28 DAYS (MPa)
SLAB-ON-GRADE/TURN-DOWN SLABS	28
ROOF AND FLOOR SLABS	28
ALL FOOTINGS (UON)	28
MISC. CURBS, WALLS AND PADS UON	28
CAST-IN-PLACE LINTEL	28

NOTES:

- ALL CONCRETE SHALL BE NORMAL WEIGHT CONCRETE. (2400 Kg/m³ UON)
- ALL CONCRETE SHALL HAVE A WATER-CEMENT RATIO OF 0.45.

BAR SIZE	BASIC LAP SPLICE Ld FOR CMU REINFORCING(mm)
#10	450
#13	600
#16	750

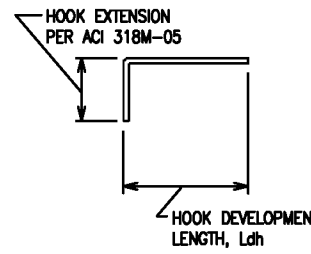
MINIMUM LAP SPLICES OF REINFORCING BARS IN TENSION (PER ACI 318M-05)

BAR SIZE	f'c = 28 MPa CONCRETE					
	CENTER TO CENTER BAR SPACING	(--TOP BARS--)		(--OTHER BARS--)		
		LESS THAN 4db	4db OR MORE	LESS THAN 4db	4db OR MORE	4db
#10		460	460	410	410	40
#13		660	610	510	480	50
#16		1020	760	790	580	60

- NOTES:
- LAP SPLICES ABOVE ARE IN MILLIMETERS UON.
 - YIELD STRENGTH OF REINFORCEMENT, fy, IS 420MPa (LAP SPLICE LENGTH IS IN MILLIMETERS).
 - CONCRETE IS NORMAL WEIGHT (2400Kg/m³).
 - TOP BAR INDICATES HORIZONTAL REINFORCEMENT WHICH IS PLACED ABOVE 300mm OR MORE OF FRESH CONCRETE.
 - SEE COLUMN SCHEDULE FOR COLUMN AND SHEAR WALL VERTICAL LAP SPLICE.
 - STRAIGHT DEVELOPMENT LENGTH OF AN UNLAPPED BAR IS EQUAL TO VALUE FROM TABLE DIVIDED BY 1.3.
 - CATEGORY FOR BARS SPACED LESS THAN 4d, OR ON CENTER CORRESPONDS TO CATEGORY 1 IN THE CRSI HANDBOOK WHEREAS FOR BARS SPACED 4d, OR MORE ON CENTER CORRESPOND TO CRSI CATEGORY 5.

STANDARD HOOKS IN TENSION PER (ACI 318M-05)

BAR SIZE	f'c 28 MPa
#10	180
#13	250
#16	300
#19	380
#22	430
#25	480
#29	560
#32	610
#36	690



- NOTES:
- CONCRETE IS NORMAL WEIGHT CONCRETE.
 - BAR YIELD STRENGTH, fy = 420 MPa
 - SIDE COVER REQUIREMENTS OF ACI SECT. 12.5.3 ARE ASSUMED TO NOT BE MET.
 - TIE OR STIRRUP REQUIREMENTS OF ACI SECT. 12.5.3 ARE ASSUMED TO NOT BE MET.
 - REDUCTION FOR EXCESS REINFORCEMENT IS NOT TAKEN.
 - HOK DEVELOPMENT LENGTH IS VALID FOR 180° HOOKS ALSO.



NO.	DATE	DESCRIPTION

DESIGNED BY: DATE: 08-30-08	SUBMITTED BY: BAKER	FILE NO.: ANPDS-001XXX
CHK BY: CWW		

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STANDARD DESIGN WELL HOUSE

GENERAL NOTES

SHEET REFERENCE NUMBER:
S1

100% SUBMISSION

STRUCTURAL DESIGN CRITERIA

ALL DESIGNS SHALL CONFORM TO THE PROVISIONS OF THE IBC 2006 AS APPLICABLE

1.0 DESIGN LOADS

1.1 DEAD LOADS

1.1.1 ROOF DEAD LOADS – CONVENTIONAL FRAMING

	MAXIMUM GRAVITY LOAD	MINIMUM GRAVITY LOAD
LIGHT GAUGE FRAMING	0.20 KPa	0.15 KPa
METAL ROOFING	0.14 KPa	0.05 KPa
INSULATION	0.10 KPa	0.05 KPa
MISC	0.05 KPa	0.00 KPa
	0.49 KPa	0.25 KPa

1.1.2 ROOF DEAD LOADS – CONCRETE FRAMING

	MAXIMUM GRAVITY LOAD
CONC FLAT SLAB	4.80 KPa
MECH/ELEC/PLUMBING	0.15 KPa
MISC	0.05 KPa
	5.00 KPa

1.2 LIVE LOADS (PER IBC 2006)

1.2.1 ROOF LIVE LOADS: ALL BUILDINGS

GREATER OF 1.0 KPa MINIMUM OR SNOW LOAD

1.2.2 SLAB-ON-GRADE LIVE LOADS

ALL BUILDINGS 4.80 KPa

1.3 SNOW LOADS (PER IBC 2006)

1.3.1 DESIGN PARAMETERS

GROUND SNOW LOAD (per UFC 3-310-01)	PER LOCAL CONDITION
SNOW IMPORTANCE FACTOR	1.0 KPa
SNOW EXPOSURE FACTOR	1.0 KPa

1.4 SEISMIC LOADS (PER IBC 2006 & UFC 3-310-04)

1.4.1 SEISMIC PARAMETERS – LOAD BEARING MASONRY

SEISMIC OCCUPANCY CATEGORY	II
SEISMIC IMPORTANCE FACTOR (I)	1.0
SEISMIC SITE CLASS	D
S _s	1.280
S ₁	0.510
S _{ds}	0.853
S _{d1}	0.510
SEISMIC DESIGN CATEGORY	D
SEISMIC RESISTING SYSTEM	BEARING WALL SYSTEM SPECIAL REINF MASONRY SHEAR WALLS
RESPONSE MODIFICATION FACTOR (R)	5.0
RESPONSE COEFFICIENT (C _s)	0.17
SEISMIC ANALYTICAL PROCEDURE	EQUIV LATERAL FORCE
SEISMIC BASE SHEAR	49 kN

1.6 WIND LOADS (PER IBC 2006)

1.6.1 DESIGN PARAMETERS

BASIC WIND SPEED	137 Km/h
WIND IMPORTANCE FACTOR	1.0
WIND EXPOSURE CATEGORY	D
DIRECTIONALITY COEFFICIENT (K _d)	0.85
TOPOGRAPHIC FACTOR (K _{zt})	1.0

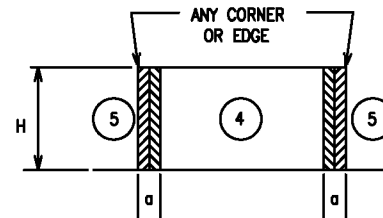
1.6.2 DESIGN WIND PRESSURE – MAIN WINDFORCE RESISTING SYSTEM

LOCATION	CORNER ZONE WIDTH "a"	MEAN ROOF HEIGHT (h)	WINDWARD WALL (⊕ MEAN ROOF HEIGHT)	LEEWARD WALL (⊖ MEAN ROOF HEIGHT)	ROOF
FIELD ZONE	N/A	3890mm	582 N/m ²	-463 N/m ²	-803 N/m ²
CORNER ZONE	900mm	3890mm	883 N/m ²	-689 N/m ²	-1244 N/m ²

a = 10% OF LEAST HORIZONTAL DIMENSION OR 0.4h, WHICHEVER IS SMALLER, BUT NOT LESS THAN EITHER 4% OF LEAST HORIZONTAL DIMENSION OR 0.9M.
h = MEAN ROOF HEIGHT, IN METERS, EXCEPT THAT EAVE HEIGHT SHALL BE USED FOR ANGLE GREATER THAN 10°.

1.6.3 DESIGN WIND PRESSURE – WALL COMPONENTS AND CLADDING

EXTERIOR WALL SYSTEMS & THEIR ATTACHMENTS TO THE PRIMARY STRUCTURE SHALL BE DESIGNED FOR THE PRESSURES SHOWN IN THE DIAGRAM BELOW:



LOCATION	WINDWARD PRESSURE N/m ² (inward)		LEEWARD PRESSURE N/m ² (outward)		a
	④	⑤	④	⑤	
MAIN BUILDING					(mm)
AREA = 1 m ²	627	627	-986	-1216	900
AREA = 2 m ²	589	589	-948	-1134.8	900
AREA = 5 m ²	565	565	-910	-1086.9	900
AREA = 10 m ²	565	565	-910	-1086.9	900

NOTES:
1. DESIGN WIND PRESSURES ABOVE REPRESENT THE NET PRESSURE (SUM OF INTERNAL AND EXTERNAL PRESSURE) APPLIED NORMAL TO ALL SURFACES.
2. LINEAR INTERPOLATION BETWEEN VALUES OF TRIBUTARY AREA IS PERMISSIBLE.
3. PLUS AND MINUS SIGNS SIGNIFY PRESSURE TOWARD AND AWAY FROM THE EXTERIOR SURFACE, RESPECTIVELY.

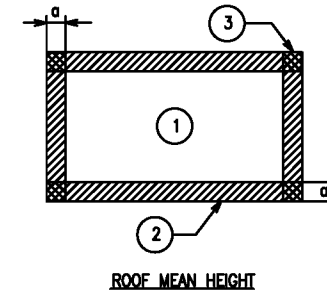
MASONRY CONCRETE LINTEL SCHEDULE

OPENING TYPE OR SIZE, BEAM LOCATION OR TYPE	MAX SPAN (mm)	BEAM DEPTH (mm)	MAIN REINFORCING			SHEAR REINF STIRRUPS
			TOP	BOTTOM	OTHER	
EXT WINDOW OR DOOR	900	400	(2)-#13	(2)-#13		----
INT WALL OPENING, NON-BEARING	1800	400		(2)-#13		----
INT WALL OPENING, NON-BEARING	900	200		(2)-#13		----

- STRUCTURAL DRAWINGS DO NOT INDICATE ALL OPENINGS IN MASONRY WALLS. VERIFY NUMBER, SIZE AND LOCATION OF ALL OPENINGS IN MASONRY WALLS FROM ARCHITECTURAL SHEETS AND APPROVED PLUMBING, MECHANICAL, AND ELECTRICAL SHOP DRAWINGS.
- PROVIDE 200mm BEARING EA END FOR 200mm DEEP CMU LINTEL PROVIDE 400mm BEARING EA END FOR 400mm DEEP CIPL.
- FOR HEAD DETAILS REFER TO ARCHITECTURAL SHEETS.
- REINFORCING SHALL BE ASTM A615M, GRADE 400. CONCRETE FOR CAST-IN-PLACE BEAMS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 28 MPa AT 28 DAYS.
- CONTRACTOR SHALL SUBMIT FOR APPROVAL SHOP DRAWINGS AND SCHEDULES SHOWING SIZE, DETAILS, LOCATIONS, ETC FOR ALL CAST-IN-PLACE BEAMS IN CMU WALLS.

1.6.4 DESIGN WIND PRESSURE – ROOF COMPONENTS AND CLADDING

ROOF COMPONENTS & THEIR ATTACHMENTS SHALL BE DESIGNED FOR THE PRESSURES SHOWN IN THE ADJACENT DIAGRAM & TABLE BELOW:



1.6 WIND LOADS (CON'T)

LOCATION	GROSS UPLIFT PRESSURE N/m ² (upward)			a
	①	②	③	
MAIN BUILDING				(mm)
AREA = 1 m ²	-838	-1460	-1460	900
AREA = 2 m ²	-838	-1460	-1460	900
AREA = 5 m ²	-838	-1460	-1460	900
AREA = 10 m ²	-838	-1460	-1460	900

NOTES:
1. DESIGN WIND PRESSURES ABOVE REPRESENT THE NET PRESSURE (SUM OF INTERNAL AND EXTERNAL PRESSURE) APPLIED NORMAL TO ALL SURFACES.
2. LINEAR INTERPOLATION BETWEEN VALUES OF TRIBUTARY AREA IS PERMISSIBLE.
3. PLUS AND MINUS SIGNS SIGNIFY PRESSURE TOWARD AND AWAY FROM THE EXTERIOR SURFACE, RESPECTIVELY.

2.0 FOUNDATION DESIGN CRITERIA (TO BE CONFIRMED BY THE CONTRACTOR)

THE GEOTECHNICAL ANALYSIS FOR THIS PROJECT IS THE RESPONSIBILITY OF THE CONTRACTOR AWARDED THE WORK. DESIGN VALUES USED IN THE STRUCTURAL ANALYSIS OF THE BUILDINGS HEREIN INDICATED HAVE BEEN ASSUMED AND SHALL BE CONFIRMED AND VERIFIED AS PART OF THE GEOTECHNICAL INVESTIGATION. VALUES WHICH DO NOT MEET THE REQUIREMENTS INDICATED BELOW SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE CONTRACTING OFFICER FOR CONSIDERATION AND DETERMINATION ON THE NEXT APPROPRIATE COURSE OF ACTION.

2.1.1 SOIL DESIGN PARAMETERS

NET ALLOWABLE SOIL BEARING CAPACITY	96.0 KPa
UNIT WEIGHT OF SOIL (moist)	1800 Kg/m ³
COEFF ACTIVE EARTH PRESSURE (K _{pa})	0.30
COEFF PASSIVE EARTH PRESSURE (K _{pp})	3.33
COEFF AT-REST EARTH PRESSURE (K _{pr})	.55
COEFF OF SOIL FRICTION	.35
SUBGRADE MODULUS	4120 g/m ³
MINIMUM BEARING DEPTH BELOW GRADE	800mm
SEISMIC SITE CLASS (based on in-situ soil)	D

CONCRETE COVER SCHEDULE

MINIMUM CONCRETE COVER PROTECTION FOR REINFORCEMENT BARS SHALL BE AS FOLLOWS: (SEE ACI 318M-05, SECTION 7.7 FOR CONDITIONS NOT NOTED). DIMENSIONS FOR BAR PLACEMENT GIVEN IN SECTIONS AND DETAILS SHALL SUPERSEDE MINIMUM COVER REQUIREMENTS GIVEN HERE. DIMENSIONS ARE IN mm.

FOOTINGS (EARTH FORMED)	70
COLUMNS / PIERS (TO TIES)	40
GRADE BEAMS OR SLAB TURNED DOWN EDGES:	
TOP	40
BOTTOM (EARTH FORMED)	70
SIDES (EARTH FORMED)	70
SIDES (BOARD FORMED)	40
	#16 BAR & SMALLER
	#19 THRU #36 BAR
50	
ELEVATED BEAMS & SLABS:	
BEAM TIES & STIRRUPS (NOT EXPOSED TO WEATHER)	40
BEAM TIES & STIRRUPS (EXPOSED TO WEATHER)	50
FLOOR SLABS (NOT EXPOSED TO WEATHER)	20
FLOOR SLABS (EXPOSED TO WEATHER)	
#19 & LARGER	50
#13 & SMALLER	40
ROOF SLAB BARS	25
SLABS-ON-GRADE (NO EXPOSURE TO WEATHER) FROM TOP	20
SLABS-ON-GRADE (EXPOSURE TO WEATHER) FROM TOP	40
UTILITY TUNNEL WALLS, RETAINING WALLS AND SHEAR WALLS, (NO SURFACES SHALL BE EARTH FORMED)	
EARTH SIDE AND FRONT SIDE (EXPOSED TO WEATHER):	
#16 BAR AND SMALLER	40
#19 THRU #36 BAR	50
PROVIDE STANDARD BAR CHAIRS AND SPACERS AS REQUIRED TO MAINTAIN CONCRETE PROTECTION SPECIFIED.	



Afghanistan Engineer District

SYMBOL	DATE	REV

DESIGNED BY: CDH	DATE: 08-30-08	SUBMITTED BY: BAKER	FILE NO: ANPSDS-00200X
DWN BY: MDB	CHK BY: CWV		

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STANDARD DESIGN WELL HOUSE

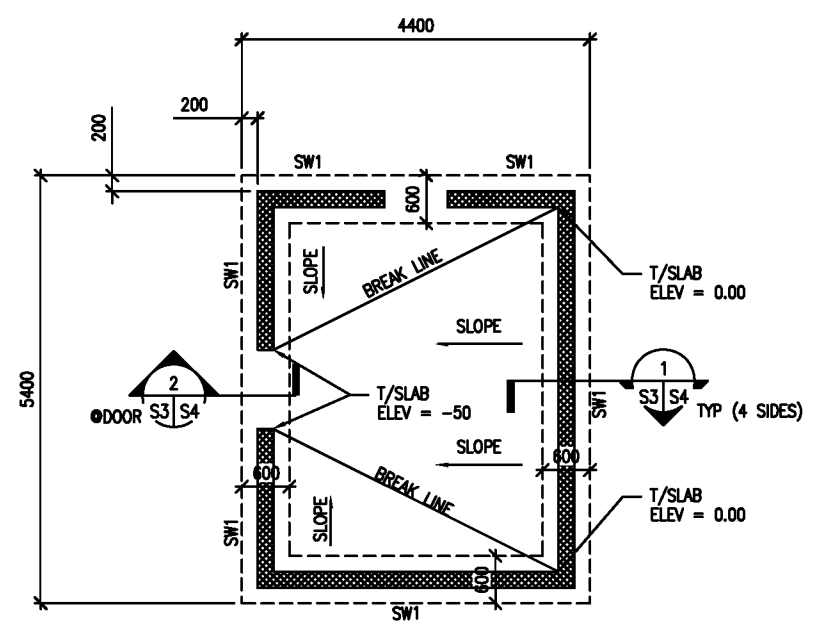
DESIGN CRITERIA & SCHEDULES

SHEET REFERENCE NUMBER:
S2

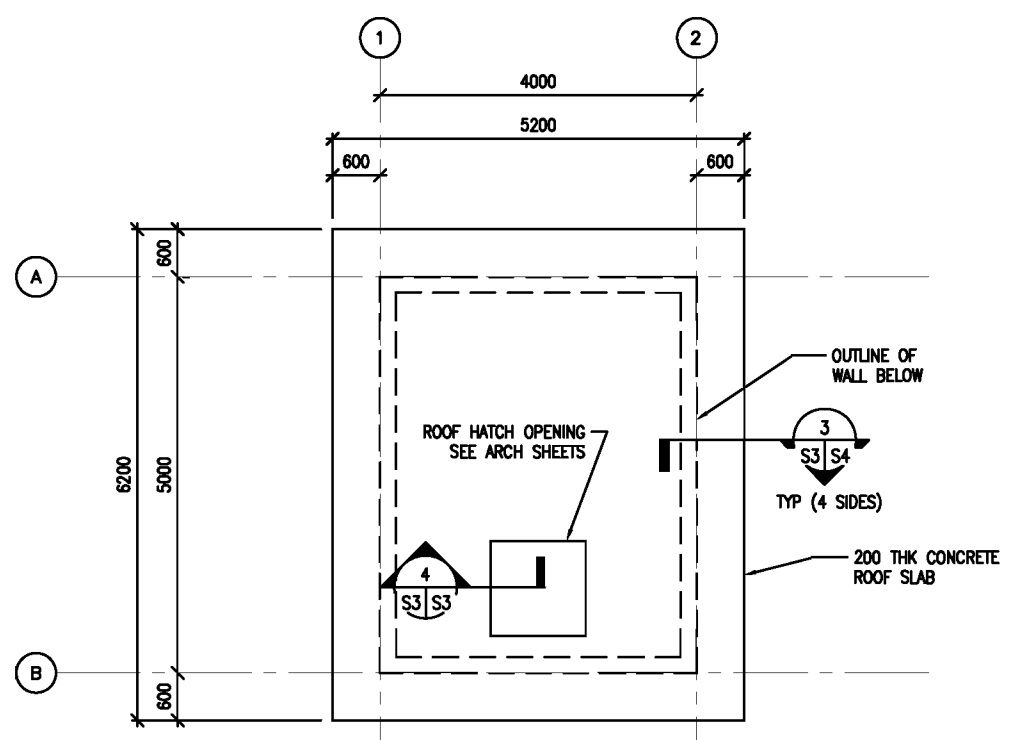
100% SUBMISSION

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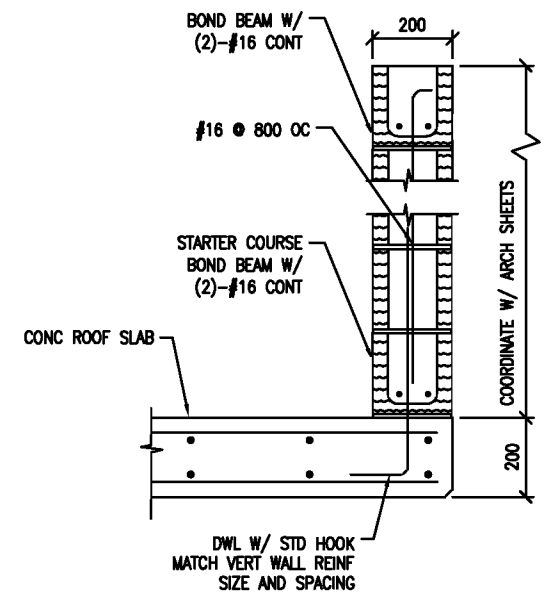
6
5
4
3
2
1



1 WELL HOUSE FOUNDATION PLAN
SCALE: 1:50



2 WELL HOUSE ROOF FRAMING PLAN
SCALE: 1:50



4 SECTION
SCALE: 1:10

NOTES:

1. FINISH FIRST FLOOR ELEVATION SHALL BE (DATUM 0.0) ALL PLUS OR MINUS DIMENSIONS INDICATED ON PLAN OR REFERRED TO IN NOTES RELATE TO FINISH FIRST FLOOR ELEVATION.
2. TOP OF EXTERIOR FOOTINGS SHALL BE -600 UNLESS OTHERWISE INDICATED.
3. UNLESS OTHERWISE INDICATED, FLOORS SHALL BE 150 THICK CONCRETE SLAB-ON-GRADE W/ 13 DIA REBAR @ 450 OC E.W. (38 CLR. TOP)
4. REFER TO SHEET S1 AND S2 FOR STRUCTURAL NOTES, ABBREVIATIONS AND SYMBOLS.
5. REFER TO ARCHITECTURAL SHEETS FOR MASONRY PARTITION TYPES AND SHEET S5 REINFORCEMENT.
6. SEE MECHANICAL AND ELECTRICAL SHEETS FOR CONCRETE PAD LOCATIONS, SIZES, AND THICKNESS NOT SHOWN. SEE SHEET S5 FOR DETAILS.
7. ——— INDICATES SLOPE IN SLAB ON GRADE. COORDINATE LOCATION AND ELEVATION WITH ARCHITECTURAL AND PLUMBING SHEETS (TYP).
8. COORD W/ ARCHITECTURAL SHEETS FOR COLD-FORMED STEEL OVERBUILT FRAMING ABOVE ROOF SLAB.
9. COLD-FORMED METAL OVERBUILT ROOF FRAMING NOT SHOWN FOR CLARITY. SEE OVERBUILT ROOF FRAMING DETAILS AND SECTIONS ON SHEET S4.



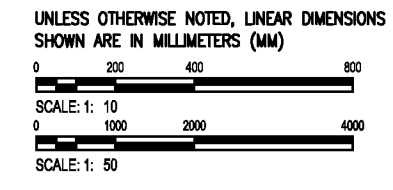
SYMBOL	DATE	DESCRIPTION

DESIGNED BY: CDH	DATE: 08-30-08
DWN BY: MDB	SUBMITTED BY: BAKER
CHK BY: CWW	FILE NO.: ANPSDS-103XXX

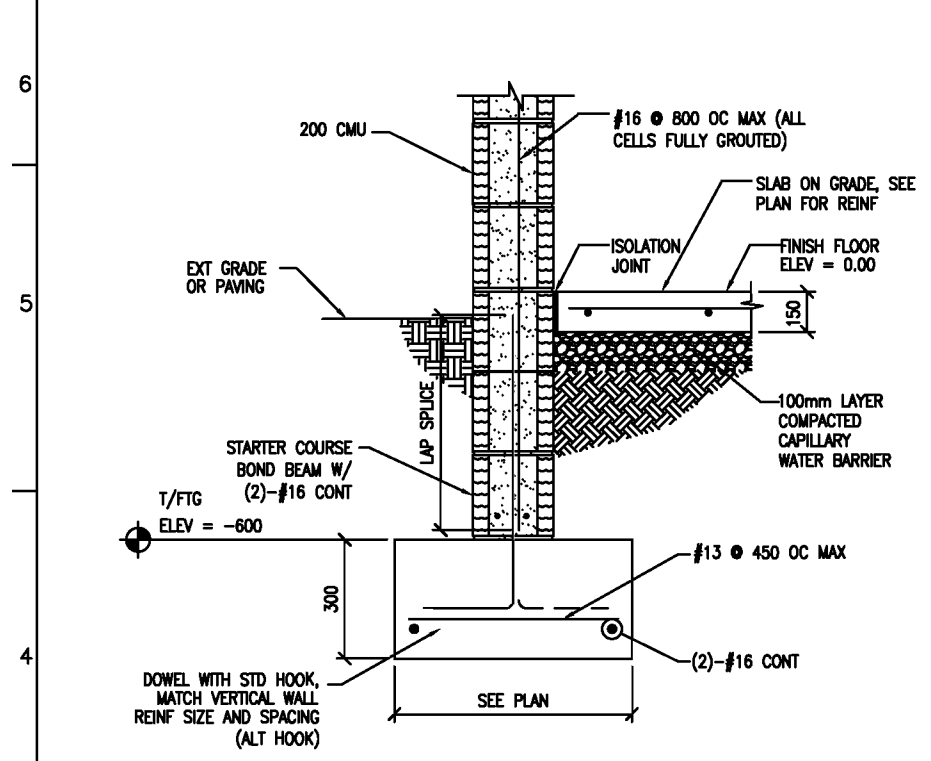
Michael Baker Jr., Inc.
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Moon Township PA 15108
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STANDARD DESIGN
WELL HOUSE
FOUNDATION & ROOF FRAMING PLANS

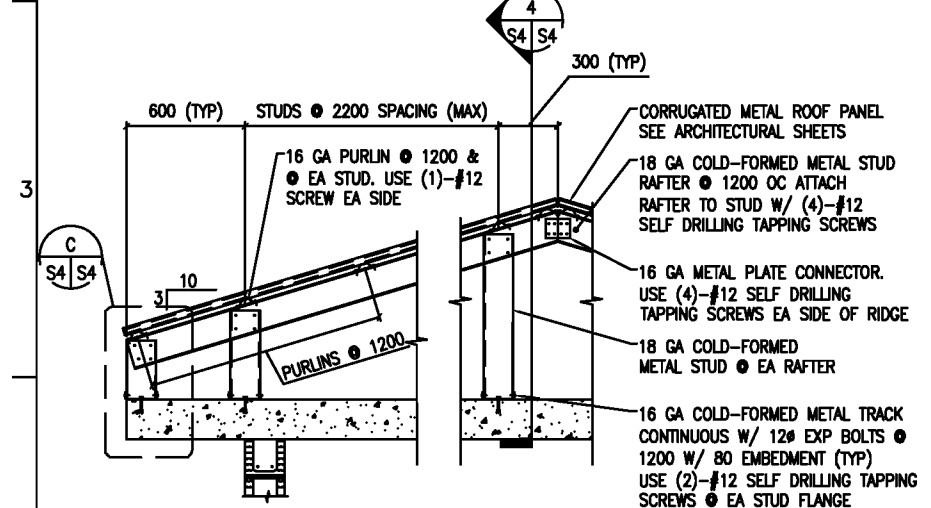
SHEET REFERENCE NUMBER:
S3



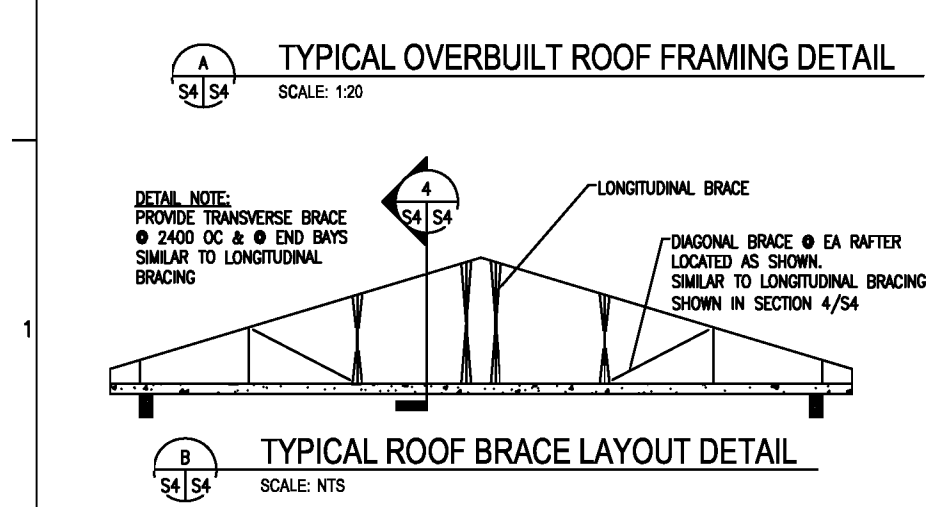
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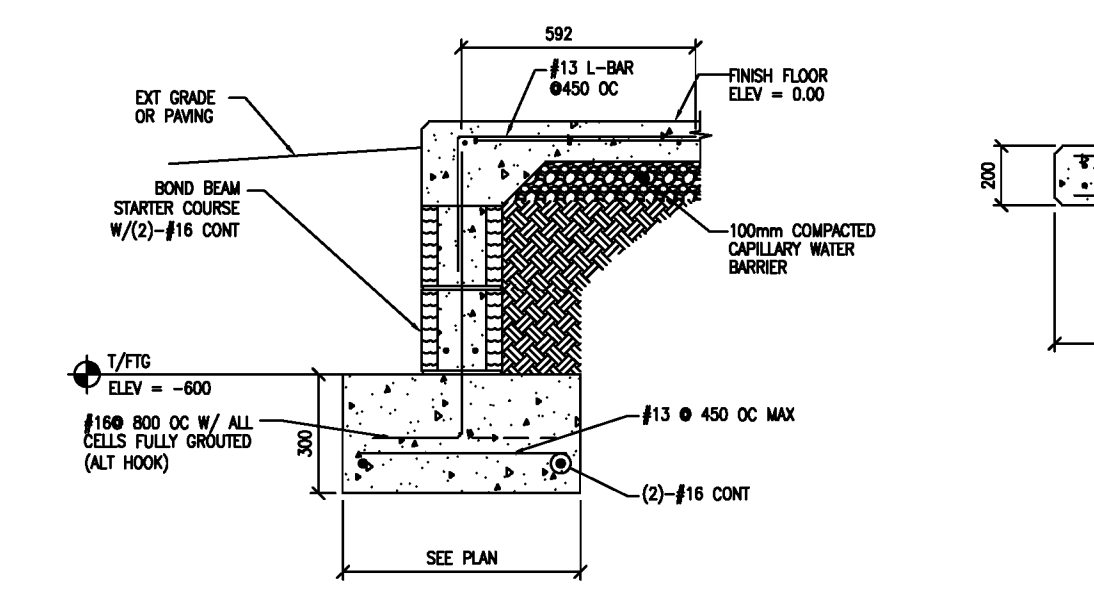
SECTION 1
SCALE: 1:10



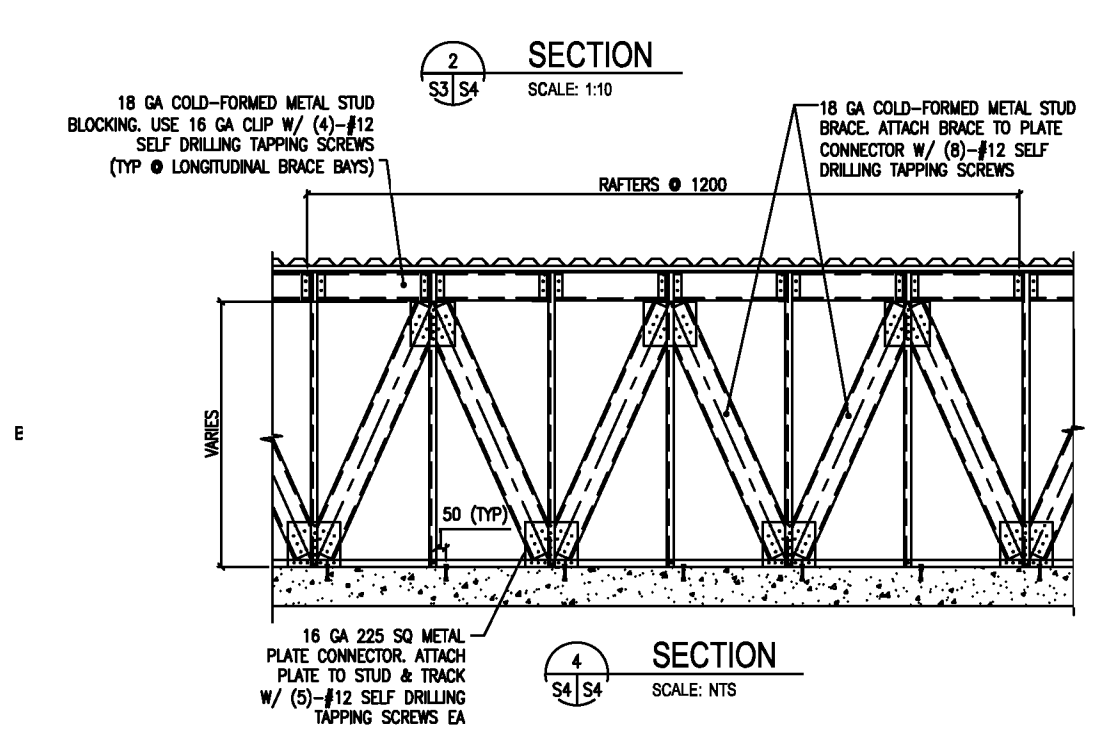
SECTION 2
SCALE: NTS



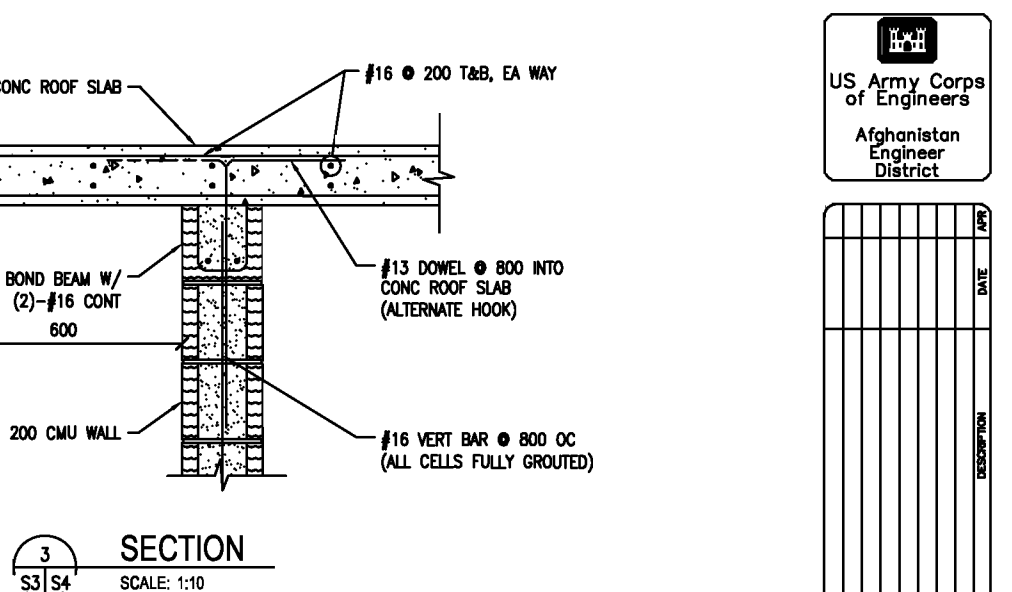
SECTION 3
SCALE: 1:5



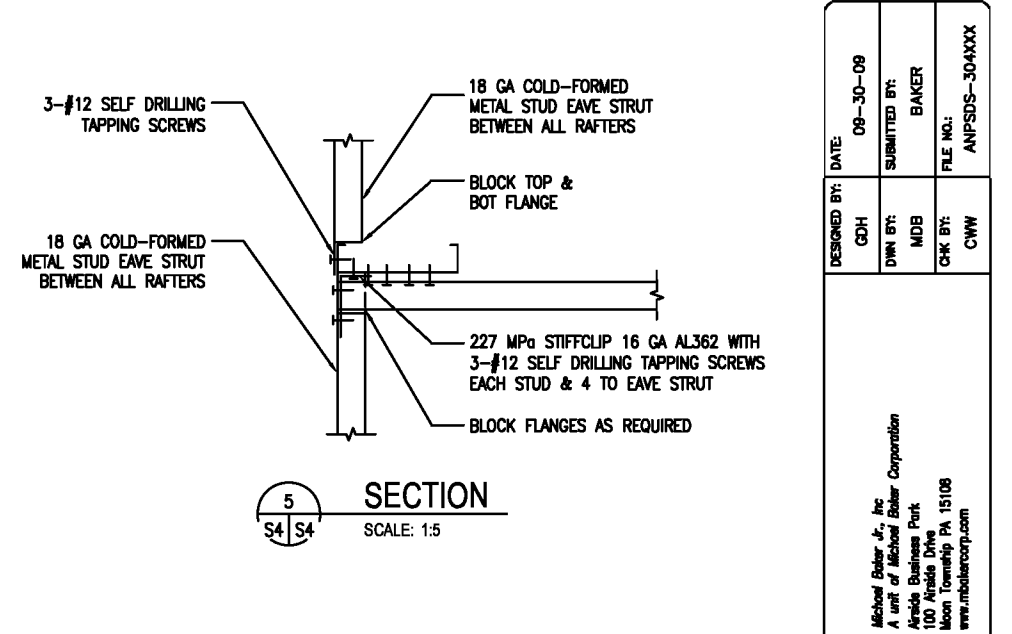
SECTION 4
SCALE: NTS



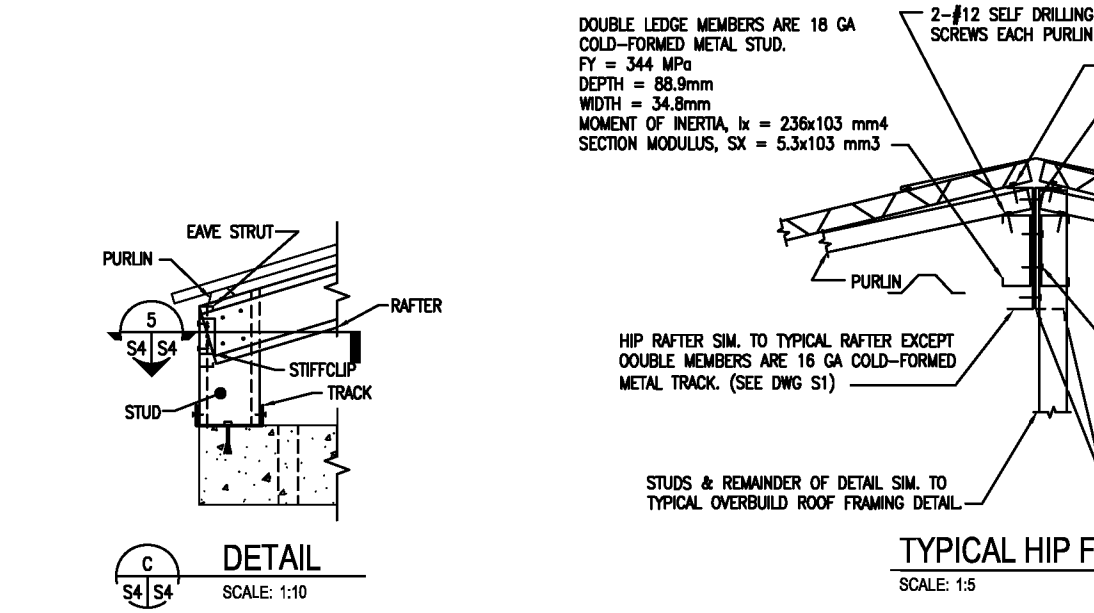
SECTION 5
SCALE: 1:5



SECTION 6
SCALE: 1:10



SECTION 7
SCALE: 1:5



SECTION 8
SCALE: 1:10

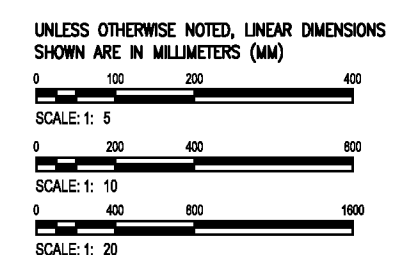
NO.	DATE	DESCRIPTION

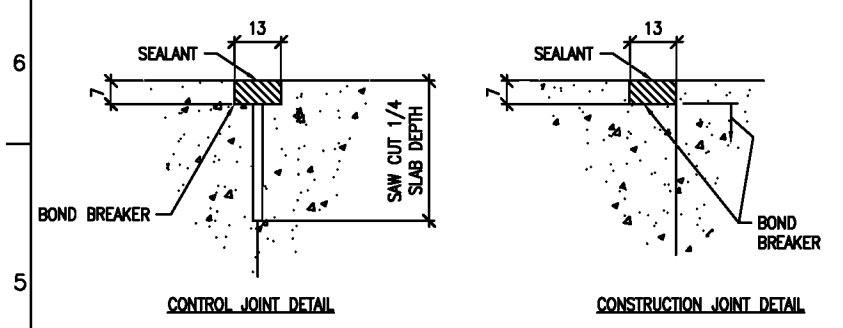
DESIGNED BY: CDH	DATE: 08-30-08
DWN BY: MDB	SUBMITTED BY: BAKER
CHK BY: CWM	FILE NO.: ANIPSDS-3040XX

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STANDARD DESIGN WELL HOUSE
SECTIONS AND DETAILS

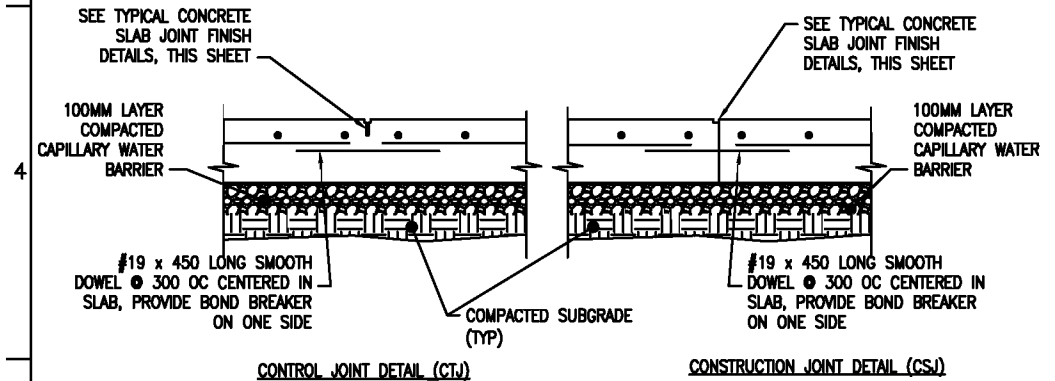
SHEET REFERENCE NUMBER:
S4





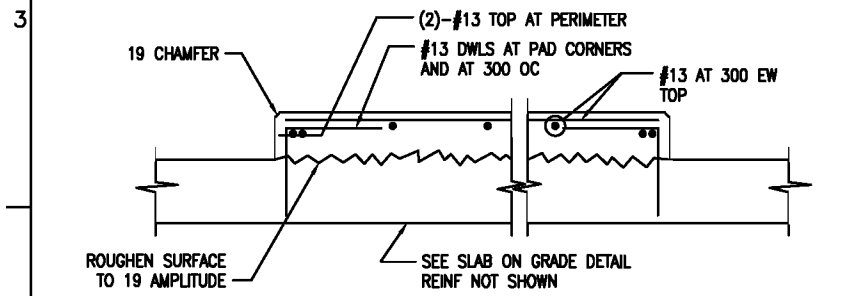
TYPICAL CONCRETE SLAB JOINT FINISH DETAIL

1 S5 SCALE: NTS



TYPICAL SLAB ON GRADE JOINT DETAILS

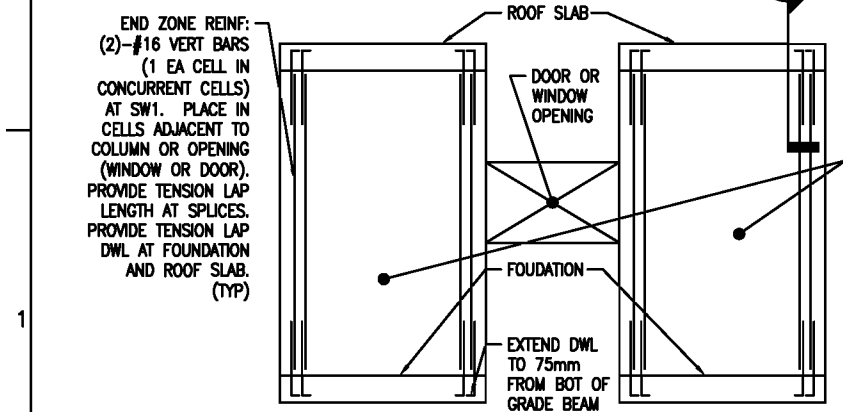
2 S5 SCALE: NTS



INTERIOR EQUIPMENT PAD DETAIL

3 S5 SCALE: NTS

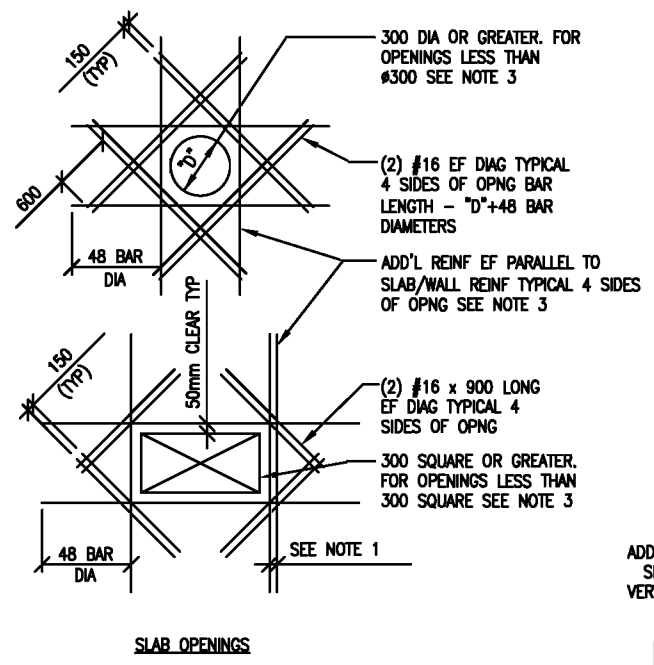
DETAIL NOTE:
 1. COORDINATE EQUIPMENT PAD SIZE AND LOCATIONS W/ ELECTRICAL/MECHANICAL SHEETS AND EQUIPMENT MANUFACTURER.



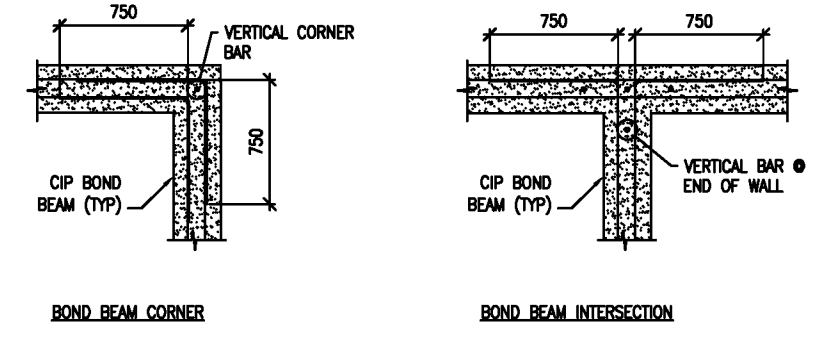
SPECIAL REINFORCED MASONRY SHEAR WALL ELEVATION

4 S5 SCALE: NTS

DETAIL NOTE:
 1. PROVIDE (2)-#16 IN BOND BEAMS AT 1200 OC, NOT SHOWN.

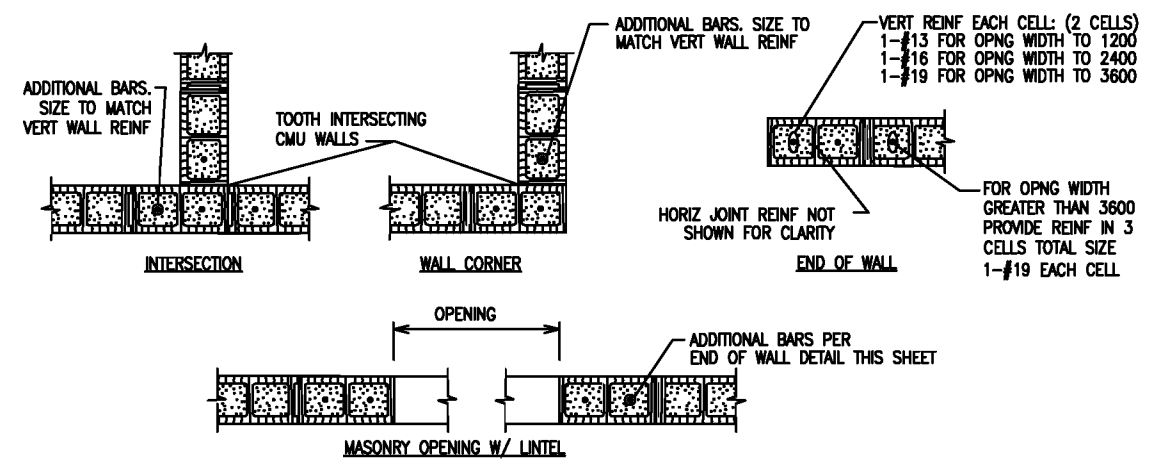


SLAB OPENINGS



CIP BOND BEAM DETAILS

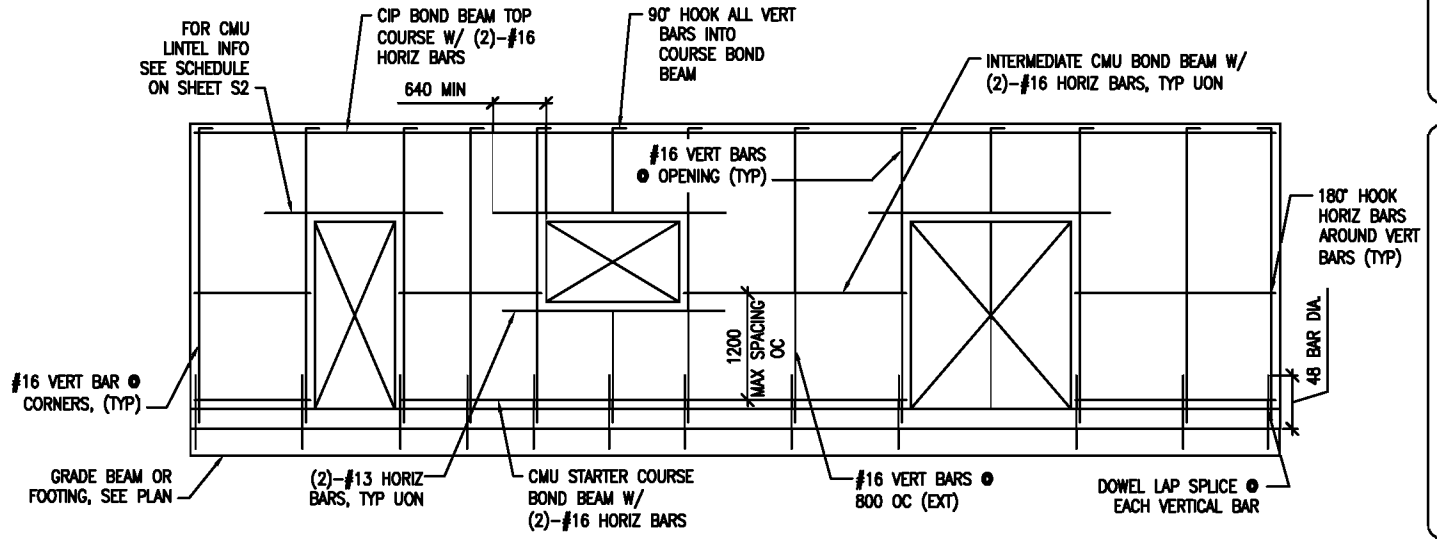
5 S5 SCALE: NTS



NOTES:
 1. OPNG WIDTH SHALL NOT EXCEED 3600 FOR THIS TYPE OF JAMB
 2. ALL CELLS FULLY GROUTED

TYPICAL CMU DETAILS

6 S5 SCALE: NTS



MIN CMU WALL REINFORCING

7 S5 SCALE: NTS

NO.	DATE	DESCRIPTION

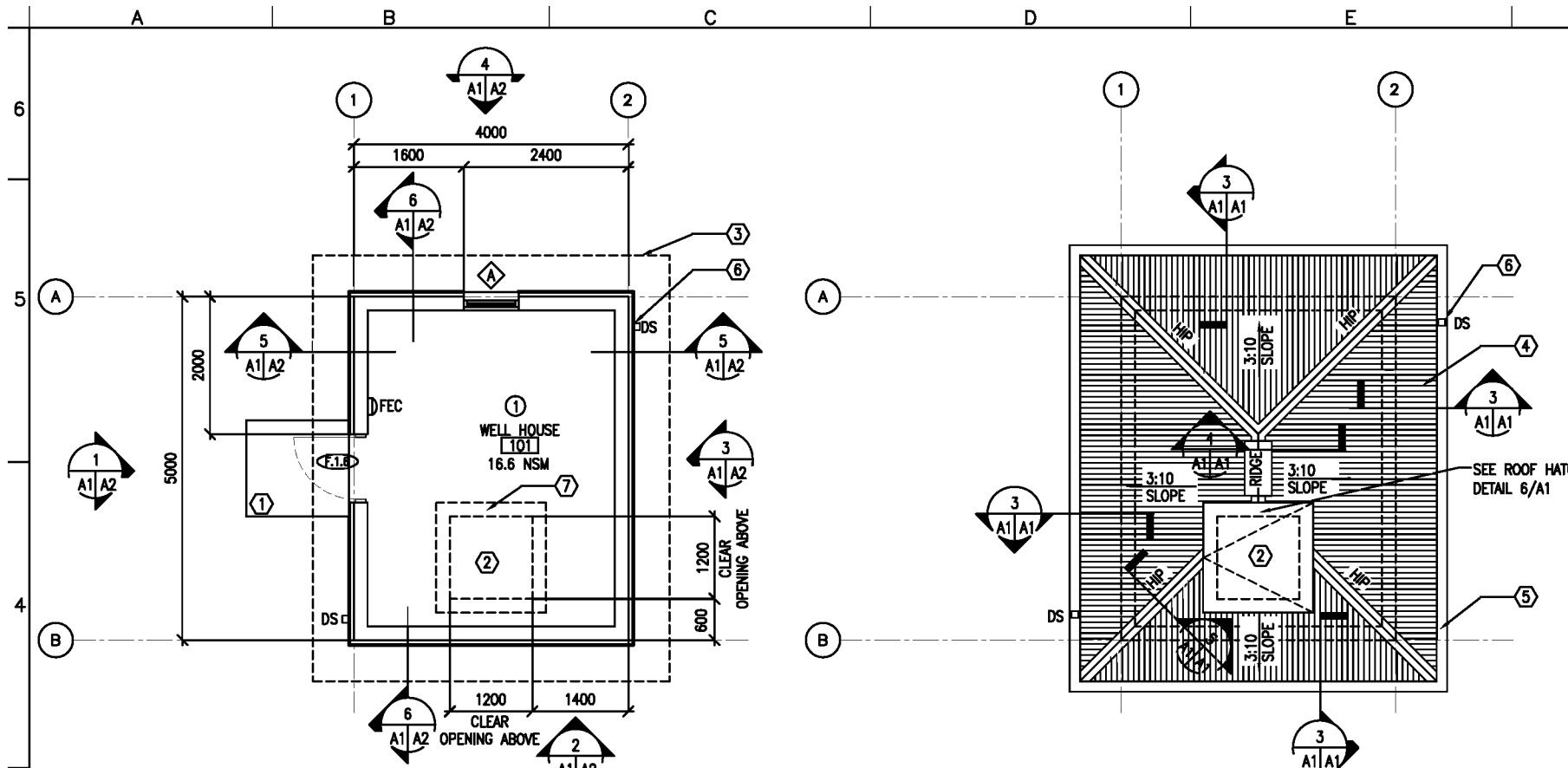
DESIGNED BY:	CDH	DATE:	08-30-08
DWN BY:	RCG	SUBMITTED BY:	BAKER
CHK BY:	CWV	FILE NO.:	ANPSDS-5050XX

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STANDARD DESIGN WELL HOUSE
 TYPICAL DETAILS

SHEET REFERENCE NUMBER:
S5

UNLESS OTHERWISE NOTED, LINEAR DIMENSIONS SHOWN ARE IN MILLIMETERS (MM)



FLOOR PLAN

SCALE: 1:50
20.0 GSM

ROOF PLAN

SCALE: 1:50

GENERAL NOTES:

- A. OPENINGS FOR DOORS SHALL BE LOCATED 200 FROM THE ADJACENT WALL UNLESS NOTED OTHERWISE
- B. SURFACES TO BE PAINTED SHALL BE CLEAN AND FREE OF FOREIGN MATTER BEFORE APPLICATION OF PAINT. CLEANING SHALL BE SCHEDULED SO THAT DUST AND OTHER CONTAMINANTS WILL NOT FALL ON WET, NEWLY PAINTED SURFACES.
- C. CONCRETE AND INTERIOR MASONRY SURFACES GROUTED SOLID SHALL BE ALLOWED TO DRY AT LEAST 30 DAYS BEFORE PAINTING EXCEPT CONCRETE SLAB ON GRADE WHICH SHALL BE ALLOWED TO CURE 90 DAYS BEFORE PAINTING.
- D. PAINTS CONTAINING LEAD IN EXCESS OF 0.06 PERCENT BY WEIGHT OF THE TOTAL NONVOLATILE CONTENT SHALL NOT BE USED.
- E. MERCURIAL FUNGICIDES SHALL NOT BE USED IN OIL-BASE PAINT.
- F. REMOVE LOOSE DIRT AND CLEAN SURFACES BEFORE PAINTING. APPLY PAINT TO INTERIOR STRUCTURAL RIGID FRAMINGS AND CEILINGS AND TEST FOR ADHESION. PRIMER COAT FOR MASONRY. INITIAL FIRST COAT WITH AN ACRYLIC LATEX PAINT FOR EXTERIOR SURFACES AND A SECOND COAT WITH A WATER REPELLENT ACRYLIC LATEX PAINT.
- G. METAL DOORS AND FRAMES SHALL RECEIVE A PRIMER COAT PLUS TWO COATS OF PAINT.
- H. DIMENSIONS ARE TO STRUCTURAL COLUMN GRID, EDGE OF WINDOW OPENINGS, AND TO HINGE SIDE OF DOOR OPENINGS.

KEY NOTES:

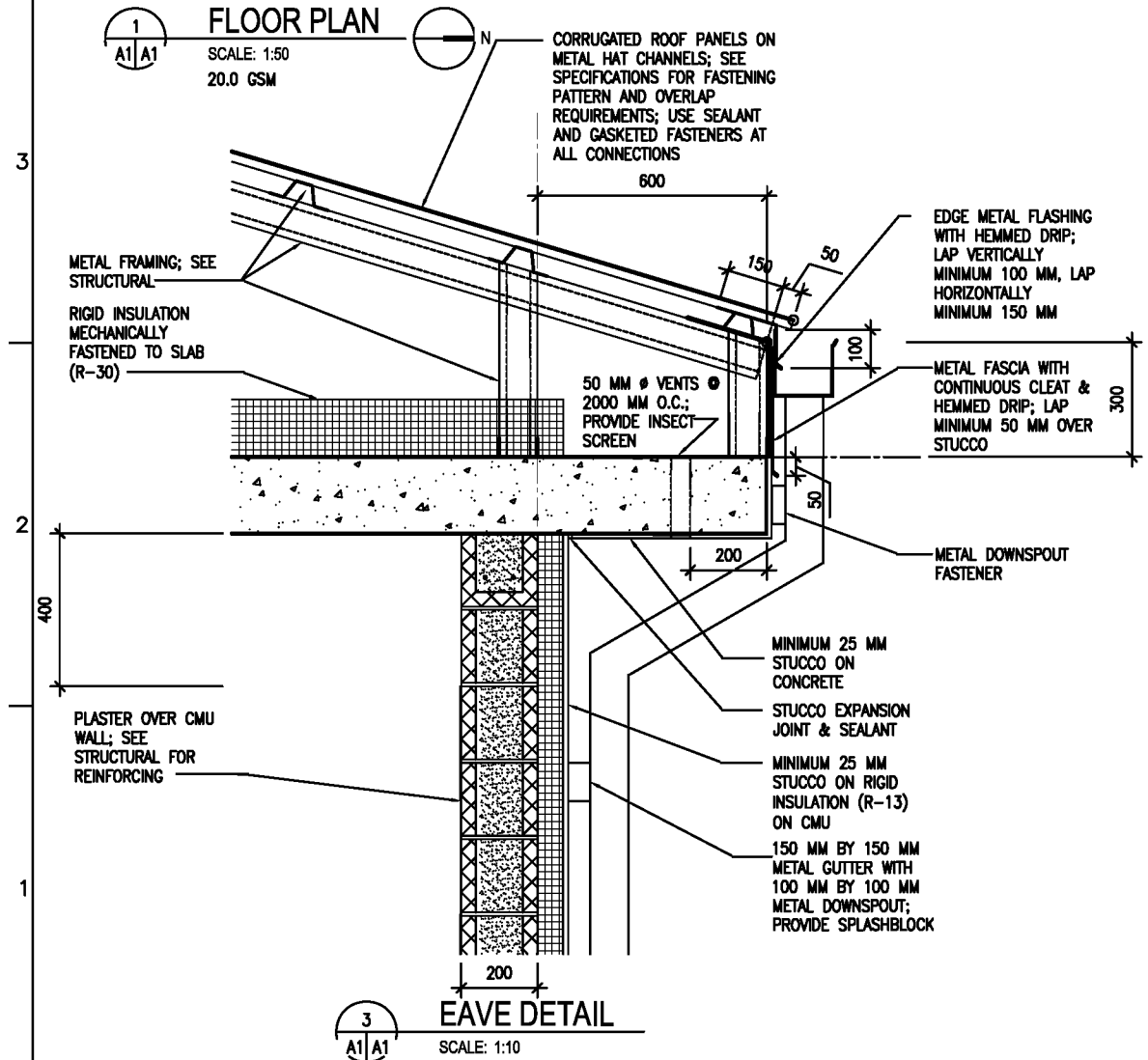
- 1. CONCRETE STOOP - RE: DETAIL 7/A3
- 2. ROOF HATCH ABOVE, CENTER ON WELL PUMP
- 3. LINE OF ROOF OVERHANG ABOVE.
- 4. CORRUGATED METAL ROOF PANEL ON COLD-FORMED METAL FRAMING
- 5. METAL GUTTER.
- 6. METAL DOWNSPOUT WITH SPLASH BLOCK.
- 7. 200 MM CMU WITH EXTERIOR STUCCO

ROOM FINISHES:

- 1. WALLS: PAINTED PLASTER,
- FLOOR: SEALED CONCRETE
- CEILING: PAINTED PLASTER APPLIED TO STRUCTURE

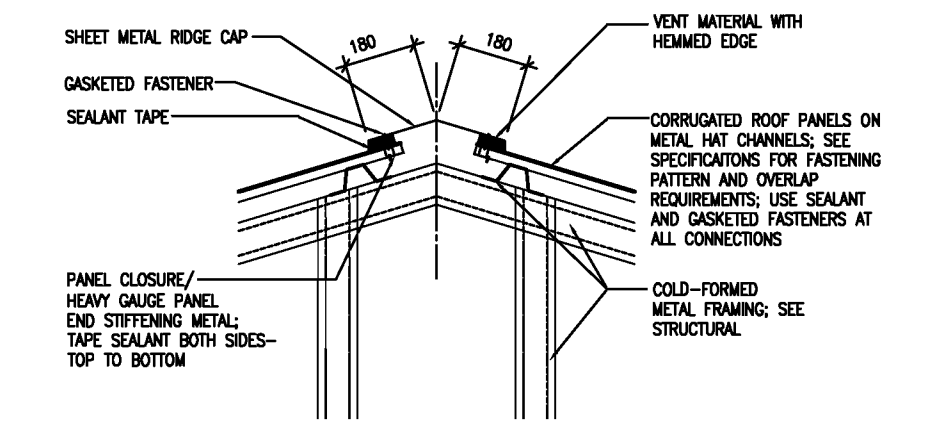
LEGEND:

- (1.A) DOOR TYPE, SEE SHEET A3
- (A) WINDOW TYPE, SEE SHEET A3
- (X) KEY NOTE
- FEC FIRE EXTINGUISHER CABINET
- (1) ROOM FINISH DESIGNATION



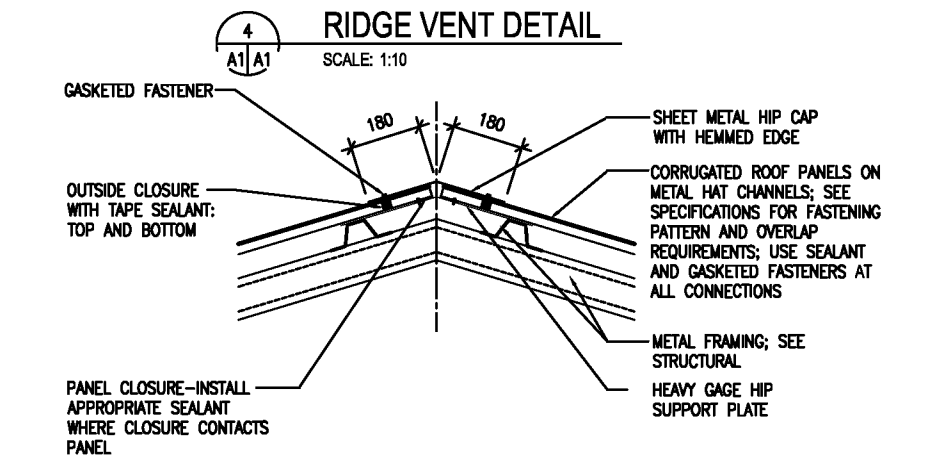
EAVE DETAIL

SCALE: 1:10



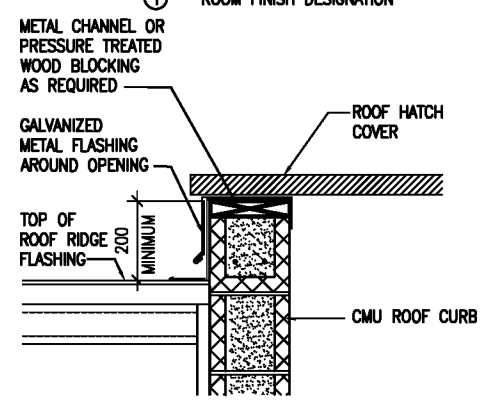
RIDGE VENT DETAIL

SCALE: 1:10



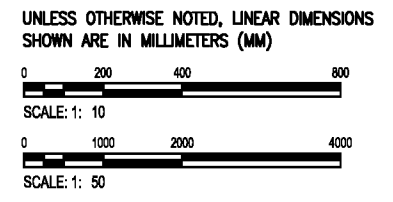
HIP DETAIL

SCALE: 1:10



ROOF HATCH

SCALE: 1:10



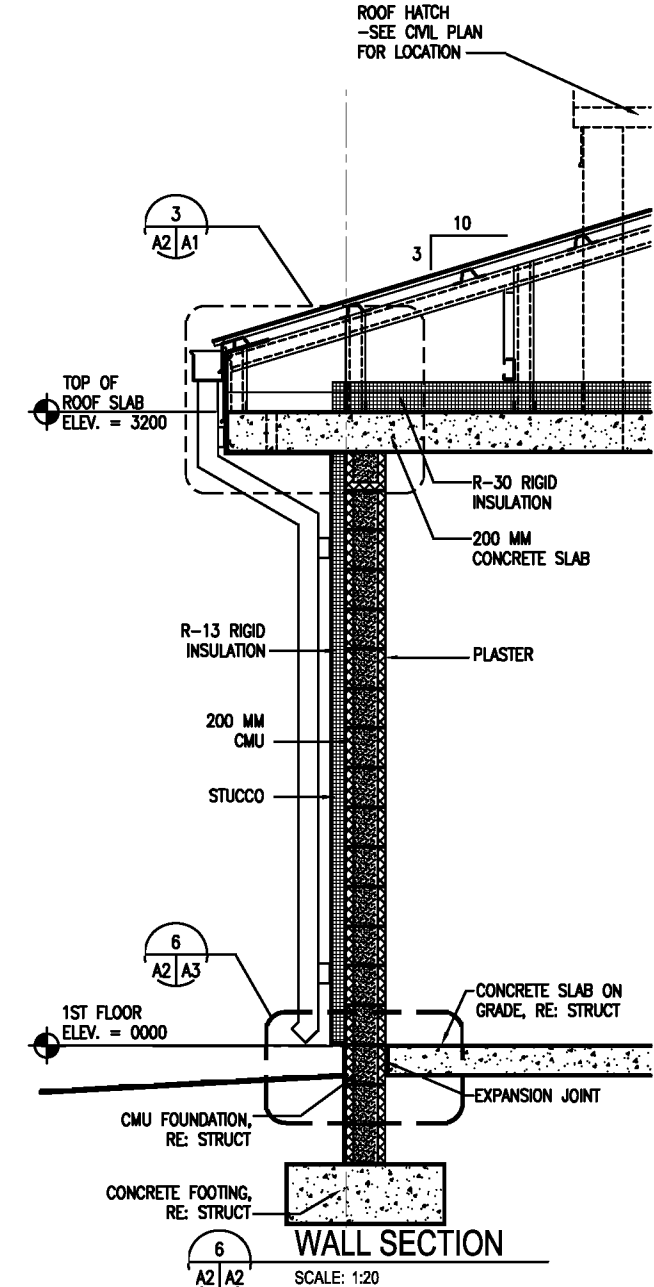
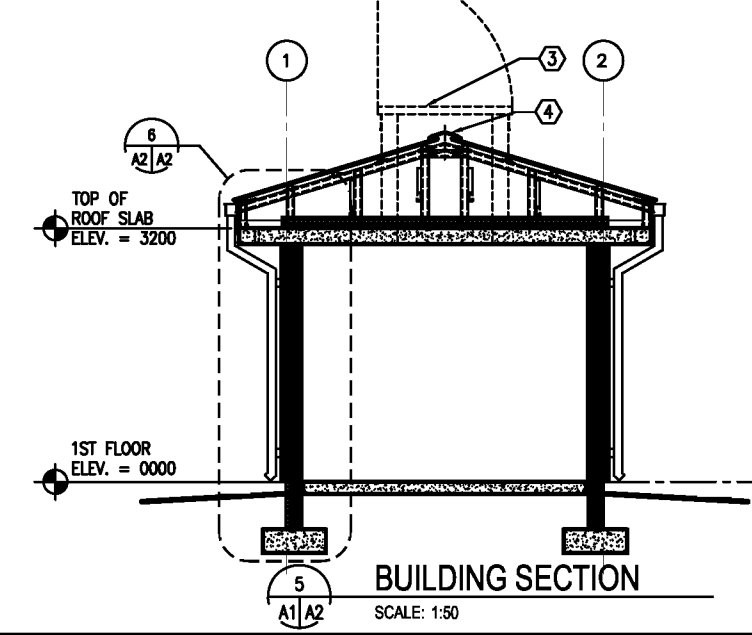
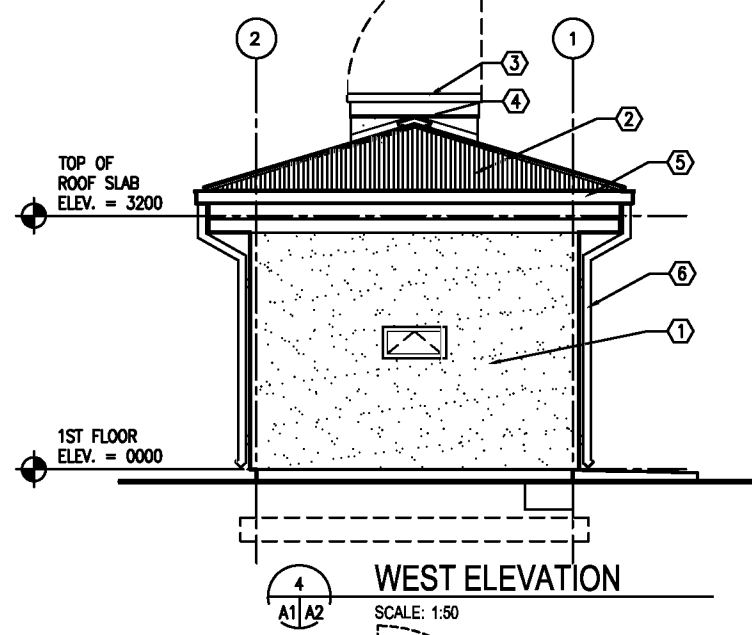
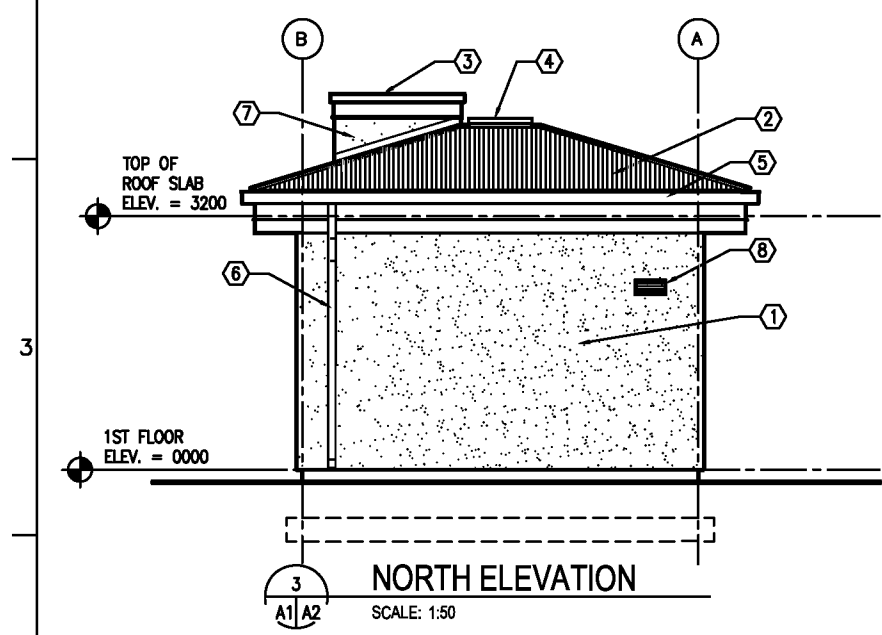
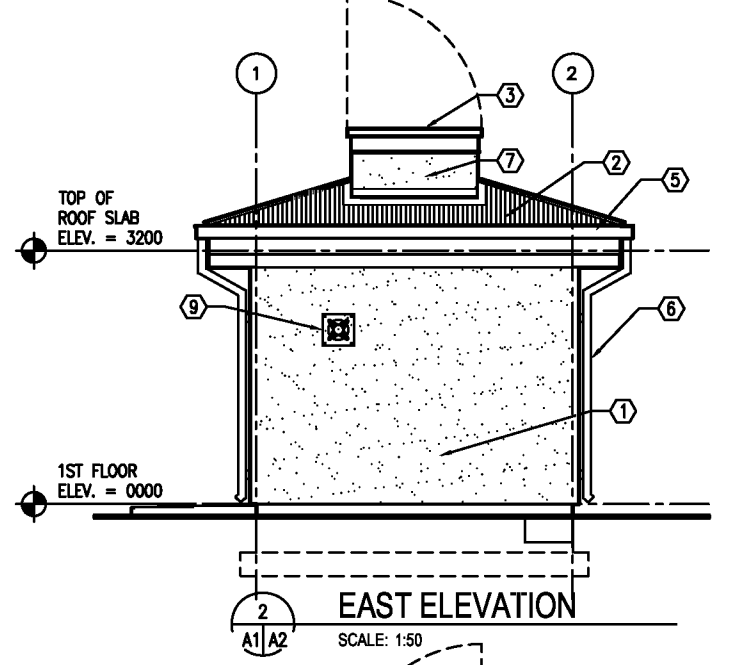
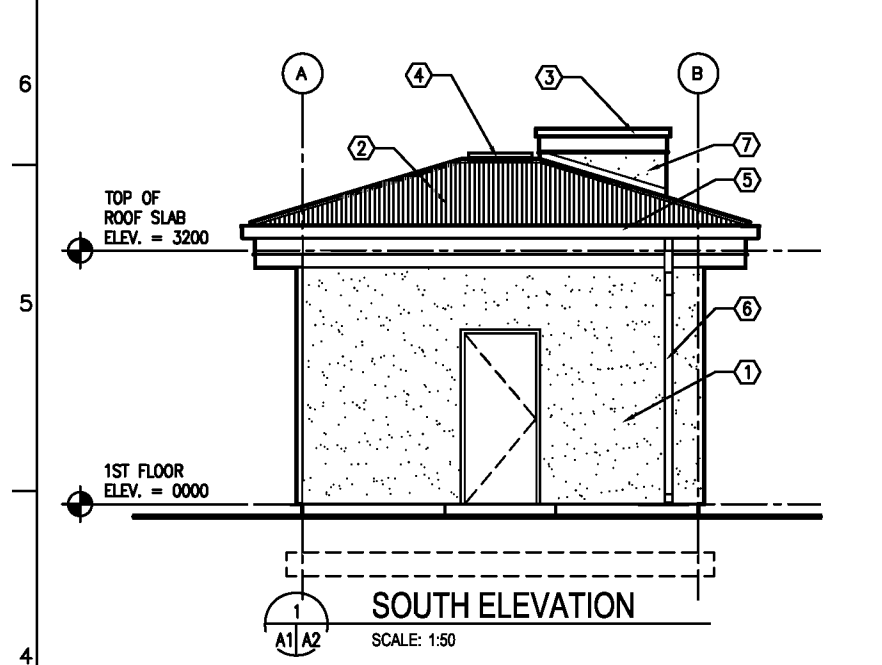
SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: PFF	DATE: 08-30-08	DESIGNED BY: NLJ	FILE NO.: ANPSDA-10100X
DWN BY: ECN	SUBMITTED BY: BAKER	CHK BY: NLJ	

STANDARD DESIGN WELL HOUSE
FLOOR AND ROOF PLANS AND DETAILS

SHEET REFERENCE NUMBER:
A1

100% SUBMISSION



- KEY NOTES:**
1. STUCCO AND RIGID INSULATION SYSTEM ON CMU
 2. CORRUGATED METAL ROOF PANELS ON COLD-FORMED METAL FRAMING
 3. ROOF HATCH WITH CURB. CENTER ON WELL PUMP - RE: CML
 4. RIDGE VENT
 5. METAL GUTTER
 6. METAL DOWNSPOUT WITH SPLASH BLOCK
 7. STUCCO ON CMU
 8. LOUVER - RE: MECHANICAL
 9. EXHAUST FAN - RE: MECHANICAL



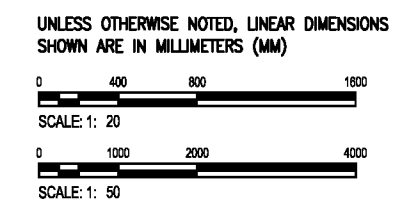
NO.	DATE	DESCRIPTION

DESIGNED BY:	PFF	DATE:	08-30-08
DWN BY:	ECN	SUBMITTED BY:	BAKER
CHK BY:	NLJ	FILE NO.:	ANPSDA-20200X

Michael Baker Jr., Inc.
A unit of Michael Baker Corporation
Arlindo Business Park
100 Arlindo Drive
Moon Township PA 15108
www.mbakercorp.com

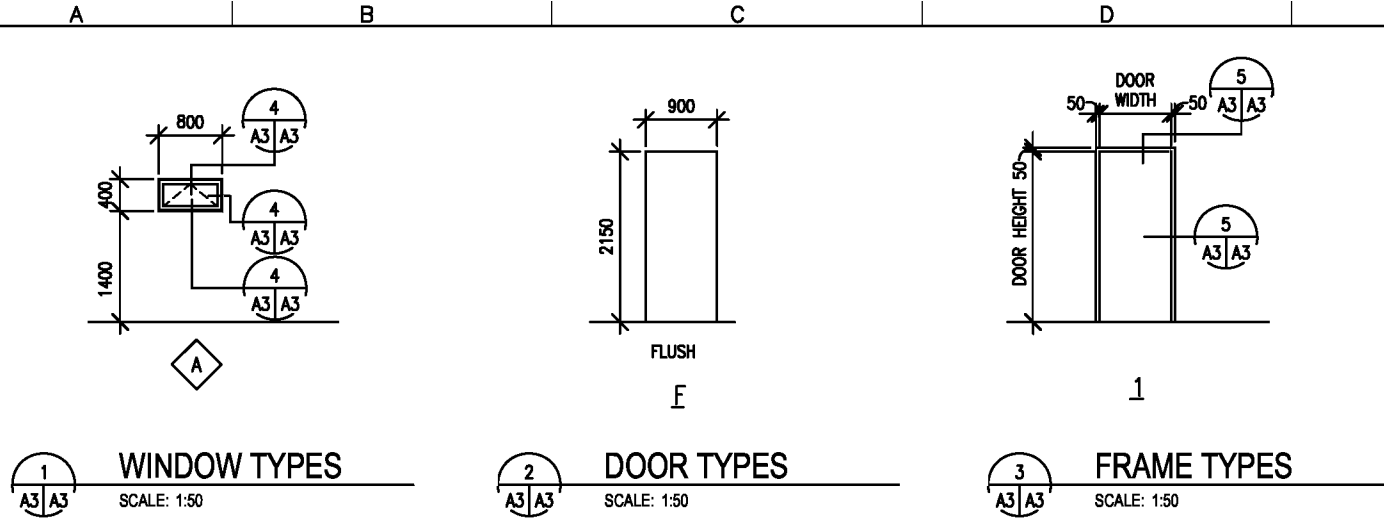
STANDARD DESIGN
WELL HOUSE

EXTERIOR ELEVATIONS



SHEET REFERENCE NUMBER:
A2

100% SUBMISSION



WINDOW TYPES NOTES:

- 1. ALL EXTERIOR WINDOWS SHALL BE WOOD WITH INSECT SCREENS. WINDOWS SHALL BE COMMERCIAL GRADE.
- 2. GLAZING SHALL BE ACRYLIC SHEET.

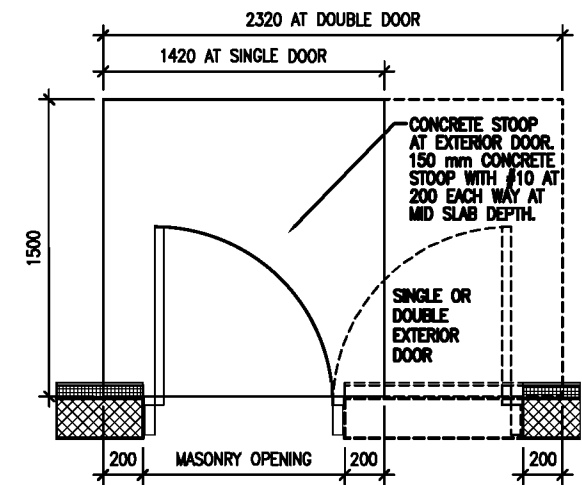
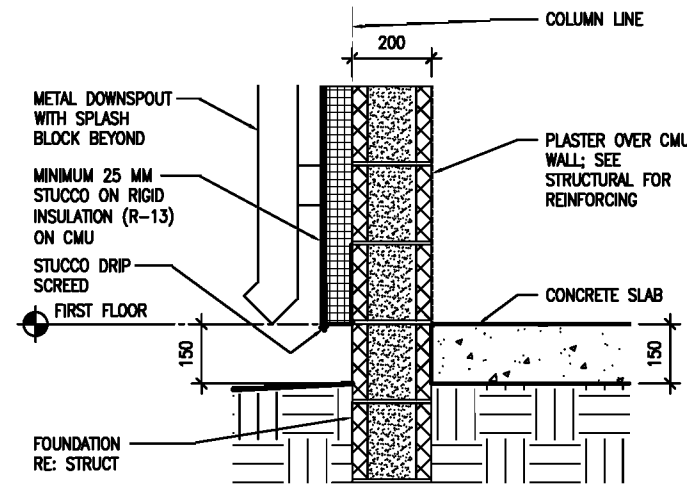
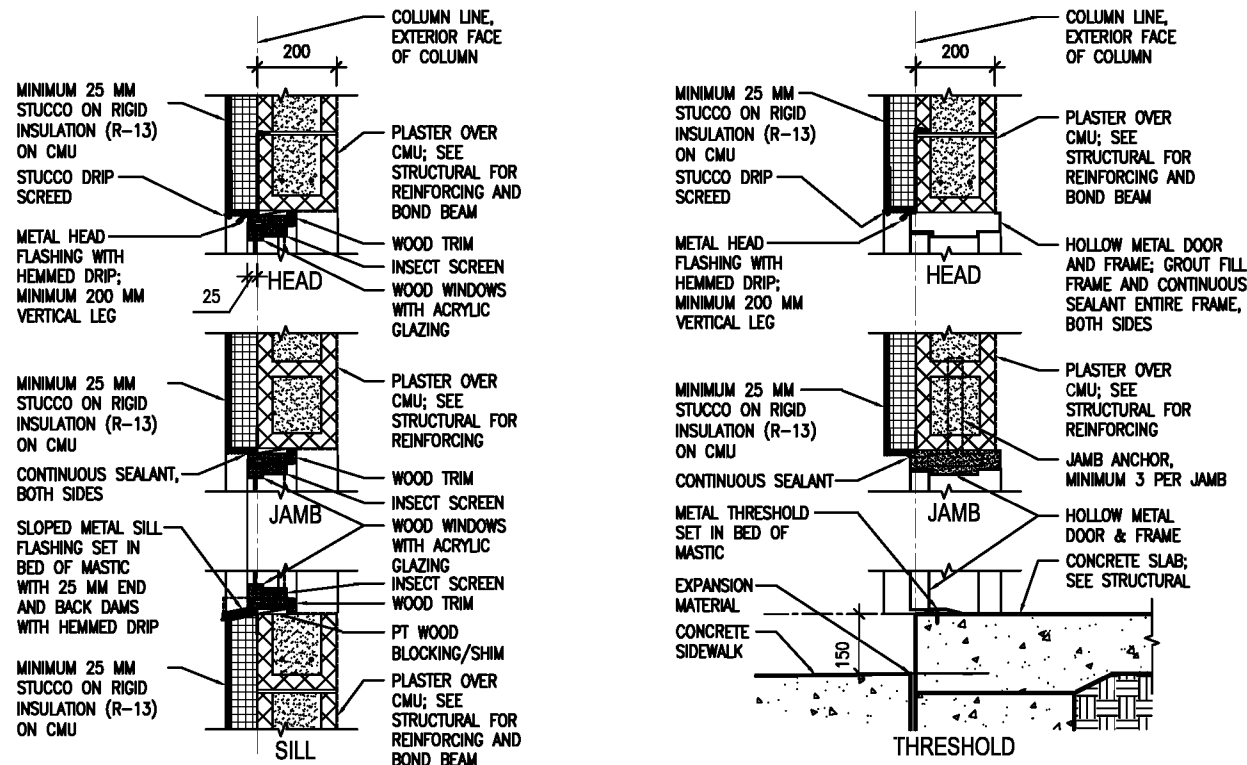
DOOR TYPES NOTES:

- 1. INTERIOR AND EXTERIOR METAL DOORS AND FRAME COLORS SHALL MATCH ADJACENT WALL COLORS AS SELECTED BY THE CONTRACTING OFFICER.
- 2. HARDWARE SHALL BE HEAVY DUTY, COMMERCIAL GRADE, STAINLESS STEEL WITH A MATTE FINISH.
- 3. FRAMES, EXCEPT FIRE-RATED FRAMES, SHALL BE MOUNTED AND ADJUSTED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. FRAMES SHALL BE FASTENED WITH MINIMUM OF THREE FASTENING POINTS PER SIDE AT REGULAR INTERVALS.
- 4. DIMENSIONS SHOWN ON DOOR SCHEDULE ARE BASED UPON MODULAR MASONRY (OR ROUGH OPENING), HEIGHT OF 2200mm FOR STANDARD PERSONNEL DOORS. CONTRACTOR SHALL COORDINATE WITH DOOR SUPPLIER TO ENSURE THAT DIMENSIONS OF DOORS AND FRAMES PROVIDED ARE COMPATIBLE WITH DOOR OPENING DIMENSIONS.

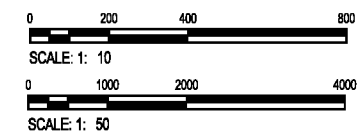


HARDWARE TYPES:

- HW-6 1-1/2 PR HINGES
 1 EA LOCKSET, F04 ENTRY LOCK W/LEVERS, GRADE 1
 1 EA DOOR CLOSER, C02061, LOW RESISTANCE
 1 EA THRESHOLD J32130



UNLESS OTHERWISE NOTED, LINEAR DIMENSIONS SHOWN ARE IN MILLIMETERS (MM)



NO.	DATE	DESCRIPTION

DESIGNED BY: PFF	DATE: 08-30-08	SUBMITTED BY: BAKER	FILE NO.: ANPSDA-3033XX
DWN BY: ECN	CHK BY: NLJ		

Michael Baker Jr., Inc.
A unit of Michael Baker Corporation
Arlene Business Park
100 Arlene Drive
Moon Township PA 15108
www.mbakercorp.com

STANDARD DESIGN WELL HOUSE

DOOR, WINDOW & FINISH TYPES & DETAILS

SHEET REFERENCE NUMBER:
A3



US ARMY CORPS
OF ENGINEERS
AFGHANISTAN
ENGINEER DISTRICT

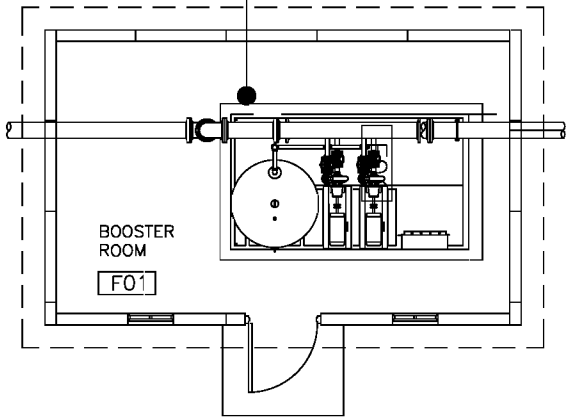
NO.	DATE	SYMBOL	DESCRIPTION

DESIGNED BY: AED	DATE: XX-XX-XX	REV.
DWN BY: AED	DESIGN FILE NO. XX-XX-XX	
REVIEWED BY: 	DRAWING CODE 	
SUBMITTED BY: 	FILE NAME: PLOT SCALE: AS SHOWN	CONTRACT NO. XX-XX-XX

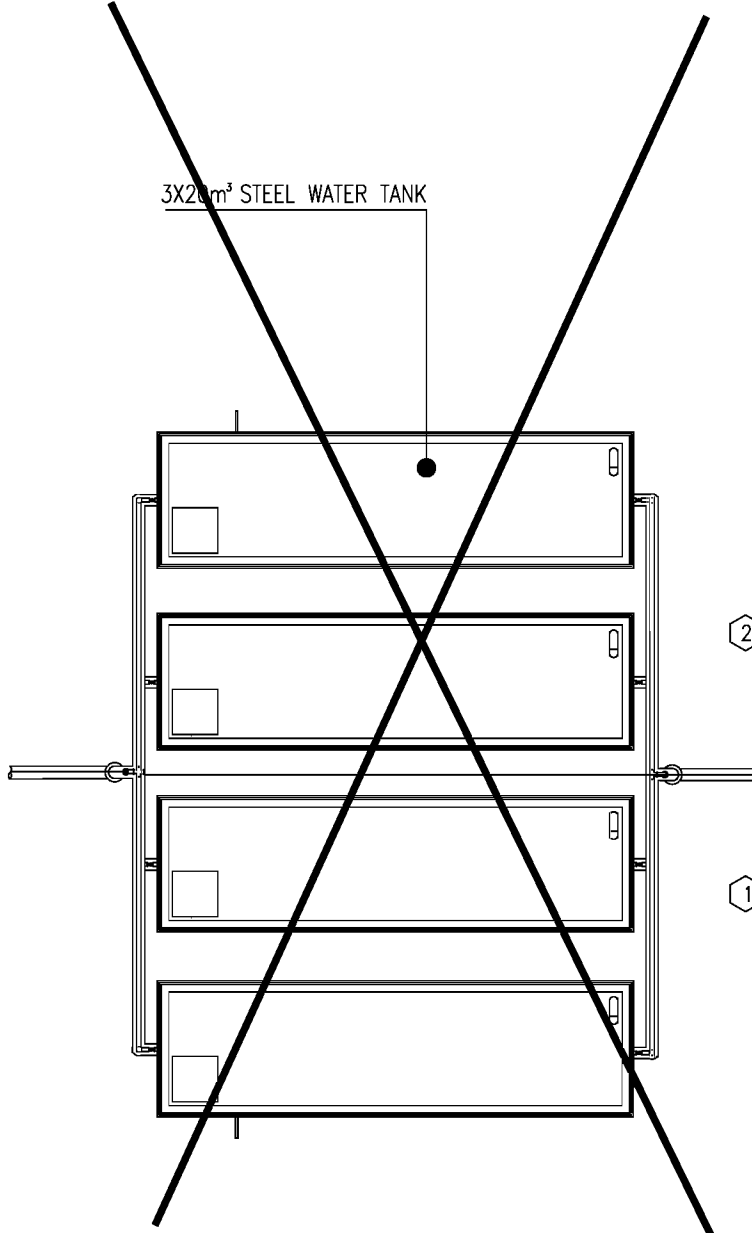
ANA KANDAK
QALA-E-NAW
AFGHANISTAN
WATER BOOSTER STATION
WATER BOOSTER/WELL
HOUSE PLAN

SHEET
REFERENCE
NUMBER:
P-101
SHEET — OF —

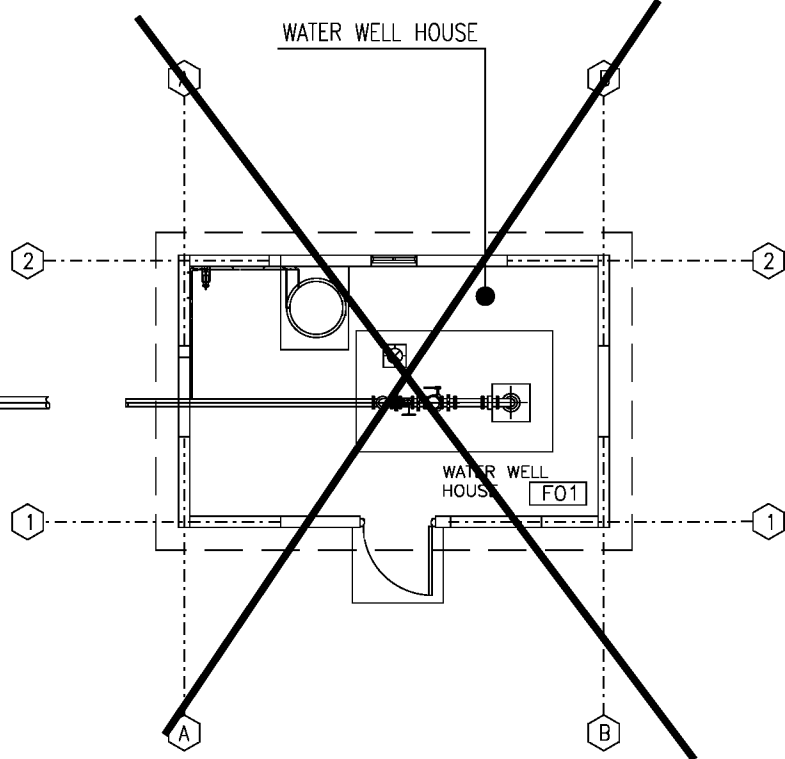
PACKAGED WATER BOOSTER STATION



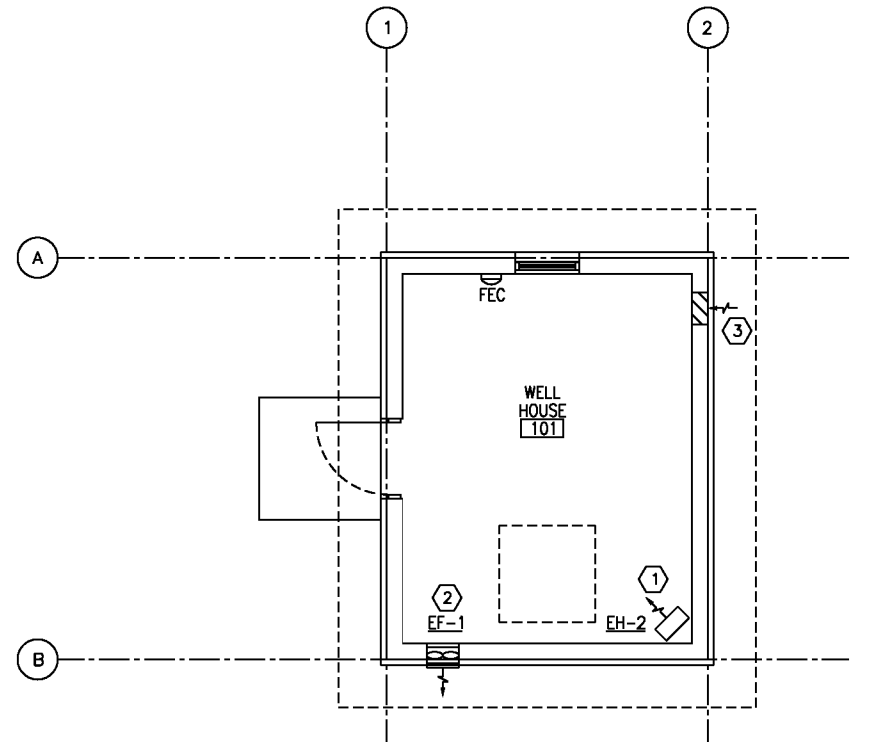
3X20m³ STEEL WATER TANK



WATER WELL HOUSE



NOTE:
INSULATE ALL EXPOSED WATER SUPPLY PIPING
WITH 50 mm INSULATION AND 80 cm INTO THE GROUND



1 HVAC PLAN
M1 M1
NOT TO SCALE

GENERAL NOTES:

1. DO NOT SCALE DRAWINGS - ALL DIMENSIONS AND CONDITIONS SHALL BE CHECKED AND VERIFIED BY THE CONTRACTOR AT THE SITE.
2. ALL WORK PERFORMED ON THIS BUILDING SHALL BE IN COMPLIANCE WITH ALL PERTINENT CODES, RULES, ORDINANCES AND REGULATIONS OF THE GOVERNING AUTHORITIES.
3. ALL WORK PERFORMED UNDER AND IN CONNECTION WITH THESE DRAWINGS AND SPECIFICATIONS SHALL BE IN STRICT COMPLIANCE WITH THE LATEST SAFETY AND HEALTH STANDARDS.

NUMBERED NOTE:

- ① CORROSION RESISTANT ELECTRIC UNIT HEATER SUSPENDED FROM STRUCTURE ABOVE.
- ② CORROSION RESISTANT WALL MOUNTED EXHAUST FAN.
- ③ 200x400 (8x16) LOW LEAKAGE GRAVITY WALL LOUVER FOR INTAKE. PROVIDE WEATHER PROOF LOUVER W/0.05mm (2") WASH DOWN FILTER AND SAND TRAP.

ELECTRIC UNIT HEATER SCHEDULE

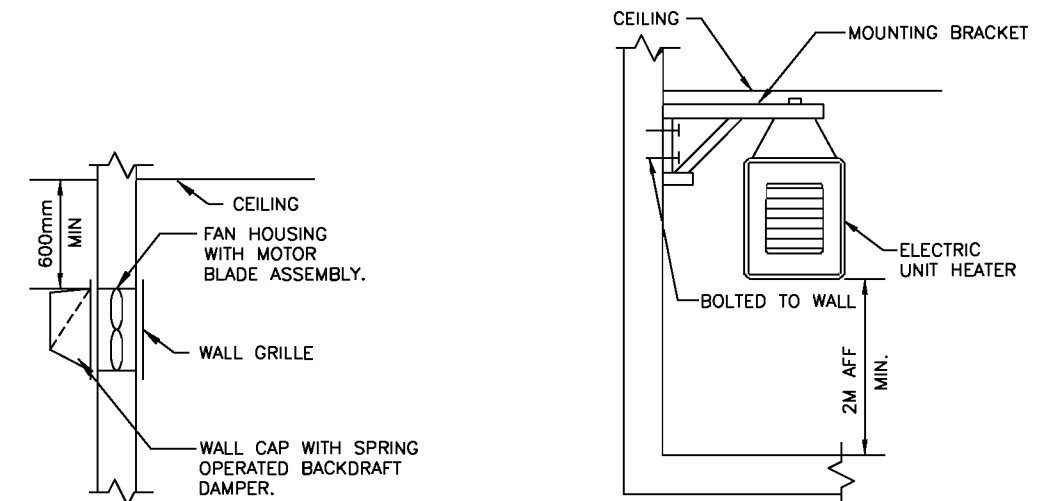
NO.	CMS	KW	F.A.T. °C	ELECT. CHAR.	MOUNTING
EH-2	.200	2.6	33	370/1/50	CEILING

- NOTES:
1. HEATERS SHALL BE CORROSION RESISTANT

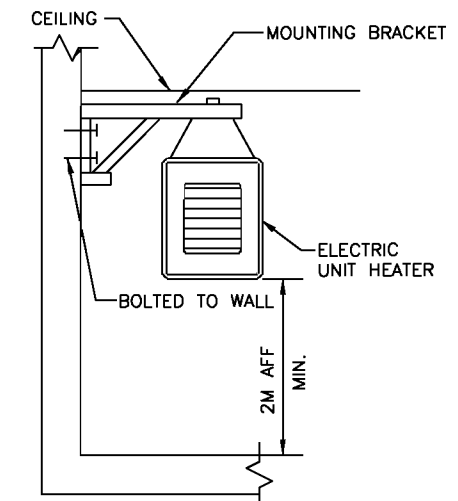
EXHAUST FAN SCHEDULE

NO.	TYPE	FAN CMS	DRIVE	HP	SP mmH2O	ELECT. CHAR.	DISCONNECT SWITCH
EF-1	WALL	0.100	DIRECT	FRACT	13	220/1/50	⊕ WALL

- NOTES:
1. WALL MOUNTED EXHAUST FAN MOUNT AT 600mm BELOW CEILING.
2. FANS SHALL HAVE LOW LEAKAGE GRAVITY LOUVER AND SECURITY GRILLE.
3. FANS SHALL BE EXPLOSION PROOF.
4. PROVIDE WALL MOUNTED THERMOSTAT WITH SET POINT OF 20° C.



WALL MOUNTED EXHAUST FAN DETAIL
NOT TO SCALE



ELECTRIC UNIT HEATER MOUNTING
NOT TO SCALE



NO.	DATE	DESCRIPTION	SYMBOL

DESIGNED BY: DATE: 09-30-09
RML
SUBMITTED BY: BAKER
DWN BY: JUN
CHK BY: CJM
FILE NO.: ANPSDG-BS-TILE

Michael Baker Jr., Inc
A unit of Michael Baker Corporation
Arasde Business Park
100 Arasde Drive
Moon Township PA 15108
www.mbakercorp.com

STANDARD DESIGN
WELL HOUSE
HVAC PLAN

SHEET REFERENCE NUMBER:
M1

A B C D E F G H

POWER

- DISTRIBUTION PANELBOARD
- NEW PANELBOARD - SURFACE
- NEW PANELBOARD - RECESSED
- EXISTING PANELBOARD
- GENERATOR
- TRANSIENT VOLTAGE SURGE SUPPRESSOR
- TRANSFORMER (DRAWN TO SIZE)
- POWER SUPPLY
- CONTROL PANEL
- TIME CLOCK
- ASTRONOMICAL TIME CLOCK- "SEE SPEC."
- RELAY WITH RATING AND NUMBER OF POLES AS NOTED ON DRAWINGS- "SEE SPEC."
- JUNCTION BOX
- JUNCTION BOX - CEILING
- PULL BOX
- BUS DUCT HORIZONTAL
- BUS DUCT VERTICAL
- EMERGENCY POWER OFF PUSH BUTTON
- NON-FUSIBLE SAFETY SWITCH
- FUSIBLE SAFETY SWITCH
- MOTOR
- MOTOR STARTING SWITCH - 20A RATED
- KEY SWITCH - 20A RATED
- FAN COIL - FURNISHED BY MECHANICAL CONTRACTOR, ELECTRICAL CONTRACTOR SHALL INSTALL AND PROVIDE POWER CONNECTION
- UNIT HEATER - FURNISHED BY MECHANICAL CONTRACTOR, ELECTRICAL CONTRACTOR SHALL INSTALL AND PROVIDE POWER CONNECTION
- JUNCTION BOX FOR CONNECTION TO GARBAGE DISPOSAL
- LIGHT/HEATER/FAN - FURNISHED BY MECHANICAL CONTRACTOR, ELECTRICAL CONTRACTOR SHALL INSTALL AND PROVIDE POWER CONNECTION
- ELECTRIC WATER HEATER
- WEATHERPROOF / EXPLOSION PROOF EMERGENCY POWER OFF PUSH-BUTTON TO BE INTERCONNECTED WITH GENERATOR SHUT DOWN CONTROL
- CEILING FAN - REFER TO SPECIFICATION SECTION 28 20 00

RECEPTACLES

- DUPLEX 20A BRITISH STANDARD UNSWITCHED SOCKETS
- DUPLEX 20A BRITISH STANDARD UNSWITCHED SOCKETS - 10mA GROUND FAULT INTERRUPTER TYPE
- DUPLEX 20A BRITISH STANDARD UNSWITCHED SOCKETS - 10mA GROUND FAULT INTERRUPTER TYPE WITH WEATHERPROOF COVER
- DUPLEX 20A BRITISH STANDARD UNSWITCHED SOCKETS - EXPLOSION PROOF
- * INDICATES MOUNT DEVICE ABOVE COUNTER TOP

LIGHTNING PROTECTION

- AIR TERMINAL 200mm O.D. X 4m SOLID COPPER, NICKEL PLATED ON ADHESIVE BASE
- EQUIPMENT AIR TERMINAL
- TEST WELL WITH GROUND ROD(S)
- GROUND ROD
- GROUND PLATE
- MAIN GROUND CONDUCTOR CONCEALED WITHIN CONSTRUCTION
- MAIN GROUND CONDUCTOR EXPOSED ON EXPOSED ON BUILDING EXTERIOR SURFACE
- GROUND CONDUCTOR CAD WELDED TO GROUND CABLE OR EQUIPMENT
- GROUND CONDUCTOR CAD WELDED TO BUILDING STEEL COLUMN
- GROUND ROD TRIPOD, SPACED 10 FEET APART.
- LEVEL TO LEVEL CABLE

LIGHTING

- LIGHTING FIXTURE - SEE FIXTURE SCHEDULE FOR MORE INFORMATION
- LIGHTING FIXTURE - SEE FIXTURE SCHEDULE FOR MORE INFORMATION
- DOWNLIGHT
- LIGHTING FIXTURE ON NORMAL/EMERGENCY
- WALL MOUNTED LIGHT FIXTURE
- EXIT SIGN - DIRECTIONAL ARROWS AS INDICATED ON DRAWINGS
- BATTERY PACK WITH HEADS AS INDICATED ON DRAWINGS
- REMOTE HEAD FOR BATTERY PACK
- SINGLE POLE SWITCH - 20A RATED
- 3-WAY SWITCH - 20A RATED
- 4-WAY SWITCH - 20A RATED
- PHOTOCELL VOLTAGE TO MATCH CIRCUITRY
- LIGHTING CONTACTOR
- POLE MOUNTED SITE LIGHTING FIXTURE- NUMBER OF FIXTURES PER POLE AS INDICATED ON DRAWINGS
- EXTERIOR DIRECTIONAL LIGHTING FIXTURE
- o SMALL CASE LETTERS REPRESENTS LAMP(S) / SWITCHES. WHEN USED WITH AN OCCUPANCY SENSOR THIS INDICATES SENSOR WITH MANUAL OVERRIDE SWITCH

TELECOMMUNICATIONS

- TELEPHONE OUTLET(S) @ 18" AFF. U.N.O. WITH 3/4" RACEWAY TERMINATED ABOVE NEAREST ACCESSIBLE CEILING OR TO TELEPHONE TERMINAL BOARD IF NO ACCESSIBLE CEILING AVAILABLE. SEE TELE/DATA RISER DIAGRAM FOR OUTLET AND CABLE DESCRIPTION
- DATA OUTLET(S) @ 18" AFF. U.N.O. WITH 3/4" RACEWAY TERMINATED ABOVE NEAREST ACCESSIBLE CEILING OR TO DATA EQUIPMENT RACK IF NO ACCESSIBLE CEILING AVAILABLE. SEE TELE/DATA RISER DIAGRAM FOR OUTLET AND CABLE DESCRIPTION

TELECOMMUNICATIONS (CONTINUED)

- COMBINATION TELEPHONE/DATA OUTLET(S) @ 18" AFF. U.N.O. WITH 1" RACEWAY TERMINATED ABOVE NEAREST ACCESSIBLE CEILING OR TO TELE/DATA TERMINAL AREA IF NO ACCESSIBLE CEILING AVAILABLE. SEE TELE/DATA RISER DIAGRAM FOR OUTLET AND CABLE DESCRIPTION
- WALL MTD. TELEPHONE OUTLET WITH 3/4" RACEWAY TERMINATED ABOVE NEAREST ACCESSIBLE CEILING OR TO TELEPHONE TERMINAL BOARD IF NO ACCESSIBLE CEILING AVAILABLE. SEE TELE/DATA RISER DIAGRAM FOR OUTLET AND CABLE DESCRIPTION
- (x)T INDICATES NUMBER OF TELEPHONE OUTLET(S) AND ASSOCIATED CABLING
- (x)D INDICATES NUMBER OF DATA OUTLET(S) AND ASSOCIATED CABLING
- (x)TF INDICATES NUMBER OF TELEPHONE OUTLETS AND ASSOCIATED CABLING WITH 1 OUTLET AND CABLE DEDICATED FOR FAX

SINGLE LINE SYMBOLS

- SWITCH
- BREAKER
- FUSE
- TRANSFORMER
- CAPACITOR
- GROUND
- CONTACT (NORMALLY OPEN)
- CONTACT (NORMALLY CLOSED)
- AUTOMATIC TRANSFER SWITCH
- MANUAL DOUBLE THROW SWITCH
- CURRENT TRANSFORMER
- INDICATES NEW ELECTRICAL EQUIPMENT
- INDICATES NEW CONTROL WIRING AND CONDUIT
- EQUIPMENT OUTLINE

MISCELLANEOUS

- BRANCH CIRCUIT WIRING CONCEALED ABOVE CEILINGS, SURFACE MOUNTED ON WALLS
- BRANCH CIRCUIT WIRING - #10 AWG
- BRANCH CIRCUIT WIRING - UNDER FLOOR
- HOME RUN BACK TO PANEL
- CONDUIT TURNED DOWN
- CONDUIT TURNED UP
- LOW VOLTAGE WIRING AND CONDUIT
- CABLE TRAY ("X" DENOTES WIDTH)
- ~ INDICATES CONTINUATION OF LINE

FIRE ALARM

- FIRE ALARM CONTROL PANEL WITH BATTERY BACKUP
- FIRE ALARM PULL STATION

FIRE ALARM (CONTINUED)

- FIRE ALARM STROBE - WALL MOUNTED
- FIRE ALARM AUDIBLE/STROBE - WM
- FIRE ALARM HORN/STROBE - WM
- SMOKE DETECTOR
- HEAT DETECTOR CEILING MOUNTED
- DUCT DETECTOR - PROVIDED BY EC, INSTALLED BY MC AND CONNECTED BY EC

NOTATIONS & ABBREVIATIONS

- AFF ABOVE FINISHED FLOOR
- C CEILING MOUNTED
- E EMERGENCY
- EC ELECTRICAL CONTRACTOR
- EPO EMERGENCY POWER OFF
- EXP EXPLOSION PROOF
- F FIRE ALARM
- FF FLUSH FLOOR MOUNTED
- FL FLUORESCENT
- FO FIBER OPTIC
- FSS FUSED SAFETY SWITCH
- G GROUND FAULT INTERRUPTER
- GC GENERAL CONTRACTOR
- HOA HAND-OFF AUTO
- I INFRARED
- ICD INCANDESCENT
- IG ISOLATED GROUND
- K KEY
- LV LOW VOLTAGE
- M MOTOR
- MC MECHANICAL CONTRACTOR
- NE NORMAL/EMERGENCY
- NFSS NON-FUSED SAFETY SWITCH
- PA PAGING SYSTEM
- PLC PLUMBING CONTRACTOR
- REL RELOCATE
- RED RELOCATED
- SL SINGLE LINE
- SS SURGE SUPPRESSION
- T TELEPHONE
- TL TWIST LOCK

NOTATIONS & ABBREVIATIONS (CONT.)

- TP TAMPER PROOF
- UE UNDERGROUND ELECTRIC
- UF UNDERGROUND FIBER
- UT UNDERGROUND TELEPHONE
- W WALL MOUNTED
- WG WIRE GUARD
- WP WEATHERPROOF
- WPG WEATHERPROOF/GROUND FAULT INTERRUPTER
- WT WATER TIGHT

GENERAL PROJECT NOTES:

- G1. UNLESS OTHERWISE NOTED, PROVIDE ALL EQUIPMENT SHOWN ON THE PLANS. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL SYMBOLS SHOWN ON THE PLANS WITH THE SYMBOL LIST. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE INTENT OF ANY SYMBOL THAT IS SHOWN ON THE PLANS AND NOT INDICATED ON THE SYMBOL LIST WITH THE ENGINEER PRIOR TO BID.
- G2. COORDINATE THE FINAL LOCATIONS OF ALL LIGHT FIXTURES WITH THE ARCHITECT'S REFLECTED CEILING PLANS. REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO INSTALLATION.
- G3. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES WITHIN THE CONSTRUCTION AREA THREE (3) WORKING DAYS NOTICE BEFORE COMMENCE DIGGER. NOTIFY THE LOCAL OR STATE AUTHORITY HAVING JURISDICTION AND WAIT THE REQUIRED TIME BEFORE COMMENCING TO DIG.
- G4. THE CONTRACTOR SHALL COORDINATE CONDUIT RUNS, CABLE TRAY, LIGHTING FIXTURES AND OTHER EQUIPMENT LOCATIONS WITH THE OTHER TRADE CONTRACTORS TO AVOID CONFLICTS.
- G5. WHERE VOLTAGES AND FREQUENCIES ON THE DRAWINGS AND IN THE SPECIFICATIONS DIFFER FROM THE LOCAL ONES, ALL WORK SHALL BE PERFORMED USING THE LOCAL VOLTAGES AND FREQUENCIES.
- G6. THE MINIMUM WIRE SIZE ON THE PROJECT SHALL BE 4mm². THE MINIMUM CONDUIT SIZE SHALL BE 20mm. THE MINIMUM BREAKER SIZE SHALL BE 20 AMPS.
- G7. THE CONTRACTOR SHALL PUT A MAXIMUM OF 8 DUPLEX SOCKETS ON A 20A SINGLE POLE CIRCUIT.
- G8. WHERE THE 1010 SCOPE REVIEW, 1015 TECHNICAL REVIEW, DRAWINGS, AND SPECIFICATIONS DIFFER FROM AMERICAN CODES OR STANDARDS THE 1010, 1015, DRAWINGS, AND SPECIFICATIONS SHALL RULE.
- G9. WORK FOR THE AMMUNITION SUPPLY POINT SHALL BE DONE IN ACCORDANCE WITH DEPARTMENT OF DEFENSE STANDARD DOD 6055.9-STD.
- G10. ALL CONDUIT AND DEVICES SHALL BE SURFACE MOUNTED UNLESS OTHERWISE INDICATED.



SYMBOL	DATE

DESIGNED BY: JRC	DATE: 08-30-08	SUBMITTED BY: BAKER
DWN BY: JRC		FILE NO.: ANPSDE-000XXX
CHK BY: JRC		

STANDARD DESIGN WELL HOUSE

ELECTRICAL SYMBOLS AND ABBREVIATIONS

SHEET REFERENCE NUMBER:
E0

Finishing Schedule				
Room	Usage	L	W	AREA
F01	WELL HOUSE	5.4	3.3	17.82

SYMBOL	DESCRIPTION	DATE	
		REV.	APP.

DESIGNED BY: AED	DATE: XX/XX/XX	REV. 1
DWN BY: AED	DESIGN FILE NO. XX/XX/XX	
REVIEWED BY: AED	DRAWING CODE	
SUBMITTED BY:	FILE NAME:	
	PLOT SCALE: AS SHOWN	
	CONTRACT NO. XX/XX/XX	

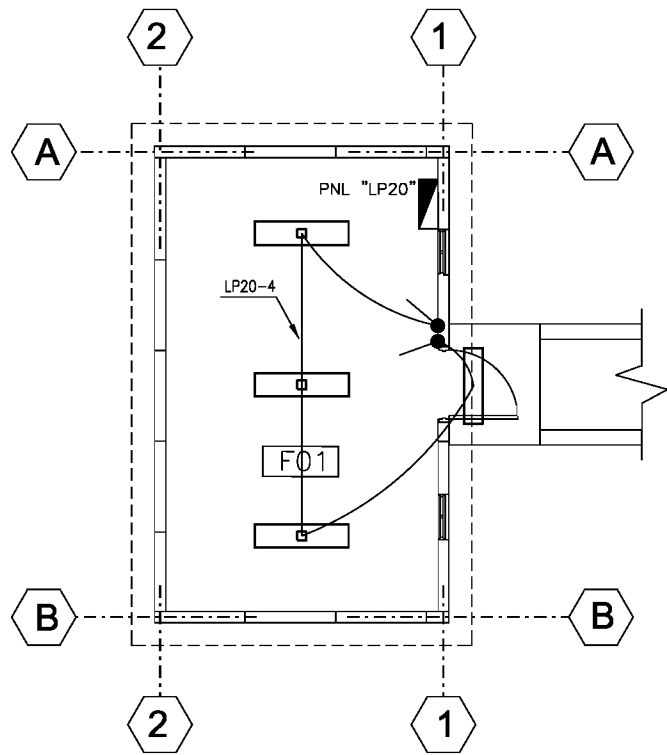
U.S. ARMY CORPS OF ENGINEERS
AFGHANISTAN ENGINEER DISTRICT
APO AE 08958

ENGINEERING AND
CONSTRUCTION DIVISION

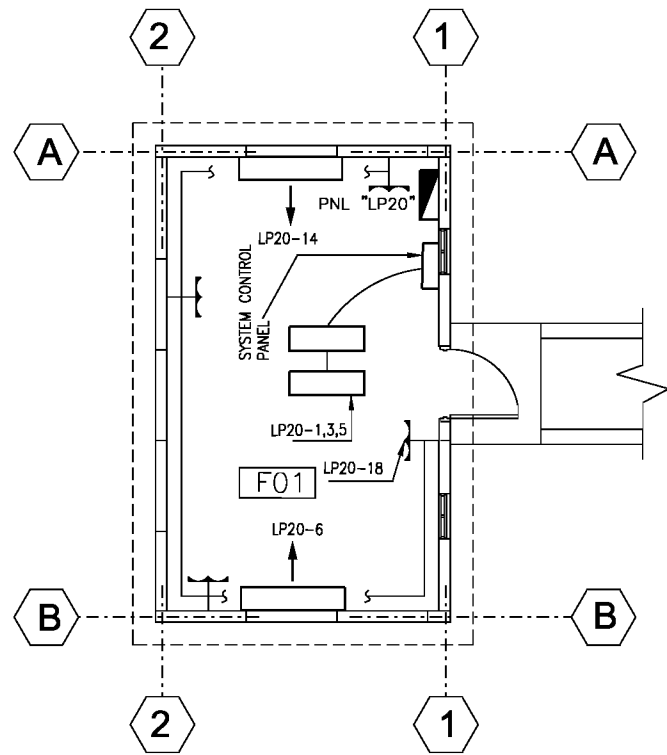
ANA KANDAK
QALA-E-NAW
AFGHANISTAN

**BOOSTER STATION
ELECTRICAL PLAN**

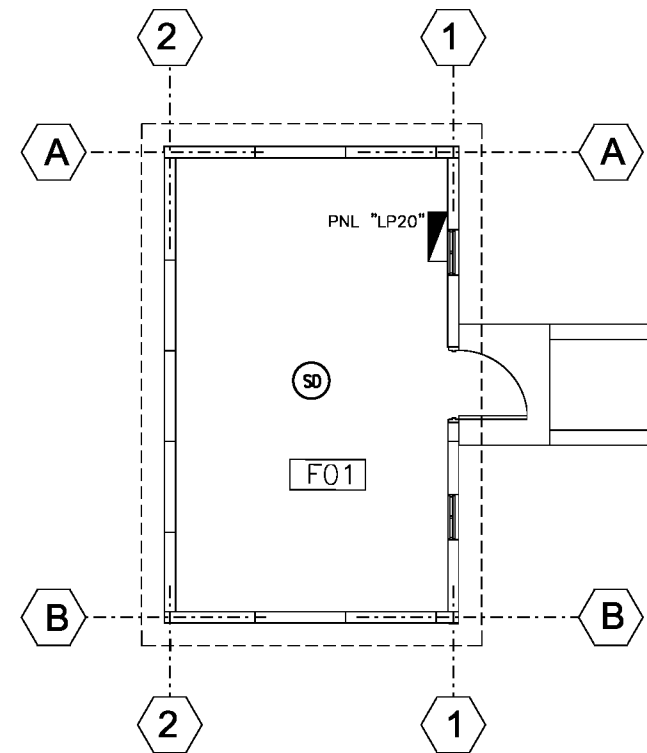
SHEET
REFERENCE
NUMBER:
E-101
SHEET — OF —



1 LIGHTING PLAN
E-101 SCALE = 1:50

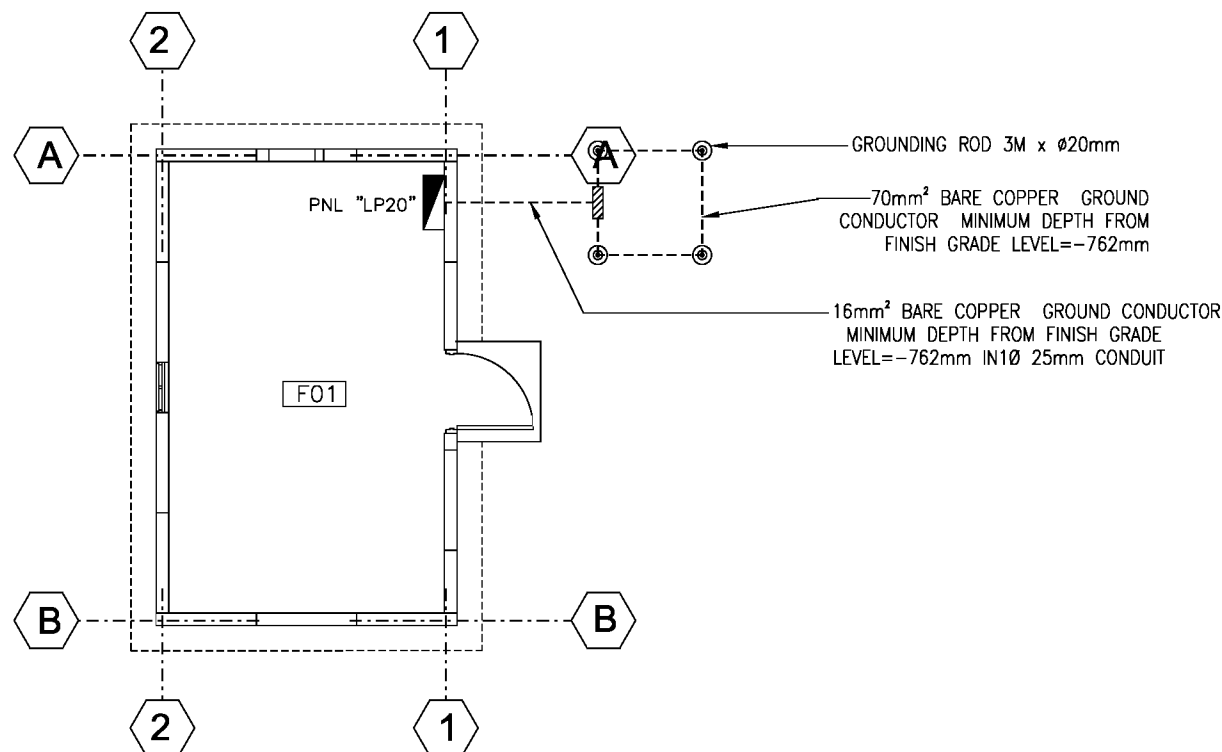


2 POWER PLAN
E-101 SCALE = 1:50

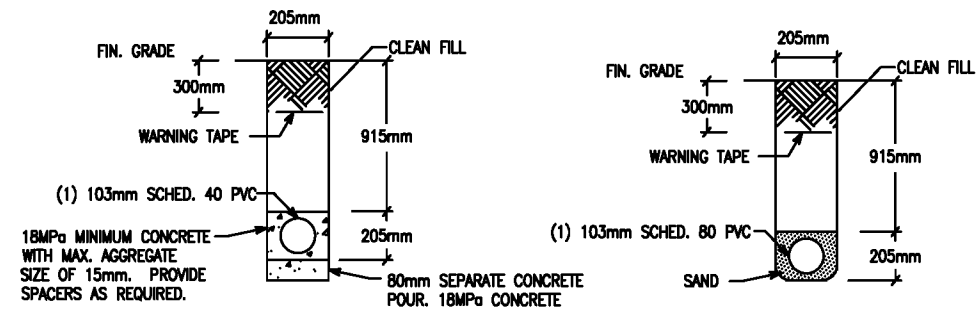


3 SMOKE DETECTOR PLAN
E-101 SCALE = 1:50

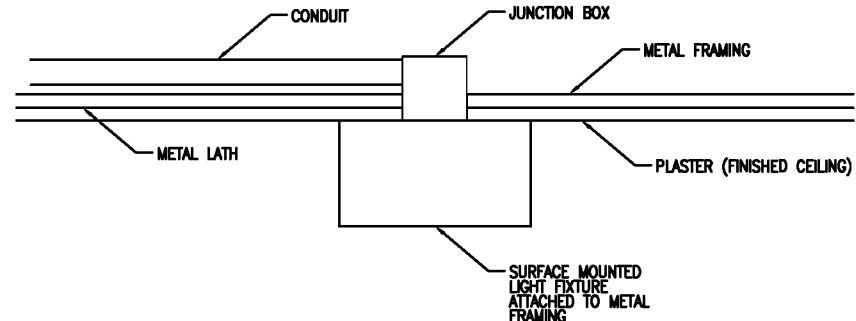
NOTE: SD - MULTI STATION SMOKE DETECTOR



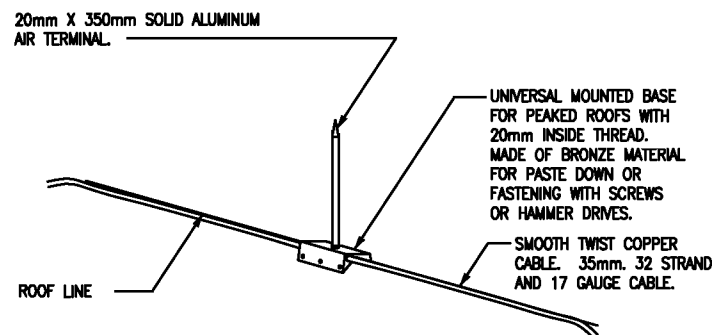
4 GROUNDING PLAN
E-101 SCALE = 1:50



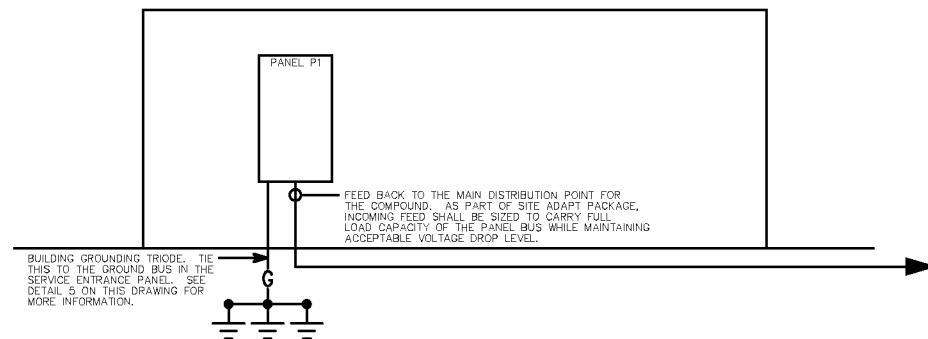
1 TYPICAL DUCT BANK DETAILS FOR CONDUIT IN SAND OR CONCRETE
 E2 | E2 SCALE: N.T.S.



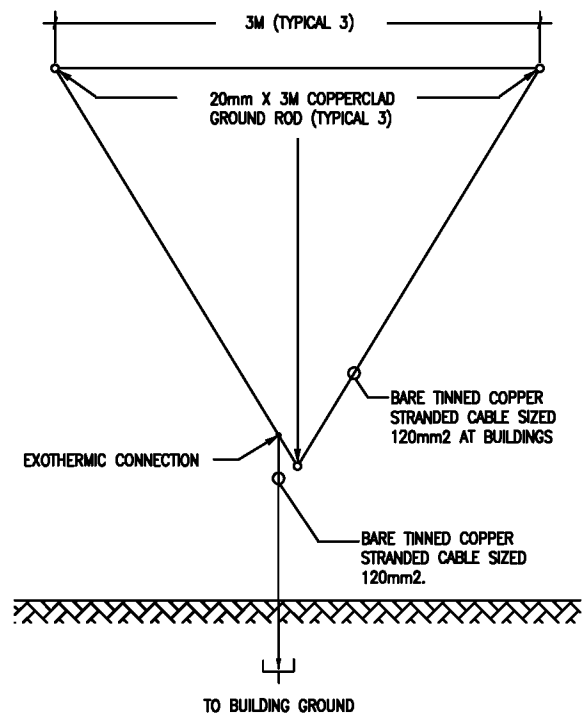
2 TYPICAL DETAIL FOR SURFACE MOUNTED LIGHT FIXTURES
 E2 | E2 SCALE: N.T.S.



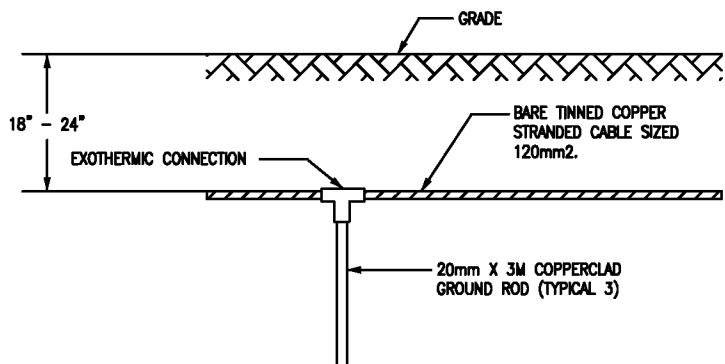
3 LIGHTNING PROTECTION AIR TERMINAL DETAIL
 E2 | E2 SCALE: N.T.S.



4 WELLHOUSE RISER DIAGRAM
 E2 | E2 SCALE: N.T.S.



5 GROUND TRIPOD SYSTEM DETAIL - PLAN
 E2 | E2 SCALE: N.T.S.



6 GROUND TRIPOD SYSTEM DETAIL - ELEVATION
 E2 | E2 SCALE: N.T.S.

US Army Corps of Engineers
 Afghanistan Engineer District

NO.	DATE	DESCRIPTION

DESIGNED BY:	JRC	DATE:	08-30-08
DWN BY:	JRC	SUBMITTED BY:	BAKER
CHK BY:	JRC	FILE NO.:	ANPSDE-502XXX

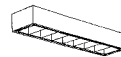
Michael Baker Jr., Inc.
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STANDARD DESIGN WELL HOUSE DETAILS

SHEET REFERENCE NUMBER:
 E2

100% SUBMISSION

FIXTURE MARK 'A'



PARABOLIC SURFACE/PENDANT MOUNTED 300MM x 1200MM FLUORESCET FIXTURE WITH ELECTRONIC BALLAST.

FIXTURE MARK 'A2': SAME FIXTURE AS 'A' WITH EMERGENCY BALLAST.

FIXTURE MARK 'C'



INCANDESCENT ONE PIECE WITH APPROVED LENS, STABILIZED HIGH IMPACT POLY CARBONATE

FIXTURE MARK 'H'



REMOTE HEAD EXTERIOR LIGHT HEAD POWERED FROM EXIT SIGN BATTERY- 12V DOUBLE HEAD CORROSION RESISTANT WITH UL34 WEATHERPROOF CONSTRUCTION

FIXTURE MARK 'E'



UNIVERSAL MOUNT ENGINEER GRADE THERMOPLASTIC HOUSING EXIT SIGN WITH LED LAMPS, RED LETTERS 6" IN HEIGHT WITH ARROWS AS INDICATED, WITH 12V CADMIUM BATTERY

LIGHTING FIXTURE SCHEDULE

FIXTURE MARK	STYLE NUMBER AND TYPE	NUMBER AND TYPE OF LAMPS	VOLTAGE	MOUNTING	NOTES
A	PARABOLIC SURFACE/PENDANT MOUNTED 300MM X 1200MM FLUORESCENT FIXTURE WITH ELECTRONIC BALLAST	(2) 32W 3500K	220V - 1ø 50HZ	PENDANT MOUNTED FROM SLOPED CEILINGS	FURNISHED WITH ELECTRONIC BALLAST. PARABOLIC LOUVER SHALL BE SPECULAR LENS IRADESCENCE TYPE.
A2	SAME AS FIXTURE 'A' WITH EMERGENCY BALLAST	(2) 32W 3500K	220V - 1ø 50HZ	PENDANT MOUNTED FROM SLOPED CEILINGS	FURNISHED WITH ELECTRONIC BALLAST. PARABOLIC LOUVER SHALL BE SPECULAR LENS IRADESCENCE TYPE. EMERGENCY BALLAST SELF TEST.
C	INCANDESCENT ONE PIECE W/ APPROVED LENS STABILIZED HIGH IMPACT POLY CARBONATE.	(1) A19 - 100W INCANDESCENT	220V - 1ø 50HZ	WALL MOUNTED ABOVE EXTERIOR DOORS	
H	REMOTE HEAD EXTERIOR LIGHT HEAD POWERED FROM EXIT SIGN BATTERY- 12V DOUBLE HEAD CORROSION RESISTANT WITH UL34 WEATHERPROOF CONSTRUCTION	(2) 12W/12V HALOGEN LAMP	12V - 1ø 50HZ	EXTERIOR WALL MOUNTED AT TOP OF DOOR HEIGHT	
E	UNIVERSAL MOUNT ENGINEER GRADE THERMOPLASTIC HOUSING EXIT SIGN WITH LED LAMPS, RED LETTERS 6" IN HEIGHT WITH ARROWS AS INDICATED, WITH 12V CADMIUM BATTERY WITH REMOTE HEAD CAPABILITY	LED LAMPS	220V - 1ø 50HZ	UNIVERSAL MOUNTING	

US Army Corps of Engineers
Afghanistan Engineer District

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: JRC DATE: 08-30-08
 DWN BY: JRC SUBMITTED BY: BAKER
 CHK BY: JRC FILE NO.: ANPSDE-603XXX

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STANDARD DESIGN WELL HOUSE
 LIGHT FIXTURE SCHEDULE

SHEET REFERENCE NUMBER:
E3

100% SUBMISSION