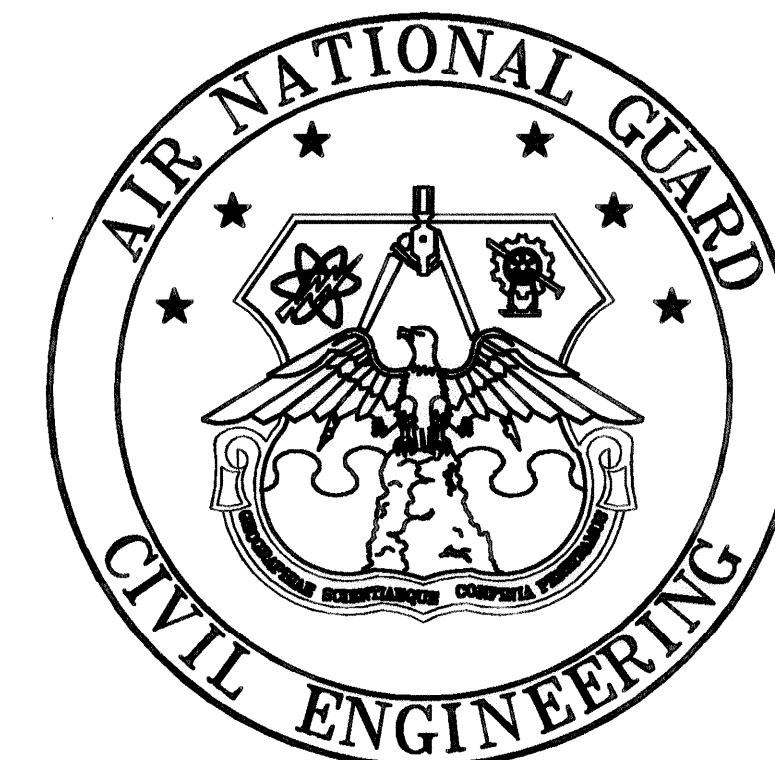
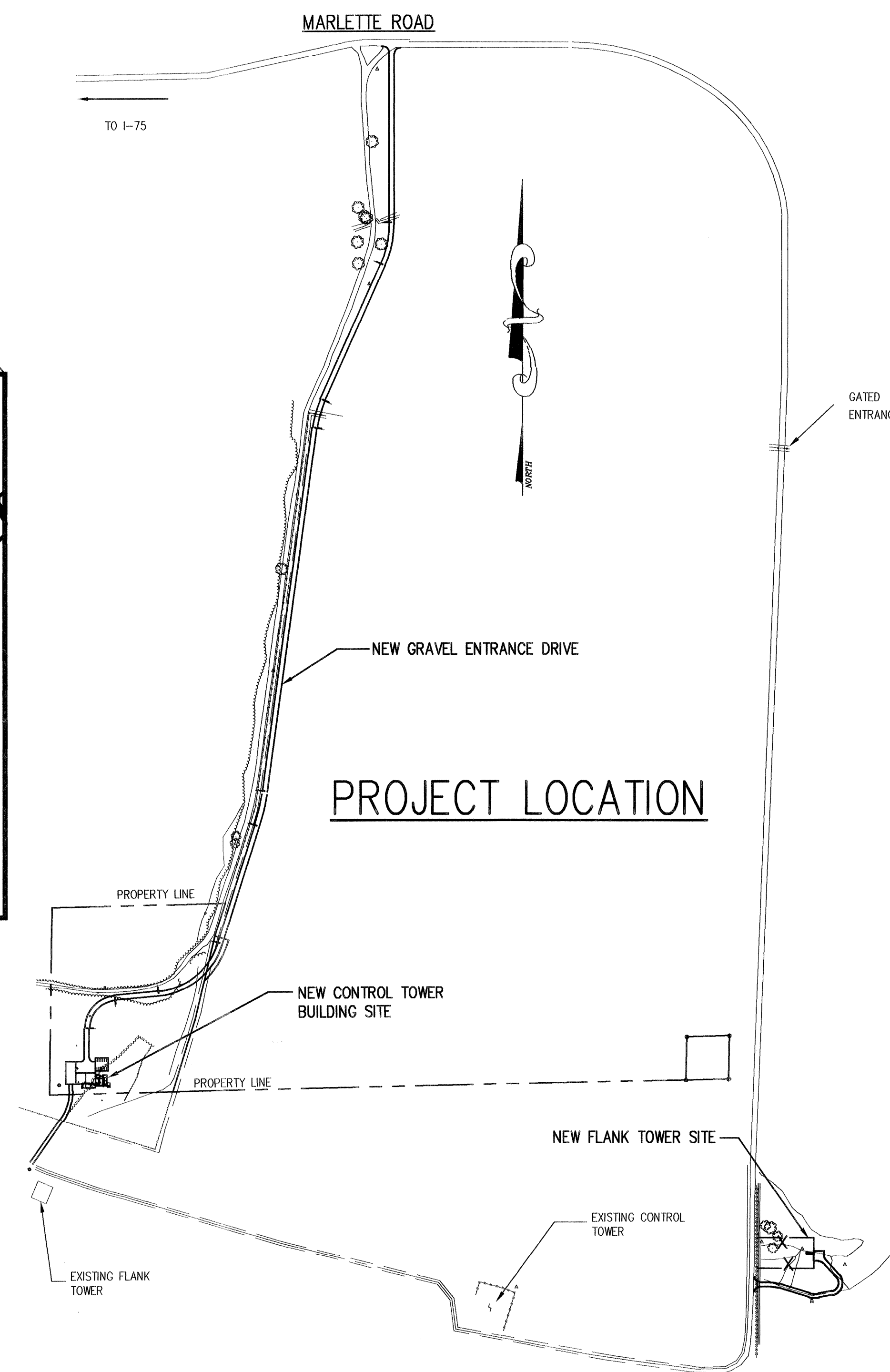
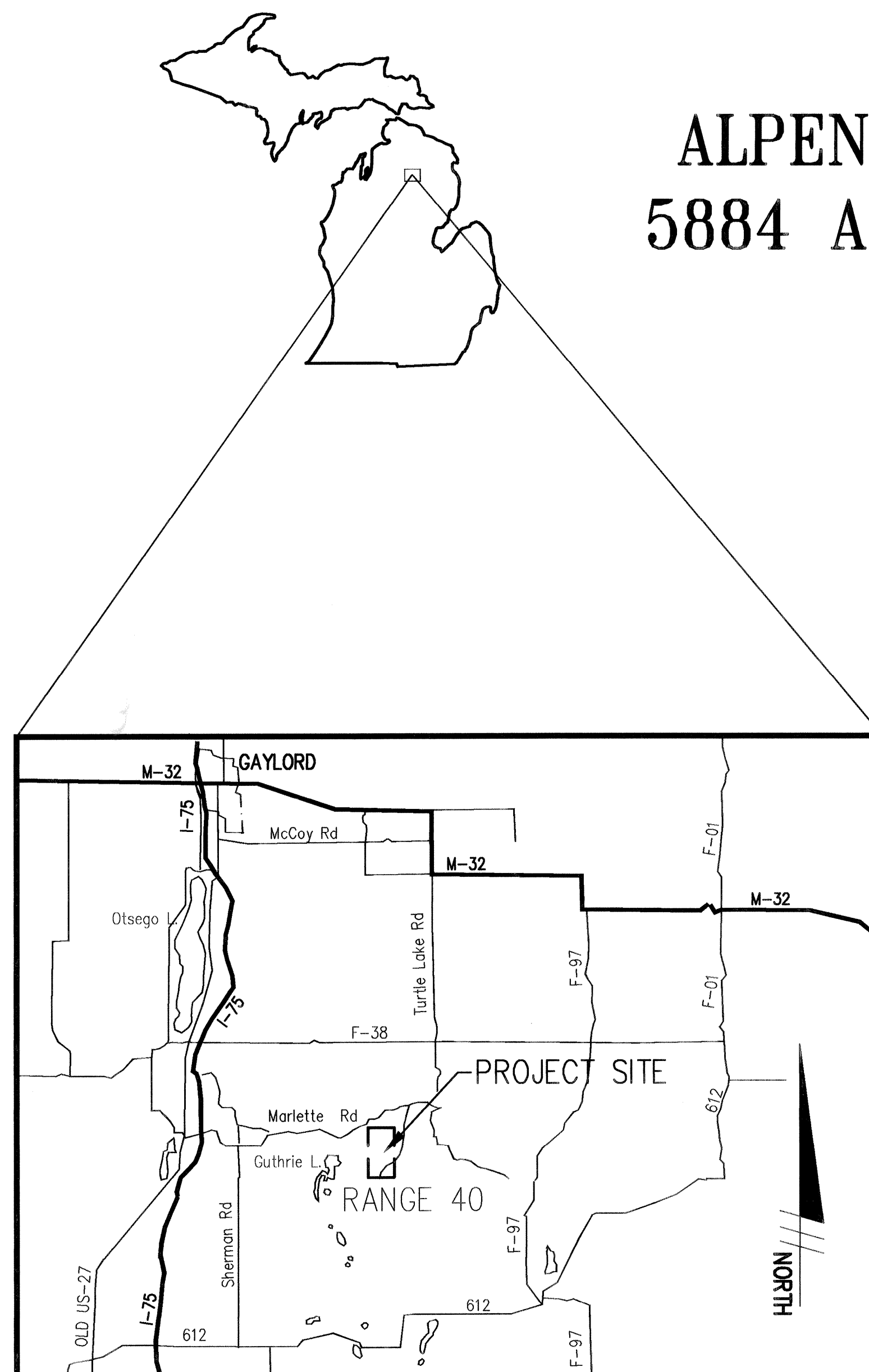


CONSTRUCTION PLANS FOR CONSTRUCT AIR-TO-GROUND RANGE SUPPORT FACILITIES AT CAMP GRAYLING WEAPONS RANGE PROJECT NO. CYTL999110

ALPENA COMBAT READINESS TRAINING CENTER
5884 A STREET, ALPENA, MICHIGAN 49707-8125



LIST OF SHEETS



T-101 TITLE SHEET

SITE WORK

- C-101 EXISTING OVERALL SITE PLAN
- C-102 PROPOSED OVERALL SITE PLAN
- C-103 PROPOSED SUPPORT FACILITY SITE PLAN
- C-103a PROPOSED SUPPORT FACILITY COORDINATE & STAKING PLAN
- C-104 SUPPORT FACILITY GRADING PLAN & CROSS SECTIONS
- C-105 SUPPORT FACILITY UTILITY PLAN & DETAILS
- C-106 PROPOSED FLANK TOWER SITE PLAN
- C-106a PROPOSED FLANK TOWER COORDINATE & STAKING PLAN
- C-107 ENTRANCE ROAD PLAN & PROFILE STA 0+00 TO 8+50
- C-108 ENTRANCE ROAD PLAN & PROFILE STA 8+50 TO 20+00
- C-109 ENTRANCE ROAD PLAN & PROFILE STA 20+00 TO 31+50
- C-110 ENTRANCE ROAD PLAN & PROFILE STA 31+50 TO 43+00
- C-111 ENTRANCE ROAD PLAN & PROFILE STA 43+00 TO 55+45
- C-112 FLANK TOWER PLAN & PROFILE STA 0+00 TO 6+10.82
- C-501 TYPICAL CROSS SECTIONS & NOTES
- C-502 SITE DETAILS

ARCHITECTURAL WORK

- A-101 FIRST FLOOR PLAN
- A-102 SECOND FLOOR PLAN
- A-103 THIRD FLOOR PLAN
- A-104 FOURTH FLOOR PLAN
- A-105 ROOF PLAN
- A-106 FLANK TOWER PLANS, ELEVS AND SECTIONS
- A-107 FLANK TOWER PLAN/SECTIONS/DETAILS
- A-201 NORTH AND WEST ELEVATIONS
- A-202 SOUTH AND EAST ELEVATIONS
- A-301 BUILDING SECTIONS
- A-302 BUILDING SECTIONS
- A-303 STAIR SECTIONS AND DETAILS
- A-304 STAIR SECTIONS AND DETAILS
- A-305 WALL SECTIONS
- A-306 WALL SECTIONS
- A-307 WALL SECTIONS
- A-308 LOBBY DETAILS
- A-309 MECH CHASE DETAILS
- A-401 ENLARGED SECOND FLOOR PLAN
- A-402 ENLARGED THIRD FLOOR PLAN
- A-501 MISC DETAILS
- A-502 MISC DETAILS (95% SUBMITTAL)
- A-503 MISC DETAILS
- A-504 MISC DETAILS
- A-601 FINISH ROOM SCHEDULE
- A-602 DOOR AND WINDOW SCHEDULE
- A-701 1ST FLOOR REFLECTED CEILING PLAN
- A-702 2ND FLOOR REFLECTED CEILING PLAN
- A-703 3RD FLOOR REFLECTED CEILING PLAN
- A-704 4TH FLOOR REFLECTED CEILING PLAN
- A-705 2ND FLOOR ACCESSIBILITY PLAN
- A-801 INTERIOR ELEVATIONS
- A-802 INTERIOR ELEVATIONS
- A-803 INTERIOR ELEVATIONS
- A-804 STRUCTURAL NOTES AND DETAILS

BIDDING INFORMATION

BASE BID: BASE BID IS ALL WORK SHOWN OR SPECIFIED
EXCEPT ITEMS NOTED AS "ADDITIVE BID ITEMS" (ABI).

- ABI NO. 1 - GENERATOR UPGRADE
* INSTALL 150 KW GENERATOR (VS 100KW)

STRUCTURAL WORK

- S-101 STRUCTURAL FOUNDATION PLAN
- S-102 STRUCTURAL SECOND FLOOR/PARTIAL ROOF FRAMING PLAN
- S-103 STRUCTURAL THIRD FLOOR TOWER/PARTIAL ROOF FRAMING PLAN
- S-104 STRUCTURAL FOURTH FLOOR TOWER FRAMING PLAN
- S-105 STRUCTURAL TOWER ROOF FRAMING PLAN
- S-501 STRUCTURAL FOUNDATION DETAILS
- S-502 STRUCTURAL FOUNDATION DETAILS
- S-503 STRUCTURAL FRAMING DETAILS
- S-504 STRUCTURAL FRAMING DETAILS
- S-505 STRUCTURAL FRAMING DETAILS
- S-701 STRUCTURAL NOTES AND DETAILS

MECHANICAL WORK

- M-001 MECHANICAL NOTES AND LEGEND
- M-101 FIRST FLOOR MECHANICAL PLAN
- M-102 SECOND FLOOR MECHANICAL PLAN
- M-103 THIRD FLOOR MECHANICAL PLAN
- M-104 MECHANICAL SCHEDULES & DETAILS

PLUMBING WORK

- P-101 FIRST FLOOR PLUMBING PLAN
- P-102 SECOND FLOOR PLUMBING PLAN
- P-103 THIRD FLOOR PLUMBING PLAN
- P-104 PLUMBING SCHEDULES & DETAILS

ELECTRICAL WORK

- E-001 ELECTRICAL NOTES, LEGEND AND ABBREVIATIONS
- ES-101 ELECTRICAL SITE PLAN MAIN BUILDING
- ES-102 ELECTRICAL SITE PLAN FLANK TOWER
- EL-101 ELECTRICAL LIGHTING PLAN FIRST FLOOR
- EL-102 ELECTRICAL LIGHTING PLAN SECOND FLOOR
- EL-103 ELECTRICAL LIGHTING PLAN THIRD FLOOR
- EL-104 ELECTRICAL LIGHTING PLAN FOURTH FLOOR
- EP-101 ELECTRICAL POWER PLAN FIRST FLOOR
- EP-102 ELECTRICAL POWER PLAN SECOND FLOOR
- EP-103 ELECTRICAL POWER PLAN THIRD FLOOR
- EP-104 ELECTRICAL POWER PLAN FOURTH FLOOR
- E-501 ELECTRICAL DETAILS
- E-601 ELECTRICAL ONE LINE DIAGRAMS AND SCHEDULES

100% SUBMITTAL





FILE NAME: 9145SITE03 DRAWN BY: MUK DESIGNED BY: JEM APPROVED BY: RTB
PLOT DATE: 07/09/00 UPDATED BY: LWF CHECKED BY: LWF

BM#61&62 SET LAG IN 5" MAPLE EL. 1278.644	BM#69 SET MAG IN 12" OAK EL. 1298.350	BM#75 SET SPIKE IN FIELD EL. 1246.628
BM#63&64 SET MAG IN 6" MAPLE EL. 1302.994	BM#70 SET MAG IN 24" OAK EL. 1284.163	BM#76 SET SPIKE IN 24" OAK EL. 1248.43
BM#65 SET MAG IN WOOD POST N. OF DRIVE EL. 1251.87	BM#71 SET MAG IN 14" OAK EL. 1277.360	BM#77 7" IN NW CORN CONC EL. 1241.40
BM#66 SET LAG IN POST OF FAULT LINE MARKER 2ND FROM N. END EL. 1244.201	BM#72 SET MAG IN 12" OAK EL. 1280.975	BM#78 USGS MON V-2 EL. 1241.46
BM#67 SET SPIKE ON TOP OF BERM EL. 1260.992	BM#73 SET MAG IN 24" ASPEN EL. 1257.197	
BM#68 SET MAG IN 14" OAK EL. 1311.571	BM#74 SET MAG IN 24" OAK EL. 1262.395	NOTE: ALL BEARINGS AND DISTANCES ARE BASED ON PROPERTY DESCRIPTIONS SUPPLIED BY THE ACRTC.

RELOCATE EXISTING DIESEL FUEL,
HAZARDOUS MATERIAL AND WASTE OIL
TANKS ON NEW 6' x 12', 8' x 16'
AND 6' x 12' - 8" CONCRETE PADS.

NOTE:
CLEAR THE SITE WITHIN THE INTERIOR
OF THE SECURITY FENCE, EXCEPT
INDIVIDUAL TREES AS DIRECTED BY
THE OWNER OR ENGINEER.

NEW PROPANE TANK ON 29' x 10'
8" CONCRETE PAD AND BLOCK WALL
- 3 SIDES

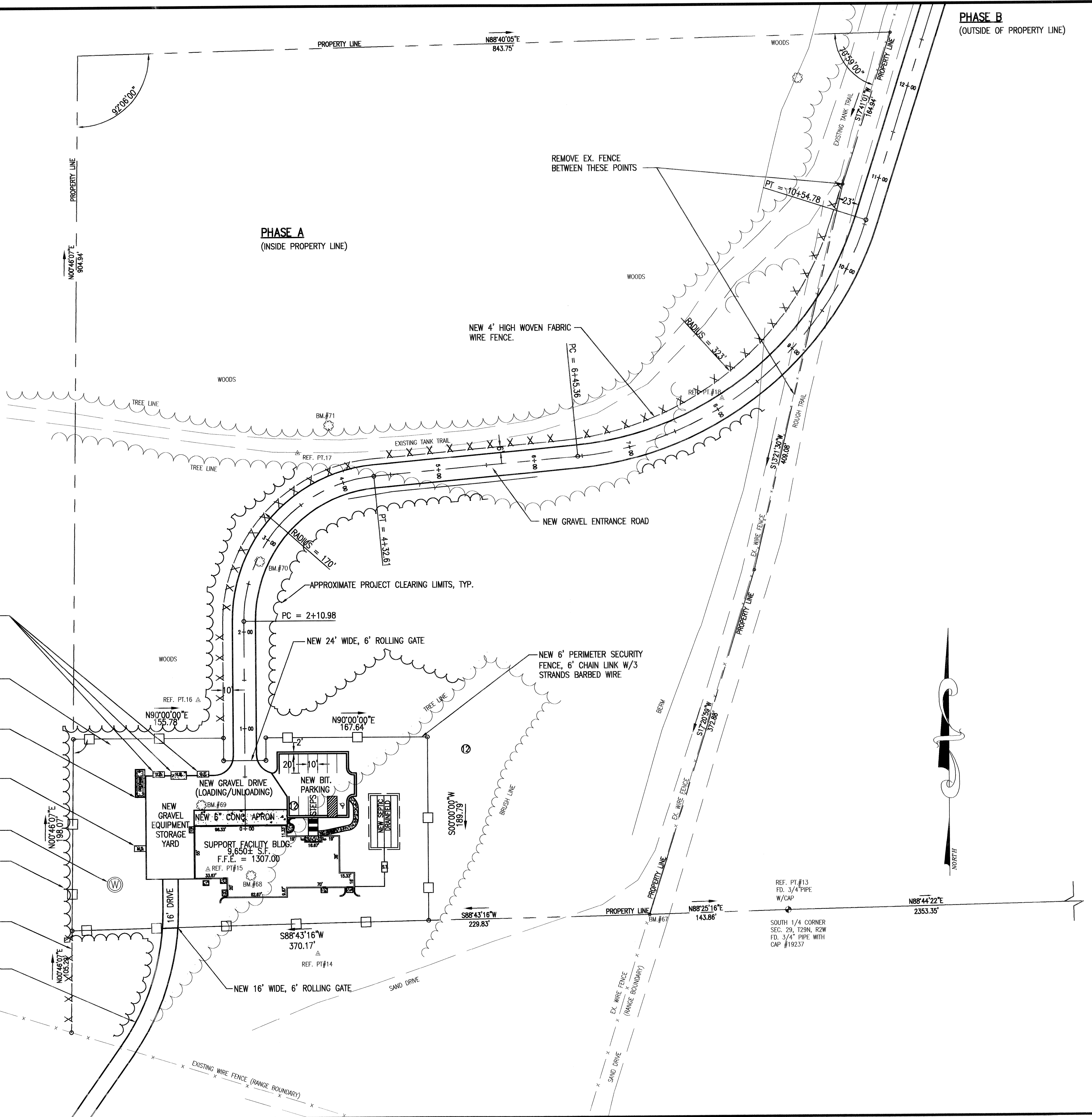
RELOCATE MUNITIONS STORAGE ON
NEW 6' x 12' - 8" CONCRETE PAD

NEW WATER WELL-SEE UTILITY PLAN
FOR LOCATION

APPROXIMATE SITE CLEARING LIMITS

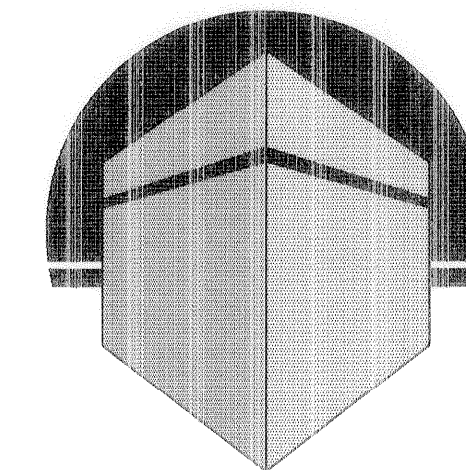
NEW 4' HIGH WOVEN FABRIC WIRE
FENCE.

NEW 16' GRAVEL ENTRANCE DRIVE
TO EX. FLANK TOWER



PHASE B
(OUTSIDE OF PROPERTY LINE)

PROPOSED SUPPORT FACILITY SITE PLAN		CONSTRUCT AIR-TO-GROUND RANGE SUPPORT FACILITIES CAMP GRAYLING WEAPONS RANGE OTSEGO COUNTY, MICHIGAN		CAPITAL CONSULTANTS ENGINEERS		728 PROUDEN STREET LANSING, MICHIGAN 48906 313-1237 MAIN ST. SUITE 200 GAYLORD, MICHIGAN 49735 517-728-8833 4388 THREE MILE ROAD GRAND RAPIDS, MICHIGAN 49544 616-794-0088		REVISIONS 100% SUBMITTAL		DATE 7-09-00		SCALE: 1"=50'		PROJ. NO.: 99-134.22		DATE: MAY 2000	
SHEET		C-103															



ALEXANDER V.
BOGAERTS +
ASSOCIATES -
GAYLORD, P.C.

ARCHITECTURE
PLANNING

147 W. MAIN ST. SUITE 303
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517.731.5037 FAX

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CLIENT AND PROJECT

CONSTRUCT AIR-TO-GROUND
RANGE SUPPORT FACILITY
OTSEGO COUNTY, MICHIGAN

SHEET TITLE

FIRST FLOOR PLAN

☐ PRELIMINARY

☒ BIDS

☐ PERMITS

☐ CONSTRUCTION

REVISIONS

1-28-00	35% SUBMITTAL
3-10-00	50% SUBMITTAL
4-28-00	75% SUBMITTAL
5-31-00	95% SUBMITTAL
7-12-00	FINAL DESIGN

DRAWN BY
M.N.

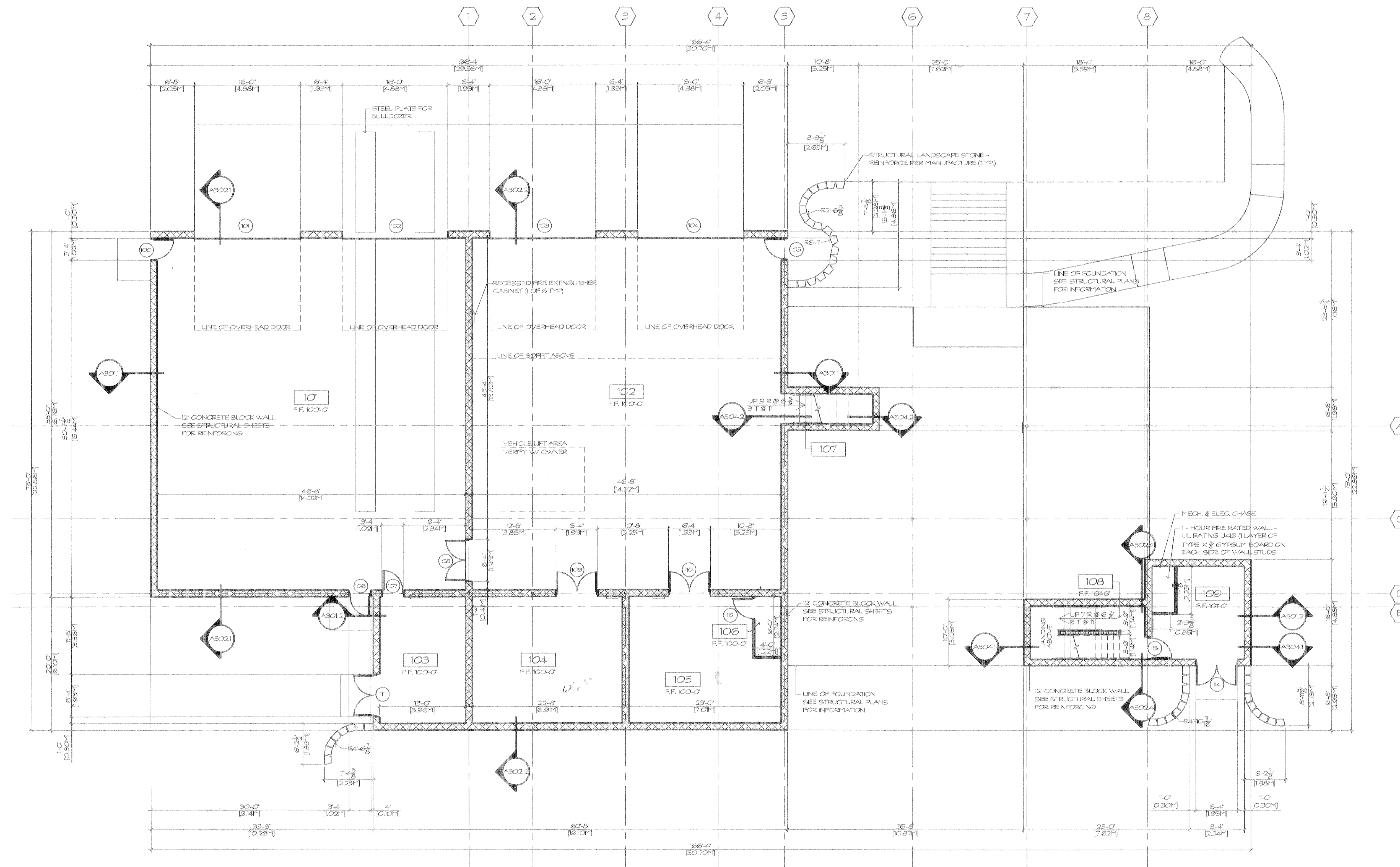
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B.B.

JOB NUMBER
CYTL999110

DATE
7-12-00

SHEET NUMBER

A101

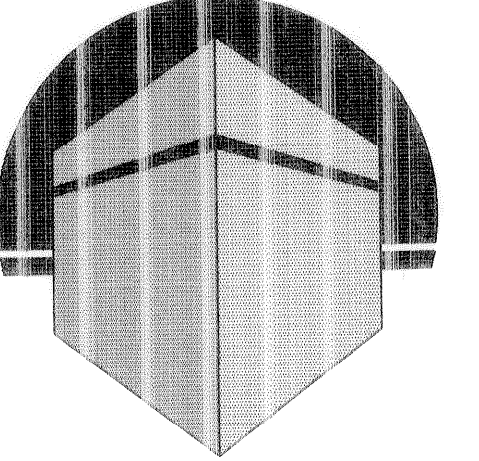


ROOM INDEX	
ROOM NUMBER	ROOM NAME
101	VEHICLE STORAGE
102	RANGE TARGET SUPPORT & REPAIR
103	GENERATOR ROOM
104	CARPENTERS SHOP
105	VEHICLE MAINTENANCE SHOP
106	ELECTRICAL ROOM
107	STAIR WELL
108	CONTROL TOWER STAIR
109	MECHANICAL ROOM

WALL STYLES

- 12" CONCRETE BLOCK
- 12" CONCRETE BLOCK W/ 2" FURRING TRACK
- 6" CONCRETE BLOCK
- 8" CONCRETE BLOCK W/ 2" FURRING TRACK
- 3" METAL STUDS W/ 2" METAL LINER PANELS
- 3" METAL STUDS (FULL HEIGHT WALL)
- 6" METAL STUD WALL
- 6" METAL STUD WALL W/ 2" METAL LINER PANELS
- 3" METAL STUDS (9'-0" HIGH WALL)

FIRST FLOOR PLAN
SCALE: 1/8" = 1'-0"



ALEXANDER V.
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REVISIONS WILL BE THE SUBJECT OF A REVISION
ID NUMBER TO THE DRAWING.

CLIENT AND PROJECT

CONSTRUCT AIR-TO-GROUND
RANGE SUPPORT FACILITY
OTSEGO COUNTY, MICHIGAN

SHEET TITLE

SECOND FLOOR PLAN

☐ PRELIMINARY

☒ BIDS

☐ PERMITS

☐ CONSTRUCTION

REVISIONS

1-28-00	35% SUBMITTAL
3-10-00	50% SUBMITTAL
4-28-00	75% SUBMITTAL
5-31-00	95% SUBMITTAL
7-12-00	FINAL DESIGN

DRAWN BY
M.N.

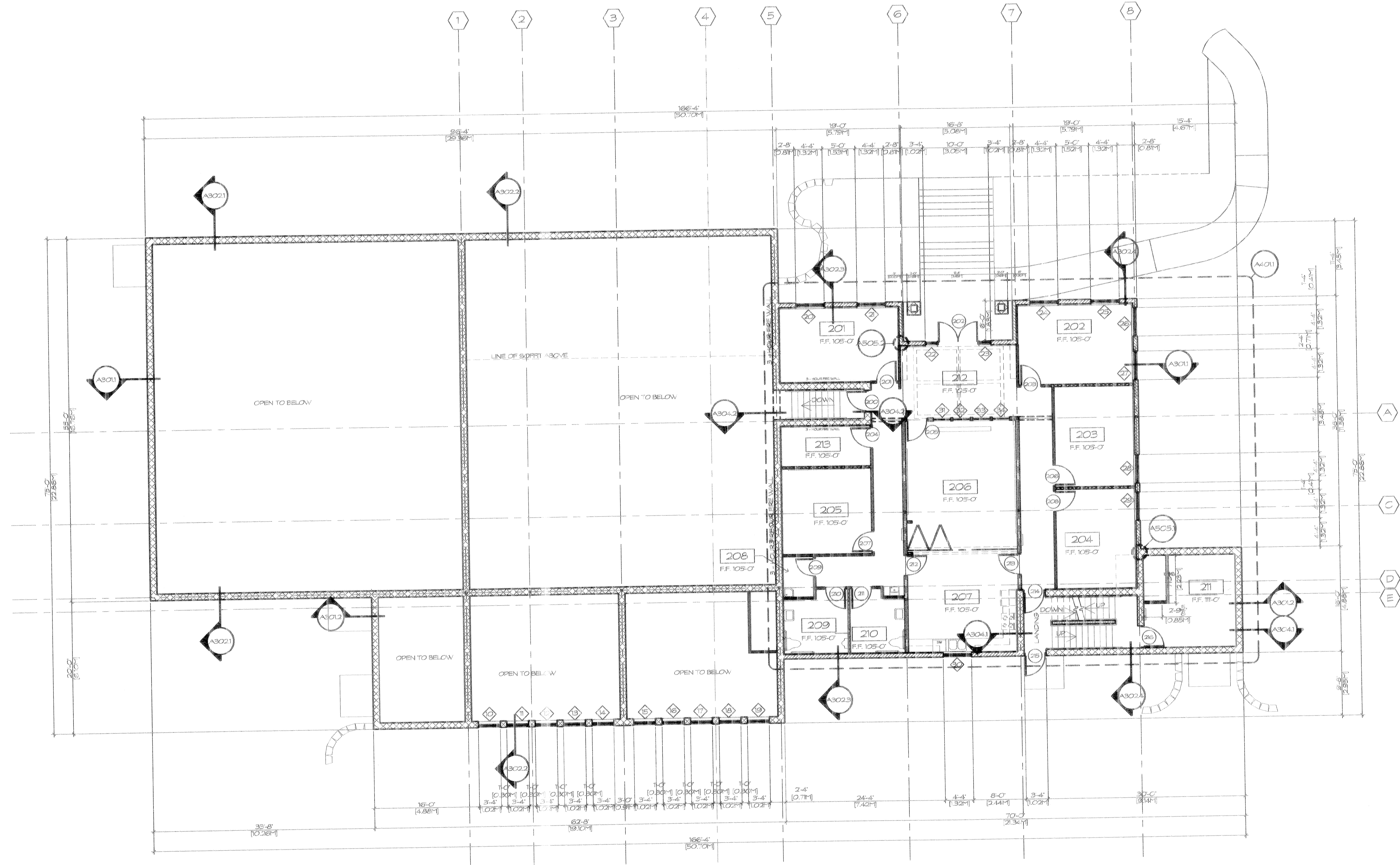
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B.B.

JOB NUMBER
CYT1999110

DATE
7-12-00

SHEET NUMBER

A102



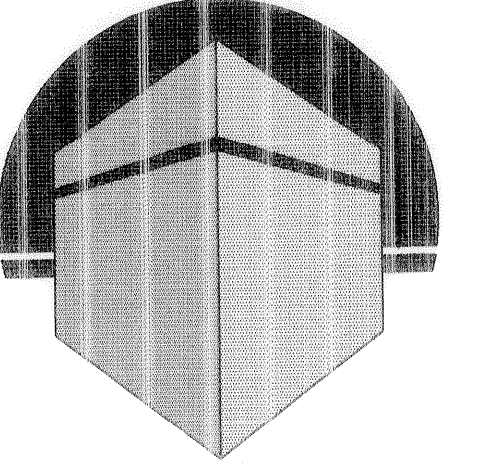
ROOM INDEX

ROOM NUMBER	ROOM NAME
201	TRAINING OFFICE
202	RANGE OFFICER
203	ASSISTANT RANGE OFFICER
204	RANGE NCO
205	JOINT OPERATION TRAINING OFFICE
206	BRIEFING ROOM
207	KITCHEN
208	MEN
209	WOMEN
210	ELECTRONICS / JAWSS
211	LOBBY / HALLWAY
212	SECURITY ROOM

WALL STYLES

- 12" CONCRETE BLOCK
- 12" CONCRETE BLOCK W/ 2" FURRING TRACK
- 6" CONCRETE BLOCK
- 8" CONCRETE BLOCK W/ 2" FURRING TRACK
- 3 1/2" METAL STUDS W/ 2" METAL LINER PANELS
- 3 1/2" METAL STUDS (FULL HEIGHT WALL)
- 6" METAL STUD WALL
- 6" METAL STUD WALL W/ 2" METAL LINER PANELS
- 3 1/2" METAL STUDS (9'-0" HIGH WALL)

SECOND FLOOR PLAN
SCALE: 1/8" = 1'-0"



ALEXANDER V.
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CLIENT AND PROJECT

CONSTRUCT AIR-TO-GROUND
RANGE SUPPORT FACILITY
OTSEGO COUNTY, MICHIGAN

SHEET TITLE

THIRD FLOOR PLAN

☐ PRELIMINARY

☒ BIDS

☐ PERMITS

☐ CONSTRUCTION

REVISIONS

1-28-00	35% SUBMITTAL
3-10-00	50% SUBMITTAL
4-28-00	75% SUBMITTAL
5-31-00	95% SUBMITTAL
7-12-00	FINAL DESIGN

DRAWN BY

M.N.

CHECKED BY

B.B.

JOB NUMBER

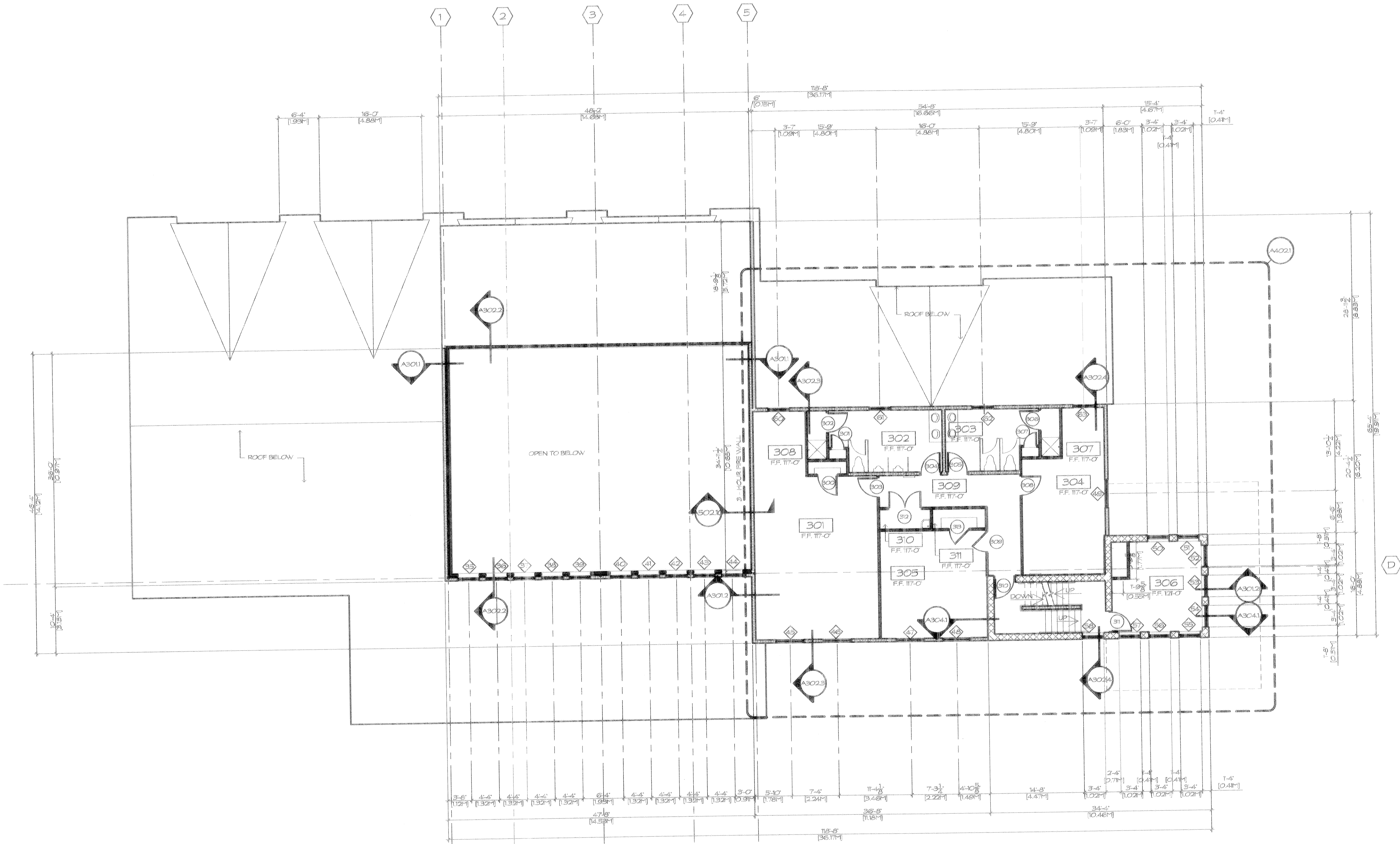
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DATE

7-12-00

SHEET NUMBER

A103

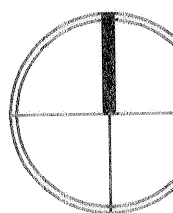


ROOM INDEX

ROOM NUMBER	ROOM NAME
301	TRAINING / LASER EYE LAKE
302	MENS REST ROOM
303	WOMENS REST ROOM
304	STORAGE
305	COMMUNICATIONS OFFICE
306	OBSERVATION AREA
307	CHANGING / SHOWER
308	CHANGING / SHOWER
309	HALLWAY / CIRCULATION
310	HOUSEKEEPING
311	STORAGE CLOSET

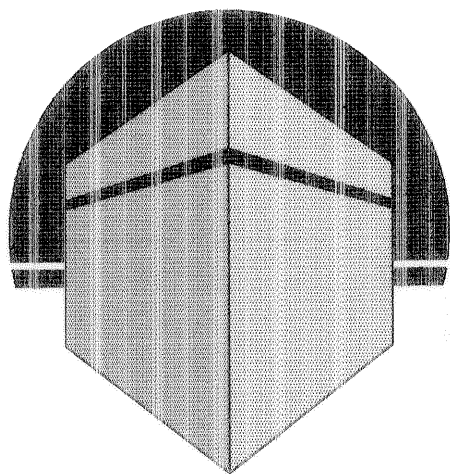
WALL STYLES

- 12' CONCRETE BLOCK
- 12' CONCRETE BLOCK W/ 2' FURRING TRACK
- 6' CONCRETE BLOCK
- 6' CONCRETE BLOCK W/ 2' FURRING TRACK
- 3 1/2' METAL STUDS W/ 2' METAL LINER PANELS
- 3 1/2' METAL STUDS (FULL HEIGHT WALL)
- 6' METAL STUD WALL
- 6' METAL STUD WALL W/ 2' METAL LINER PANELS
- 3 1/2' METAL STUDS (9'-0" HIGH WALL)



THIRD FLOOR PLAN

SCALE: 1/8" = 1'-0"



ALEXANDER V.
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ASSOCIATES -
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CLIENT AND PROJECT

CONSTRUCT AIR-TO-GROUND
RANGE SUPPORT FACILITY
OTSEGO COUNTY, MICHIGAN

SHEET TITLE

LOWER FOURTH FLOOR PLAN

☐ PRELIMINARY

☒ BIDS

☐ PERMITS

☐ CONSTRUCTION

REVISIONS

1-28-00	35% SUBMITTAL
3-10-00	50% SUBMITTAL
4-28-00	75% SUBMITTAL
5-31-00	95% SUBMITTAL
7-12-00	FINAL DESIGN

DRAWN BY
M.N.

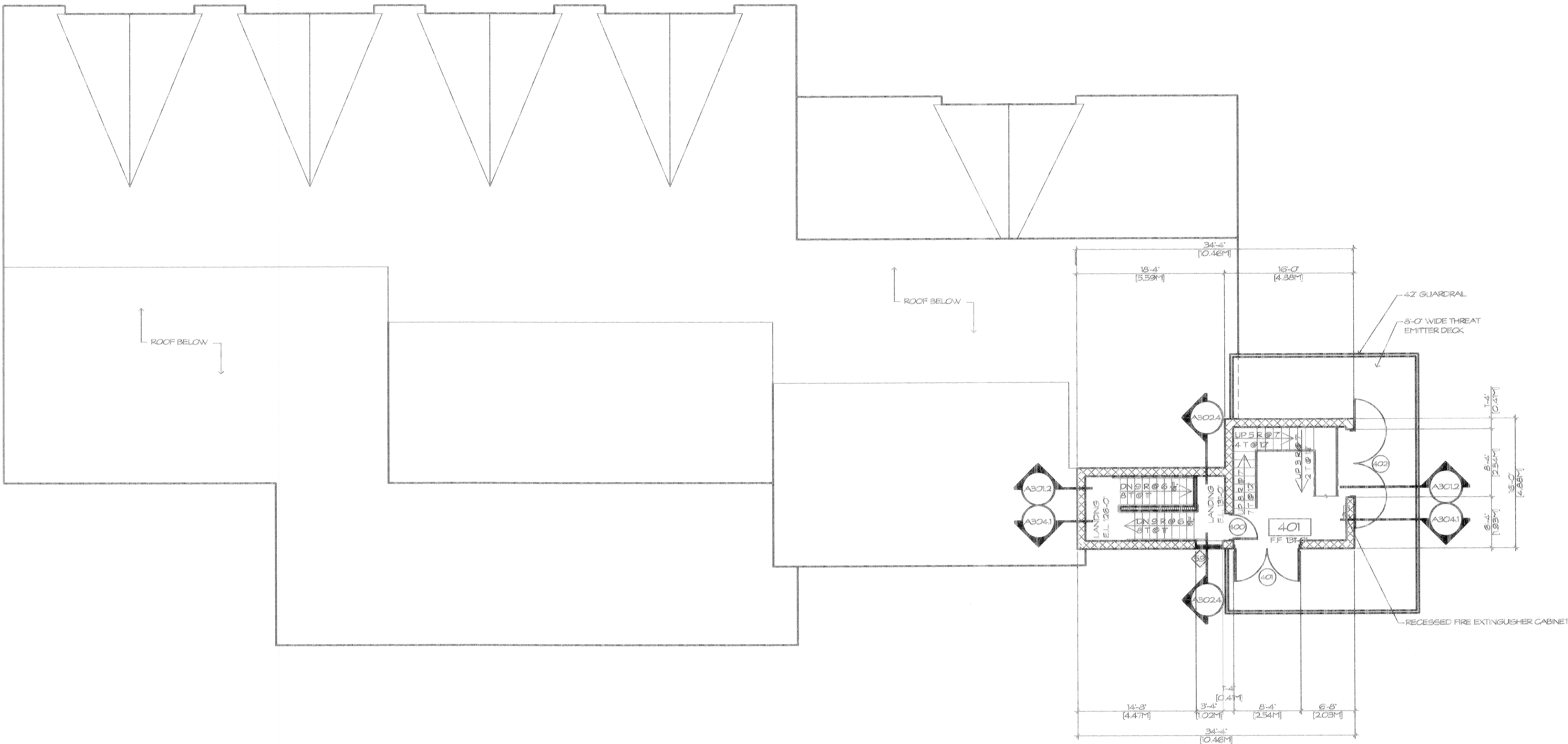
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JOB NUMBER
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DATE
7-12-00

SHEET NUMBER

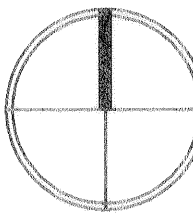
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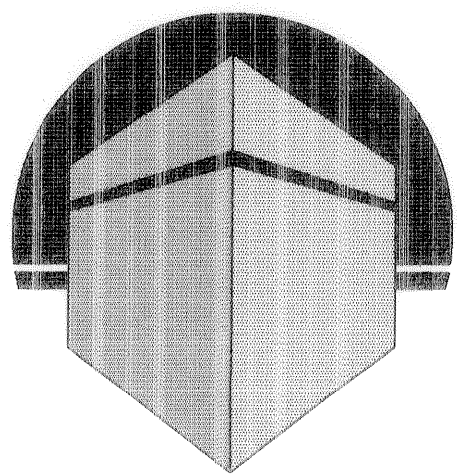
ROOM INDEX	
ROOM NUMBER	ROOM NAME
4-01	THREAT EMITTER

WALL STYLES

- 12" CONCRETE BLOCK
- 12" CONCRETE BLOCK W/ 2" FURRING TRACK
- 6" CONCRETE BLOCK
- 6" CONCRETE BLOCK W/ 2" FURRING TRACK
- 3" METAL STUDS W/ 2" METAL LINER PANELS
- 3" METAL STUDS (FULL HEIGHT WALL)
- 6" METAL STUD WALL
- 6" METAL STUD WALL W/ 2" METAL LINER PANELS
- 3" METAL STUDS (9'-0" HIGH WALL)



LOWER FOURTH FLOOR PLAN
SCALE: 1/8" = 1'-0"



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CLIENT AND PROJECT

CONSTRUCT AIR-TO-GROUND
RANGE SUPPORT FACILITY
OTSEGO COUNTY, MICHIGAN

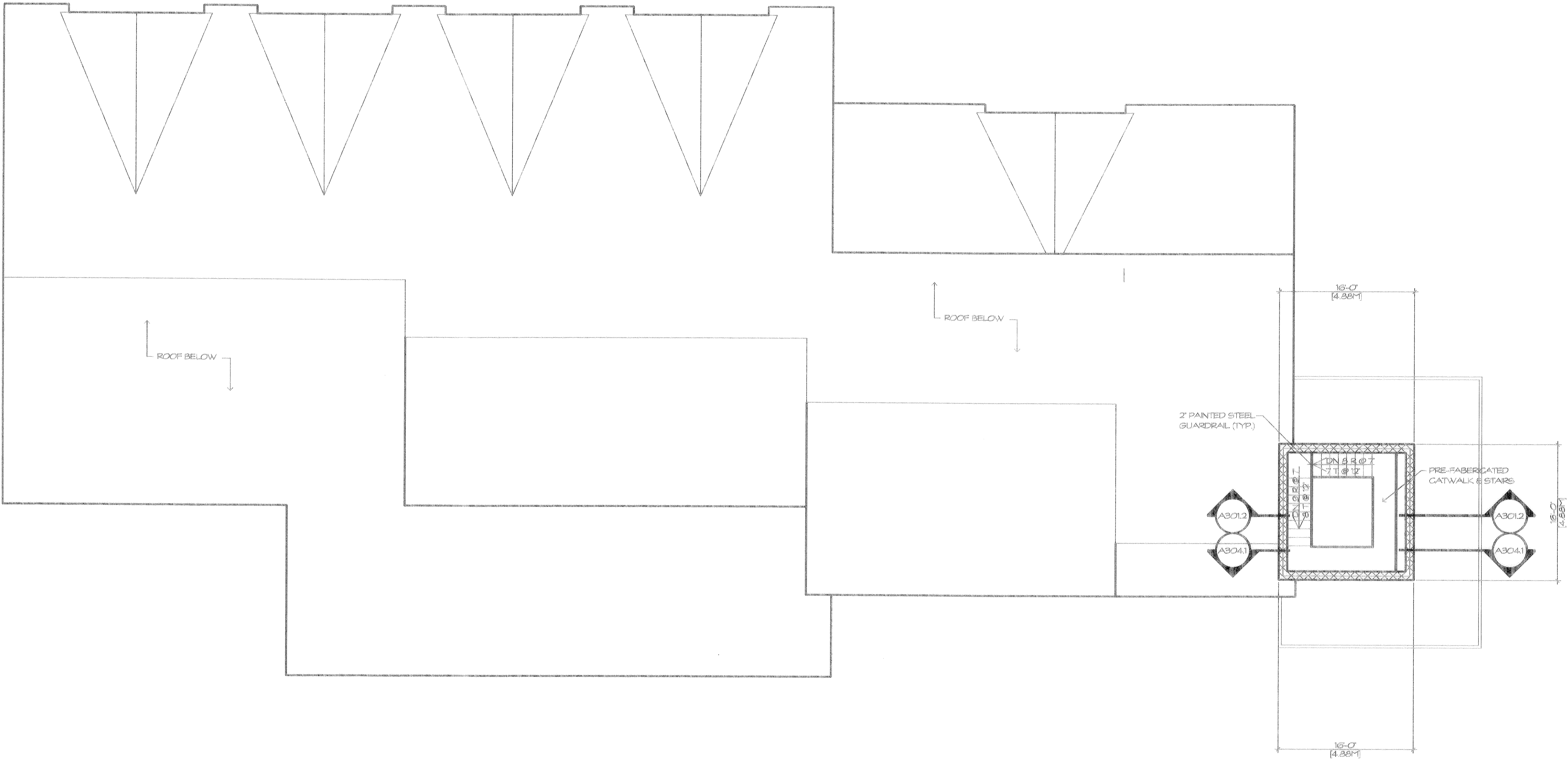
SHEET TITLE

UPPER FOURTH FLOOR PLAN

☐	PRELIMINARY
☒	BIDS
☐	PERMITS
☐	CONSTRUCTION
REVISIONS	
1-28-00	35% SUBMITTAL
3-10-00	50% SUBMITTAL
4-28-00	75% SUBMITTAL
5-31-00	95% SUBMITTAL
7-12-00	FINAL DESIGN

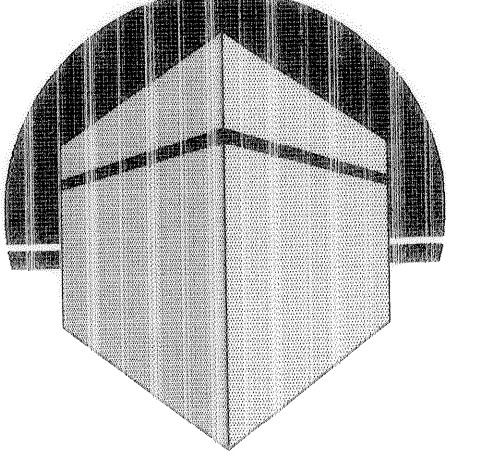
DRAWN BY
M.N.
CHECKED BY
B.B.
JOB NUMBER
CYTL999110
DATE
7-12-00
SHEET NUMBER

A105



WALL STYLES	
	12\"/>
	12\"/>
	6\"/>
	8\"/>
	3\"/>
	3\"/>
	6\"/>
	6\"/>
	3\"/>

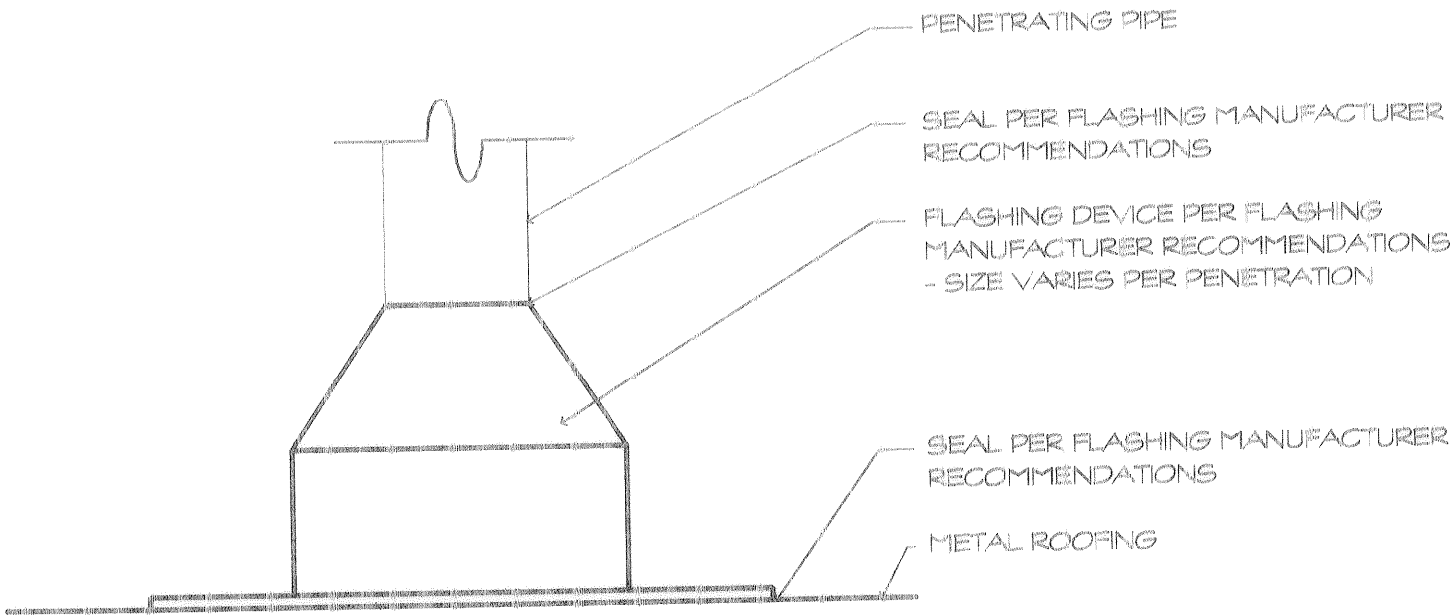
UPPER FOURTH FLOOR PLAN
SCALE: 1/8" = 1'-0"



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ARCHITECTURE
PLANNING

147 W. MAIN ST. SUITE 303
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TYPICAL ROOF PENETRATION FLASHING
SCALE : 3" = 1'-0"

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CLIENT AND PROJECT

CONSTRUCT AIR-TO-GROUND
RANGE SUPPORT FACILITY
OTSEGO COUNTY, MICHIGAN

SHEET TITLE

ROOF PLAN
DETAILS

☐ PRELIMINARY

☒ BIDS

☐ PERMITS

☐ CONSTRUCTION

REVISIONS

1-28-00	35% SUBMITTAL
3-10-00	50% SUBMITTAL
4-28-00	75% SUBMITTAL
5-31-00	95% SUBMITTAL
7-12-00	FINAL DESIGN

DRAWN BY
M.N.

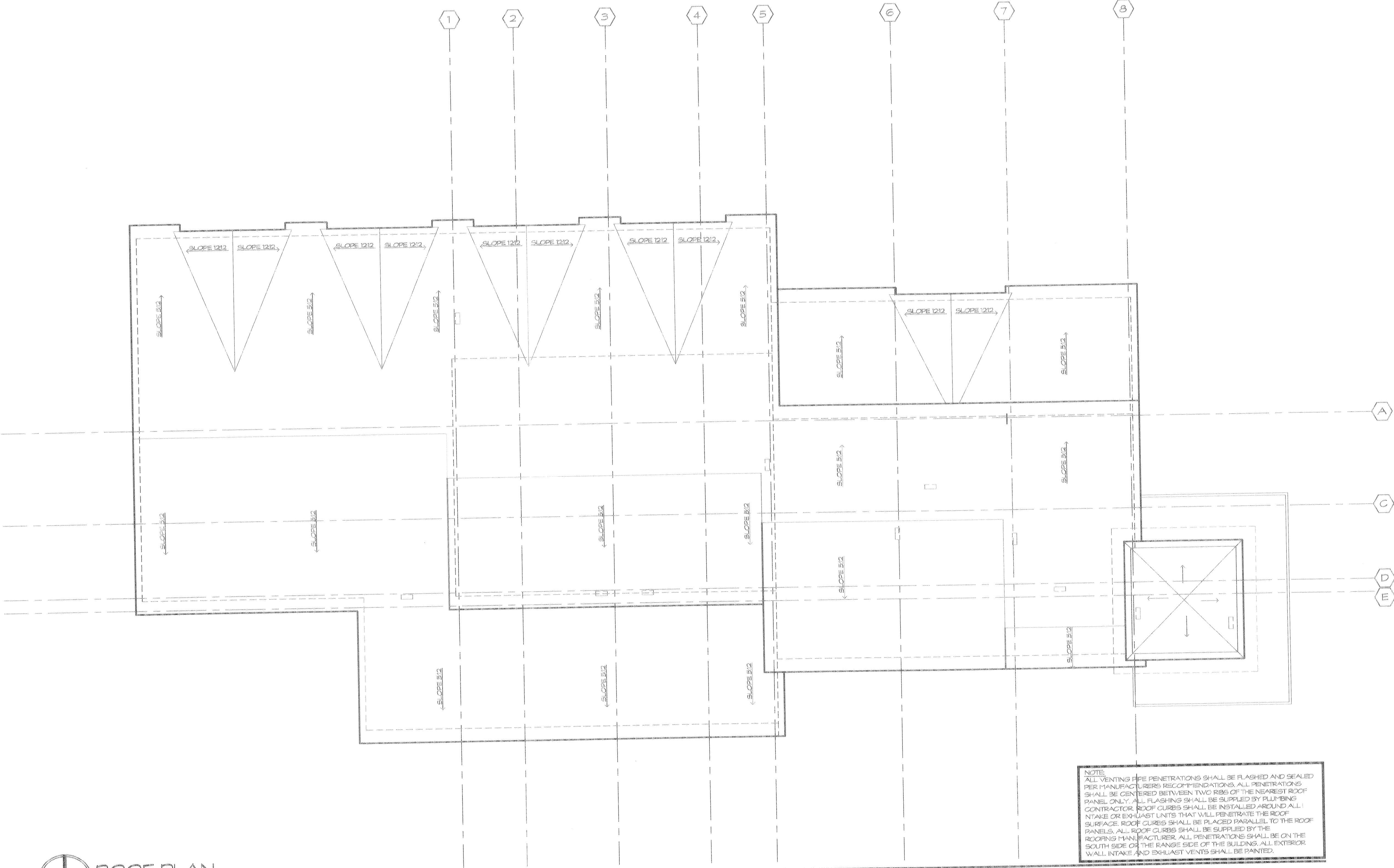
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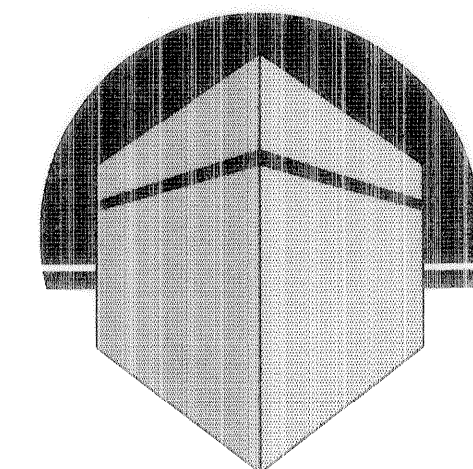
DATE
7-12-00

SHEET NUMBER

A106



ROOF PLAN
SCALE : 1/8" = 1'-0"



ALEXANDER V.
BOGAERTS +
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CLIENT AND PROJECT

CONSTRUCT AIR-TO-GROUND
RANGE SUPPORT FACILITY
OTSEGO COUNTY, MICHIGAN
CONSTRUCTION PHASE 'B'

SHEET TITLE

FLANK TOWER:
FIRST FLOOR PLAN
SECOND FLOOR PLAN
ELEVATIONS
BUILDING SECTION

☐ PRELIMINARY

☒ BIDS

☐ PERMITS

☐ CONSTRUCTION

REVISIONS

4-28-00 75% SUBMITTAL

5-31-00 95% SUBMITTAL

7-12-00 FINAL DESIGN

DRAWN BY
M.N.

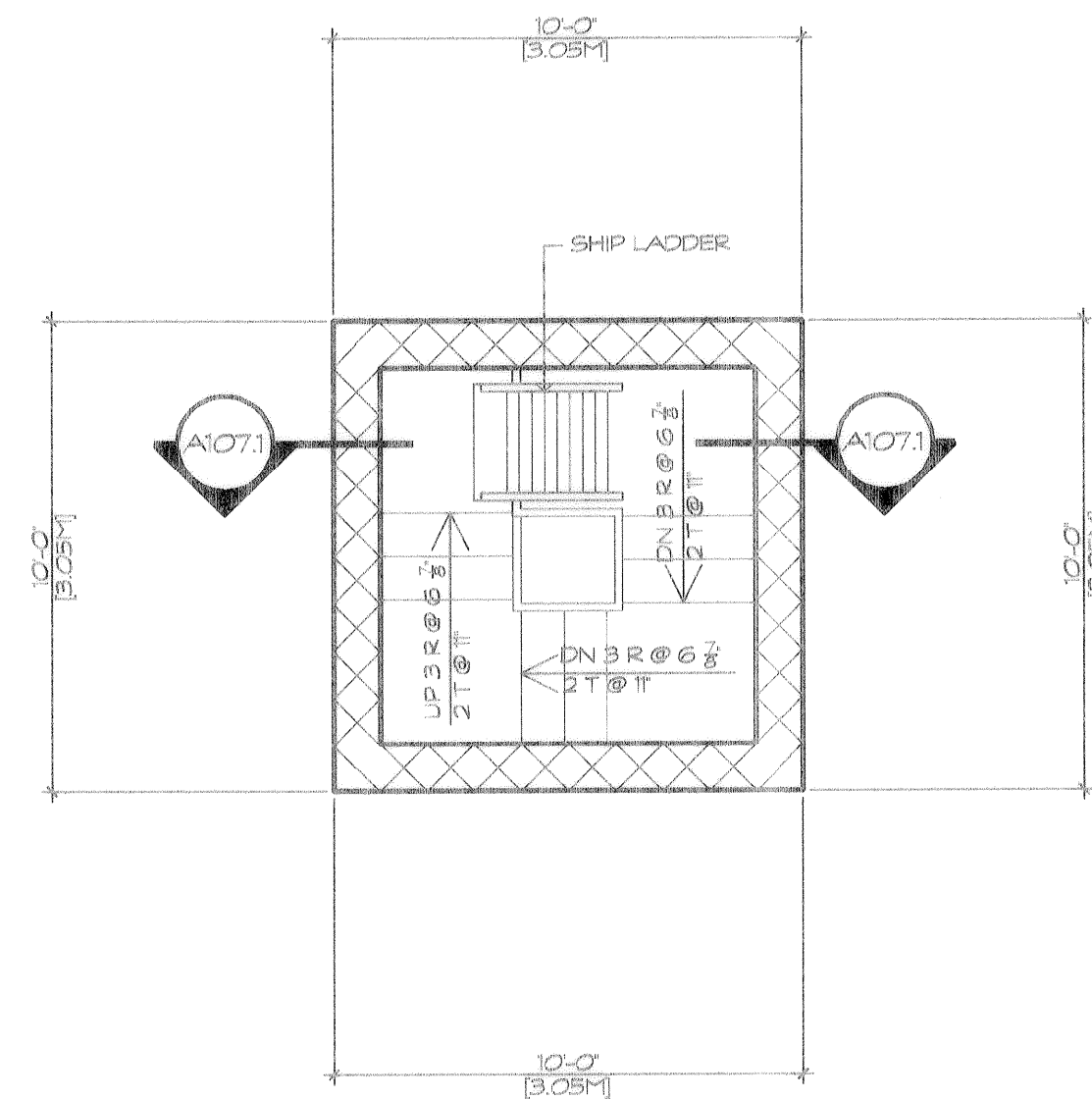
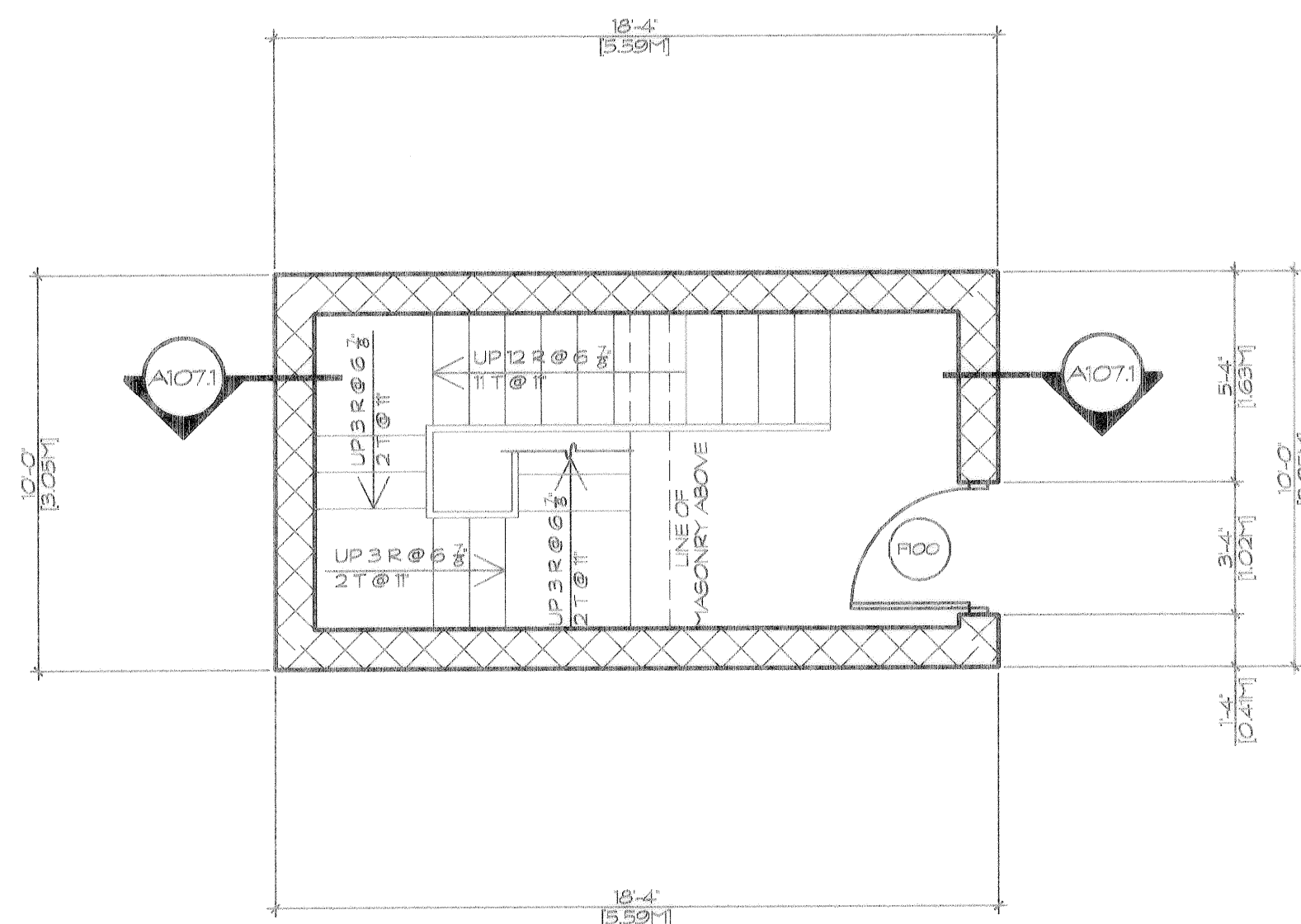
CHECKED BY
B.B.

JOB NUMBER
CYTL999110

DATE
7-12-00

SHEET NUMBER

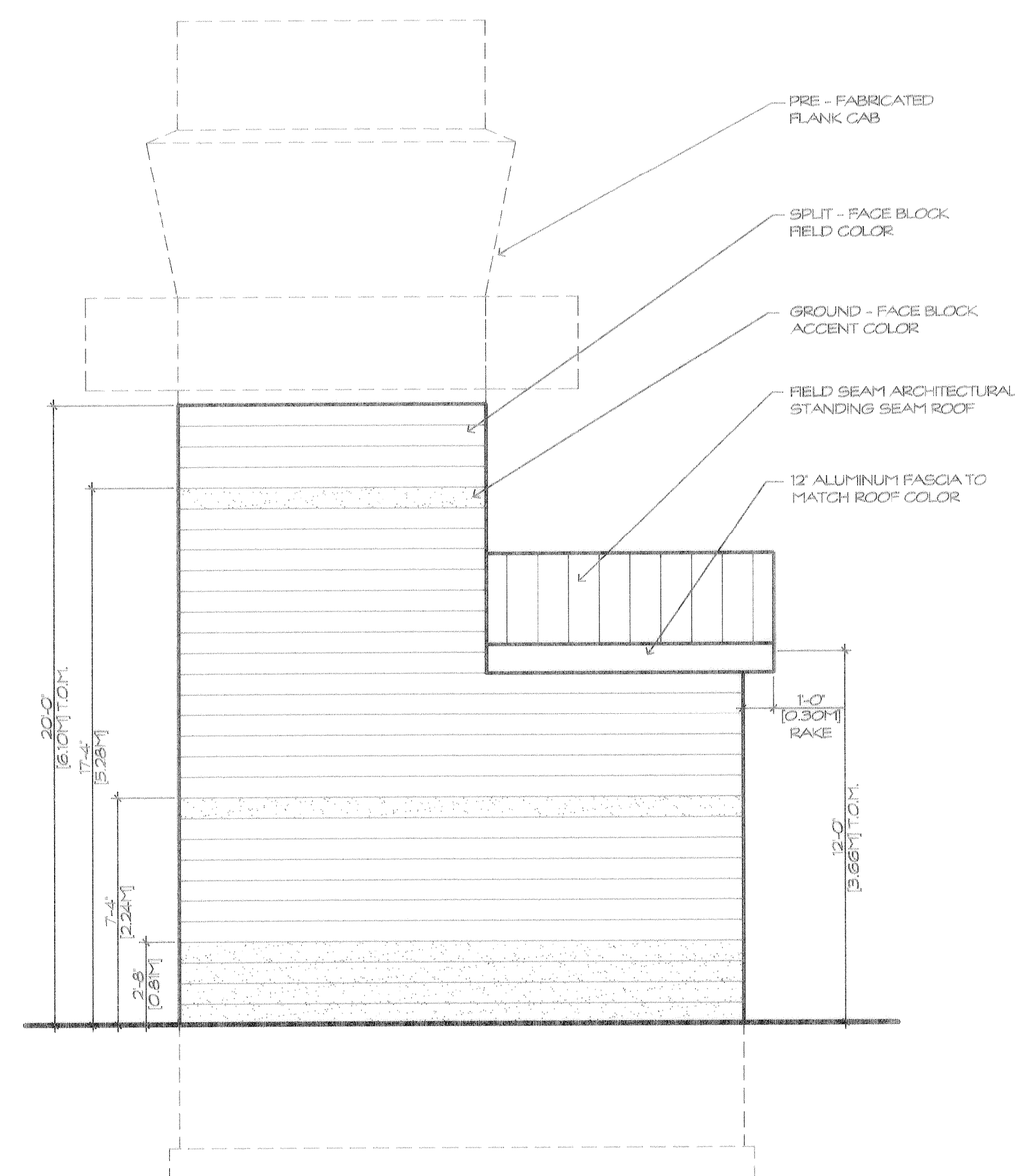
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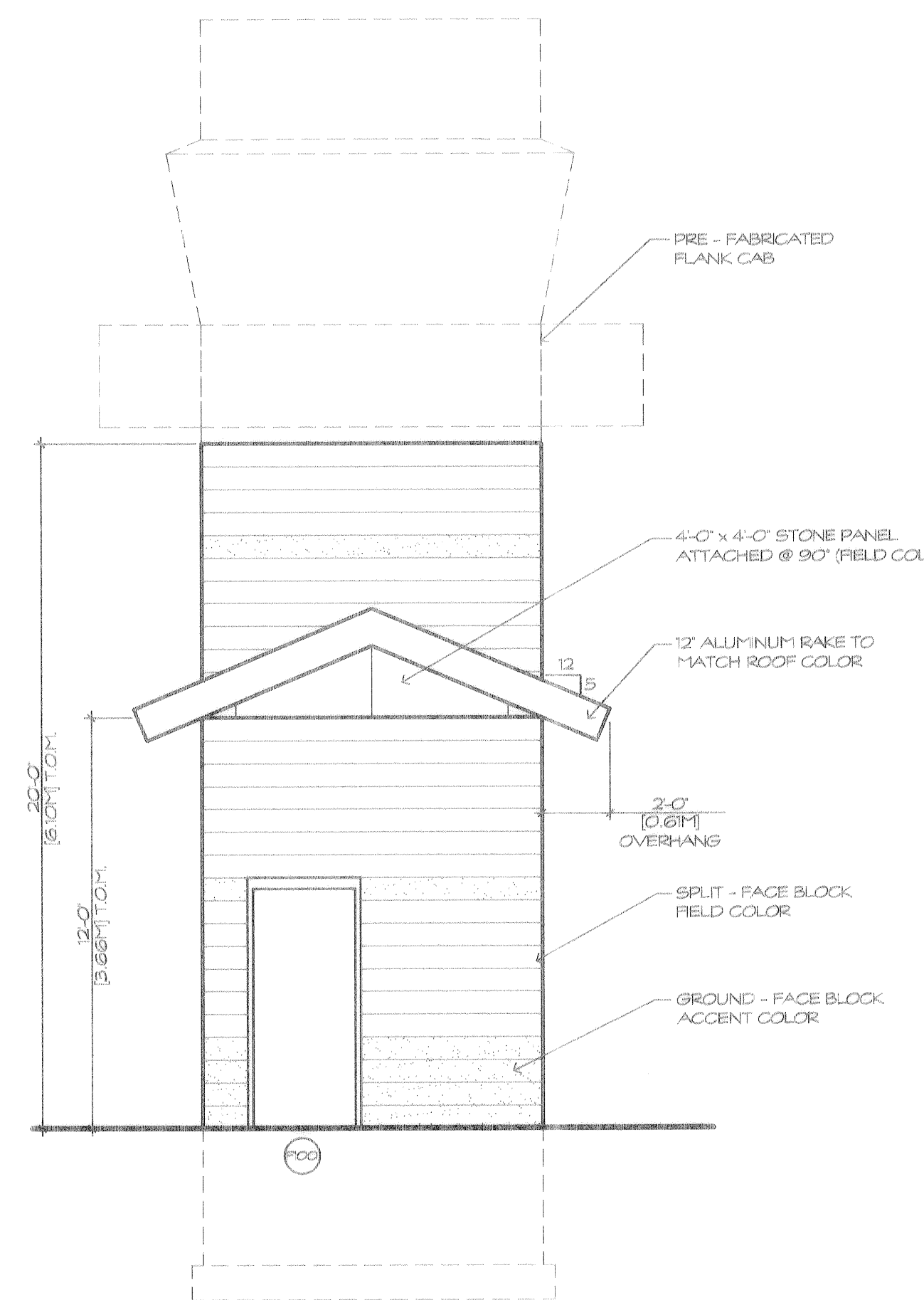
FLANK TOWER
FIRST FLOOR PLAN
SCALE: $\frac{1}{4}'' = 1'-0''$

FLANK TOWER
SECOND FLOOR PLAN
SCALE: $\frac{1}{4}'' = 1'-0''$

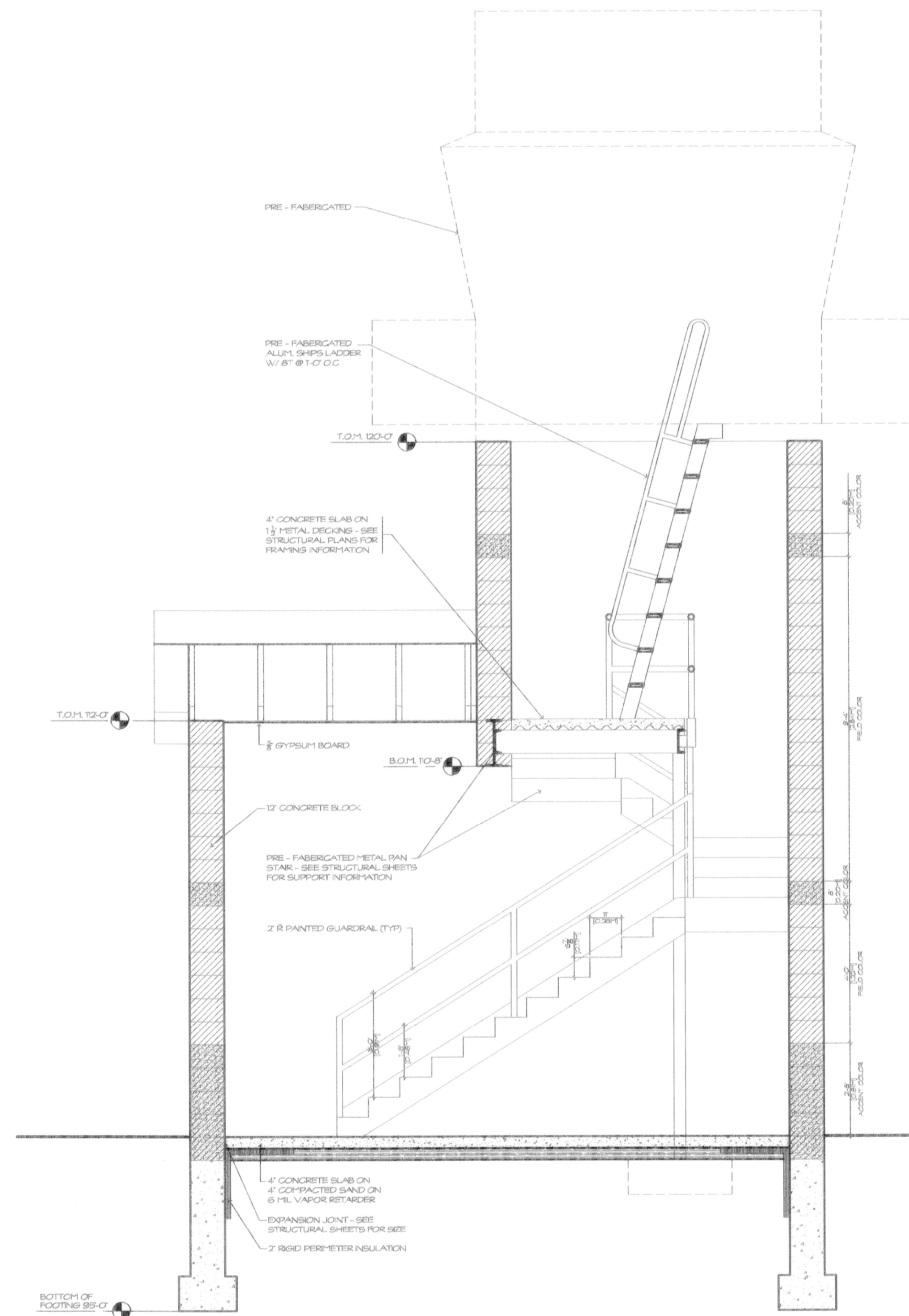
FIRST FLOOR DOOR SCHEDULE												
NUMBER	DOOR SIZE	DOOR MATERIAL	DOOR FINISH	ELEVATION	FRAME MATERIAL	FRAME FINISH	GLAZING	HOUR RATING	HARDWARE SET	FINISH COLOR	CLOSER	REMARKS
FD00	3' X 7'	HOLLOW METAL	PAINTED	B	HOLLOW METAL	PAINTED	N/A	N/A	#1	DEEP TAN	YES	



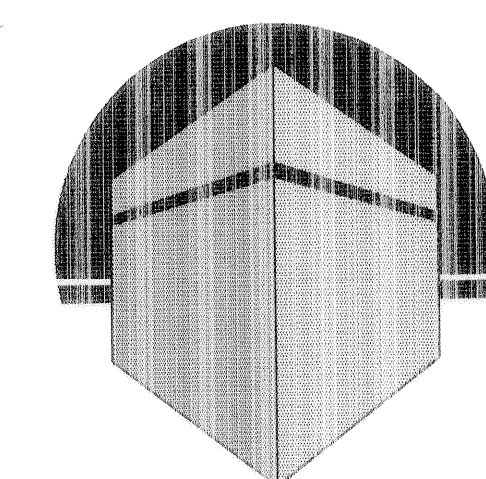
NORTH ELEVATION
SCALE: $\frac{1}{4}'' = 1'-0''$



EAST ELEVATION
SCALE: $\frac{1}{4}'' = 1'-0''$



BUILDING SECTION
SCALE: $\frac{1}{2}'' = 1'-0''$



ALEXANDER V.
BOGAERTS +
ASSOCIATES -
GAYLORD, P.C.

ARCHITECTURE
PLANNING

147 W. MAIN ST. SUITE 303
GAYLORD, MICHIGAN 49735
517.731.4343 PHONE
517.731.5037 FAX

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CLIENT AND PROJECT

CONSTRUCT AIR-TO-GROUND
RANGE SUPPORT FACILITY
OTSBO COUNTY, MICHIGAN

SHEET TITLE

NORTH ELEVATION
WEST ELEVATION

☐ PRELIMINARY

☒ BIDS

☐ PERMITS

☐ CONSTRUCTION

REVISIONS

1-28-00	35% SUBMITTAL
3-10-00	50% SUBMITTAL
4-28-00	75% SUBMITTAL
5-31-00	95% SUBMITTAL
7-12-00	FINAL DESIGN

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M.N.

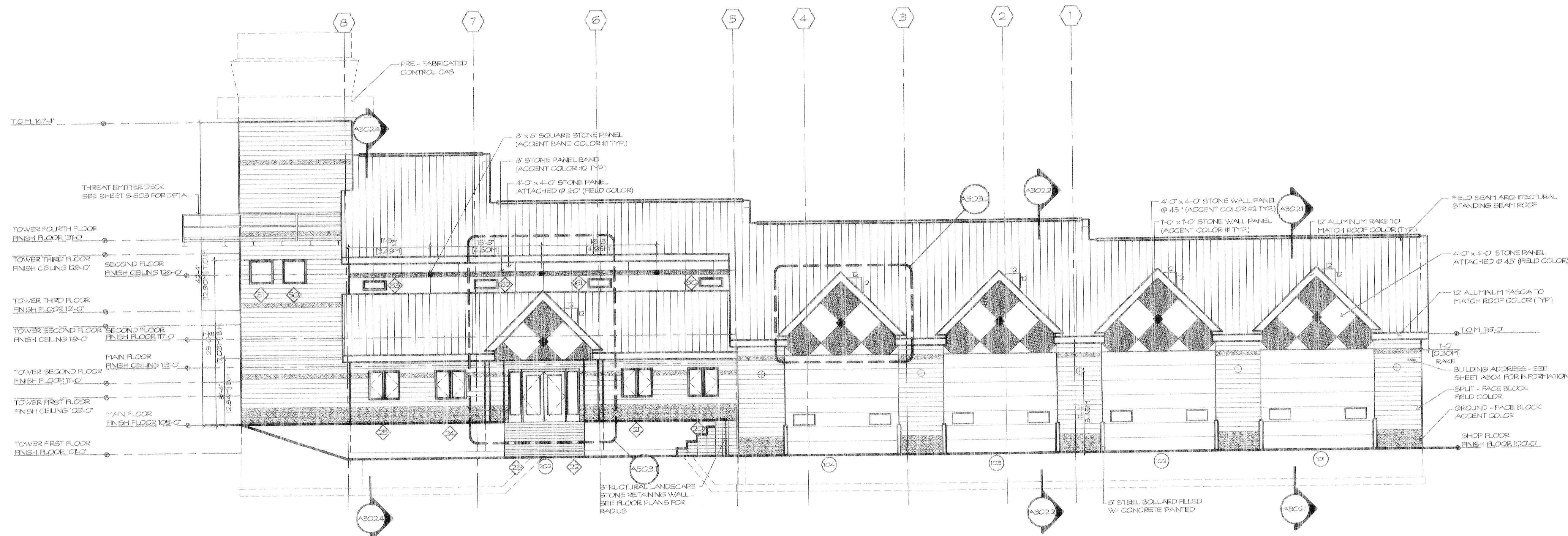
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JOB NUMBER
CYL999110

DATE
7-12-00

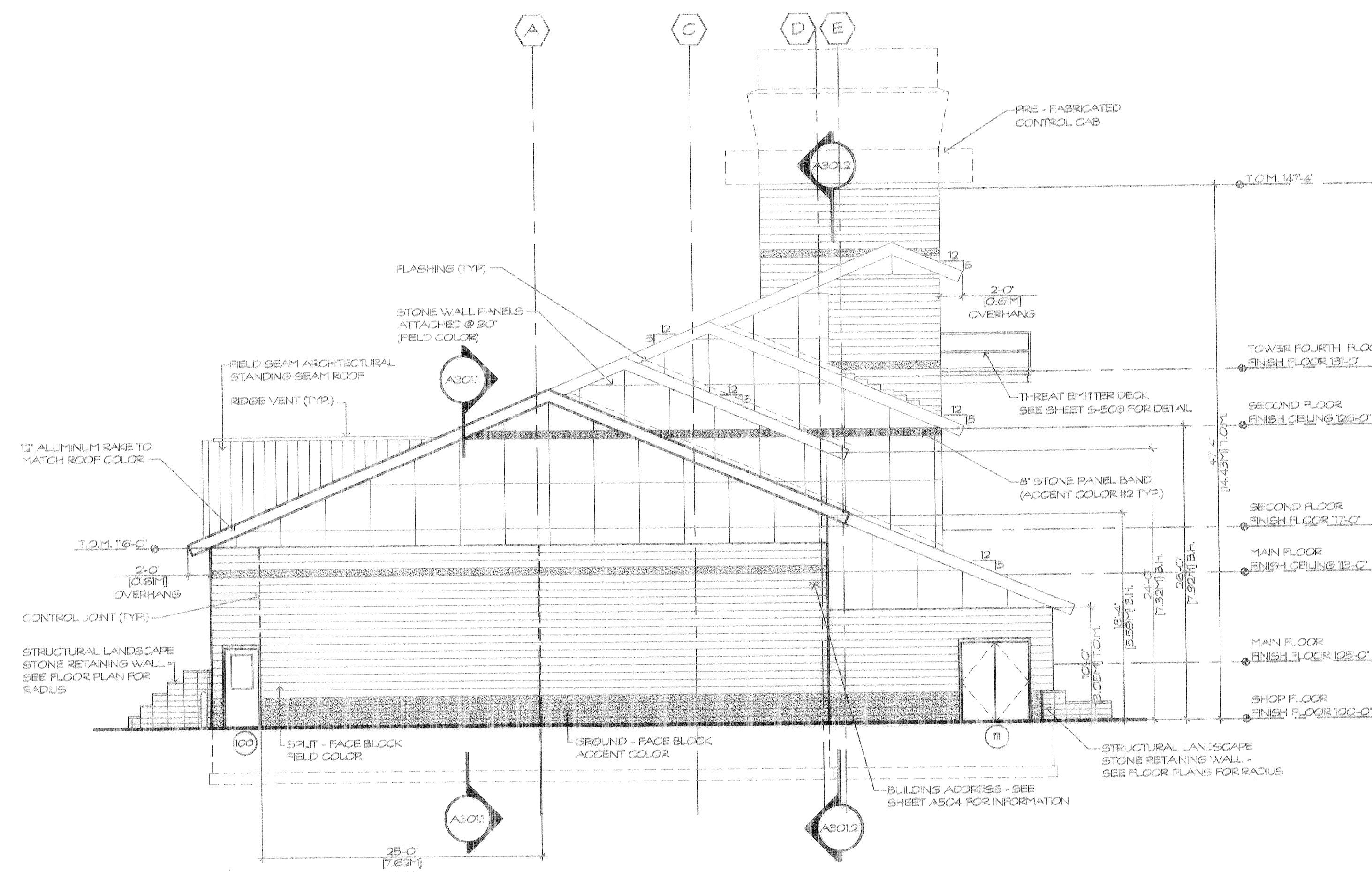
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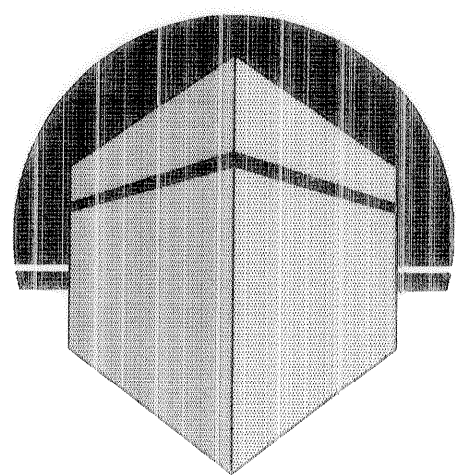
NORTH ELEVATION

SCALE: $\frac{1}{8}'' = 1'-0''$



WEST ELEVATION

SCALE: $\frac{1}{8}'' = 1'-0''$



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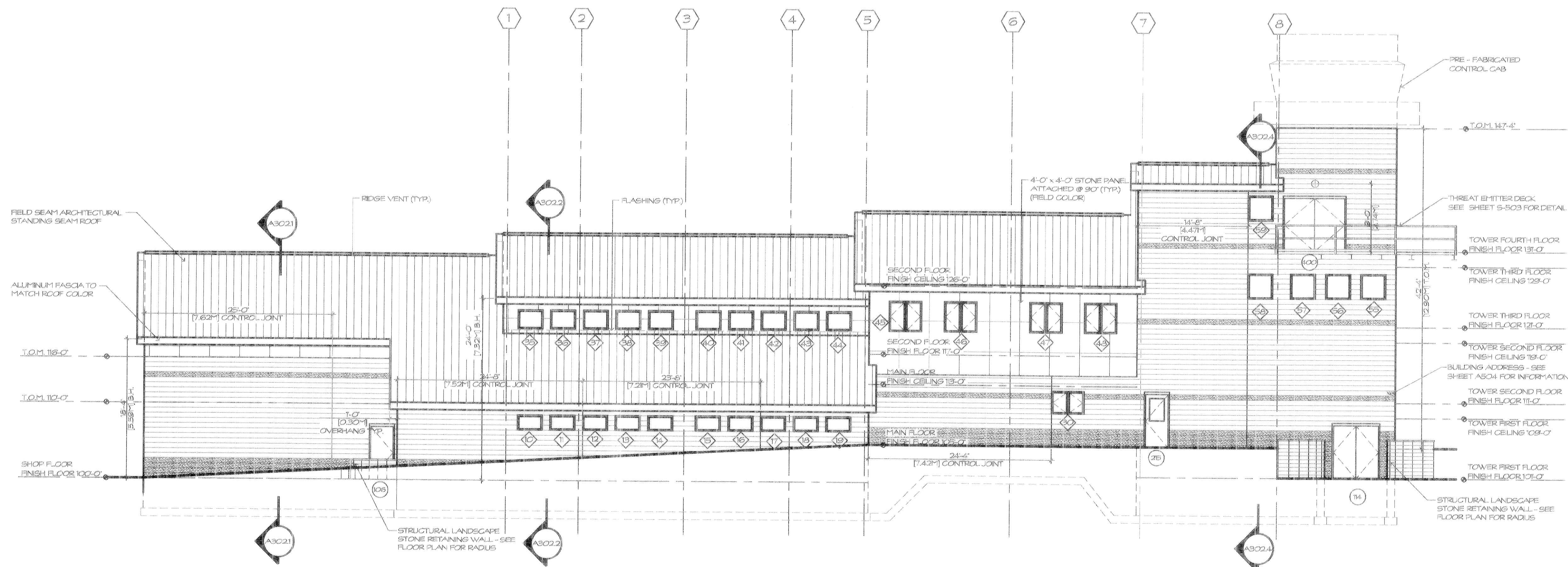
CLIENT AND PROJECT
CONSTRUCT AIR-TO-GROUND
RANGE SUPPORT FACILITY
OTSBO COUNTY, MICHIGAN

SHEET TITLE
SOUTH ELEVATION
EAST ELEVATION

☐	PRELIMINARY
☒	BIDS
☐	PERMITS
☐	CONSTRUCTION
REVISIONS	
1-28-00	35% SUBMITTAL
3-10-00	50% SUBMITTAL
4-28-00	75% SUBMITTAL
5-31-00	95% SUBMITTAL
7-12-00	FINAL DESIGN

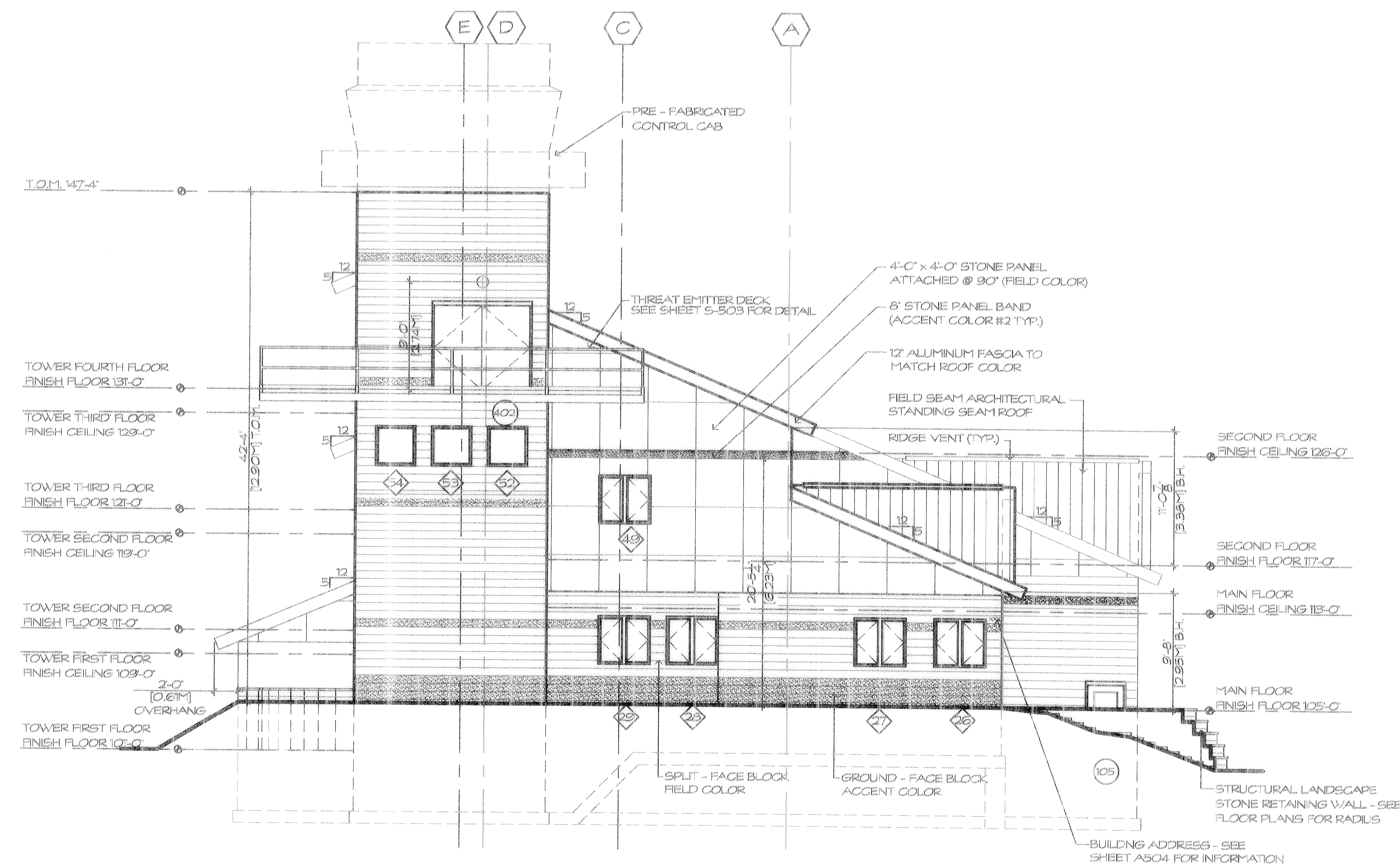
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B.B.
JOB NUMBER
CYTL999110
DATE
7 - 12 - 03
SHEET NUMBER

A202



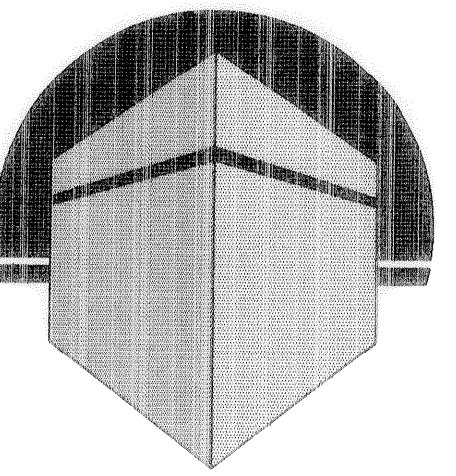
SOUTH ELEVATION

SCALE: $\frac{1}{8}'' = 1'-0''$



EAST ELEVATION

SCALE: $\frac{1}{8}'' = 1'-0''$



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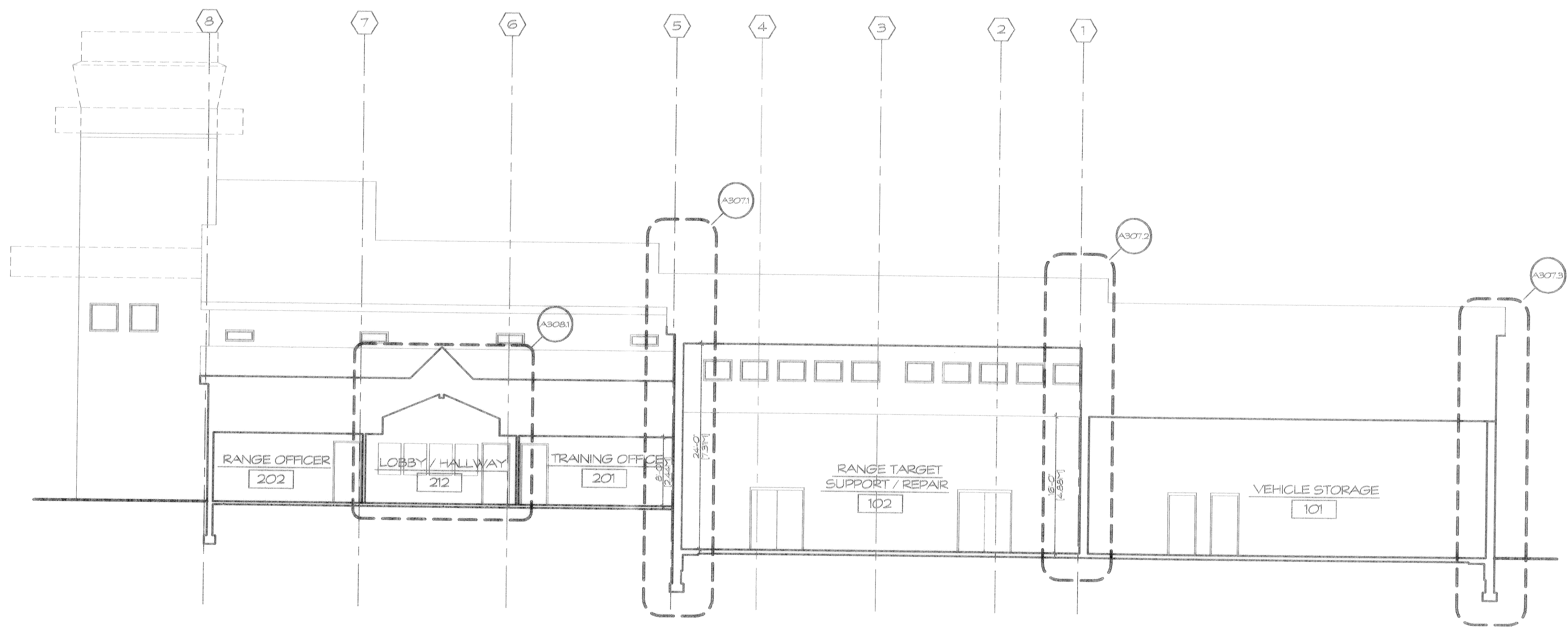
CLIENT AND PROJECT
CONSTRUCT AIR-TO-GROUND
RANGE SUPPORT FACILITY
OTSEGO COUNTY, MICHIGAN

SHEET TITLE
BUILDING SECTIONS

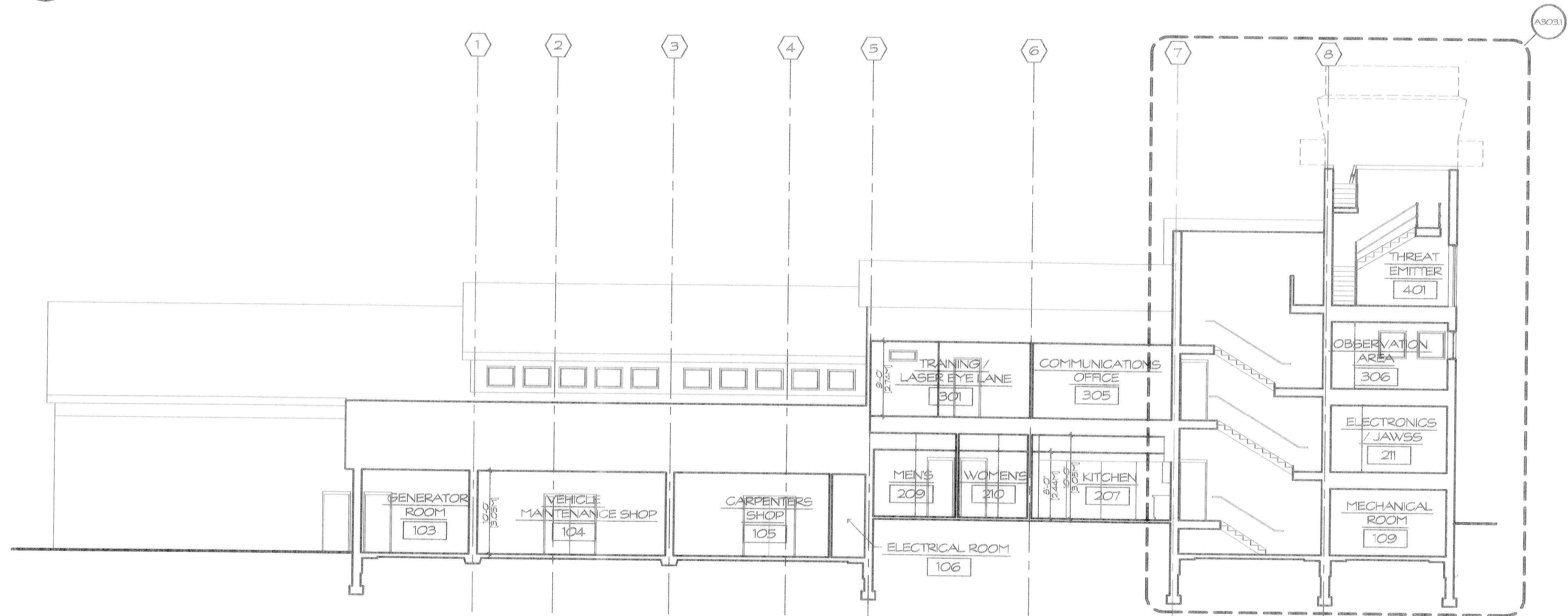
☐	PRELIMINARY
☒	BIDS
☐	PERMITS
☐	CONSTRUCTION
REVISIONS	
1-28-00	35% SUBMITTAL
3-10-00	50% SUBMITTAL
4-28-00	75% SUBMITTAL
5-31-00	95% SUBMITTAL
7-12-00	FINAL DESIGN

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7-12-00
SHEET NUMBER

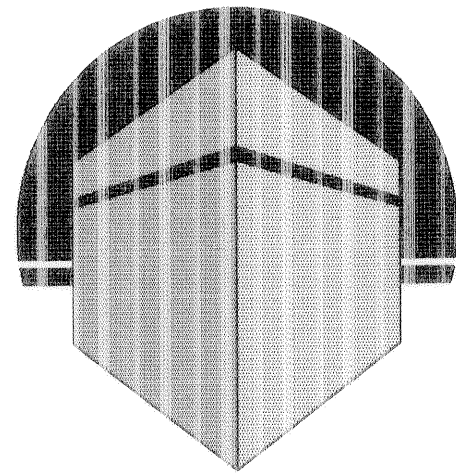
A301



A301.1
A301
A302
A303
BUILDING SECTION
SCALE $\frac{1}{8}" = 1'-0"$



A301.2
A301
A302
A303
BUILDING SECTION
SCALE $\frac{1}{8}" = 1'-0"$



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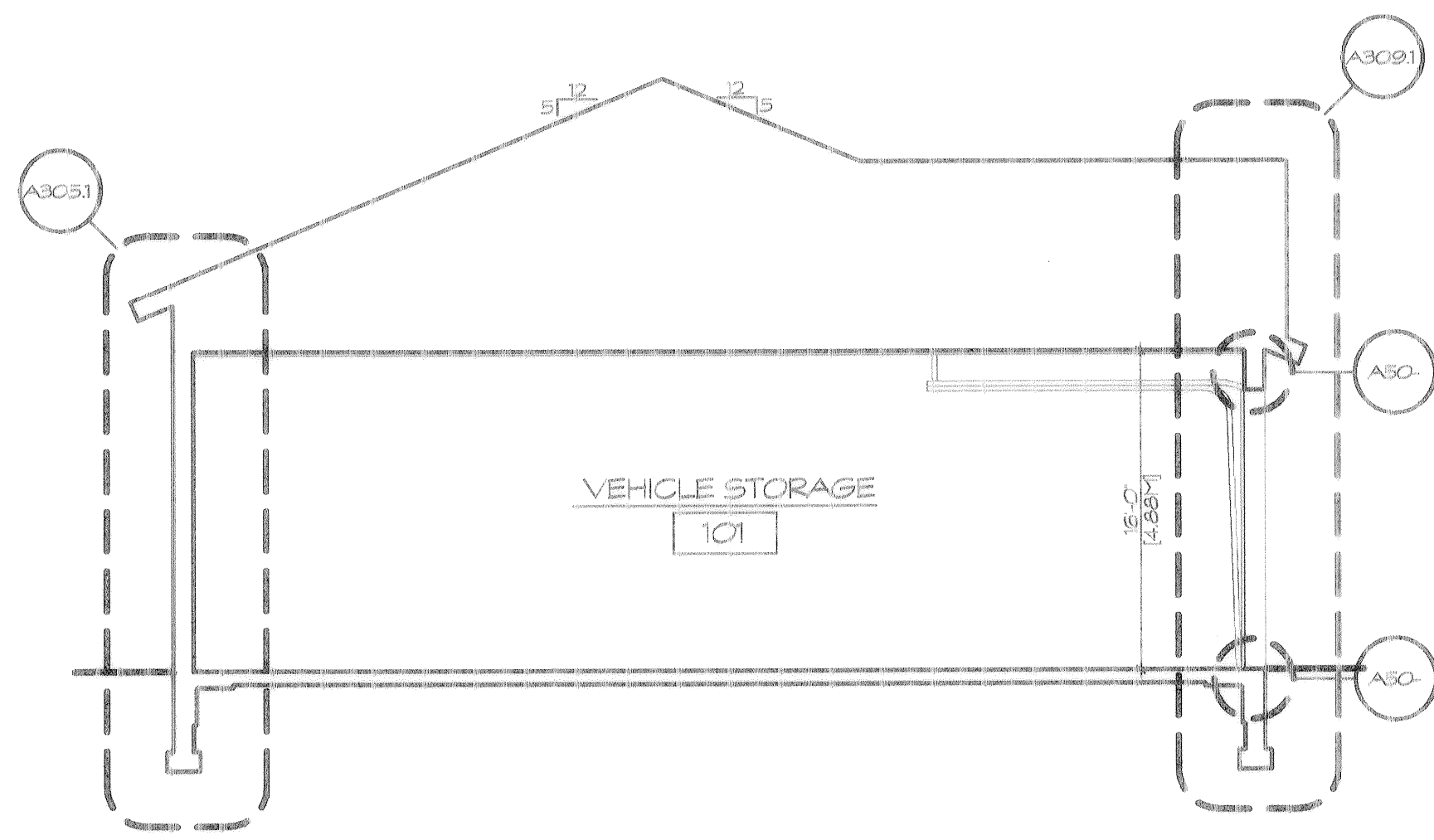
CLIENT AND PROJECT
CONSTRUCT AIR-TO-GROUND
RANGE SUPPORT FACILITY
OTSEGO COUNTY, MICHIGAN

SHEET TITLE
BUILDING SECTIONS

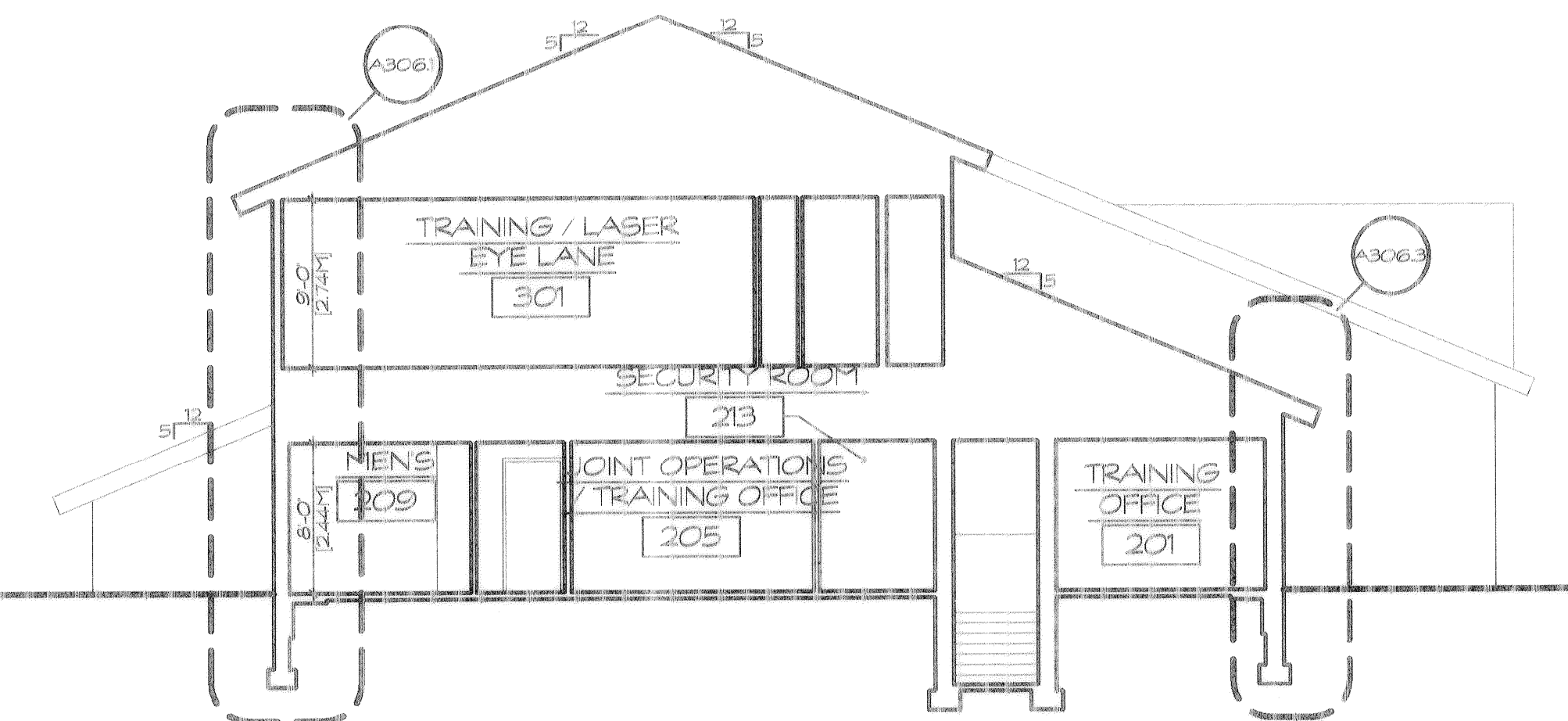
☐	PRELIMINARY
☒	BIDS
☐	PERMITS
☐	CONSTRUCTION
REVISIONS	
1-28-00	35% SUBMITTAL
3-30-00	50% SUBMITTAL
4-28-00	75% SUBMITTAL
5-31-00	95% SUBMITTAL
7-12-00	FINAL DESIGN

DRAWN BY
M.N.
CHECKED BY
B.B.
JOB NUMBER
CYT1999/10
DATE
7-12-00
SHEET NUMBER

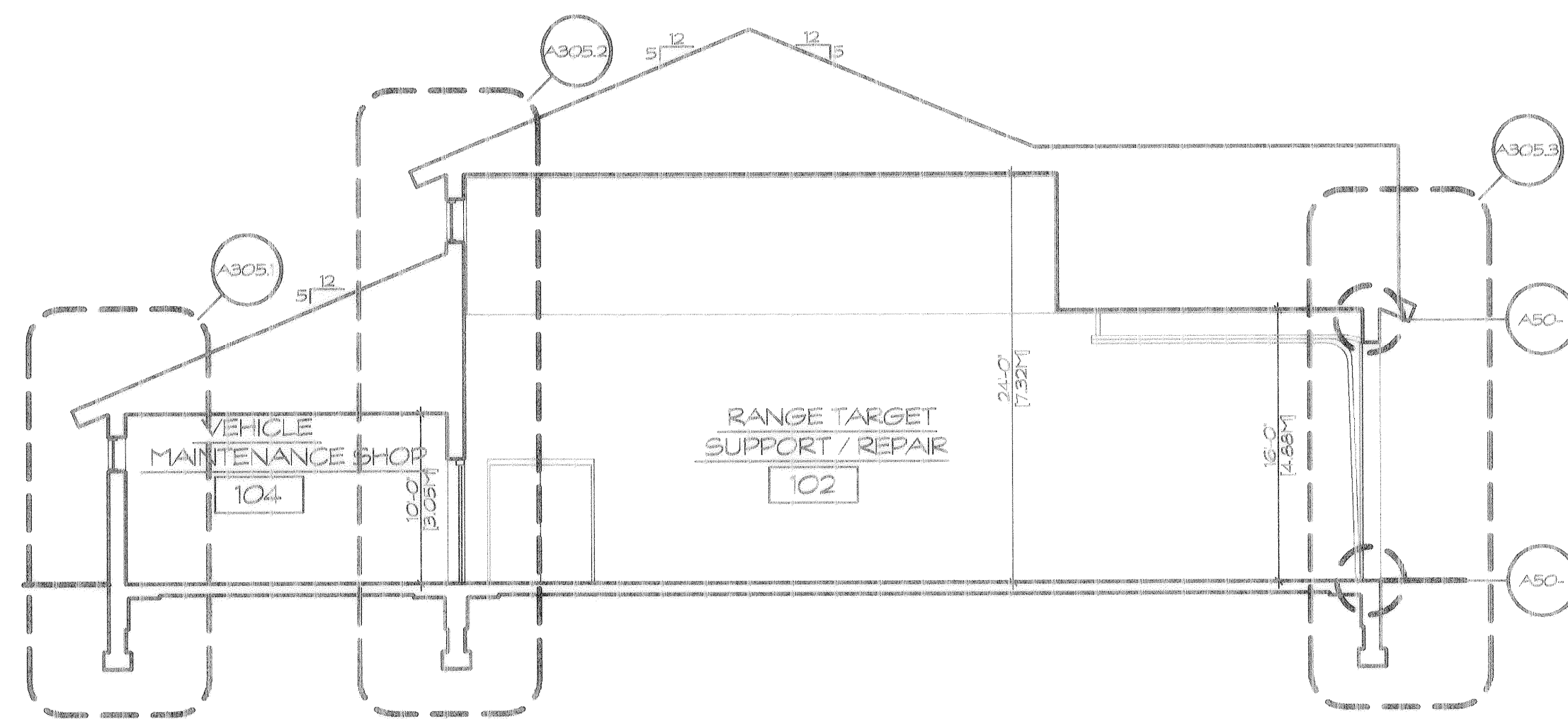
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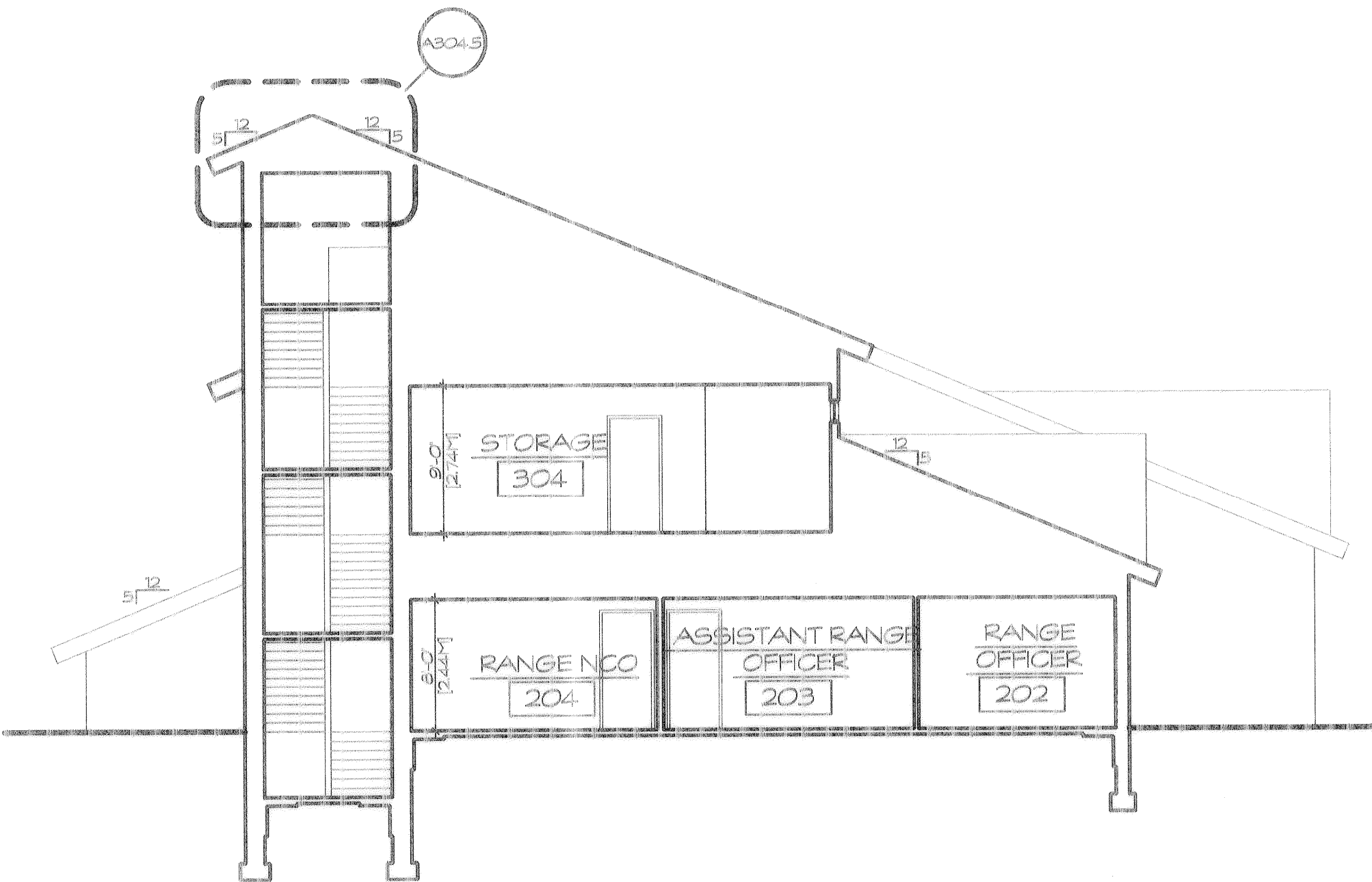
A302.1 BUILDING SECTION
SCALE 1/8" = 1'-0"



A302.3 BUILDING SECTION
SCALE 1/8" = 1'-0"

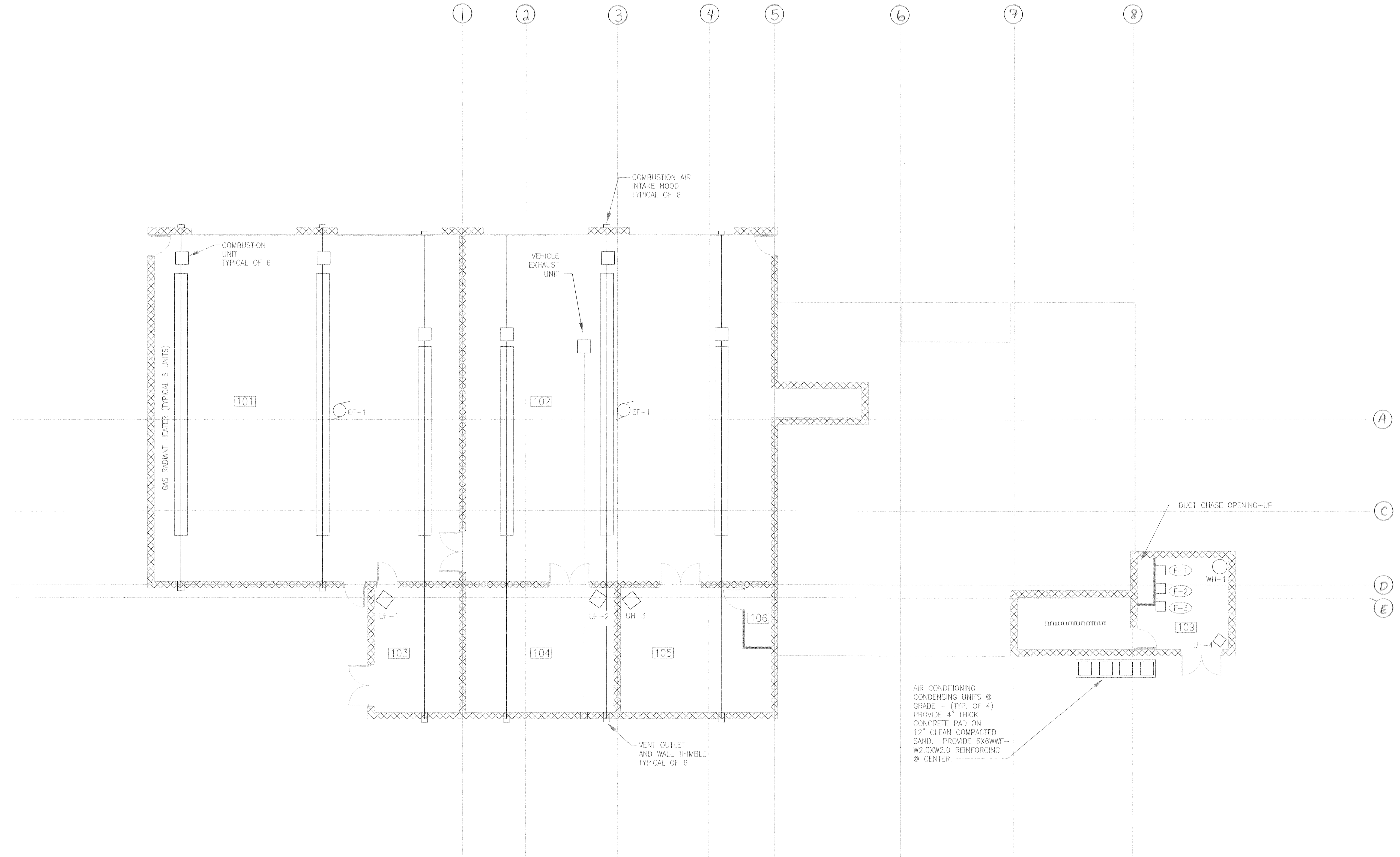


A302.2 BUILDING SECTION
SCALE 1/8" = 1'-0"

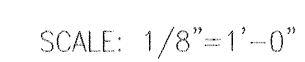


A302.4 BUILDING SECTION
SCALE 1/8" = 1'-0"

FILE NAME: 99134	DRAWN BY: MJK	DESIGNED BY: -	APPROVED BY: -
PLOT DATE: 07/10/00	UPDATED BY: JMB	CHECKED BY: -	



SHEET	FIRST FLOOR MECHANICAL PLAN	CONSTRUCT AIR-TO-GROUND SUPPORT FACILITIES CAMP GRAYLING WEAPONS RANGE OTSEGO COUNTY, MICHIGAN		REVISIONS		DATE	SCALE: 1/8"=1'-0"
				THE ROUSEN STREET LANSING, MICHIGAN 48906 507-371-1200			
				123 WEST MAIN STREET GAYLDET, MICHIGAN 49735			PROJ. NO. 99134
				4388 THREE MILE ROAD LANSING, MICHIGAN 48244			DATE: 07/00
				516-779-1886			



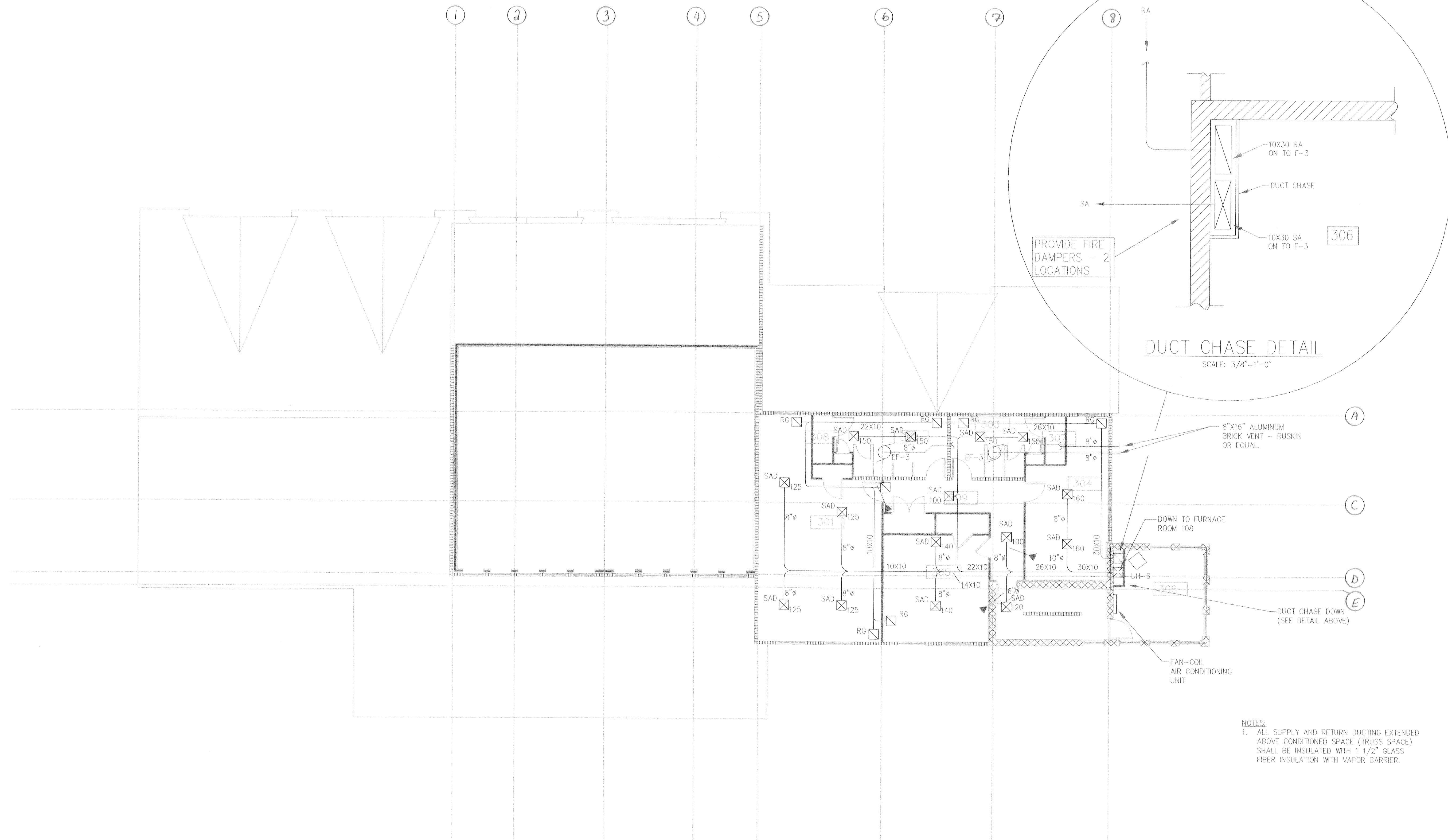
SECOND FLOOR MECHANICAL PLAN	SHEET M102	CONSTRUCT AIR-TO-GROUND SUPPORT FACILITIES CAMP GRAYLING WEAPONS RANGE OTSEGO COUNTY, MICHIGAN		REVISIONS	DATE	SCALE: 1/8"=1'-0"
725 PRUDEN STREET LANSING, MICHIGAN 48206			PROJECT NO.: 99134			
423 WEST MAIN STREET GAYLARD, MICHIGAN 49735			DATE: 07/00			
517-735-8931						
10385 HUNTERS RIDGE GAYLARD, MICHIGAN 49744						
517-735-1055						

FILE NAME 89134	DRAWN BY: MK	DESIGNED BY: -	APPROVED BY: -
PLOT DATE: 07/10/00	UPDATED BY: JMB	CHECKED BY: -	

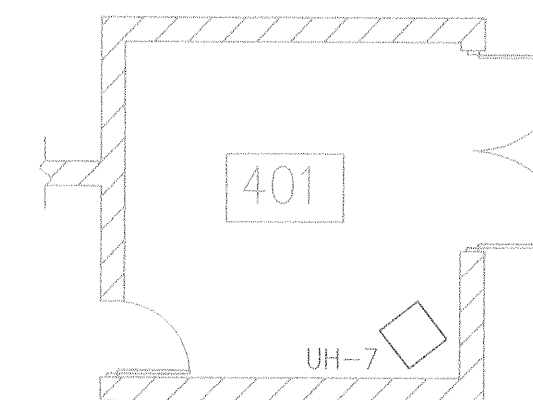


MECHANICAL THIRD FLOOR PLAN

SCALE: 1/8"=1'-0"



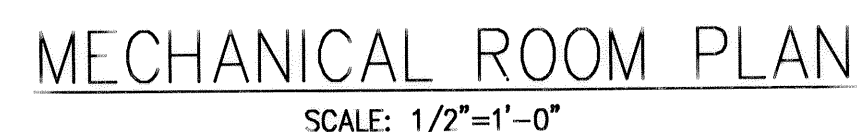
NOTES:
1. ALL SUPPLY AND RETURN DUCTING EXTENDED ABOVE CONDITIONED SPACE (TRUSS SPACE) SHALL BE INSULATED WITH 1 1/2" GLASS FIBER INSULATION WITH VAPOR BARRIER.



THREAT EMITTER ROOM
MECHANICAL ROOM
SCALE: 1/8"=1'-0"

THIRD FLOOR MECHANICAL PLAN		CONSTRUCT AIR-TO-GROUND SUPPORT FACILITIES CAMP GRAYLING WEAPONS RANGE OTSEGO COUNTY, MICHIGAN				728 PROUDEN STREET LANDING, MICHIGAN 49066 517-732-8234 517-732-8235 517-732-8236 517-732-8237 517-732-8238 517-732-8239 517-732-8240 517-732-8241 517-732-8242 517-732-8243 517-732-8244 517-732-8245 517-732-8246 517-732-8247 517-732-8248 517-732-8249 517-732-8250 517-732-8251 517-732-8252 517-732-8253 517-732-8254 517-732-8255 517-732-8256 517-732-8257 517-732-8258 517-732-8259 517-732-8260 517-732-8261 517-732-8262 517-732-8263 517-732-8264 517-732-8265 517-732-8266 517-732-8267 517-732-8268 517-732-8269 517-732-8270 517-732-8271 517-732-8272 517-732-8273 517-732-8274 517-732-8275 517-732-8276 517-732-8277 517-732-8278 517-732-8279 517-732-8280 517-732-8281 517-732-8282 517-732-8283 517-732-8284 517-732-8285 517-732-8286 517-732-8287 517-732-8288 517-732-8289 517-732-8290 517-732-8291 517-732-8292 517-732-8293 517-732-8294 517-732-8295 517-732-8296 517-732-8297 517-732-8298 517-732-8299 517-732-8300		REVISIONS		DATE		SCALE: 1/8"=1'-0"	
								PROJ. NO.: 99134		DATE: 07/00			

MECHANICAL EQUIPMENT SCHEDULE			
ITEM	DESCRIPTION	ITEM	DESCRIPTION
EXHAUST FANS EF-1	ROOF MOUNTED, BELT DRIVE, DOWN BLAST, SPUN ALUMINUM, CENTRIFUGAL EXHAUST FAN. MOTOR, BEARINGS, AND DRIVE SHALL BE MOUNTED ON 14 GA. FRAME ISOLATED WITH RUBBER VIBRATION ISOLATORS. WHEEL SHALL BE CENTRIFUGAL BACKWARD INCLINED, ALUMINUM. SPUN HOUSING SHALL BE CONSTRUCTED OF 16 GA. ALUMINUM. MOTOR SHALL BE 1/3 HP, 120 VAC, TENV PERMANENTLY LUBRICATED. FAN SHALL BE RATED 2546 CFM AT 800 RPM AND 1/4" STATIC PRESSURE. FAN SHALL BE EQUAL TO LOREN-COOK SERIES ACE-B MODEL 180C4B. PROVIDE GRAVITY BACK-DRAFT DAMPER, UNIT MOUNTED DISCONNECT SWITCH, AND ALUMINUM CLAD ROOF CURB.	AIR CONDITIONER AC-1	MULTI-ZONE SPLIT SYSTEM DUCT FREE AIR CONDITIONER. NOMINAL SYSTEM CAPACITY: 2 TONS. SYSTEM SHALL CONSIST OF TWO INDOOR, WALL MOUNTED 1-1/2 TON FAN COIL UNITS, AND OUTDOOR CONDENSING UNIT, NOMINALLY RATED 2 TONS. INDOOR UNITS SHALL BE EQUAL TO CARRIER MODEL 40QN018 HIGH WALL FAN COIL UNITS. OUTDOOR UNIT SHALL BE EQUAL TO CARRIER MODEL 38HDS024 OUTDOOR CONDENSING UNIT. SYSTEM SHALL BE RATED FOR 22.6 MBH TOTAL COOLING AT 820 CFM AND 67 DEG. FWB AND CONDENSER INLET TEMPERATURE OF 95 DEG. SENSIBLE COOLING SHALL BE RATED 17.5 MBH. OUTDOOR UNIT SHALL BE 230 VAC, SINGLE PHASE.
EXHAUST FANS EF-2	CEILING MOUNTED, DIRECT DRIVE, CENTRIFUGAL EXHAUST FAN. FAN WHEEL HOUSING SHALL BE RESIN MOLDED. MOTOR SHALL BE MOUNTED ON GALVANIZED STEEL ISOLATION BASE. WHEEL SHALL BE FORWARD CURVED, POLYPROPYLENE. FAN SHALL BE RATED 109 CFM AT 1/8" STATIC PRESSURE. FAN SHALL BE EQUAL TO LOREN-COOK GEMINI MODEL GC-140. PROVIDE GRAVITY BACKDRAFT DAMPER AND ALUMINUM GRILLE.	VEHICLE EXHAUSTER	CEILING MOUNTED SPRING LOADED REEL CONTAINING 16 LINEAR FEET OF 5" DIAMETER FLEXIBLE REINFORCED PVC DUCT WITH QUICK RELEASE LOCKING CLAMP FOR VEHICLE EXHAUST. UNIT SHALL BE COMPLETE WITH MINIMUM 1000 CFM CORROSION RESISTANT EXHAUST BLOWER, 230 VAC SINGLE PHASE. UNIT SHALL BE EQUAL TO MCMASTER-CARR MODEL NUMBER 2272K51, WITH 2272K64 BLOWER.
EXHAUST FANS EF-3	SIMILAR TO EF-2 ABOVE, EXCEPT RATED 248 CFM AT 1/8" STATIC PRESSURE. FAN SHALL BE EQUAL TO LOREN-COOK GEMINI MODEL GC-180. PROVIDE GRAVITY BACKDRAFT DAMPER AND ALUMINUM GRILLE.	HOSE REELS- HR	VERTICAL LIFT, CEILING MOUNTED, SPRING DRIVEN HOSE REEL. REEL CONSTRUCTION SHALL BE STEEL, WITH STAINLESS STEEL MAIN SHAFT, CONTAINRIZED SPRING, AND VITON SEALS. REEL SHALL BE COMPLETE WITH 4 ROLLER GUIDE, HOSE STOP, 50 LINEAR FEET OF OIL RESISTANT, 200 PSI RATED, 0.5" INSIDE DIAMETER HOSE FOR PNEUMATIC SERVICE, AND SHUT-OFF STYLE QUICK CONNECT COUPLING. REEL SHALL BE AS MANUFACTURED BY AERO-MOTIVE MODEL D-745.
SUMP PUMP P-1	CAST IRON SUBMERSIBLE PUMP. CAST IRON TWO VANE NON-CLOG IMPELLER. AUTOMATIC DIAPHRAGM PRESSURE SWITCH. 1/2 HP, 3450 RPM, 230 VAC SINGLE PHASE MOTOR. PUMP SHALL BE RATED 40 GPM AT 30 FEET TDH. PUMP SHALL BE EQUAL TO HYDROMATIC MODEL SPD50H.	GAS RADIANT HEATERS	TWO STAGE, STAINLESS STEEL BURNERS, SOLID STATE HOT SURFACE IGNITION. 4" DIAMETER, 16 GAUGE ALUMINIZED STEEL COMBUSTION AND RADIANT TUBES WITH HIGH EMISSIVE BLACK COATING. HEAVY GAUGE ALUMINUM REFLECTORS, POLISHED ONE SIDE. TWO SAFETY DIFFERENTIAL PRESSURE SWITCHES EACH UNIT. BURNERS RATED 100 MBH HIGH, 65 MBH LOW. UNITS SHALL BE COMPLETE WITH SHUT-OFF GAS COCK, STAINLESS STEEL FLEXIBLE FUEL CONNECTOR, COMBUSTION AIR SIDEWALL INTAKE HOOD, SIDEWALL DISCHARGE VENT AND WALL HIMBLE, TWO STAGE THERMOSTAT, CONTROL TRANSFORMER, AND RELAY CONTROLS FOR EACH INSTALLATION OF THREE UNITS. HIGH TEMPERATURE SEALANT, HANGERS, AND OTHER HARDWARE AND ACCESSORIES SHALL BE PROVIDED AS REQUIRED. UNITS SHALL BE AS MANUFACTURED BY DETROIT RADIANT PRODUCTS, RL-VERBER-RAY, MODEL HL50-100/65P. INSTALLATION SHALL BE AS RECOMMENDED BY THE MANUFACTURER AND IN ACCORDANCE WITH THE NATIONAL FUEL GAS CODE. UNITS SHALL BE FOR LP GAS.
AIR COMPRESSOR	HORIZONTAL, TWO STAGE, AIR COOLED, TANK MOUNTED, RECIPROCATING AIR COMPRESSOR. RECEIVER SHALL BE 80 GALLON, ASME. COMPRESSOR SHALL BE BELT DRIVE WITH OSHA GUARD. MOTOR SHALL BE TEFC 5 HP 230 VAC SINGLE PHASE. COMPRESSOR SHALL BE COMPLETE WITH CENTRIFUGAL UNLOADER, SPLASH LUBRICATION, FINNED INTERCOOLER, DRY TYPE INTAKE FILTER/MUFFLER, AND STAINLESS STEEL VALVES. PROVIDE PRESSURE SWITCH CONTROL, NEMA STARTER, AIR COOLED AFTERCOOLER, LOW OIL LEVEL SHUT DOWN, AUTOMATIC CONDENSATE DRAIN VALVE, DISCHARGE PRESSURE GAUGE, PARTICULATE FILTER, AND COALESCING FILTER. COMPRESSOR SHALL BE RATED 20 SCFM AT 100 PSI. COMPRESSOR SHALL BE AS MANUFACTURED BY INGERSOL-RAND CENTURY, OR SAYLOR-BEALE.	CENTRAL VACUUM - CVU	CENTRAL UNIT SHALL BE RATED 100 CFM MAX., 485 AIR WATTS, COMPLETE WITH 3 STAGE MOTOR AND 8.4 GALLON CAPACITY. 10 YEAR MANUFACTURERS WARRANTY, HOOVER MODEL S5675. PROVIDE HOOVER MODEL S5701 ATTACHMENT KIT WITH POWER MAX. NOZZLE AND 30 FOOT HOSE. PROVIDE POWERED WALL CONNECTORS IN QUANTITIES SHOWN.
UNIT HEATER UH-1	HEATER SHALL BE HORIZONTAL STYLE RATED 4 KW AT 240 VAC 1 PHASE. HEATER SHALL BE COMPLETE WITH INTEGRAL THERMOSTAT AND BUILT IN CONTACTOR. CABINET SHALL BE HEAVY GAUGE STEEL WITH BAKED ON ENAMEL FINISH. PROVIDE WALL MOUNTING BRACKET. HEATER SHALL BE AS MANUFACTURED BY CHROMALOX MODEL LUH-04-21, OR MARKEL.	SUPPLY AIR DIFFUSER - SAD	24"x24" ALUMINUM LAY-IN, FULL FACE FRAME DIFFUSER WITH 8" DIAMETER NECK AND ADJUSTABLE OPPOSED BLADE DAMPER. MANUFACTURED BY TITUS MODEL TMS-AA. PROVIDED WITH PLASTER FRAME AS REQUIRED BY CEILING TYPE WHITE COLOR.
UNIT HEATER UH-2	HEATER SHALL BE HORIZONTAL STYLE RATED 5 KW AT 240 VAC 1 PHASE. HEATER SHALL BE COMPLETE WITH INTEGRAL THERMOSTAT AND BUILT IN CONTACTOR. CABINET SHALL BE HEAVY GAUGE STEEL WITH BAKED ON ENAMEL FINISH. PROVIDE THREADED ROD HANGERS. HEATER SHALL BE AS MANUFACTURED BY CHROMALOX MODEL LUH-05-21, OR MARKEL.	RETURN AIR REGISTER - RG	16"x16" ALUMINUM GRID/ALUMINUM BORDER, 1"x1"x1" EGGRATE. PROVIDE WITH PLASTER FRAME AS REQUIRED BY CEILING TYPE WHITE COLOR.
UNIT HEATER UH-3	SAME AS UH-2, MODEL LUH-05-21.		
UNIT HEATER UH-4	SAME AS UH-1, EXCEPT 2.6 KW, MODEL LUH-02-21.		
UNIT HEATER UH-5	SAME AS UH-1, EXCEPT 2.6 KW, MODEL LUH-02-21.		
UNIT HEATER UH-6	SAME AS UH-1, EXCEPT 2.6 KW, MODEL LUH-02-21.		
UNIT HEATER UH-7	SAME AS UH-1, EXCEPT 2.6 KW MODEL LUH-02-21.		
WATER HEATER WH-1	FULLY CONDENSING, 94% THERMAL EFFICIENCY, TANK TYPE WATER HEATER. MICROPROCESSOR ELECTRONIC CONTROLS WITH DIGITAL DISPLAY FOR OPERATING MODE, USER SETTINGS, AND FAULT INDICATORS. COMBUSTION CHAMBER SHALL BE SUBMERGED. HEATER SHALL BE SEALED COMBUSTION, DIRECT VENT. TANK SHALL BE 100 GALLON, GLASS LINED AND SHALL BE RATED FOR 160 PSI WORKING PRESSURE. HEATER SHALL BE FOAM INSULATED WITH HEAVY GAUGE STEEL HOUSING. HEATER SHALL BE RATED 150,000 BTUH INPUT, 214 GALLON PER HOUR WITH 80 DEGREE TEMPERATURE RISE, RECOVERY RATE. HEATER SHALL BE FITTED FOR LP GAS AND SHALL BE COMPLETE WITH HANDHOLE, DRAIN VALVE, AND TEMPERATURE AND PRESSURE RELIEF VALVE. WATER HEATER SHALL BE AS MANUFACTURED BY A.O. SMITH, CYCLONE XHE, MODEL BTH-150.		
FURNACE F-1	HIGH EFFICIENCY, DIRECT VENT, SEALED COMBUSTION, CONDENSING GAS FURNACE. UP FLOW DESIGN. HOT SURFACE IGNITION SYSTEM. DIGITAL CONTROLLER SHALL PROVIDE CONTROL OF IGNITION, INDUCER FAN, AND SUPPLY FAN, PROVIDE STATUS AND FAULT INDICATION, AND BE COMPLETE WITH COMPONENT TEST MODE. FURNACE SHALL BE RATED 80,000 BTUH INPUT, 74,400 BTUH OUTPUT. SUPPLY FAN SHALL BE RATED 995 CFM AT 1/2" STATIC PRESSURE HEATING (LOW SPEED), AND 1525 CFM AT 1/2" STATIC PRESSURE COOLING (HIGH SPEED). UNIT SHALL BE EQUAL TO CARRIER MODEL 58MXA, SERIES 131, SIZE 080-16. EVAPORATOR COIL SHALL BE RATED 48.0 MBH TOTAL COOLING AT 1500 CFM AND 67 DEG. FWB AND CONDENSER INLET TEMPERATURE OF 95 DEG. SENSIBLE COOLING SHALL BE RATED 33.0 MBH. OUTDOOR UNIT SHALL HAVE MAXIMUM SEER OF 14.0. OUTDOOR UNIT SHALL BE AS MANUFACTURED BY CARRIER MODEL 38TRA, SIZE 048. OUTDOOR UNIT SHALL BE 230 VAC, SINGLE PHASE. FURNACE: LP GAS		
FURNACE F-2	SAME AS F-1		
FURNACE F-3	HIGH EFFICIENCY, DIRECT VENT, SEALED COMBUSTION, CONDENSING GAS FURNACE. UPFLOW DESIGN. HOT SURFACE IGNITION SYSTEM. DIGITAL CONTROLLER SHALL PROVIDE CONTROL OF IGNITION, INDUCER FAN, AND SUPPLY FAN, PROVIDE STATUS AND FAULT INDICATION, AND BE COMPLETE WITH COMPONENT TEST MODE. FURNACE SHALL BE RATED 120,000 BTUH INPUT, 111,600 BTUH OUTPUT. SUPPLY FAN SHALL BE RATED 1810 CFM AT 1/2" STATIC PRESSURE HEATING (MED-HIGH SPEED), AND 2000 CFM AT 1/2" STATIC PRESSURE COOLING (HIGH SPEED). UNIT SHALL BE EQUAL TO CARRIER MODEL 58MXA, SERIES 131, SIZE 120-20. EVAPORATOR COIL SHALL BE RATED 57.0 MBH TOTAL COOLING AT 2000 CFM AND 67 DEG. FWB AND CONDENSER INLET TEMPERATURE OF 95 DEG. SENSIBLE COOLING SHALL BE RATED 41.0 MBH. OUTDOOR UNIT SHALL HAVE NOMINAL SEER OF 14.0. OUTDOOR UNIT SHALL BE AS MANUFACTURED BY CARRIER MODEL 38TRA, SIZE 060. OUTDOOR UNIT SHALL BE 230 VAC, SINGLE PHASE. FURNACE: LP GAS		



- NOTES:**
1. 24"W X 16"H EXTRUDED ALUMINUM
FLANGED FRAME STORM LOUVER.
6" DEEP WITH 0.125" FRAME,
0.081" BLADES, ALUMINUM
INSECT SCREEN. RUSKIN MODEL
ELF 6375 DXH.