Total Project Cost	$6,000,000 Phase II $5,000,000
Approval Level:	Full Board

FORMAL PROJECT APPROVAL REQUEST

TO: Pat Gamble
President

THROUGH: Kit Duke
AVP Facilities and Land Management

THROUGH: Brian Rogers (SEE COVER SHEET)
Chancellor

THROUGH: Pat Pitney 9/4/12
Vice Chancellor, Administrative Services

THROUGH: Scott Bell 8/31/12
Associate Vice Chancellor, Facilities Services

THROUGH: Gary Johnston 8/30/12
Director, Design and Construction

FROM: Jonathan Shambare 8/29/12
University Architect and Planner

DATE: August 30, 2012

SUBJECT: Project Type: New Construction
Project Name: Antenna Installation Alaska Satellite Facility AS311
Project No.: 2013029 AIASF

Cc: Pat Pitney
Vice Chancellor
Administrative Services
AIASF (101)

FORMAL PROJECT APPROVAL

Name of Project:	**Antenna Installation Alaska Satellite Facility AS311**
Project Type:	**NC**
Location of Project:	**UAF Campus, Alaska Satellite Facility, Building No. AS311 Fairbanks**
Project Number:	**2013029 AIASF**
Date of Request:	**August 30, 2012**

Total Project Cost:	**$6,000,000**	**Phase II Amount: $5,000,000**	
Approval Required:	**Full Board**		
Prior Approvals/Actions:	**Preliminary Administrative Approval**		**August 15, 2012**
	Formal Project and Schematic Design Approval Phase I		**August 20, 2012**

A Formal Project Approval (FPA) is required for all Capital Projects with a Total Project Cost in excess of $250,000.

FPA represents approval of the Project including the program justification and need, scope, the total project cost, and the funding and phasing plans for the project. Requests for formal project approval shall include a signed project agreement or facilities pre-design statement, the proposed cost and funding sources for the next phase of the project and for eventual completion of the project, and a variance report identifying any significant changes in scope, budget, schedule, deliverables or prescriptive criteria associated with a design-build project, funding plan, operating cost impact, or other cost considerations from the time the project received preliminary administrative approval. It also represents authorization to complete project development through the schematic design, targeting the approved scope and budget, unless otherwise designated by the approval authority.

Action Requested

"The Facilities and Land Management Committee recommends that the Board of Regents approve the Formal Project Approval request for the University of Alaska Fairbanks Antenna Installation Alaska Satellite Facility AS311 as presented in compliance with the approved campus master plan, and authorizes the university administration to proceed through Schematic Design not to exceed a total project cost of $6,000,000for Phases 1 and 2. This motion is effective December 6, 2012."

Project Abstract

Alaska Satellite Facility (ASF) is part of the Geophysical Institute at UAF and employs approximately 50 individuals responsible for a variety of technical functions. For nearly 20 years, ASF has operated two satellite tracking antenna systems on behalf of NASA. The two antenna systems operated by ASF include a 10-meter antenna (designated AS2) on the roof of the Elvey Building and an 11-meter antenna (designated AS1) in the forest on North Campus. Additionally, NASA funds ASF in excess of $7M per year to support the NASA SAR Data Center. This data center uses spacecraft data collected by the ASF antenna systems and as such, they are integrated data systems.

One of the existing antennas, AS2 on top of Elvey, has passed its operational period and NASA intends to replace it with a system similar in size and function to the AS1 system that is located west of the IARC Building. Preliminary site and structural analysis and NASA's logistical study determined that direct replacement of the antenna on Elvey was not cost effective. It would require structural upgrades to the building due to the fact that the new 11-meter antenna is larger than the 10-meter antenna and it rotates faster with more torsion forces when it stops.

A number of sites were reviewed for the possible location of the replacement antenna and were determined not to be suitable. The reasons for unsuitability, included but are not limited to, lack of power and communication infrastructure, obstructions to Elvey Building, wetlands, poor soil conditions and ice lenses, cutting down numerous trees, and potential radio frequency interference (RFI) from existing cellular communication towers. The other sites that were reviewed are the Large Animal Research Station (LARS), Rifle Range, Animal Paddock, North Taku, Agricultural Fields, and the West Ridge site west of the existing AS1 antenna. ASF in concurrence with the North Campus Committee and UAF Master Planning Committee determined the West Ridge site east of the existing AS1 antenna as the most suitable site.

Variances

None

Special Considerations

The construction phase of this project will be in two phases. Phase I included clearing the site before freeze up. Phase II, will commence spring 2013 soon after breakup. Phase II work will include completion of the concrete base and the required attachment system to install the pre-assembled 40 foot high L-3 Datron 11 meter antenna dish, tie-ins of the communications and electrical system. The L-3 Datron antenna will be shipped in pre-assembled sections that will be fully assembled on site for installation.

Total Project Cost and Funding Sources

Phase II of the project is estimated to be $5,000,000. Total funding for this project, estimated at $6,000,000, is fully funded through NASA and its contracting partner ITT Exelis.

Annual Program and Facility Cost Projections

NASA funds ASF approximately $1.75M per year to operate and maintain the antennas and this supports approximately 12 employees.

Project Delivery Method
Design-Build contracts will be used to procure final design and construction services.

Affirmation
This project complies with Regents' Policy and the UAF Campus Master Plan.

Supporting Documents
- Preliminary Project Agreement

Approvals
The level of approval required for FPA shall be based upon the estimated TPC as follows:

- **TPC > $4.0 million will require approval by the board based on the recommendations of the Facilities and Land Management Committee (FLMC).**
- TPC > $2.0 million but not more than $4.0 million will require approval by the FLMC.
- TPC > $1.0 million but not more than $2.0 million will require approval by the Chair of the FLMC.
- TPC ≤ $1.0 million will require approval by the AVP of Facilities and Land Management.

PROJECT AGREEMENT

Name of Project:	**Antenna Installation Alaska Satellite Facility AS311 – Phase II**
Project Type:	**NC**
Location of Project:	**UAF Campus, Alaska Satellite Facility, Building No. AS311 Fairbanks**
Project Number:	**2013029 AIASF**
Date of Agreement:	**November 12, 2012**

INTRODUCTION

A Project Agreement (PA) is required for all Capital Projects with a Total Project Cost anticipated to exceed $2.5 million. For projects under $2.5 million, a project agreement should be attached to the FPA or all of the components of the PA may be incorporated into the FPA.

The PA represents a formal agreement between the affected program department(s), the MAU's chief facilities administrator, the chief academic officer, the chief financial officer, the chancellor, and the chief facilities administrator documenting a common understanding of the programmatic need, project scope, and other matters related to the project.

BODY OF THE AGREEMENT

Basis for the Project

Alaska Satellite Facility (ASF) is part of the Geophysical Institute at UAF and employs approximately fifty individuals responsible for a variety of technical functions. For nearly twenty years, ASF has operated two satellite tracking antenna systems on behalf of NASA. The two antenna systems operated by ASF includes a 10-meter antenna (designated AS2) on the roof of the Elvey building and an 11-meter antenna (designated AS1) in the forest on North Campus. Additionally, NASA funds ASF in excess of $7M per year to support the NASA SAR Data Center. This data center uses spacecraft data collected by the ASF antenna systems and as such, they are integrated data systems.

One of the existing antennas, AS2 on top of Elvey, has passed its operational period and NASA intends to replace it with a system similar in size and function to the AS1 system that is located west of the IARC building. Preliminary site and structural analysis and NASA's logistical study determined that direct replacement of the antenna on Elvey was not cost effective. It would require structural upgrades to the building due to the fact that the new 11-meter antenna is larger than the 10-meter antenna and it rotates faster with more torsion forces when it stops.

A number of sites were reviewed for the possible location of the replacement antenna and were determined not to be suitable. The reasons for unsuitability, included but are not limited to, lack of power and communication infrastructure, obstructions to Elvey building, wetlands, poor soil conditions and ice lenses, cutting down numerous trees, and potential radio frequency interference (RFI) from existing cellular communication towers.

The other sites that were reviewed are the Large Animal Research Station (LARS), Rifle Range, Animal Paddock, North Taku, Agricultural Fields, and the West Ridge site west of the existing AS1 antenna. ASF in concurrence with the North Campus Committee and UAF Master Planning Committee determined the West Ridge site east of the existing AS1 antenna as the most suitable site.

Programmatic Need
Alaska Satellite Facility (ASF) at the Geophysical Institute will benefit from the installation of the antenna dish by being able to collect data from the newer antenna with continued NASA support of the SAR Data Center.

Strategic Importance
Impact Analysis
Program Enhancements
Needs Assessment
Project Impact

To be provided by ASF, Geophysical Institute

Project Site Considerations
The construction phase of this project will be in two phases. Phase I will include clearing the site before freeze up this summer of 2012. Phase II, will commence spring 2013 soon after breakup. Phase II work will include completion of the concrete base and the required attachment system to install the pre-assembled 40 foot high L-3 Datron 11 meter antenna dish, tie-ins of the communications and electrical system. The L-3 Datron antenna will be shipped in pre-assembled sections that will be fully assembled on site for installation.

Incremental Costs

Proposed Funding Plan
Phase II of the project is estimated to be $5,000,000
Total funding for this project estimated at $6,000,000 is fully funded through NASA and its contracting partner ITT Exelis.

Annual Program and Facility Cost Projections
NASA funds ASF approximately $1.75M per year to operate and maintain the antennas and this supports approximately 12 employees.

Total Project Cost and Funding Sources

Funding Title	Fund Account	Amount
NASA Funding	*TBD*	*$6,000,000*
Total Project Cost		***$6,000,000***

Project Schedule

DESIGN (Design/Build)	
Conceptual Design	June 2012-August 2012
Formal Project Approval	December 2012
Schematic Design	February 2013
Schematic Design Approval	February 2013
Construction Documents	Month, year
CONSTRUCTION	
Phase I (site clearing and foundation)	August 2012-October 2012
Phase II (concrete base and assembly)	April 2013-September 2013

COMMISSIONING AND TESTING
Phase II — September 2013-November 2013
MISSION READINESS
Phase II — December 2013-January 2014

Supporting Documents

- One-page Budget
- Reflector Assembly Area Foundation (Figure 2.1)
- Vicinity Map (Plan C1.1)
- Civil Site Plan (Plan C1.2)
- Cross Section (C1.3)
- Structural General (S1.1)
- Structural and Section Details (S2.0)

Agreement

In witness whereof, the parties attest that they have made and executed this Agreement to be effective the date and year first above written.

This project as described above meets the requirements of the Alaska Satellite Facility:

_____

Nettie Labelle-Hamer, UAF Director for Alaska Satellite Facility

This project as described above meets the requirements of the Geophysical Institute:

_____

Roger Smith, Director for Geophysical Institute

This project scope of work, cost, and schedule as described above is appropriate:

_____

Scott Bell, UAF Associate Vice Chancellor for Facilities Services

This project plan and funding as described above is appropriate:

_____

Pat Pitney, Vice Chancellor for Administrative Services

This project as described above is consistent with the research goals of the Fairbanks Campus:

_____

Susan Henrichs, Provost and Executive Vice Chancellor for Academic Affairs and Research

This project as described above meets the strategic goals of the campus:

_____

Brian Rogers, UAF Chancellor

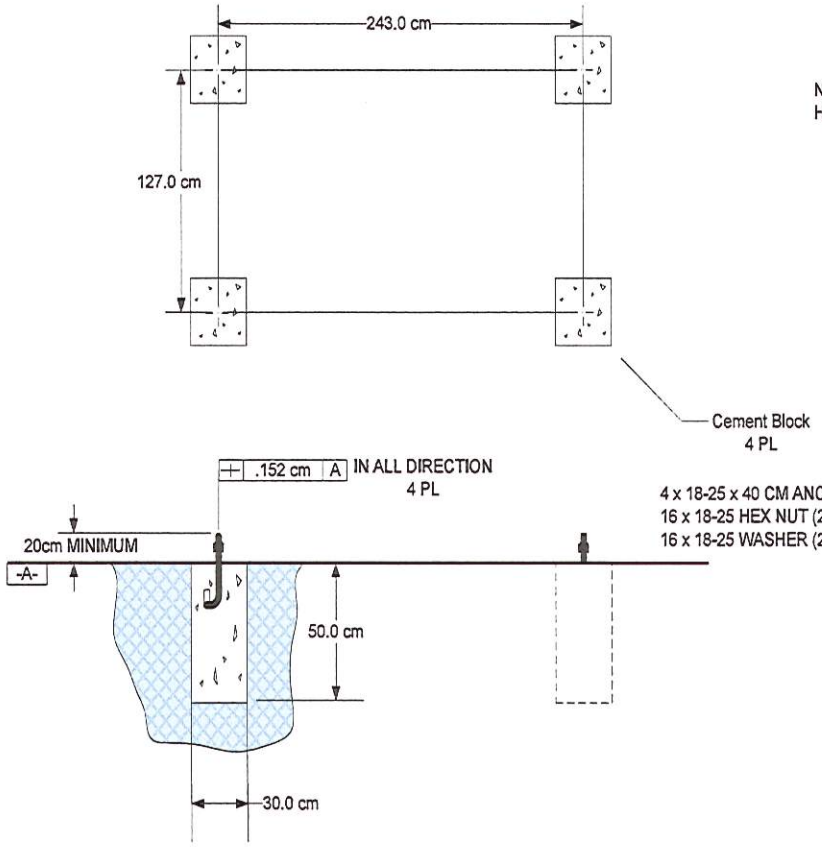
This project as described above is consistent with executive and Board planning protocols:

_____

Kit Duke, AVPF&LM

UNIVERSITY OF ALASKA			
Project Name:	Antenna Installation Alaska Satellite Facility AS3 - Phase I		
MAU:	UAF		
Building:	0	Date:	August 30, 2012
Campus:	UAF	Prepared By:	Jonathan Shambare
Project #:	2013029	Account No.:	0
Total GSF Affected by Project:	1,600		

PROJECT BUDGET	FPA Budget
A. Professional Services	
Advance Planning, Program Development	$0
Consultant: Design Services	$180,000
Consultant: Construction Phase Services	$0
Consul: Extra Services (List:_____)	$0
Site Survey	$0
Soils Testing & Engineering	$0
Special Inspections	$0
Plan Review Fees / Permits	$0
Other	$0
Professional Services Subtotal	**$180,000**
B. Construction	
General Construction Contract (s)	$703,000
Other Contractors (List:_____)	$0
Construction Contingency	$63,270
Construction Subtotal	**$766,270**
Construction Cost per GSF	***$478.92***
C. Building Completion Activity	
Equipment	$0
Fixtures	$0
Furnishings	$0
Signage not in construction contract	$0
Move-Out Cost/Temp. Reloc. Costs	$0
Move-In Costs	$0
Art	$0
Other (List:_____)	$0
OIT Support	$0
Maintenance/Operation Support	$0
Building Completion Activity Subtotal	**$0**
D. Owner Activities & Administrative Cost	
Project Planning and Staff Support	$7,000
Project Management	$14,500
Misc Expenses: Advertising, Printing, Supplies	$5,000
Owner Activities & Administrative Cost Subtotal	**$26,500**
E. Total Project Cost	**$972,770**
Total Project Cost per GSF	***$607.98***
F. Total Appropriation(s)	**$6,000,000**



NOTE:
Hardware to be procured by the customer.

4 x 18-25 x 40 CM ANCOR BOLYS (1 PER BLOCK)
16 x 18-25 HEX NUT (2 PER BLOCK)
16 x 18-25 WASHER (2 PER BLOCK)

Figure 2.1 Reflector Assembly Area Foundation

PROJECT
ITT

JOB NO.
AS3

SITE NAMES
UAF FAIRBANKS, AK

CONSULTANT :

PDC INC. ENGINEERS

PROJECT :
UAF AS3 ANTENNA
FAIRBANKS, ALASKA

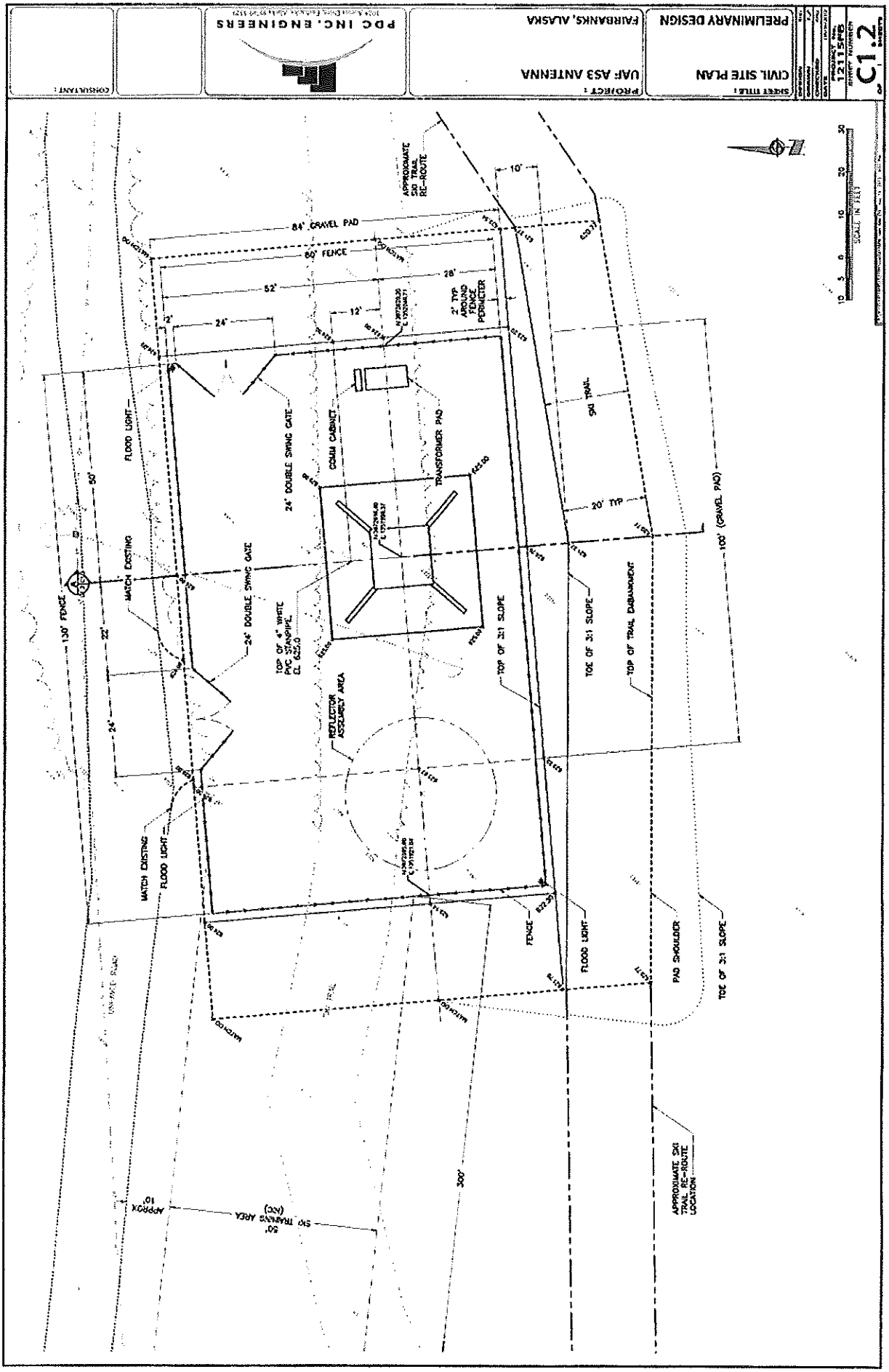
SHEET TITLE :
VICINITY MAP

PRELIMINARY DESIGN

DESIGN
DRAWN
CHECKED
DATE

PROJECT No.
12115FB

SHEET NUMBER
C1.1
OF SHEETS


PRELIMINARY DESIGN
FAIRBANKS, ALASKA
UAF: AS3 ANTENNA
CIVIL SITE PLAN
PDC INC. ENGINEERS
C1.2
84' GRAVEL PAD
80' FENCE
52'
28'
24'
12'
2'
2' TYP AROUND FENCE PERIMETER
APPROXIMATE SKI TRAIL RE-ROUTE
10'
FLOOD LIGHT
24' DOUBLE SWING GATE
COMM CABINET
TRANSFORMER PAD
SKI TRAIL
20' TYP
100' (GRAVEL PAD)
130' FENCE
MATCH EXISTING
24' DOUBLE SWING GATE
TOP OF 4" WHITE PVC STANDPIPE EL 625.0
REFLECTOR ASSEMBLY AREA
TOP OF 3:1 SLOPE
TOE OF 3:1 SLOPE
TOP OF TRAIL EMBANKMENT
FENCE
FLOOD LIGHT
PAD SHOULDER
TOE OF 3:1 SLOPE
APPROXIMATE SKI TRAIL RE-ROUTE LOCATION
300'
SKI TRAINING AREA (NIC)
APPROX 10'
SCALE IN FEET

A
3
CROSS SECTION:
UAF AS3 ANTENNA

CONSULTANT:

PDC INC, ENGINEERS

PROJECT:
UAF AS3 ANTENNA
FAIRBANKS, ALASKA

SHEET TITLE:
CROSS SECTION
PRELIMINARY DESIGN

DESIGN	
DRAWN	
CHECKED	
DATE	
PROJECT No.	12135FB
SHEET NUMBER	C1.3
OF	SHEETS

UAF Preliminary Administrative Approval
Antenna Installation Alaska Satellite Facility AS311

UNLESS REFERRED TO AS EXISTING OR BY OTHERS, ALL WORK ON THESE DRAWINGS SHALL BE CONSIDERED NEW AND SHALL BE PROVIDED UNDER THIS CONTRACT. ANTENNA INSTALLATION IS NOT PART OF THIS CONTRACT.

STRUCTURAL DESIGN DATA

LIVE LOADS:

SNOW LOAD	50 PSF	
OVER TURNING MOMENT	437 K-FT	APPLIED AT TOP OF CONC VAULT
SHEAR FORCE	10 K	APPLIED AT TOP OF CONC VAULT
MAX DOWN FORCE	69 K	APPLIED AT TOP OF CONC VAULT

SEISMIC LOADS:

IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE (IBC) 2006 EDITION.

A. SITE CLASS = D
B. I = 1.0
C. S_S = 1.12g
D. S_1 = 0.31g
E. SEISMIC USE GROUP = 2
F. SEISMIC DESIGN CATEGORY = D

SERVICEABILITY LOADS:

A. FOUNDATION STIFFNESS = 2.7 E-10 RADIANS/IN-LBS MIN

FOUNDATION NOTES

1. MAT SHALL BE FOUNDED UPON COMPACTED STRUCTURAL FILL, WITH AN ALLOWABLE BEARING CAPACITY OF 2,000 PSF.
2. ALL ORGANIC AND OR OTHER UNSUITABLE MATERIALS SHALL BE REMOVED FROM SUBGRADE AND BACKFILL AREAS.
3. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY MEASURES TO PREVENT ANY FROST OR ICE FROM PENETRATING ANY FOOTING OR SLAB SUBGRADE BEFORE AND AFTER PLACING OF CONCRETE UNTIL SUCH SUBGRADES ARE FULLY PROTECTED BY THE PERMANENT BUILDING STRUCTURE.

STRUCTURAL CONCRETE NOTES

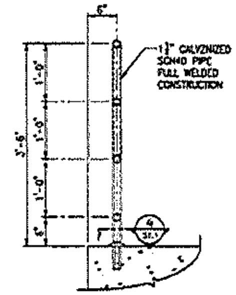
1. ALL CAST-IN-PLACE CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3,000 PSI.
2. ALL REINFORCING BARS SHALL BE NEW BILLET STEEL CONFORMING TO THE STANDARDS OF ASTM A615, GRADE 60 ,EXCEPT AS NOTED.
3. ALL CONCRETE REINFORCEMENT SHALL BE DETAILED, FABRICATED, LABELED, SUPPORTED AND SPACED 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 318 AND THE "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES" - ACI 315.
4. DOWELS SHALL MATCH SIZE AND NUMBER OF MAIN REINFORCING.
5. MINIMUM CONCRETE COVER SHALL BE:
   A. 3" FOR CONCRETE CAST AGAINST THE EARTH.
   B. 2" FOR BARS EXPOSED TO EARTH OR WEATHER AND IN WALLS.
6. CHAMFER ALL EXPOSED CORNERS 1".
7. ALL CONCRETE SHALL CONTAIN AN APPROVED AIR ENTRAINING ADMIXTURE.
8. UNLESS NOTED OTHERWISE, THE FOLLOWING BAR LAPS SHALL BE PROVIDED:

CONCRETE REBAR DEVELOPMENT LAP SPLICE LENGTHS			
BAR SIZE	MAT AND SLAB		WALLS
	l_t (INCHES)	l_d (INCHES)	CONCRETE COVER (C) C>d_b
#4	25	19	12
#5	31	24	20
#6	38	29	28
#7	55	42	38
#8	66	51	49

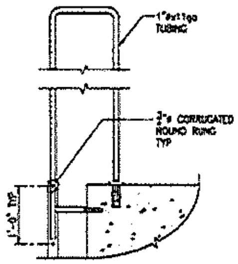
A. l_d = DEVELOPMENT BARS IN TENSION WITH LESS THAN 12" OF CONCRETE CAST BELOW

B. l_t = DEVELOPMENT OF BARS IN TENSION WITH MORE THAN 12" OF CONCRETE CAST BELOW

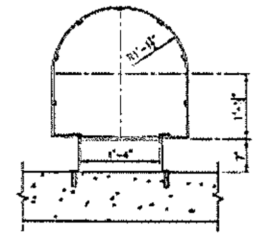
C. SPLICE LENGTH EQUALS 1.3x DEVELOPMENT LENGTH.



1 HANDRAIL DETAIL
S1.1 1"=1'-0"

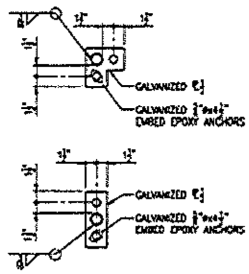


2 LADDER DETAIL
S1.1 1"=1'-0"

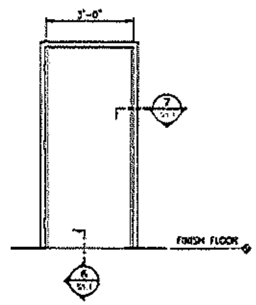


NOTE:
CAGE AND LADDER TO BE A GALVANIZED FIXED STEEL LADDER BY "COTTERMAN," OR EQUAL. CAGE SHALL HAVE SECURITY SCREEN AND ENTRY GATE WITH HASP AND LOCK. TOP OF LADDER SHALL HAVE (2) SAFETY CHAINS WITH SPRING-LOADED "D" RINGS.

3 CAGE AND LADDER DETAIL
S1.1 1"=1'-0"

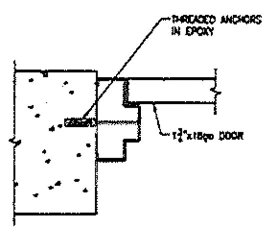


4 HANDRAIL BASE PLATE DETAILS
S1.1 1 1/2"=1'-0"



5 DOOR FRAME
S1.1 1/2"=1'-0"

6 SILL DETAIL
S1.1 3"=1'-0"



7 JAMB AND HEAD DETAIL
S1.1 3"=1'-0"

REVISIONS

CONSULTANT:

PDC INC. ENGINEERS

PROJECT: UAF AS3 ANTENNA
FAIRBANKS, ALASKA

SHEET TITLE: STRUCTURAL GENERAL NOTES AND TYPICAL DETAILS
PRELIMINARY DESIGN

PROJECT No. 12115FB

SHEET NUMBER S1.1

UAF Preliminary Administrative Approval
Antenna Installation Alaska Satellite Facility AS311