US Army Corps
of Engineers
Alaska District

# ALASKA COASTAL EROSION

## SHISHMAREF, ALASKA

## CONTRACT NO. W911KB-07-C-0022

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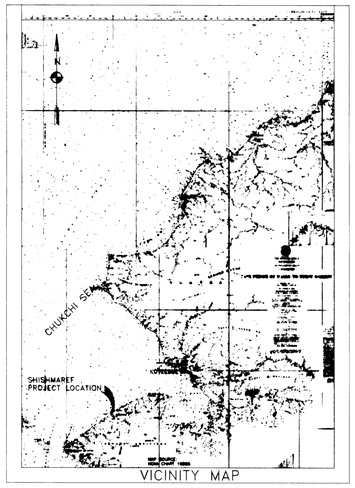
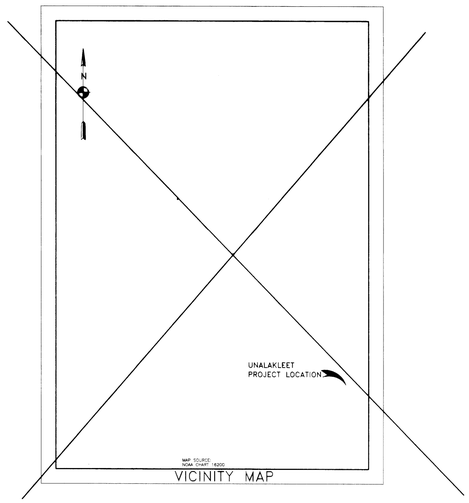



VICINITY MAP




VICINITY MAP

NOTES:

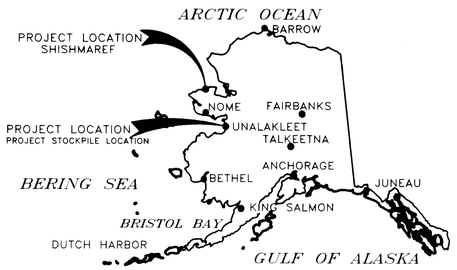
1. THERE IS NO CONTRACTOR STAGING AREA OR STOCKPILING AREA PROVIDED FOR THIS CONTRACT.
2. SHORELINE AND BOTTOM CONTOURS SHOWN REFLECT CONDITIONS AT THE TIME OF THE PHOTOGRAPH. BOTTOM AND SHORELINE CONTOURS ARE SUBJECT TO CHANGE DUE TO EROSION.
3. THIS PROJECT IS IN ENGLISH UNITS. ALL DISTANCES, STATIONING, DEPTHS ARE FEET.
4. DURING STORM SURGE CONDITIONS WATER LEVELS CAN RISE TO +13 FEET MLLW.
5. FREEZE UP IN THE AREA CAN OCCUR IN LATE OCTOBER AND BREAKUP CAN OCCUR IN MID MAY. WAVES AND CURRENTS CAN BE SEVERE
6. THE CONTRACTOR SHALL REMOVE ALL VEGETATION, DRIFTWOOD LOGS, AND MISCELLANEOUS DEBRIS PRIOR TO PLACEMENT OF ROCK. MATERIALS REMOVED SHALL BE DISPOSED OF IN A APPROVED DISPOSAL AREA IN COORDINATION WITH THE CITY OF SHISHMAREF. COORDINATION FOR THE CITY OF SHISHMAREF. CAN BE MADE THROUGH THE CITY CLERK, MELANIE WEYOUANNA (907) 649-3781. OR BY FAX (907) 649-2131, OR EMAIL SSHCITYCLERK@YAHOO.COM.
7. STORE AND BUILDINGS IN CONSTRUCTION AREA ARE CURRENTLY IN USE AND OCCUPIED. WORK AROUND OCCUPANTS.
8. THE CONTRACTOR SHALL LOCATE EXISTING UTILITIES IN THE FIELD PRIOR TO THE COMMENCEMENT OF WORK.
9. THE CONTRACTOR SHALL REMOVE THE TOP TIER OF CONCERTAINERS FROM THE SEA WALL PRIOR TO CONSTRUCTING THIS REVETMENT. SEE SHEET W-10.
10. TIDAL DATA SHOWN ON THIS SHEET FOR SHISHMAREF IS NOT REFERENCED TO THE SURVEY DATA ON SHEET W-2.

| TIDAL DATA, SHISHMAREF INLET, ALASKA | DATUM MLLW |
|---|---|
| MEAN HIGHER HIGH WATER (MHHW) | 1.0 FEET |
| MEAN HIGH WATER (MHW) | .87 FEET |
| MEAN SEA LEVEL (MSL) | .50 FEET |
| MEAN LOW WATER (MLW) | .11 FEET |
| MEAN LOWER LOW WATER (MLLW) | 0.0 FEET |

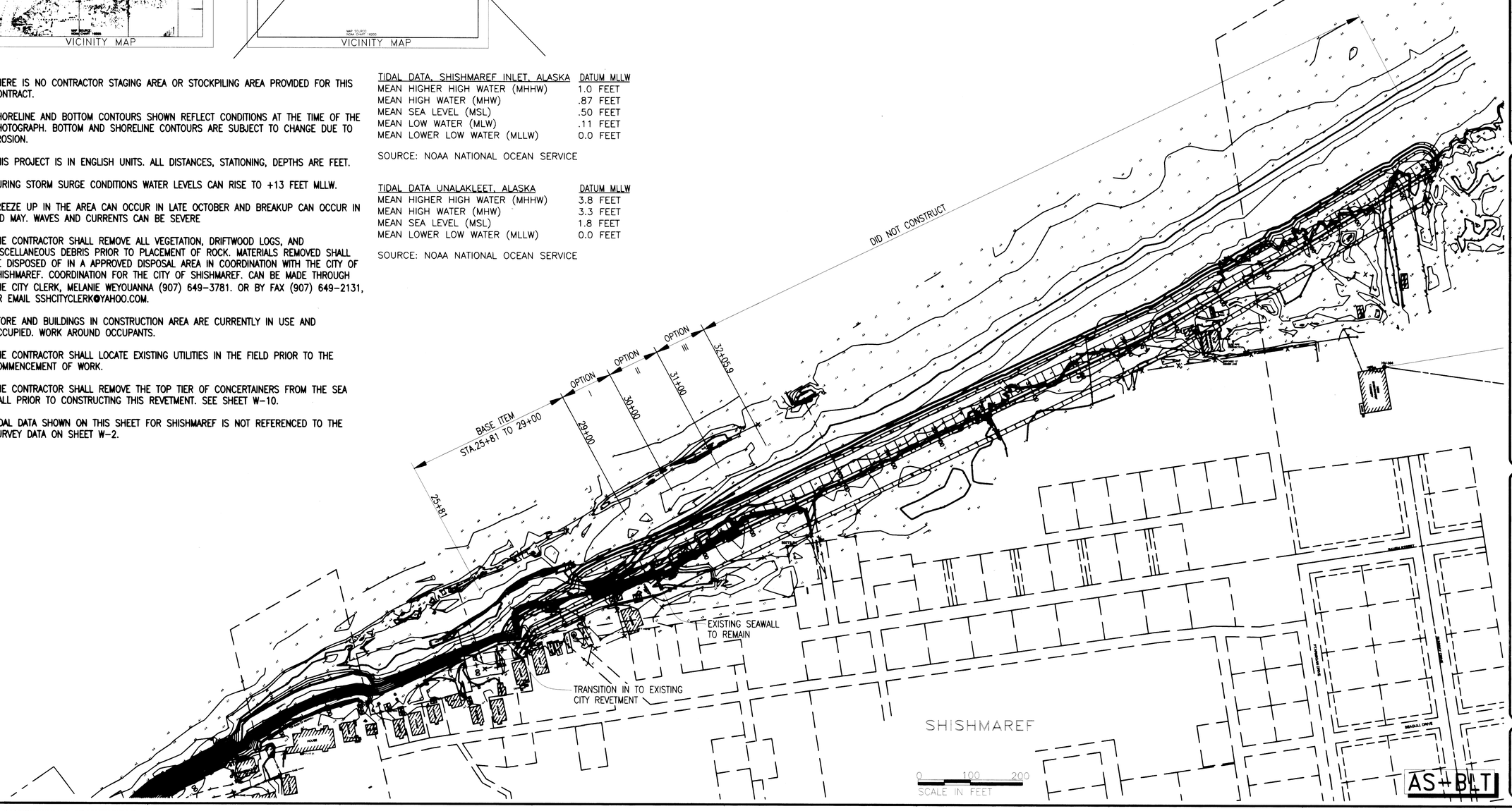
SOURCE: NOAA NATIONAL OCEAN SERVICE

| TIDAL DATA UNALAKLEET, ALASKA | DATUM MLLW |
|---|---|
| MEAN HIGHER HIGH WATER (MHHW) | 3.8 FEET |
| MEAN HIGH WATER (MHW) | 3.3 FEET |
| MEAN SEA LEVEL (MSL) | 1.8 FEET |
| MEAN LOWER LOW WATER (MLLW) | 0.0 FEET |

SOURCE: NOAA NATIONAL OCEAN SERVICE




LOCATION MAP




US ARMY CORPS OF ENGINEERS
ALASKA DISTRICT

CONTRACT NO. W911KB-07-C-0022
CONTRACTOR ARRIGAN JV
CITY ANCHORAGE STATE AK
Designer/Approved
Date

| Symbol | Description | Date Appd |
|---|---|---|

Date APR. 24, 2007
Scale AS NOTED
Plot Scale 1:1
File SHI081818-02-W-1
Drawing 6-SH-154-32-02
Drawn D.M.M.
Checked J.E.F.
Designed K. Eisses
Reviewed D. Hardy
INV. NO. W911KB-07-R-0011
SHI081818

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ANCHORAGE, ALASKA

SHISHMAREF & UNALAKLEET, ALASKA
ALASKA COASTAL EROSION
HYDRAULICS & HYDROLOGY
CIVIL WORKS
LOCATION AND VICINITY MAP

Reference number:
W-1
Sheet 2 of 11

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**HORIZONTAL CONTROL**
Coordinates are ASPC Zone 8, NAD 83(1986) in U.S. Feet. The Basis of Coordinates is Corner 2, US SURVEY NO. 3773, ALASKA, EMBRACING LOTS 1, 2, and 3 (C2, USS3773), said corner being a Bureau of Land Management Brass Cap having a value of N4,479,301.98 and E1,631,612.52. The NAD 83(1986) position for this monument was established by Global Positioning Services, Inc. (GPS, Inc.) from GPS observations taken in September, 2004 referenced to USC&GS Station "WALES" located at the Village of Wales approximately 68 miles southwest of Shishmaref. NAD 83(1986) values for "WALES 1944" held by GPS, Inc. are N65°37'20.13825" and W168°05'38.34415".

Positions for other control points shown hereon were derived from static differential GPS observations and conventional traverse methods performed by DOWL Engineers in August, 2006

**PROJECT SCALE FACTOR**
The Project Combined Scale Factor is 0.99989880. To convert ground distances to ASP grid distances, multiply by a combined scale factor of 0.99989880. To convert ASP grid distances to ground distances, multiply by a combined scale factor of 100000000/99989880.

**VERTICAL CONTROL**
The true relationship of control points shown hereon to any tidal datum is unknown.

Elevations are based on photo control point HV-305, a P.K. nail in a large "X" painted yellow near the south end of the old asphalt runway, said nail having a value of 5.23 feet related to this project. The elevation for HV-305 was established by Global Positioning Services, Inc. (GPS, Inc.) from GPS observations taken in September, 2004 referenced to the NGVD 29 elevation for USC&GS Station "WALES" located at the Village of Wales approximately 68 miles southwest of Shishmaref. The NGVD 29 value for "WALES" held by GPS, Inc. is 16.0 feet.

Elevations for other control points shown hereon were derived by differential leveling performed by DOWL Engineers in August, 2006.

**PROPERTY NOTE**
Property information shown hereon has been generated from readily available sources with limited ties to property corners and limited accuracy checks. Property information research includes an on-line search of the State Recorder's Office records posted on the internet only. Unrecorded subdivisions, land transactions, or other information not posted on the State Recorder's Office website may exist. A thorough title search is recommended if new construction is anticipated to encroach onto private properties. Generally, the information shown hereon is current as of August, 2006.

**SURVEY CONTROL POINTS**

| POINT | NORTHING | EASTING | ELEVATION | DESCRIPTION |
|---|---|---|---|---|
| HV-305 | 4,478,683.66 | 1,632,016.38 | 5.23 | Magnail |
| S3773 C2 | 4,479,301.98 | 1,631,612.52 | 7.47 | Brass Cap |
| S3773 C3 | 4,479,156.84 | 1,630,667.32 | 4.47 | Brass Cap |
| S3773 C4 | 4,479,900.44 | 1,630,553.85 | 7.02 | Brass Cap |
| SACE-1 | 4,478,212.13 | 1,628,872.58 | 7.62 | Alum Mon |
| SACE-2 | 4,478,772.58 | 1,631,955.99 | 4.80 | Alum Mon |

**LEGEND**

- SURVEY MONUMENT
- PROPERTY MONUMENT
- POWER POLE
- POWER POLE W/GUY ANCHOR
- LIGHT FIXTURE
- TRANSFORMER
- VALVE
- SIGN
- GUARD POST/BOLLARD
- F.F. FINISH FLOOR
- XXX.XXX SPOT ELEVATION
- X FENCE LINE
- OHVE OVERHEAD ELECTRIC
- EDGE OF PAVEMENT
- EDGE OF GRAVEL / DIRT
- BUILDING
- MINOR CONTOUR
- 100 MAJOR CONTOUR

CENTERLINE ALIGNMENT TABLE

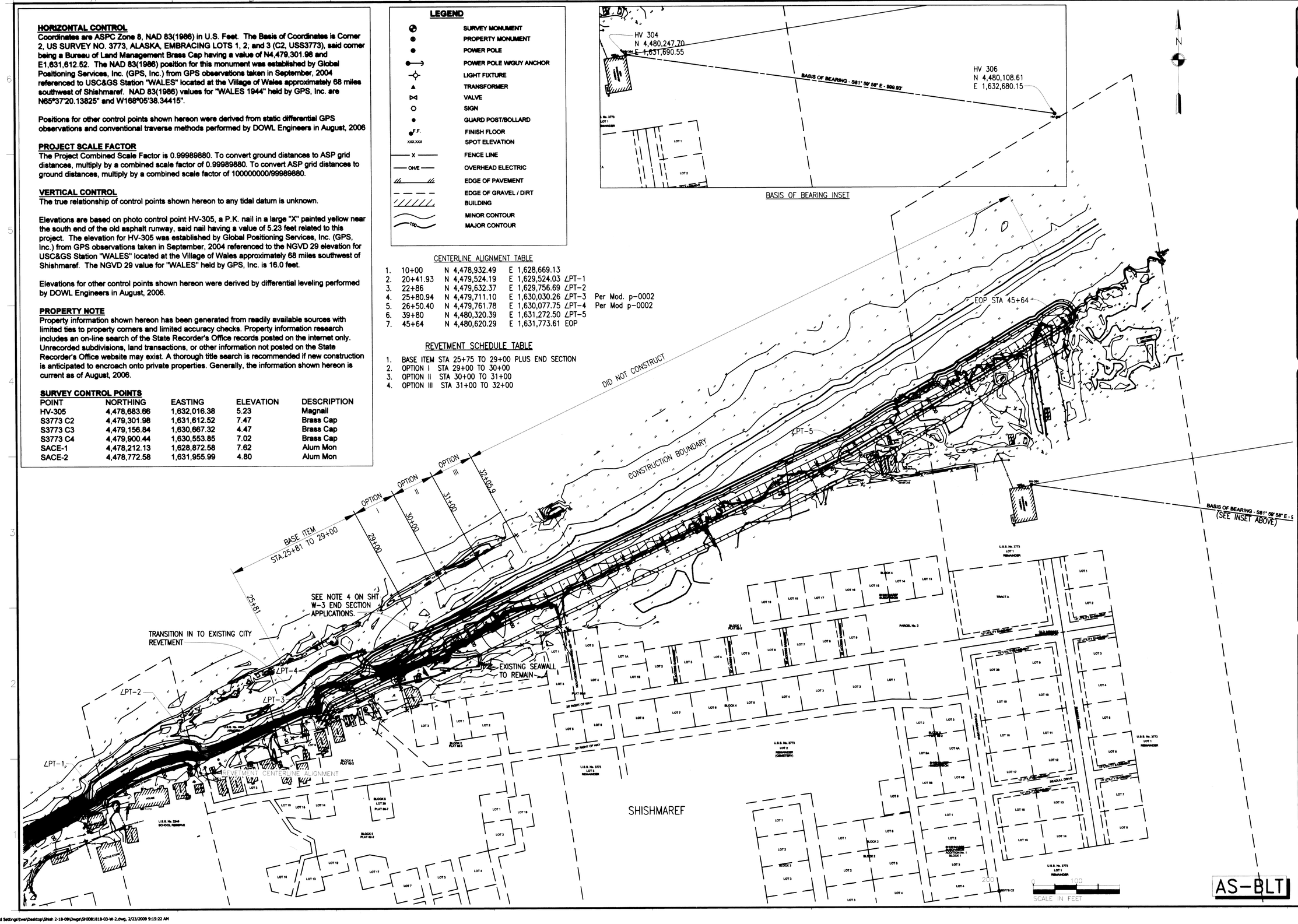
| | | | | |
|---|---|---|---|---|
| 1. | 10+00 | N 4,478,932.49 | E 1,628,669.13 | |
| 2. | 20+41.93 | N 4,479,524.19 | E 1,629,524.03 | ∠PT-1 |
| 3. | 22+86 | N 4,479,632.37 | E 1,629,756.69 | ∠PT-2 |
| 4. | 25+80.94 | N 4,479,711.10 | E 1,630,030.26 | ∠PT-3 Per Mod. p-0002 |
| 5. | 26+50.40 | N 4,479,761.78 | E 1,630,077.75 | ∠PT-4 Per Mod p-0002 |
| 6. | 39+80 | N 4,480,320.39 | E 1,631,272.50 | ∠PT-5 |
| 7. | 45+64 | N 4,480,620.29 | E 1,631,773.61 | EOP |

REVETMENT SCHEDULE TABLE

1. BASE ITEM STA 25+75 TO 29+00 PLUS END SECTION
2. OPTION I STA 29+00 TO 30+00
3. OPTION II STA 30+00 TO 31+00
4. OPTION III STA 31+00 TO 32+00




BASIS OF BEARING INSET




US ARMY CORPS OF ENGINEERS
ALASKA DISTRICT

CONTRACT NO. W911KB-07-C-0022
CONTRACTOR ARRIGAH JV
CITY ANCHORAGE STATE AK
Resident Engineer Approved Date 2/23/09

| Date | Approved | Description | Sign Authority |
|---|---|---|---|

Date APR. 24, 2007
Dwg Scale AS NOTED
Plot Scale 1:1
File SHI081818-03-W-2
Drawing # 6-SH-154-32-02
D.W.M.
J.E.F.
K. Esses
D. Hardy
INV. NO. W911KB-07-R-0011
SHI081818

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ANCHORAGE, ALASKA

SHISHMAREF & UNALAKLEET, ALASKA
ALASKA COASTAL EROSION
HYDRAULICS & HYDROLOGY
CIVIL WORKS
GENERAL PLAN AND SURVEY CONTROL

Reference number:
W-2
Sheet 3 of 11

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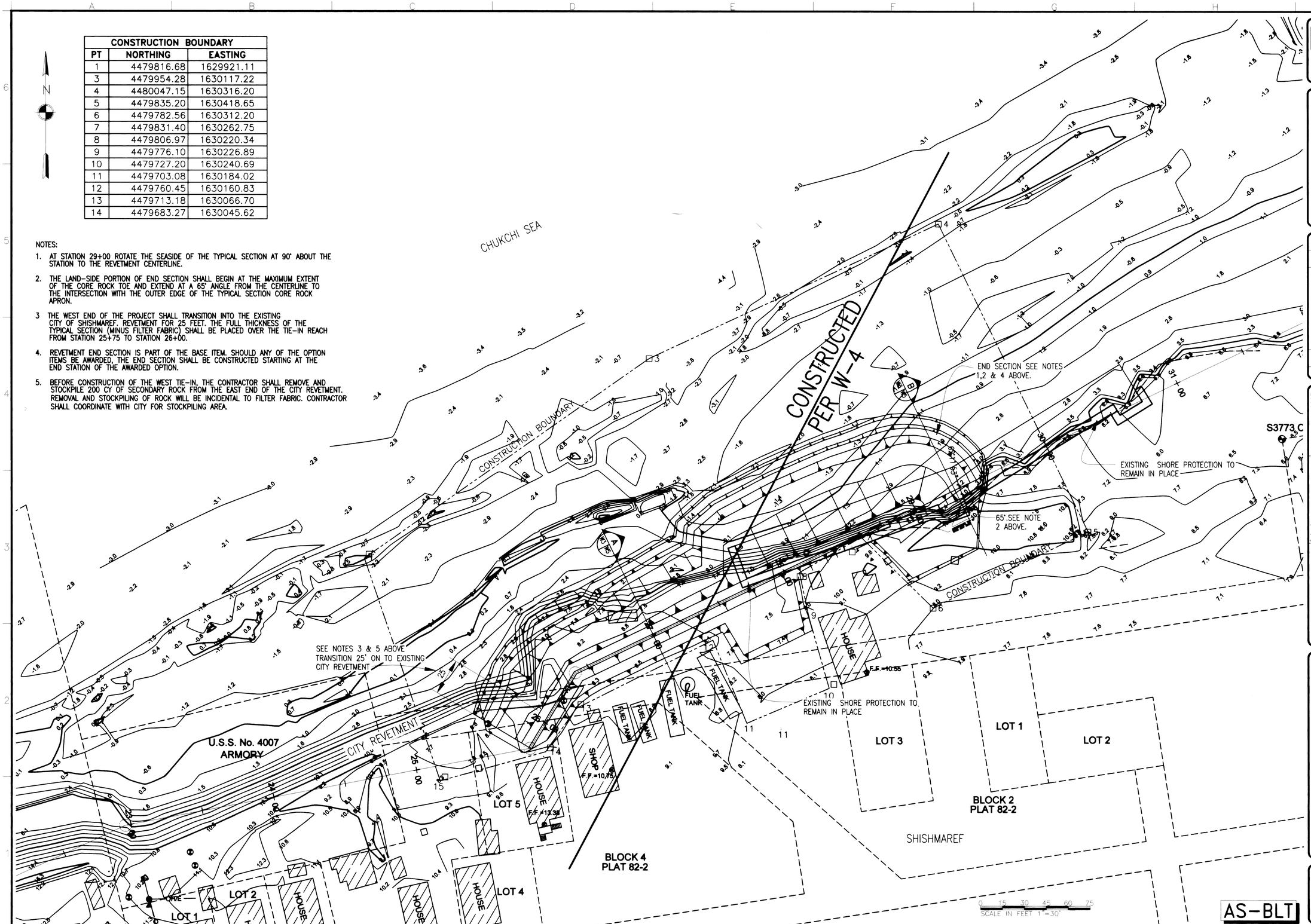
| CONSTRUCTION BOUNDARY | | |
|---|---|---|
| PT | NORTHING | EASTING |
| 1 | 4479816.68 | 1629921.11 |
| 3 | 4479954.28 | 1630117.22 |
| 4 | 4480047.15 | 1630316.20 |
| 5 | 4479835.20 | 1630418.65 |
| 6 | 4479782.56 | 1630312.20 |
| 7 | 4479831.40 | 1630262.75 |
| 8 | 4479806.97 | 1630220.34 |
| 9 | 4479776.10 | 1630226.89 |
| 10 | 4479727.20 | 1630240.69 |
| 11 | 4479703.08 | 1630184.02 |
| 12 | 4479760.45 | 1630160.83 |
| 13 | 4479713.18 | 1630066.70 |
| 14 | 4479683.27 | 1630045.62 |

NOTES:

1. AT STATION 29+00 ROTATE THE SEASIDE OF THE TYPICAL SECTION AT 90° ABOUT THE STATION TO THE REVETMENT CENTERLINE.
2. THE LAND-SIDE PORTION OF END SECTION SHALL BEGIN AT THE MAXIMUM EXTENT OF THE CORE ROCK TOE AND EXTEND AT A 65° ANGLE FROM THE CENTERLINE TO THE INTERSECTION WITH THE OUTER EDGE OF THE TYPICAL SECTION CORE ROCK APRON.
3. THE WEST END OF THE PROJECT SHALL TRANSITION INTO THE EXISTING CITY OF SHISHMAREF. REVETMENT FOR 25 FEET. THE FULL THICKNESS OF THE TYPICAL SECTION (MINUS FILTER FABRIC) SHALL BE PLACED OVER THE TIE-IN REACH FROM STATION 25+75 TO STATION 26+00.
4. REVETMENT END SECTION IS PART OF THE BASE ITEM. SHOULD ANY OF THE OPTION ITEMS BE AWARDED, THE END SECTION SHALL BE CONSTRUCTED STARTING AT THE END STATION OF THE AWARDED OPTION.
5. BEFORE CONSTRUCTION OF THE WEST TIE-IN, THE CONTRACTOR SHALL REMOVE AND STOCKPILE 200 CY OF SECONDARY ROCK FROM THE EAST END OF THE CITY REVETMENT. REMOVAL AND STOCKPILING OF ROCK WILL BE INCIDENTAL TO FILTER FABRIC. CONTRACTOR SHALL COORDINATE WITH CITY FOR STOCKPILING AREA.




AS-BLT

US ARMY CORPS OF ENGINEERS
ALASKA DISTRICT

CONTRACT NO. W911KB-07-C-0022
CONTRACTOR ARRICAH JV
CITY ANCHORAGE STATE AK
Representative Approved
Date 2/23/09

| Sym | Description | Date | Approved |
|---|---|---|---|

DWM. APR. 24, 2007
J.E.F. AS NOTED
K. Eisses 1:1
D. Hardy SHI081818-04-W-3
6-SH-154-32-02
INV. NO. W911KB-07-R-0011
SHI081818

U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS ANCHORAGE, ALASKA

SHISHMAREF & UNALAKLEET, ALASKA
ALASKA COASTAL EROSION
HYDRAULICS & HYDROLOGY
CIVIL WORKS
SITE PLAN (BASE ITEM)

Reference number: W-3
Sheet 4 of 11

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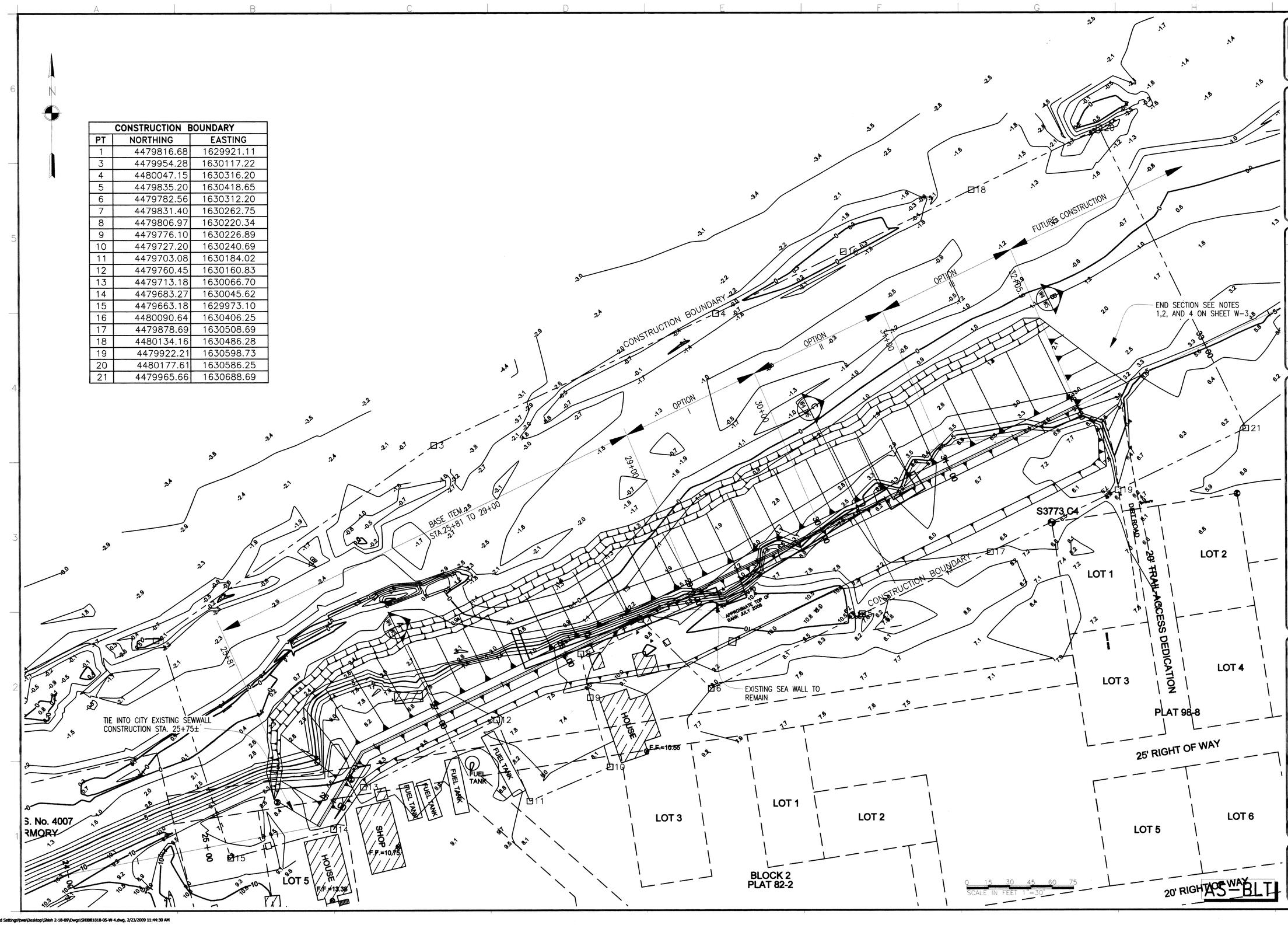
| CONSTRUCTION BOUNDARY | | |
|---|---|---|
| PT | NORTHING | EASTING |
| 1 | 4479816.68 | 1629921.11 |
| 3 | 4479954.28 | 1630117.22 |
| 4 | 4480047.15 | 1630316.20 |
| 5 | 4479835.20 | 1630418.65 |
| 6 | 4479782.56 | 1630312.20 |
| 7 | 4479831.40 | 1630262.75 |
| 8 | 4479806.97 | 1630220.34 |
| 9 | 4479776.10 | 1630226.89 |
| 10 | 4479727.20 | 1630240.69 |
| 11 | 4479703.08 | 1630184.02 |
| 12 | 4479760.45 | 1630160.83 |
| 13 | 4479713.18 | 1630066.70 |
| 14 | 4479683.27 | 1630045.62 |
| 15 | 4479663.18 | 1629973.10 |
| 16 | 4480090.64 | 1630406.25 |
| 17 | 4479878.69 | 1630508.69 |
| 18 | 4480134.16 | 1630486.28 |
| 19 | 4479922.21 | 1630598.73 |
| 20 | 4480177.61 | 1630586.25 |
| 21 | 4479965.66 | 1630688.69 |




US ARMY CORPS OF ENGINEERS
ALASKA DISTRICT

CONTRACT NO. W911KB-07-C-0022
CONTRACTOR ABRIGAN JV
CITY ANCHORAGE STATE AK
Representative
Title Project Manager
Date 3/2/08

| Date | Description |
|---|---|
| | |

Date APR. 24, 2007
Dwg Scale AS NOTED
Plot Scale 1:1
File SHI081818-05-W-4
Drawing 6-SH-154-32-02

Designed D.W.M.
Drawn J.E.F.
Checked K. Esses
Reviewed D. Hardy
Approved

INV. NO. W911KB-07-R-0011
SHI081818

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ANCHORAGE, ALASKA

SHISHMAREF & UNALAKLEET, ALASKA
ALASKA COASTAL EROSION
HYDRAULICS & HYDROLOGY
CIVIL WORKS
SITE PLAN (OPTION ITEMS)

Reference number:
W-4
Sheet 5 of 11

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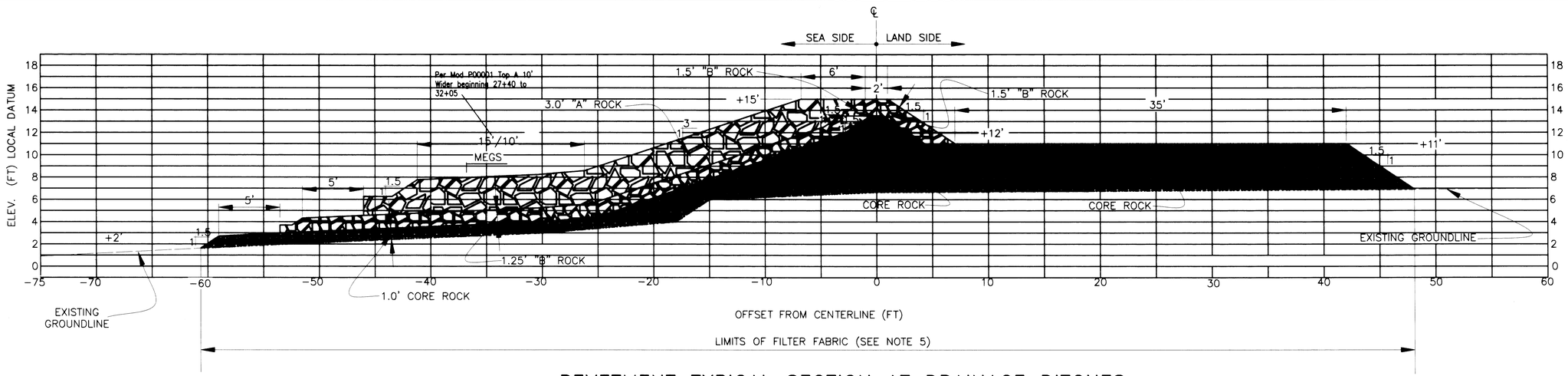
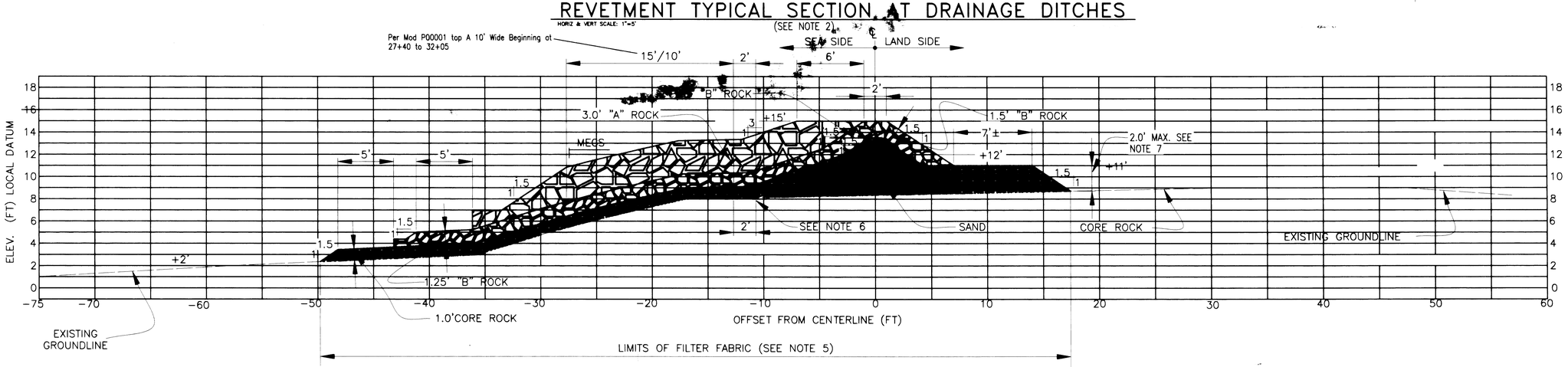



## REVETMENT TYPICAL SECTION AT DRAINAGE DITCHES

HORIZ & VERT SCALE: 1"=5'




## REVETMENT TYPICAL SECTION

HORIZ & VERT SCALE: 1"=5' STATION 27+00

A / W4 W5

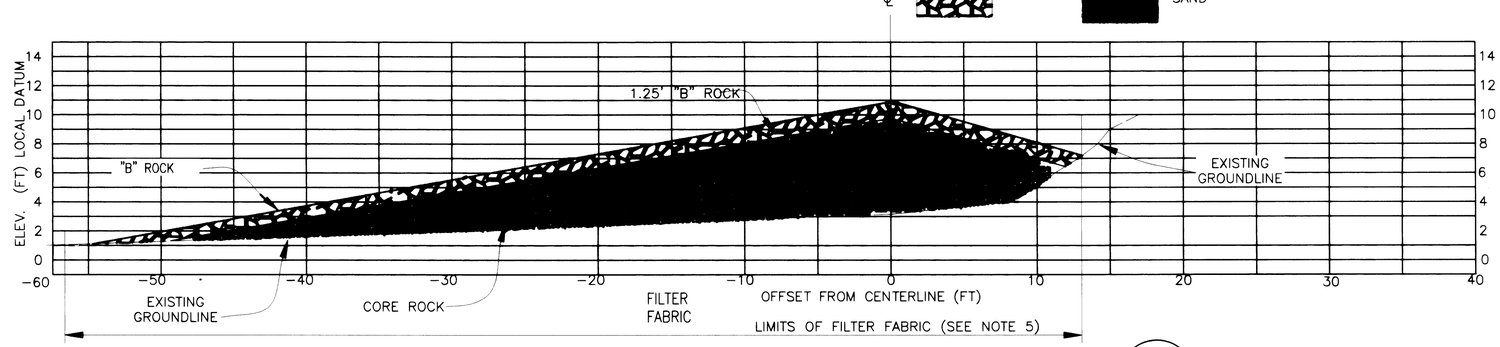
NOTES:

1. CONTRACTOR SHALL BE AWARE OF CLOSE PROXIMITY OF BUILDINGS IN THE CONSTRUCTION AREA IN ORDER TO AVOID THEM.
2. THIS SECTION IS TO BE USED WHEN THE REVETMENT IS BEING CONSTRUCTED ACROSS DRAINAGE DITCHES. THERE ARE (2) FOUR TO FIVE FOOT WIDE DRAINAGE DITCHES CROSSING PERPENDICULAR TO THE PROJECT CENTERLINE IN THE PROJECT AREA. THIS SECTION WILL BE USED THROUGH THE EXTEND OF EACH DRAINAGE DITCH.
3. POSITIVE OFFSETS ARE MEASURED TO THE RIGHT OF THE PROJECT BASELINE. NEGATIVE OFFSETS ARE MEASURED TO THE LEFT OF THE PROJECT BASELINE. ELEVATIONS ARE REFERENCED TO LOCAL DATUM IN FEET.
4. THE CONTRACTOR SHALL REMOVE ALL SECTIONS OF OVERHANG BANK PRIOR TO ANY ROCK PLACEMENT. THE SLOPE SHALL BE PREPARED TO PREVENT VOIDS WITHIN THE REVETMENT CROSS-SECTION AND IN THE FILL MATERIAL. BEFORE CONSTRUCTION OF THE REVETMENT THE BANK SHALL BE SHAPED, COMPACTED, AND SLOPED TO A 1V:3 H SLOPE USING SAND AS FILL. PREPARATION OF SLOPE IS AT NO ADDITIONAL COST TO THE GOVERNMENT.
5. FILTER FABRIC SHALL BE PLACED BETWEEN THE CORE ROCK AND THE SAND FILL/EXISTING GROUND.
6. THIS POINT IS LOCATED WHERE THE BOTTOM OF THE CORE ROCK LAYER INTERSECTS THE EXISTING GROUND.
7. CORE ROCK MAXIMUM THICKNESS SHALL BE 2.0 FEET. SAND FILL SHALL BE USED TO FILL THE LAND WARD SIDE OF THE REVETMENT FROM THE ORIGINAL GROUND LINE UP TO THE BOTTOM OF THE CORE ROCK LAYER.

## LEGEND

ROCK | CORE ROCK | MEGS — MATCH EXISTING GRADE SLOPES

"B" ROCK | SAND




Per RFI # 3, Section 32+15 from Post Construction Survey

## REVETMENT END SECTION

HORIZ & VERT SCALE: 1"=5' END SECTION (NOSE)

B / W4 W5

AS-BLT

US ARMY CORPS OF ENGINEERS ALASKA DISTRICT

CONTRACT NO. W911KB-07-C-0022
CONTRACTOR ARRIGAH JV
CITY ANCHORAGE STATE AK
Date 3/23/09

SHISHMAREF & UNALAKLEET, ALASKA
ALASKA COASTAL EROSION
HYDRAULICS & HYDROLOGY
CIVIL WORKS
REVETMENT TYPICAL SECTIONS I

Date APR. 24, 2007
Scale AS NOTED
Scale 1:1
Drawing 6-SH-15-32-02
Drawing SHI081818-06-W-5

D.M.M.
J.E.F.
K. Eisses
D. Hardy

INV. NO. W911KB-07-R-0011
SHI081818

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ANCHORAGE, ALASKA

Reference number: W-5
Sheet 6 of 11

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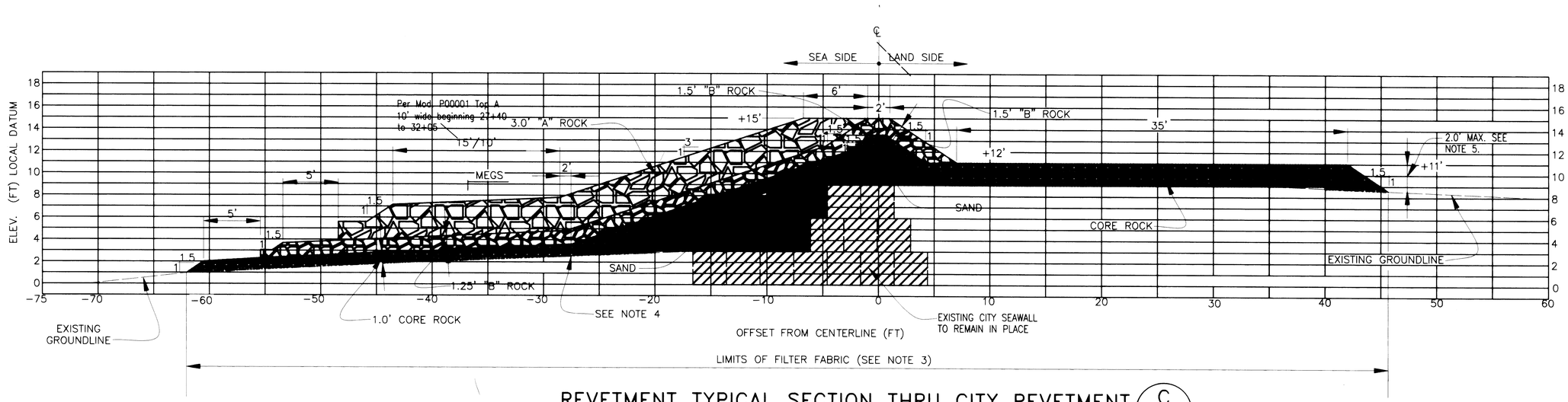


## REVETMENT TYPICAL SECTION THRU CITY REVETMENT

C
W4 | W6

HORIZ & VERT SCALE: 1"=5'

NOTES:

1. POSITIVE OFFSETS ARE MEASURED TO THE RIGHT OF THE PROJECT BASELINE. NEGATIVE OFFSETS ARE MEASURED TO THE LEFT OF THE PROJECT BASELINE. ELEVATIONS ARE REFERENCED TO LOCAL DATUM IN FEET.
2. THE CONTRACTOR SHALL REMOVE ALL SECTIONS OF OVERHANG BANK PRIOR TO ANY ROCK PLACEMENT. THE SLOPE SHALL BE PREPARED TO PREVENT VOIDS WITHIN THE REVETMENT CROSS-SECTION AND IN THE FILL MATERIAL. BEFORE CONSTRUCTION OF THE REVETMENT THE BANK SHALL BE SHAPED, COMPACTED, AND SLOPED TO A 1V:3 H SLOPE USING AS FILL. PREPARATION OF SLOPE IS AT NO ADDITIONAL COST TO THE GOVERNMENT.
3. FILTER FABRIC SHALL BE PLACED BETWEEN THE CORE ROCK AND THE SAND FILL/EXISTING GROUND.
4. THIS POINT IS LOCATED WHERE THE BOTTOM OF THE CORE ROCK LAYER INTERSECTS THE EXISTING GROUND.
5. CORE ROCK MAXIMUM THICKNESS SHALL BE 2.0 FEET. SAND FILL SHALL BE USED TO FILL THE LAND WARD SIDE OF THE REVETMENT FROM THE ORIGINAL GROUND LINE UP TO THE BOTTOM OF THE CORE ROCK LAYER.

## LEGEND

"A" ROCK
CORE ROCK
MEGS — MATCH EXISTING GRADE SLOPES
"B" ROCK
SAND
EXISTING CITY SEAWALL

US ARMY CORPS OF ENGINEERS
ALASKA DISTRICT

CONTRACT NO. W911KB-07-C-0022
CONTRACTOR ARRIGAH JV
CITY ANCHORAGE STATE AK
Recommended: Date: 3/2/09
Approved: Date: 3/2/09

Sym. Action Description Date Appvd

Designed: D.W.M.
Drawn: J.E.F.
Checked: K. Eisses
Reviewed: D. Hardy
Date: APR. 24, 2007
Dwg Scale: AS NOTED
Plot Scale: 1:1
File: SHI081818-07-W-6
Drawing #: 6-SW-154-32-02
INV. NO. W911KB-07-R-0011
SHI081818

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ANCHORAGE, ALASKA

SHISHMAREF & UNALAKLEET, ALASKA
ALASKA COASTAL EROSION
HYDRAULICS & HYDROLOGY
CIVIL WORKS
REVETMENT TYPICAL SECTIONS II

Reference number:
W-6
Sheet 7 of 11

AS-BLT

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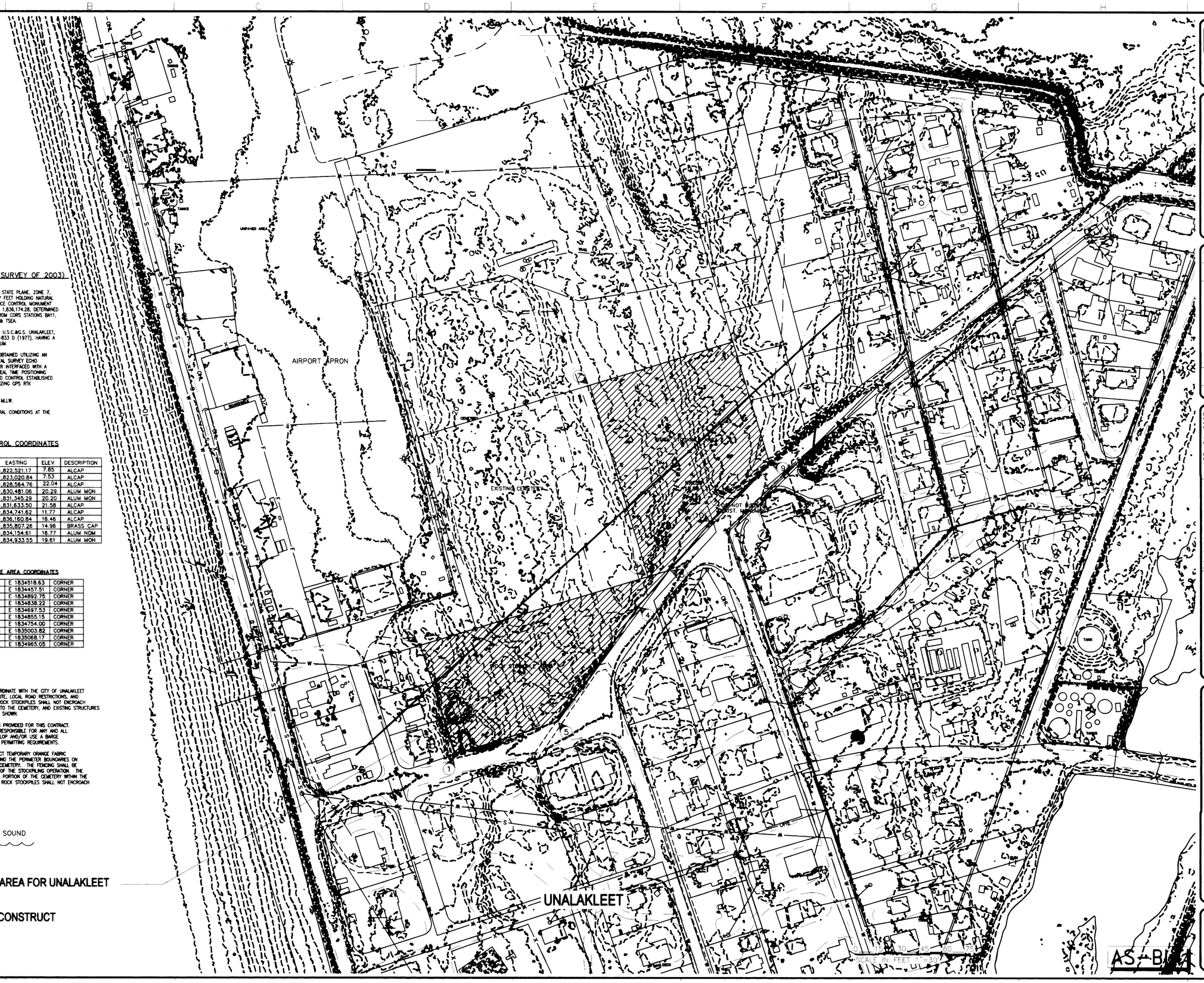


## NOTES (DOWL ENGR. SURVEY OF 2003)

1. HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 7, NAD83(2003-00) IN U.S. SURVEY FEET HOLDING NATURAL RESOURCES CONSERVATION SERVICE CONTROL MONUMENT (NRCS 7) AS N 3,613,105.58, E 1,836,174.28, DETERMINED BY STATIC GPS OBSERVATIONS FROM CORS STATIONS BAY1, CENA, FAIR, KEN1, KOD1, TLKA, & TSEA.
2. VERTICAL CONTROL IS BASED ON U.S.C.&G.S. UNALAKLEET, ALASKA TIDAL BENCH MARK 946-833 D (1977), HAVING A VALUE OF 14.96 FEET MLLW DATUM.
3. NEAR SHORE BATHYMETRY WAS OBTAINED UTILIZING AN "CEESTAR DUAL FREQUENCY DIGITAL SURVEY ECHO SOUNDER" WITH A 3° TRANSDUCER INTERFACED WITH A "TRIMBLE 5800 GPS RTK" FOR REAL TIME POSITIONING AND TIDAL CORRECTORS. UPLAND CONTROL ESTABLISHED AND TOPOGRAPHY OBTAINED UTILIZING GPS RTK METHODOLOGY.
4. CONTOURS SHOWN ARE IN FEET MLLW.
5. THIS SURVEY REPRESENTS GENERAL CONDITIONS AT THE TIME OF SURVEY.

## SURVEY CONTROL COORDINATES

| STATION | NORTHING | EASTING | ELEV. | DESCRIPTION |
|---|---|---|---|---|
| SITE 1A | 3,644,278.58 | 1,822,521.17 | 7.85 | ALCAP |
| SITE 1B | 3,643,412.17 | 1,823,020.84 | 7.53 | ALCAP |
| SITE 2A | 3,630,630.46 | 1,828,584.76 | 22.04 | ALCAP |
| NBASE | 3,625,416.56 | 1,830,481.06 | 20.29 | ALUM MON |
| SITE 3A | 3,623,167.44 | 1,831,345.29 | 20.20 | ALUM MON |
| SITE 3B | 3,622,209.82 | 1,831,633.50 | 21.58 | ALCAP |
| SITE 4A | 3,609,981.32 | 1,834,741.62 | 11.77 | ALCAP |
| LOT COR. | 3,608,814.27 | 1,836,160.84 | 16.46 | ALCAP |
| 83330 | 3,609,583.71 | 1,835,807.26 | 14.96 | BRASS CAP |
| WGMC-1 | 3,611,906.95 | 1,834,154.61 | 16.77 | ALUM NOM |
| NRCS 9 | 3,612,226.07 | 1,834,933.55 | 19.61 | ALUM MON |

## ROCK STOCKPILE AREA COORDINATES

| | | | |
|---|---|---|---|
| PT. 1 | N 3611737.97 | E 1834518.63 | CORNER |
| PT. 2 | N 3611928.60 | E 1834457.51 | CORNER |
| PT. 3 | N 3612060.18 | E 1834892.75 | CORNER |
| PT. 4 | N 3611996.61 | E 1834838.22 | CORNER |
| PT. 5 | N 3611795.33 | E 1834697.53 | CORNER |
| PT. 6 | N 3612048.81 | E 1834855.15 | CORNER |
| PT. 7 | N 3612383.42 | E 1834754.00 | CORNER |
| PT. 8 | N 3612459.20 | E 1835003.82 | CORNER |
| PT. 9 | N 3612246.35 | E 1835068.17 | CORNER |
| PT. 10 | N 3612144.46 | E 1834965.05 | CORNER |

## NOTES

1. THE CONTRACTOR SHALL COORDINATE WITH THE CITY OF UNALAKLEET CITY MANAGER FOR HAUL ROUTE, LOCAL ROAD RESTRICTIONS, AND EXISTING UTILITY LOCATES. ROCK STOCKPILES SHALL NOT ENCROACH ON EXISTING UTILITIES, TRAIL TO THE CEMETERY, AND EXISTING STRUCTURES WITHIN THE STOCKPILE AREAS SHOWN.
2. THERE IS NO BARGE LANDING PROVIDED FOR THIS CONTRACT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL ACTIVITIES REQUIRED TO DEVELOP AND/OR USE A BARGE LANDING SITE INCLUDING ANY PERMITTING REQUIREMENTS.
3. THE CONTRACTOR SHALL ERECT TEMPORARY ORANGE FABRIC CONSTRUCTION FENCING AROUND THE PERIMETER BOUNDARIES ON THE SIDES OF THE EXISTING CEMETERY. THE FENCING SHALL BE REMOVED UPON COMPLETION OF THE STOCKPILING OPERATION. THE FENCING SHALL EXCLUDE THE PORTION OF THE CEMETERY WITHIN THE STOCKPILE AREA SHOWN AND ROCK STOCKPILES SHALL NOT ENCROACH ON THE EXISTING GRAVES.

NORTON SOUND

**STOCKPILE AREA FOR UNALAKLEET**

**DID NOT CONSTRUCT**

US ARMY CORPS OF ENGINEERS
ALASKA DISTRICT

CONTRACT NO. W911KB-07-C-0022
CONTRACTOR ARRIGAN, INC.
CITY ANCHORAGE STATE AK
Approved: Date: 7/2/07
Project Manager

| No. | Action | Description | Date | Appr. |
|---|---|---|---|---|

Date APR. 24, 2007
Scale AS NOTED
Size 11 x 17
Drawing SHIS21818-08-W-7
Job 6-34-134-32-02
INV. NO. W911KB-07-R-0011
SHI081818

D.W.M.
J.E.F.
K. Eisses
D. Hardy

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ANCHORAGE, ALASKA

**SHISHMAREF & UNALAKLEET, ALASKA**
**ALASKA COASTAL EROSION**
**HYDRAULICS & HYDROLOGY**
CIVIL WORKS
UNALAKLEET STOCKPILE SITE

Reference number:
W-7
Sheet 8 of 11

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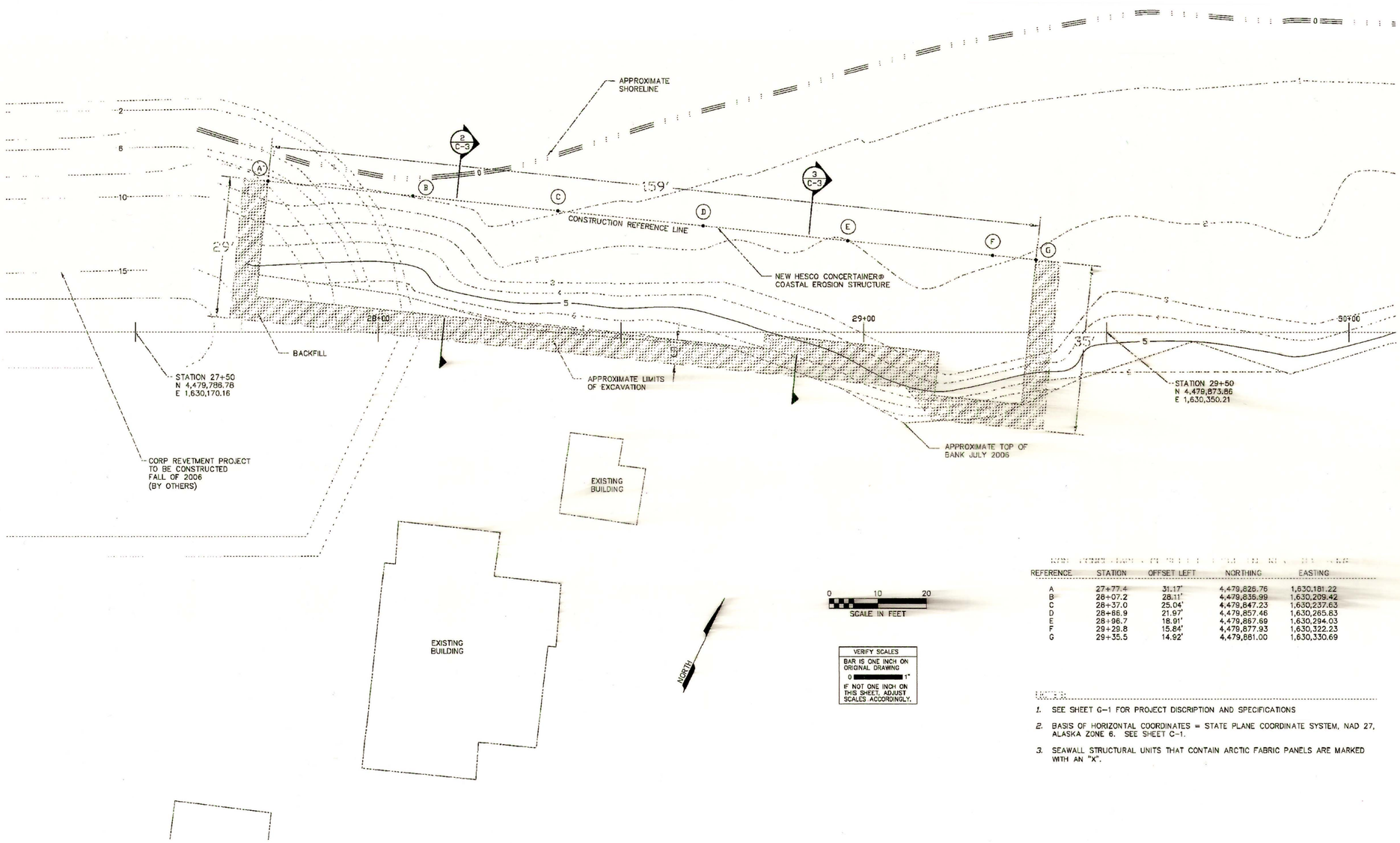


1 C-2 SEAWALL CONSTRUCTION
SCALE: 1" = 10'

| REFERENCE | STATION | OFFSET LEFT | NORTHING | EASTING |
|---|---|---|---|---|
| A | 27+77.4 | 31.17' | 4,479,826.76 | 1,630,181.22 |
| B | 28+07.2 | 28.11' | 4,479,835.99 | 1,630,209.42 |
| C | 28+37.0 | 25.04' | 4,479,847.23 | 1,630,237.63 |
| D | 28+66.9 | 21.97' | 4,479,857.46 | 1,630,265.83 |
| E | 28+96.7 | 18.91' | 4,479,867.69 | 1,630,294.03 |
| F | 29+29.8 | 15.84' | 4,479,877.93 | 1,630,322.23 |
| G | 29+35.5 | 14.92' | 4,479,881.00 | 1,630,330.69 |

NOTES:

1. SEE SHEET G-1 FOR PROJECT DISCRIPTION AND SPECIFICATIONS
2. BASIS OF HORIZONTAL COORDINATES = STATE PLANE COORDINATE SYSTEM, NAD 27, ALASKA ZONE 6. SEE SHEET C-1.
3. SEAWALL STRUCTURAL UNITS THAT CONTAIN ARCTIC FABRIC PANELS ARE MARKED WITH AN "X".

CITY OF SHISHMAREF

COASTAL EROSION CONTROL PILOT PROJECT
SHISHMAREF, ALASKA

LCMF LLC
1417 E. 5th Ave. Suite 201 Anchorage, AK 99501 P: 272-7551

CONSTRUCTION DRAWINGS

C-2

US ARMY CORPS OF ENGINEERS
ALASKA DISTRICT

CONTRACT NO. W911KB-07-C-0022
CONTRACTOR ARROWHEAD JV
CITY ANCHORAGE STATE AK
Approved: Date 3/2/09
Project Contractor Project Engineer

| Sym. | Action | Description | Date | Appvd |
|---|---|---|---|---|

Date: APR. 24, 2007
Dwg. Scale:
Plot. Scale: 1:1
File: SHI081818-09-W-8
Drawing #: 6-SHI-154-32-02
U.S. ARMY CORPS OF ENGINEERS, ALASKA DISTRICT
DWG. NO. W911KB-07-R-0011
SHI081818

SHISHMAREF & UNALAKLEET, ALASKA
ALASKA COASTAL EROSION
HYDRAULICS & HYDROLOGY
CIVIL WORKS
EXHIBIT I

Reference number: W-8
Sheet 9 of 11

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# EXHIBIT I

AS-BLT

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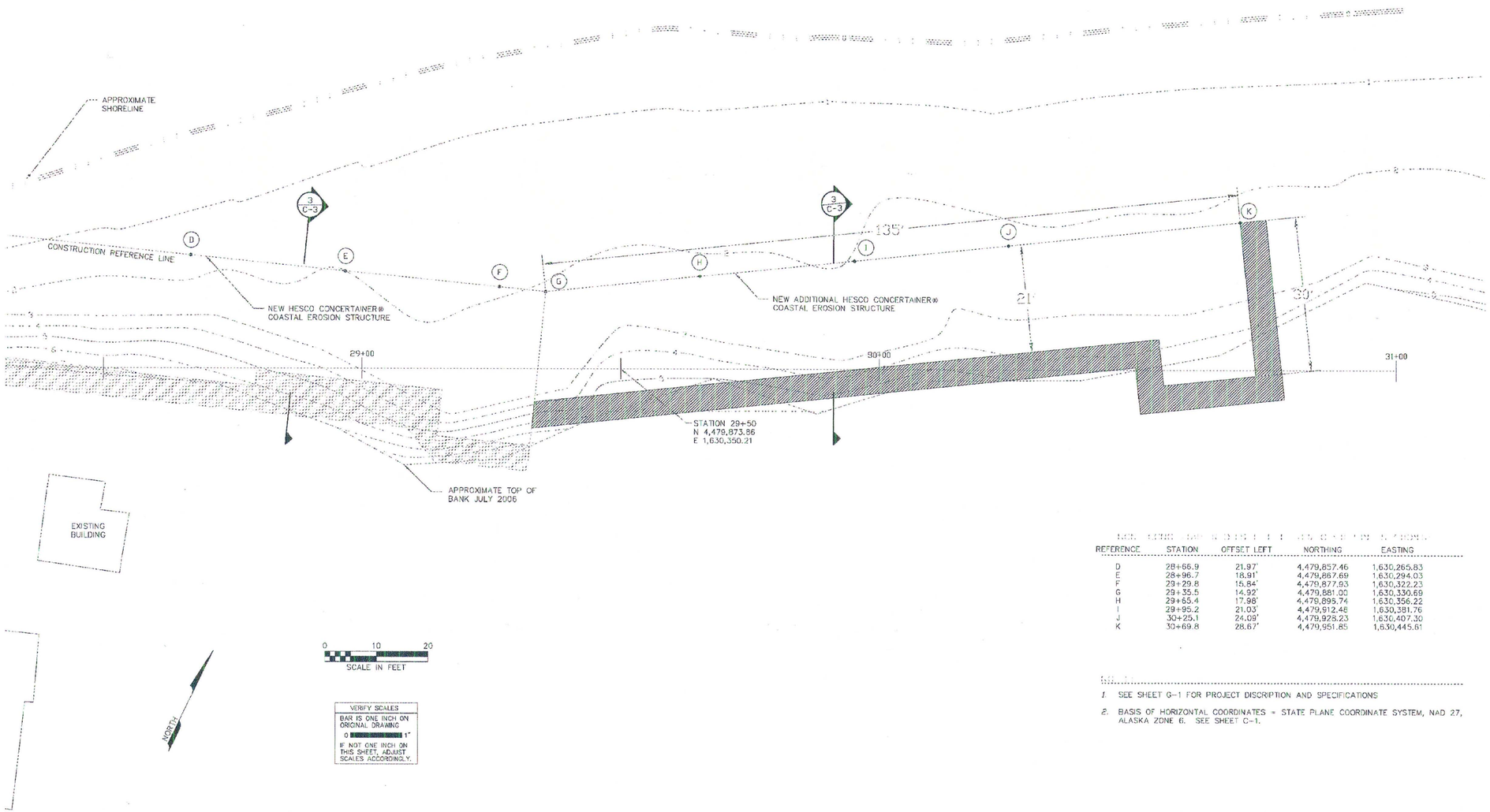


1 C-2 SEAWALL CONSTRUCTION
SCALE: 1" = 10'

| REFERENCE | STATION | OFFSET LEFT | NORTHING | EASTING |
|---|---|---|---|---|
| D | 28+66.9 | 21.97' | 4,479,857.46 | 1,630,265.83 |
| E | 28+96.7 | 18.91' | 4,479,867.69 | 1,630,294.03 |
| F | 29+29.8 | 15.84' | 4,479,877.93 | 1,630,322.23 |
| G | 29+35.5 | 14.92' | 4,479,881.00 | 1,630,330.69 |
| H | 29+55.4 | 17.98' | 4,479,895.74 | 1,630,356.22 |
| I | 29+95.2 | 21.03' | 4,479,912.48 | 1,630,381.76 |
| J | 30+25.1 | 24.09' | 4,479,928.23 | 1,630,407.30 |
| K | 30+69.8 | 28.67' | 4,479,951.85 | 1,630,445.61 |

1. SEE SHEET G-1 FOR PROJECT DISCRIPTION AND SPECIFICATIONS
2. BASIS OF HORIZONTAL COORDINATES = STATE PLANE COORDINATE SYSTEM, NAD 27, ALASKA ZONE 6. SEE SHEET C-1.

CITY OF SHISHMAREF

COASTAL EROSION CONTROL PILOT PROJECT
SHISHMAREF, ALASKA

LCMF LLC
9101 E. 55th Pl., Suite 206 Indianapolis, IN 46216 (317) 826-7100

CONSTRUCTION DRAWINGS

C-5

THIS DRAWING IS NOT TO SCALE AND IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

US ARMY CORPS OF ENGINEERS
ALASKA DISTRICT

CONTRACT NO. W911KB-07-C-0022
CONTRACTOR ARRIGAH JV
CITY ANCHORAGE STATE AK
Recommended: PRIME CONTRACTOR
Approved: RESIDENT ENGINEER
Date: 3/2/09

| Qm | Action | Description | Date | Appvd |
|---|---|---|---|---|

Date: APR. 24, 2007
Dwg Scale:
Plot Scale: 1:1
Section
File: SHI081818-10-W-9
Drawing # 6-SH-15A-32-02
Designed:
Drawn:
Reviewed:
Chief
Submitted: D. Hardy
Chief
Branch
INV. NO. W911KB-07-R-0011
SHI081818

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ANCHORAGE, ALASKA

SHISHMAREF & UNALAKLEET, ALASKA
ALASKA COASTAL EROSION
HYDRAULICS & HYDROLOGY
CIVIL WORKS
EXHIBIT II

Reference number:
W-9
Sheet 10 of 11

EXHIBIT II

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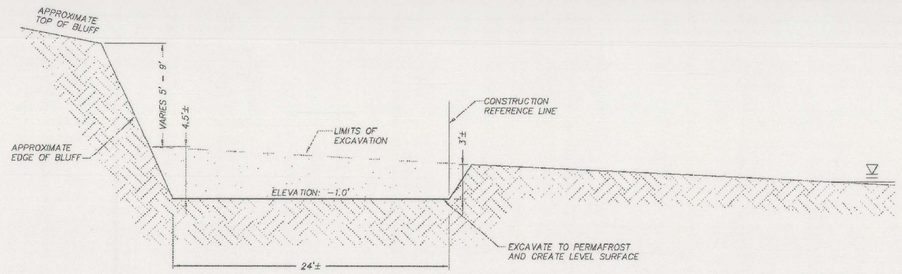
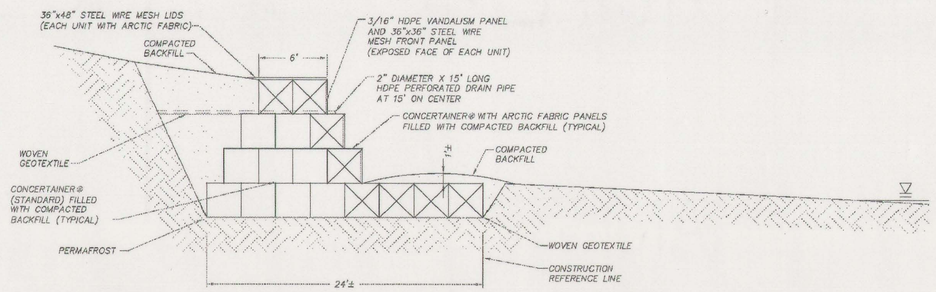
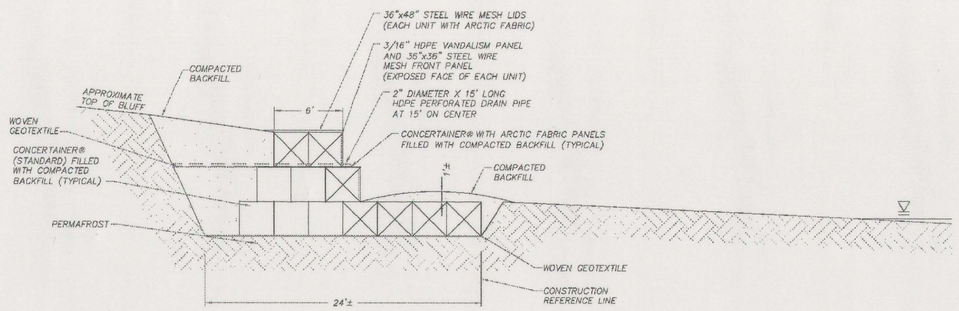



1 C-3 EXCAVATION SECTION
SCALE: 1" = 5'



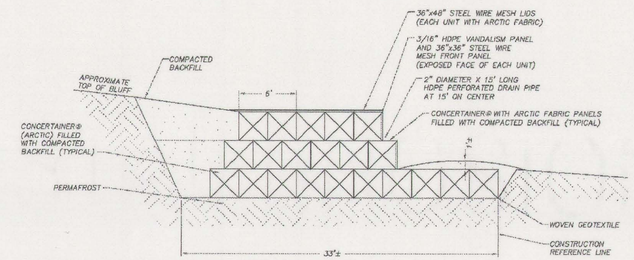

2 C-3 FOUR TIER SEAWALL-SECTION
SCALE: 1" = 5'



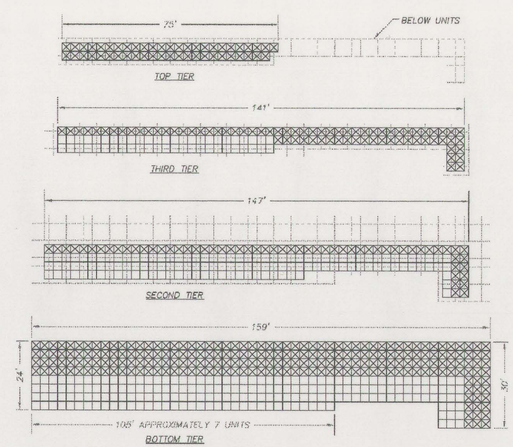

3 C-3 THREE TIER SEAWALL-SECTION
SCALE: 1" = 5'

NOTES

1. SEE SHEET G-1 FOR PROJECT DESCRIPTION AND SPECIFICATIONS.
2. PLACE 2"ø X 15' LONG SCHEDULE 80 HDPE PERFORATED DRAIN PIPE BETWEEN THIRD TIER AND TOP TIER AT 15 FEET ON CENTER.
3. COMPACT SUBGRADE AND BACKFILL TO 90% MAXIMUM DENSITY.
4. INSTALL 3/16" HDPE VANDALISM PANEL AND 36"x36" STEEL WIRE MESH FRONT AT THE EXPOSED FACE OF EACH UNIT.




4 C-3 SEAWALL TERMINATION SECTION
SCALE: 1" = 6'




5 C-3 SEAWALL TIER PLAN VIEW
SCALE: 1" = 20'

CITY OF SHISHMAREF

COASTAL EROSION CONTROL PILOT PROJECT
SHISHMAREF, ALASKA

LCMF LLC
6145 E Cook Ave, Ste 500 Anchorage, AK 99518 907-929-8585

CONSTRUCTION DRAWINGS

DATE: APR. 24, 2007
SCALE: AS SHOWN
SEAWALL TIER SECTIONS AND PLAN VIEW

C-3

THIS DRAWING IS NOT TO SCALE AND IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

PLOTTING DATE: 2/23/09 (12:28) BY: JACHLEF
AUTOCAD DRAWING NAME: Seawall tier Section and Plan View C-3.dwg

US ARMY CORPS OF ENGINEERS
ALASKA DISTRICT

CONTRACT NO. W911KB-07-C-0022
CONTRACTOR ARRIGAH JV
CITY ANCHORAGE STATE AK
Recommended: PRIME CONTRACTOR
Approved: RESIDENT ENGINEER
Date: 2/23/09

| Symb | Action | Description | Date | Appvd |
|---|---|---|---|---|

Date: APR. 24, 2007
Dwg Scale:
Plot Scale: 1:1
Section
File: SHI081818-11-W-10
Drawing # 6-SH-154-32-02
Branch
W911KB-07-R-0011
SHI081818
INV. NO. W911KB-07-R-0011

Designed:
Drawn:
Reviewed:
Chief:
Submitted:
Chief:

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ANCHORAGE, ALASKA

SHISHMAREF & UNALAKLEET, ALASKA
ALASKA COASTAL EROSION
HYDRAULICS & HYDROLOGY
CIVIL WORKS
EXHIBIT III

Reference number:
W-10
Sheet 11 of 11

EXHIBIT III

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