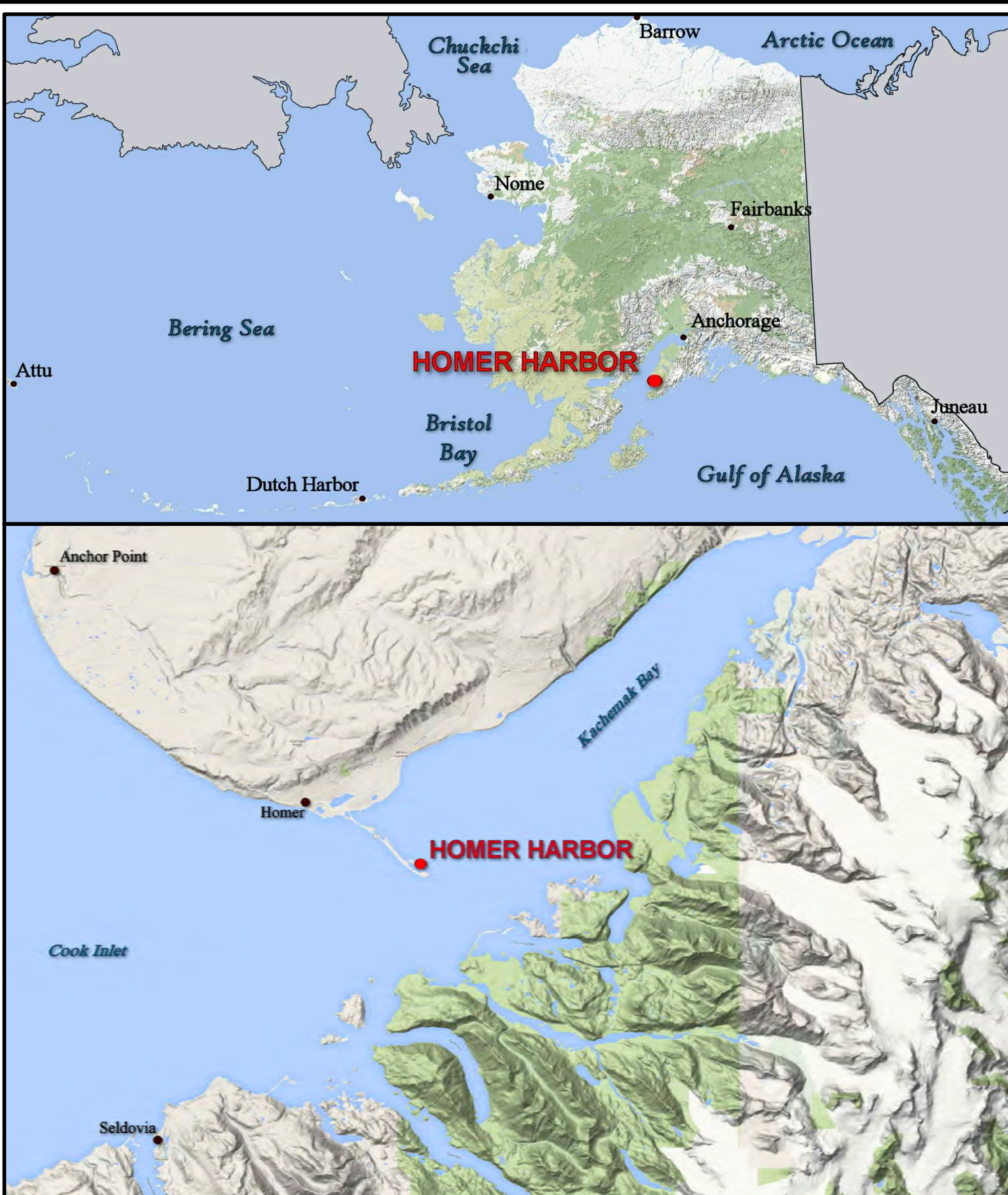


| PROJECT LIMITS CURVE DATA |         |            |              |
|---------------------------|---------|------------|--------------|
| CURVE                     | RADIUS  | ARC LENGTH | DELTA ANGLE  |
| C2                        | 172.88' | 149.28'    | 049°28'29.9" |
| C3                        | 185.63' | 338.77'    | 104°33'41.9" |
| C4                        | 95.61'  | 174.50'    | 104°34'21.5" |
| C5                        | 160.18' | 208.51'    | 074°34'49.9" |
| C6                        | 104.07' | 191.44'    | 105°23'39.2" |

| PROJECT LIMITS |              |              |
|----------------|--------------|--------------|
| CORNER#        | NORTHING     | EASTING      |
| 7              | 2,049,519.03 | 1,377,882.50 |
| 8              | 2,049,207.15 | 1,377,883.23 |
| 9              | 2,049,313.35 | 1,377,517.38 |
| 10             | 2,049,705.59 | 1,376,903.13 |
| 11             | 2,050,281.01 | 1,376,002.56 |
| 12             | 2,050,544.76 | 1,375,589.76 |
| 13             | 2,050,893.93 | 1,375,219.67 |
| 14             | 2,051,074.98 | 1,375,335.41 |
| 15             | 2,051,159.30 | 1,375,389.23 |
| 16             | 2,051,420.46 | 1,375,556.10 |
| 17             | 2,050,887.56 | 1,376,390.12 |
| 18             | 2,050,312.15 | 1,377,290.69 |
| 19             | 2,050,626.40 | 1,376,223.25 |
| 20             | 2,050,542.13 | 1,376,169.40 |
| 21             | 2,050,096.16 | 1,377,152.69 |
| 22             | 2,050,011.48 | 1,377,098.58 |
| 23             | 2,049,823.34 | 1,377,690.34 |
| 24             | 2,049,707.99 | 1,377,696.69 |
| 25             | 2,049,954.10 | 1,379,383.98 |
| 26             | 2,049,539.77 | 1,379,277.46 |
| CG1            | 2,049,621.31 | 1,379,028.43 |
| CG2            | 2,049,755.11 | 1,378,885.74 |
| CG3            | 2,049,654.76 | 1,378,791.65 |
| CG4            | 2,049,481.24 | 1,378,801.18 |
| CG5            | 2,049,433.37 | 1,378,852.25 |
| CG6            | 2,049,385.49 | 1,378,903.32 |
| CG7            | 2,049,396.89 | 1,378,818.05 |
| CG8            | 2,049,526.07 | 1,378,746.64 |
| PC1A           | 2,049,852.14 | 1,378,351.33 |
| PC2A           | 2,049,766.26 | 1,378,304.02 |
| PC3A           | 2,049,989.06 | 1,378,221.58 |
| PC4A           | 2,049,947.63 | 1,378,141.68 |
| PC6A           | 2,049,758.41 | 1,377,752.69 |
| PL-32          | 2,050,341.61 | 1,378,668.97 |
| PL-33          | 2,050,254.64 | 1,378,619.37 |
| PRC3B/5A       | 2,050,041.53 | 1,377,932.63 |
| PT1B           | 2,049,896.45 | 1,378,269.64 |
| PT2B           | 2,049,855.01 | 1,378,189.75 |
| PT4B           | 2,049,974.64 | 1,377,992.85 |
| PT5B           | 2,050,025.58 | 1,377,739.19 |
| PT6B           | 2,049,593.40 | 1,377,766.24 |

| ELEVATION COLOR LEGEND |            |            |       |
|------------------------|------------|------------|-------|
| #                      | MIN. ELEV. | MAX. ELEV. | COLOR |
| 1                      | -105.0     | -26.0      |       |
| 2                      | -26.0      | -25.0      |       |
| 3                      | -25.0      | -24.0      |       |
| 4                      | -24.0      | -23.0      |       |
| 5                      | -23.0      | -22.0      |       |
| 6                      | -22.0      | -21.0      |       |
| 7                      | -21.0      | -20.0      |       |
| 8                      | -20.0      | -19.0      |       |
| 9                      | -19.0      | -18.0      |       |
| 10                     | -18.0      | -17.0      |       |
| 11                     | -17.0      | -16.0      |       |
| 12                     | -16.0      | -15.0      |       |
| 13                     | -15.0      | -14.0      |       |
| 14                     | -14.0      | -13.0      |       |
| 15                     | -13.0      | -12.0      |       |
| 16                     | -12.0      | 9.7        |       |

| VOLUME COMPUTATIONS                                |            |       |
|--|------------|-------|
| AREA A: OUTER ENTRANCE CHANNEL                     | MLLW (FT)  | CU.YD |
| AVAILABLE TO DREDGE DEPTH (DD)                     | -20.0      | 81    |
| AVAILABLE BETWEEN DD AND MAX PAY DEPTH (MP)        | -21.0      | 866   |
| AVAILABLE SIDE SLOPES (SS) AT 3:1 (H:V) & 25' WIDE | VARIES     | 296   |
| AREA B: USCG BASIN AREA                            |            |       |
| AVAILABLE TO DD                                    | -22 TO -26 | 709   |
| AVAILABLE BETWEEN DD AND MP                        | -23 TO -27 | 428   |
| AVAILABLE SS                                       | VARIES     | 1948  |
| AREA C: INNER CHANNEL AREA                         |            |       |
| AVAILABLE TO DD                                    | -20.0      | 709   |
| AVAILABLE BETWEEN DD AND MP                        | -21.0      | 918   |
| AVAILABLE SS                                       | VARIES     | 3019  |
| AREA D: MANEUVERING AREA                           |            |       |
| AVAILABLE TO DD                                    | -20.0      | 231   |
| AVAILABLE BETWEEN DD AND MP                        | -21.0      | 1722  |
| AVAILABLE SS                                       | VARIES     | 19    |
| AREA E: MANEUVERING AREA                           |            |       |
| AVAILABLE TO DD                                    | -15.0      | 187   |
| AVAILABLE BETWEEN DD AND MP                        | -14.0      | 707   |
| AVAILABLE SS                                       | VARIES     | 96    |
| AREA F: MANEUVERING AREA                           |            |       |
| AVAILABLE TO DD                                    | -10.0      | 9     |
| AVAILABLE BETWEEN DD AND MP                        | -11.0      | 20    |
| AVAILABLE SS                                       | VARIES     | 1     |
| TOTAL MAXIMUM VOLUME AVAILABLE (MP + SS)           | VARIES     | 11968 |
| DREDGED AREA OVERDREDGE (AREA A, B, & C)           | VARIES     |       |
| SIDE SLOPE AREA OVERDREDGE (AREA A, B, & C)        | VARIES     |       |



- NOTES**
- PRIMARY PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 4, NAD83 IN US SURVEY FEET BASED ON A FULLY CONSTRAINED STATIC GPS NETWORK HOLDING THE PUBLISHED NAD83(CORS) 2003.00 EPOCH VALUES OF NGS CORS STATIONS: "KENA1 CORS ARP" (KEN5 - PID D3029), "ANCHORAGE CORS ARP" (TSEA - PID A0952).
  - LOCAL PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 4, NAD83, IN US SURVEY FEET HOLDING MONUMENT "HOMER BASIN 7 1965" AS N 2,049,712.22, E 1,377,964.36 AND USACE SBC "BL-2-A" AS N 2,049,765.61, E 1,378,015.52.
  - VERTICAL TIES TO THE NATIONAL SPATIAL REFERENCE SYSTEM ARE BASED ON PUBLISHED NAVD83 ELEVATIONS HOLDING USACE STANDARD BRASS CAP "HOMER BASIN 7 1965" (PID BBDX21) AS 26.08'.
  - SOUNDINGS ARE IN U.S. SURVEY FEET AND ARE NEGATIVE UNLESS OTHERWISE INDICATED.
  - BATHYMETRY WAS COLLECTED AUGUST 24, 2017. SOUNDINGS WERE COLLECTED USING AN R2SONIC 2022 MULTIBEAM ECHOSOUNDER OPERATING AT 400 KHZ. SOUND VELOCITY THROUGH THE WATER COLUMN WAS DETERMINED WITH AN ODOM DIGIBAR PRO. POSITION AND VESSEL ORIENTATION WERE MEASURED USING AN APPLANIX POS MV SYSTEM. RTK CORRECTIONS WERE BROADCAST FROM A LOCAL BASE STATION OCCUPYING HOMER "BL-2-A". DATA WAS COLLECTED AND PROCESSED USING HYDRAK 2017 SOFTWARE. HORIZONTAL CONTROL WAS SURVEYED USING RTK GNSS EQUIPMENT AND TECHNIQUES. VERTICAL CONTROL WAS SURVEYED USING DIFFERENTIAL LEVELING TECHNIQUES. TIDE ELEVATIONS WERE MEASURED USING A TRIMBLE R8 RTK SYSTEM.
  - THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF THE SURVEY.
  - MAP SOUNDINGS ARE BINNED AT 15 FEET AND ARE SHOAL-BIASED. CONTOURS AND COLOR RELIEF ARE BASED ON 3 FOOT BINNED SHOAL-BIASED SOUNDINGS. VOLUME SOUNDINGS ARE BINNED AT 3 FEET AND ARE MEAN VALUE SOUNDINGS.

| SURVEY CONTROL DATA |              |              |       |                                     |
|---------------------|--------------|--------------|-------|-------------------------------------|
| STATION             | NORTHING     | EASTING      | MLLW  | DESCRIPTION                         |
| AUDREY              | 2,051,507.88 | 1,375,406.60 | 33.33 | 1-1/2 IN ALUMINUM CAP (FOUND)       |
| BL-2-A 1989         | 2,049,793.81 | 1,378,015.52 | 32.53 | USACE SBC (FOUND)                   |
| BM NO 6 1965        |              |              | 27.28 | US&GC SBC (NOT FOUND)               |
| BOLL 1996           | 2,050,682.88 | 1,375,195.75 | 35.51 | 3-1/4 IN FLAT BRASS CAP (FOUND)     |
| C 103 1965          |              |              | 26.95 | US&GC SBC (NOT FOUND)               |
| HB-08 2009          | 2,050,150.78 | 1,377,830.73 | 31.93 | 3-1/4 IN DOMED ALUMINUM CAP (FOUND) |
| HB-09 2009          | 2,051,199.61 | 1,375,120.24 | 32.04 | 3-1/4 IN DOMED ALUMINUM CAP (FOUND) |
| HOMER BASIN 4 1965  | 2,050,038.11 | 1,378,340.09 | 31.29 | USACE SBC (NOT SEARCH)              |
| HOMER BASIN 5 1965  | 2,049,940.32 | 1,378,344.30 | 30.86 | USACE SBC (FOUND, NOT SUITABLE)     |
| HOMER BASIN 6 1965  | 2,049,887.28 | 1,378,073.96 | 31.24 | USACE SBC (FOUND)                   |
| HOMER BASIN 7 1965  | 2,049,712.22 | 1,377,964.36 | 31.49 | USACE SBC (FOUND)                   |

| NAVIGATION AIDS |           |           |                            |
|-----------------|-----------|-----------|----------------------------|
| USCG NO.        | NORTHING  | EASTING   | DESCRIPTION                |
| 26210           | 2,049,940 | 1,378,351 | HOMER BREAKWATER LIGHT 2   |
| 26216           | 2,049,932 | 1,378,484 | SOUTH LIGHTED MOORING BUOY |

| OBSTRUCTION IDENTIFIED IN 2015 SURVEY |              |              |                        |                     |
|---------------------------------------|--------------|--------------|------------------------|---------------------|
| POINT                                 | NORTHING     | EASTING      | APPROXIMATE DIMENSIONS | ELEVATION [FT MLLW] |
| OBST-1                                | 2,049,999.55 | 1,378,206.74 | 7.0'x 3.7'x2.8'        | -18                 |
| OBST-2                                | 2,050,060.01 | 1,377,988.53 | 5.4'x 4.5'x1.7'        | -19.7               |
| OBST-3                                | 2,049,935.22 | 1,378,201.00 | 4.9'x 2.8'x2.1'        | -20.2               |
| OBST-4                                | 2,049,977.06 | 1,378,080.24 | 4.8'x 3.2'x2.6'        | -16.9               |

| OBSTRUCTION IDENTIFIED IN 2017 SURVEY |              |              |                        |                     |
|---------------------------------------|--------------|--------------|------------------------|---------------------|
| POINT                                 | NORTHING     | EASTING      | APPROXIMATE DIMENSIONS | ELEVATION [FT MLLW] |
| OBST-5                                | 2,050,408.82 | 1,376,457.46 | 8.4'x 3.0'x1.6'        | -14.2               |
| OBST-6                                | 2,050,281.55 | 1,376,791.11 | 9.2'x 7.1'x2.7'        | -12.1               |
| OBST-7                                | 2,049,908.41 | 1,377,315.59 | 7.1'x3.2'x1.6'         | -18.4               |
| OBST-8                                | 2,049,972.34 | 1,377,366.67 | 11.2'x 6.0'x.9'        | -18.6               |
| OBST-9                                | 2,051,079.04 | 1,375,309.96 | 3.8'x 3.8'x2.6'        | -9.3                |
| OBST-10                               | 2,050,751.35 | 1,375,979.40 | 3.8'x 2.7'x1.1'        | -11.6               |
| OBST-11                               | 2,050,671.74 | 1,376,070.56 | 6.0'x 3.0'x1.7'        | -10.9               |
| OBST-12                               | 2,049,862.17 | 1,378,295.83 | 8.4'x 5.7'x3.5'        | -17.9               |
| OBST-13                               | 2,049,739.30 | 1,378,817.19 | 4.7'x 2.0'x2.6'        | -17.5               |
| OBST-14                               | 2,049,827.53 | 1,378,786.35 | 7.3'x4.8'x3.4'         | -17                 |
| OBST-15                               | 2,050,655.65 | 1,376,121.46 | 3.5'x3.1'x1.2'         | -11.7               |

US Army Corps of Engineers  
ALASKA DISTRICT

CONTRACT NO. W01H017-C-0007

CONTRACTOR: ALASKA MARINE ELEVATION

CITY: ANCHORAGE

STATE: ALASKA

DATE: 08/24/2017

APPROVED: [Signature]

DESIGNED: [Signature]

DRAWN: [Signature]

CHECKED: [Signature]

IN CHARGE: [Signature]

U.S. ARMY CORPS OF ENGINEERS  
ALASKA DISTRICT  
JBER, ALASKA 99505-0888

HUGHES & ASSOCIATES  
200 COTTE LOOP  
WASILLA, ALASKA 99654

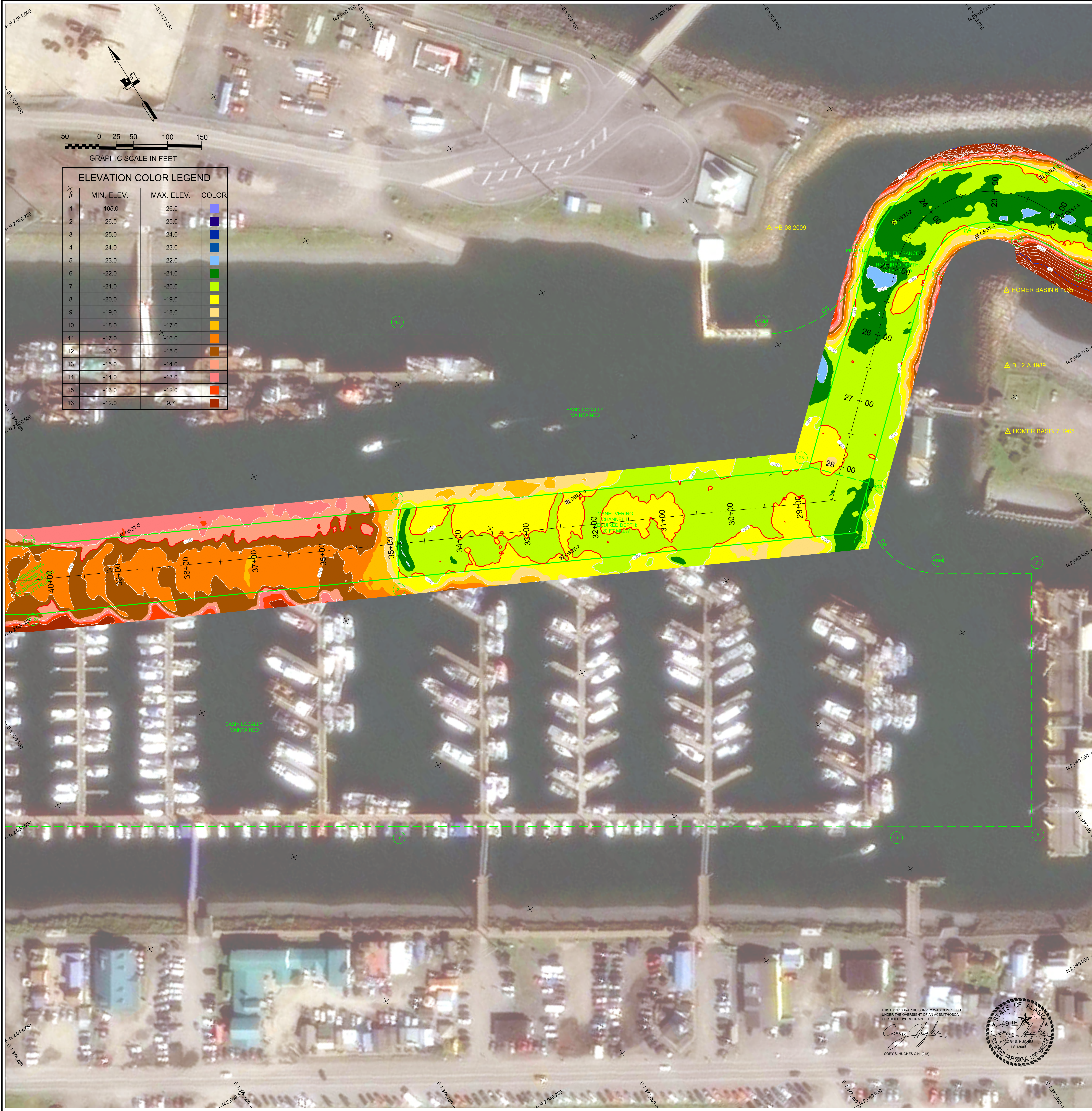
HOMER, ALASKA  
HOMER HARBOR  
PRE DREDGE SURVEY  
AUGUST 24, 2017

SHEET IDENTIFICATION

2-HOM-92-07-60

Sheet 4 of 6





- NOTES**
- PRIMARY PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 4, NAD83 IN US SURVEY FEET BASED ON A FULLY CONSTRAINED STATIC GPS NETWORK HOLDING THE PUBLISHED NAVD83(2011) 2005.00 EPOCH VALUES OF NGS CORS STATIONS: "KENAI 5 CORS ARP" (KEN5 - PID DJ3029), "ANCHORAGE CORS ARP" (TSEA - PID A10952).
  - LOCAL PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 4, NAD83, IN US SURVEY FEET HOLDING MONUMENT "HOMER BASIN 7 1965" AS N 2,049,712.22, E 1,377,964.36 AND USACE SBC "BL-2-A" AS N 2,049,765.61, E 1,378,015.52.
  - VERTICAL TIES TO THE NATIONAL SPATIAL REFERENCE SYSTEM ARE BASED ON PUBLISHED NAVD83 ELEVATIONS HOLDING USACE STANDARD BRASS CAP "HOMER BASIN 7 1965" (PID BBDX21) AS 26.08'.
  - SOUNDINGS ARE IN U.S. SURVEY FEET AND ARE NEGATIVE UNLESS OTHERWISE INDICATED.
  - BATHYMETRY WAS COLLECTED AUGUST 24, 2017. SOUNDINGS WERE COLLECTED USING AN R2SONIC 2022 MULTIBeam ECHOSOUNDER OPERATING AT 400 KHZ. SOUND VELOCITY THROUGH THE WATER COLUMN WAS DETERMINED WITH AN ODOM DIGIBAR PRO. POSITION AND VESSEL ORIENTATION WERE MEASURED USING AN APPLANIX POS MV SYSTEM. RTK CORRECTIONS WERE BROADCAST FROM A LOCAL BASE STATION OCCUPYING HOMER "BL-2-A". DATA WAS COLLECTED AND PROCESSED USING HYDRACK 2017 SOFTWARE. HORIZONTAL CONTROL WAS SURVEYED USING RTK GNSS EQUIPMENT AND TECHNIQUES. VERTICAL CONTROL WAS SURVEYED USING DIFFERENTIAL LEVELING TECHNIQUES. TIDE ELEVATIONS WERE MEASURED USING A TRIMBLE R8 RTK SYSTEM.
  - THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF THE SURVEY.
  - MAP SOUNDINGS ARE BINNED AT 15 FEET AND ARE SHOAL-BIASED. CONTOURS AND COLOR RELIEF ARE BASED ON 3 FOOT BINNED SHOAL-BIASED SOUNDINGS. VOLUME SOUNDINGS ARE BINNED AT 3 FEET AND ARE MEAN VALUE SOUNDINGS.

| SURVEY CONTROL DATA |              |              |       |                                     |
|---------------------|--------------|--------------|-------|-------------------------------------|
| STATION             | NORTHING     | EASTING      | MLLW  | DESCRIPTION                         |
| AUDREY              | 2,051,507.88 | 1,375,406.60 | 33.33 | 1-1/2 IN ALUMINUM CAP (FOUND)       |
| BL-2-A 1989         | 2,049,793.81 | 1,378,015.52 | 32.53 | USACE SBC (FOUND)                   |
| BM NO 6 1965        |              |              | 27.28 | USC&GC SBC (NOT FOUND)              |
| BOLL 1996           | 2,050,682.88 | 1,375,195.75 | 35.51 | 3-1/4 IN FLAT BRASS CAP (FOUND)     |
| C 103 1965          |              |              | 26.95 | USC&GC SBC (NOT FOUND)              |
| HB-08 2009          | 2,050,150.78 | 1,377,830.73 | 31.93 | 3-1/4 IN DOMED ALUMINUM CAP (FOUND) |
| HB-09 2009          | 2,051,199.61 | 1,375,120.24 | 32.04 | 3-1/4 IN DOMED ALUMINUM CAP (FOUND) |
| HOMER BASIN 4 1965  | 2,050,038.11 | 1,378,340.09 | 31.29 | USACE SBC (NOT SEARCH)              |
| HOMER BASIN 5 1965  | 2,049,940.32 | 1,378,344.30 | 30.86 | USACE SBC (FOUND, NOT GPS SUITABLE) |
| HOMER BASIN 6 1965  | 2,049,887.28 | 1,378,073.96 | 31.24 | USACE SBC (FOUND)                   |
| HOMER BASIN 7 1965  | 2,049,712.22 | 1,377,964.36 | 31.49 | USACE SBC (FOUND)                   |

| NAVIGATION AIDS |           |           |                            |
|-----------------|-----------|-----------|----------------------------|
| USCG NO.        | NORTHING  | EASTING   | DESCRIPTION                |
| 26210           | 2,049,940 | 1,378,351 | HOMER BREAKWATER LIGHT 2   |
| 26216           | 2,049,932 | 1,378,484 | SOUTH LIGHTED MOORING BUOY |

| OBSTRUCTION IDENTIFIED IN 2015 SURVEY |              |              |                        |                     |
|---------------------------------------|--------------|--------------|------------------------|---------------------|
| POINT                                 | NORTHING     | EASTING      | APPROXIMATE DIMENSIONS | ELEVATION [FT MLLW] |
| OBST-1                                | 2,049,999.55 | 1,378,206.74 | 7.0'x 3.7'x2.8'        | -18                 |
| OBST-2                                | 2,050,060.01 | 1,377,988.53 | 5.4'x 4.5'x1.7'        | -19.7               |
| OBST-3                                | 2,049,935.22 | 1,378,201.00 | 4.9'x 2.8'x2.1'        | -20.2               |
| OBST-4                                | 2,049,977.06 | 1,378,080.24 | 4.8'x 3.2'x2.6'        | -16.9               |

| OBSTRUCTION IDENTIFIED IN 2017 SURVEY |              |              |                        |                     |
|---------------------------------------|--------------|--------------|------------------------|---------------------|
| POINT                                 | NORTHING     | EASTING      | APPROXIMATE DIMENSIONS | ELEVATION [FT MLLW] |
| OBST-5                                | 2,050,408.82 | 1,376,457.46 | 8.4'x 3.0'x1.6'        | -14.2               |
| OBST-6                                | 2,050,281.55 | 1,376,791.11 | 9.2'x 7.1'x2.7'        | -12.1               |
| OBST-7                                | 2,049,908.41 | 1,377,315.59 | 7.1'x3.2'x1.6'         | -18.4               |
| OBST-8                                | 2,049,972.34 | 1,377,366.67 | 11.2'x 6.0'x.9'        | -18.6               |
| OBST-9                                | 2,051,079.04 | 1,375,309.96 | 3.8'x 3.8'x2.6'        | -9.3                |
| OBST-10                               | 2,050,751.35 | 1,375,979.40 | 3.8'x 2.7'x1.1'        | -11.6               |
| OBST-11                               | 2,050,671.74 | 1,376,070.56 | 6.0'x 3.0'x1.7'        | -10.9               |
| OBST-12                               | 2,049,862.17 | 1,378,295.83 | 8.4'x 5.7'x3.5'        | -17.9               |
| OBST-13                               | 2,049,739.30 | 1,378,817.19 | 4.7'x 2.0'x2.6'        | -17.5               |
| OBST-14                               | 2,049,827.53 | 1,378,786.35 | 7.3'x4.8'x3.4'         | -17                 |
| OBST-15                               | 2,050,655.65 | 1,376,121.46 | 3.5'x3.1'x1.2'         | -11.7               |

US Army Corps of Engineers  
ALASKA DISTRICT

CONTRACT NO. W01H017-0-0007  
CONTINUATION: ALASKA MARINE EXCAVATION  
CITY: ANCHORAGE  
STATE: ALASKA  
APPROVED: [Signature]  
DATE: [Date]

| NO. | DATE       | DESCRIPTION | BY | DATE |
|-----|------------|-------------|----|------|
| 1   | 10/22/2017 |             |    |      |

U.S. ARMY CORPS OF ENGINEERS  
ALASKA DISTRICT  
JBER, ALASKA 99504-0888

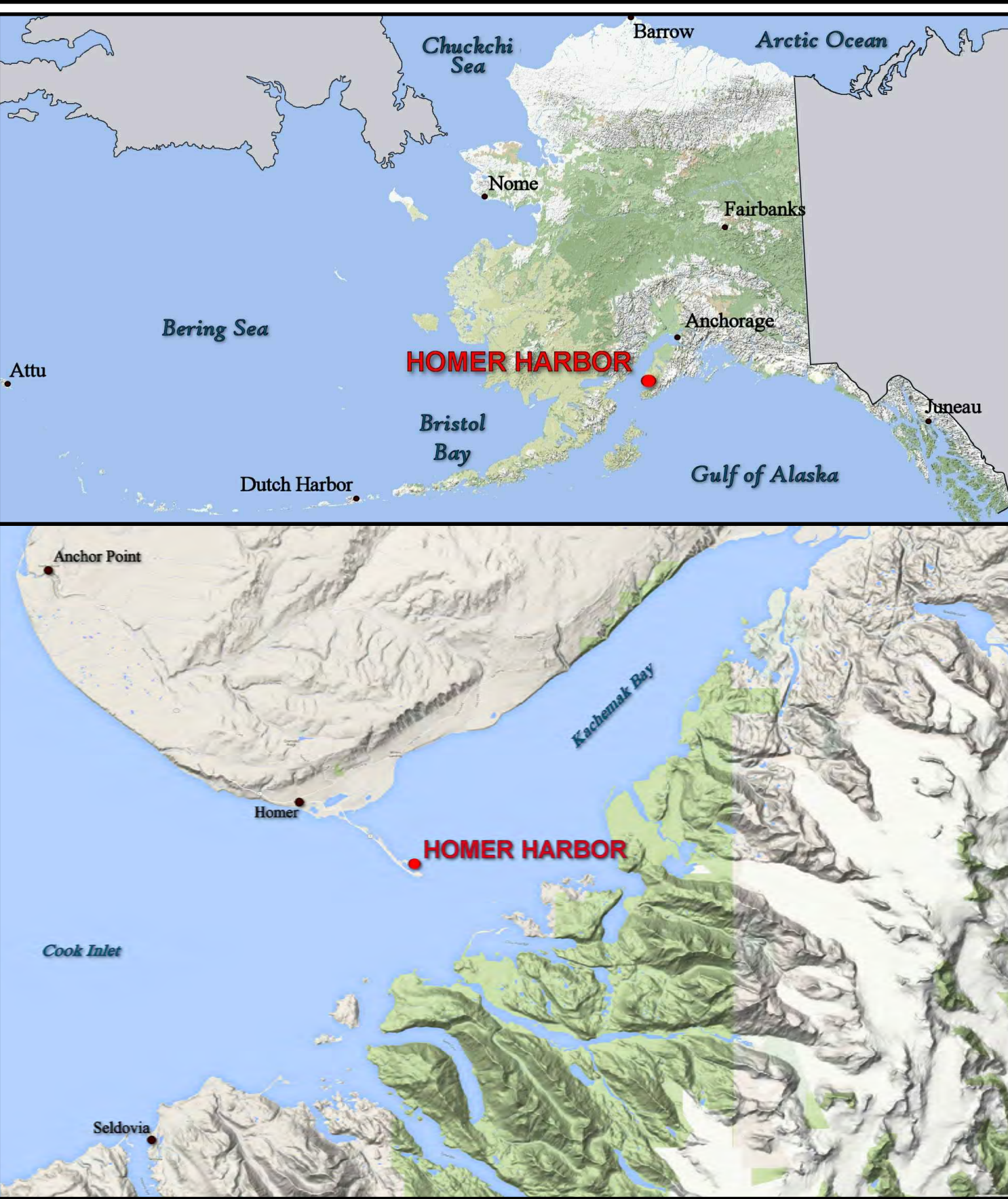
DESIGNED BY: [Signature]  
DRAWN BY: [Signature]  
CHECKED BY: [Signature]  
APPROVED BY: [Signature]

FILE NAME: [File Name]  
SHEET: [Sheet Number]  
DATE: [Date]

HOMER, ALASKA  
HOMER HARBOR  
PRE DREDGE SURVEY  
AUGUST 24, 2017

SHEET IDENTIFICATION  
2-HOM-92-07-60  
Sheet 5 of 6





- NOTES**
1. PRIMARY PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 4, NAD83 IN US SURVEY FEET BASED ON A FULLY CONSTRAINED STATIC GPS NETWORK HOLDING THE PUBLISHED NAD83(CORS) 2003.00 EPOCH VALUES OF NGS CORS STATIONS: \*KENAI 5 CORS ARP\* (KEN5 - PID D33029), \*ANCHORAGE CORS ARP\* (TSEA - PID A10952).
  2. VERTICAL CONTROL IS MEAN LOWER LOW WATER (MLLW=0.0'), BASED ON THE NOAA/NOIS TIDAL BENCH MARK LIST FOR STATION: \*SAS 5557 HOMER, ALASKA, PUBLISHED ON 11/2007. THIS TIDAL DATUM IS BASED ON THE 1983-2001 TIDAL EPOCH AND IS REFERENCED BY HOLDING SBC "BL-2-A" AS 32.53'.
  3. VERTICAL TIES TO THE NATIONAL SPATIAL REFERENCE SYSTEM ARE BASED ON PUBLISHED NAVD83 ELEVATIONS HOLDING USACE STANDARD BRASS CAP "HOMER BASIN 7 1965" (PID BBDX21) AS 26.08'.
  4. SOUNDINGS ARE IN U.S. SURVEY FEET AND ARE NEGATIVE UNLESS OTHERWISE INDICATED.
  5. BATHYMETRY WAS COLLECTED AUGUST 24, 2017. SOUNDINGS WERE COLLECTED USING AN R2SONIC 2022 MULTIBEAM ECHOSOUNDER OPERATING AT 400 KHZ. SOUND VELOCITY THROUGH THE WATER COLUMN WAS DETERMINED WITH AN ODOM DIGIBAR PRO. POSITION AND VESSEL ORIENTATION WERE MEASURED USING AN APPLANIX POS MV SYSTEM. RTK CORRECTIONS WERE BROADCAST FROM A LOCAL BASE STATION OCCUPYING HOMER "BL-2-A". DATA WAS COLLECTED AND PROCESSED USING HYDRAK 2017 SOFTWARE. HORIZONTAL CONTROL WAS SURVEYED USING RTK GNSS EQUIPMENT AND TECHNIQUES. VERTICAL CONTROL WAS SURVEYED USING DIFFERENTIAL LEVELING TECHNIQUES. TIDE ELEVATIONS WERE MEASURED USING A TRIMBLE R8 RTK SYSTEM.
  6. THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF THE SURVEY.
  7. MAP SOUNDINGS ARE BINNED AT 15 FEET AND ARE SHOAL-BIASED. CONTOURS AND COLOR RELIEF ARE BASED ON 3 FOOT BINNED SHOAL-BIASED SOUNDINGS. VOLUME SOUNDINGS ARE BINNED AT 3 FEET AND ARE MEAN VALUE SOUNDINGS.

| SURVEY CONTROL DATA |              |              |       |                                     |
|---------------------|--------------|--------------|-------|-------------------------------------|
| STATION             | NORTHING     | EASTING      | MLLW  | DESCRIPTION                         |
| AUDREY              | 2,051,507.88 | 1,375,406.60 | 33.33 | 1-1/2 IN ALUMINUM CAP (FOUND)       |
| BL-2-A 1989         | 2,049,793.81 | 1,378,015.52 | 32.53 | USACE SBC (FOUND)                   |
| BM NO 6 1965        |              |              | 27.28 | US&GC SBC (NOT FOUND)               |
| BOLL 1996           | 2,050,682.88 | 1,375,195.75 | 35.51 | 3-1/4 IN FLAT BRASS CAP (FOUND)     |
| C 103 1965          |              |              | 26.95 | US&GC SBC (NOT FOUND)               |
| HB-08 2009          | 2,050,150.78 | 1,377,830.73 | 31.93 | 3-1/4 IN DOMED ALUMINUM CAP (FOUND) |
| HB-09 2009          | 2,051,199.61 | 1,375,120.24 | 32.04 | 3-1/4 IN DOMED ALUMINUM CAP (FOUND) |
| HOMER BASIN 4 1965  | 2,050,038.11 | 1,378,340.09 | 31.29 | USACE SBC (NOT SEARCH)              |
| HOMER BASIN 5 1965  | 2,049,940.32 | 1,378,344.30 | 30.86 | USACE SBC (FOUND, NOT GPS SUITABLE) |
| HOMER BASIN 6 1965  | 2,049,887.28 | 1,378,073.96 | 31.24 | USACE SBC (FOUND)                   |
| HOMER BASIN 7 1965  | 2,049,712.22 | 1,377,964.36 | 31.49 | USACE SBC (FOUND)                   |

| NAVIGATION AIDS |           |           |                            |
|-----------------|-----------|-----------|----------------------------|
| USCG NO.        | NORTHING  | EASTING   | DESCRIPTION                |
| 26210           | 2,049,940 | 1,378,351 | HOMER BREAKWATER LIGHT 2   |
| 26216           | 2,049,932 | 1,378,484 | SOUTH LIGHTED MOORING BUOY |

| OBSTRUCTION IDENTIFIED IN 2015 SURVEY |              |              |                        |                     |
|---------------------------------------|--------------|--------------|------------------------|---------------------|
| POINT                                 | NORTHING     | EASTING      | APPROXIMATE DIMENSIONS | ELEVATION [FT MLLW] |
| OBST-1                                | 2,049,999.55 | 1,378,206.74 | 7.0'x 3.7'x2.8'        | -18                 |
| OBST-2                                | 2,050,060.01 | 1,377,988.53 | 5.4'x 4.5'x1.7'        | -19.7               |
| OBST-3                                | 2,049,935.22 | 1,378,201.00 | 4.9'x 2.8'x2.1'        | -20.2               |
| OBST-4                                | 2,049,977.06 | 1,378,080.24 | 4.8'x 3.2'x2.6'        | -16.9               |

| OBSTRUCTION IDENTIFIED IN 2017 SURVEY |              |              |                        |                     |
|---------------------------------------|--------------|--------------|------------------------|---------------------|
| POINT                                 | NORTHING     | EASTING      | APPROXIMATE DIMENSIONS | ELEVATION [FT MLLW] |
| OBST-5                                | 2,050,408.82 | 1,376,457.46 | 8.4'x 3.0'x1.6'        | -14.2               |
| OBST-6                                | 2,050,281.55 | 1,376,791.11 | 9.2'x 7.1'x2.7'        | -12.1               |
| OBST-7                                | 2,049,908.41 | 1,377,315.59 | 7.1'x3.2'x1.6'         | -18.4               |
| OBST-8                                | 2,049,972.34 | 1,377,366.67 | 11.2'x 6.0'x.9'        | -18.6               |
| OBST-9                                | 2,051,079.04 | 1,375,309.96 | 3.8'x 3.8'x2.6'        | -9.3                |
| OBST-10                               | 2,050,751.35 | 1,375,979.40 | 3.8'x 2.7'x1.1'        | -11.6               |
| OBST-11                               | 2,050,671.74 | 1,376,070.56 | 6.0'x 3.0'x1.7'        | -10.9               |
| OBST-12                               | 2,049,862.17 | 1,378,295.83 | 8.4'x 5.7'x3.5'        | -17.9               |
| OBST-13                               | 2,049,739.30 | 1,378,817.19 | 4.7'x 2.0'x2.6'        | -17.5               |
| OBST-14                               | 2,049,827.53 | 1,378,786.35 | 7.3'x4.8'x3.4'         | -17                 |
| OBST-15                               | 2,050,655.65 | 1,376,121.46 | 3.5'x3.1'x1.2'         | -11.7               |

US Army Corps of Engineers  
ALASKA DISTRICT

CONTRACT NO. W01H017-C-0007

CONTRACTOR: ALASKA MARINE EXCAVATION

CITY: ANCHORAGE

STATE: ALASKA

DATE: 08/24/2017

APPROVED: [Signature]

DESIGNED: [Signature]

DRAWN: [Signature]

CHECKED: [Signature]

FILE NAME: 2-HOM-92-07-60

FILE SIZE: 100 MB

FILE TYPE: PDF

HOMER, ALASKA

HOMER HARBOR

PRE DREDGE SURVEY

AUGUST 24, 2017

SHEET IDENTIFICATION

2-HOM-92-07-60

Sheet 6 of 6