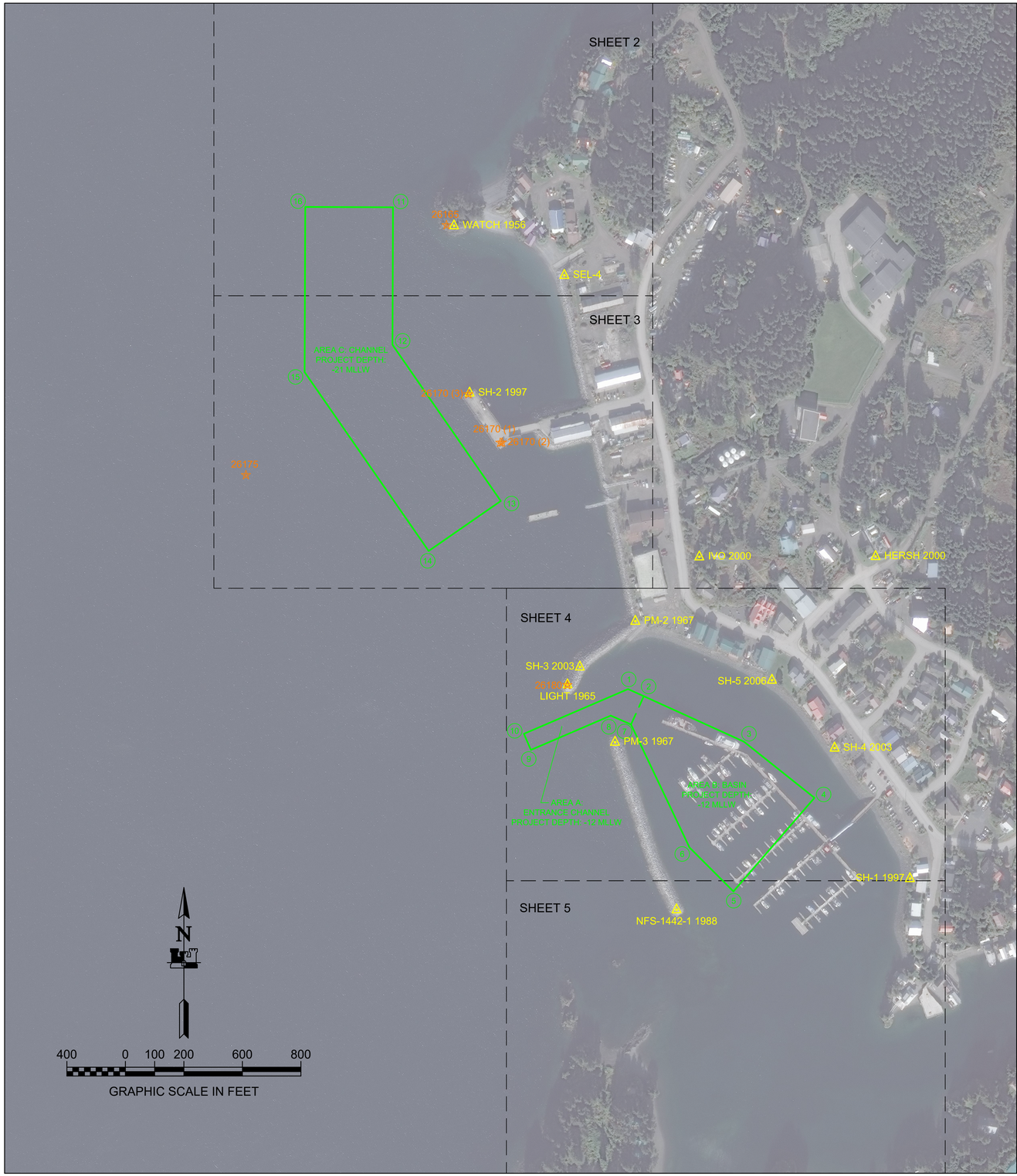


NAVIGATION AIDS

NO.	NORTHING	EASTING	DESCRIPTION
26165	1,992,241	1,320,045	LIGHT 3 Fl G 4S
26170 (1)	1,991,498	1,320,229	SELDOVIA DOCK LIGHTS (2) (SOUTH) F R
26170 (2)	1,991,498	1,320,235	SELDOVIA DOCK LIGHT POLE (SOUTH) F R
26170 (3)	1,991,663	1,320,120	SELDOVIA DOCK LIGHT POLE (NORTH) F R
26175	1,991,387	1,319,360	BUOY 4
26180	1,990,669	1,320,458	SELDOVIA BREAKWATER LIGHT 5 Fl G 2.5S

PROJECT LIMITS

CORNER#	NORTHING	EASTING
1	1,990,655.44	1,320,665.85
2	1,990,630.97	1,320,719.72
3	1,990,475.56	1,321,061.90
4	1,990,283.63	1,321,302.98
5	1,989,963.55	1,321,026.05
6	1,990,113.51	1,320,876.01
7	1,990,534.45	1,320,675.88
8	1,990,564.66	1,320,606.63

PROJECT LIMITS

CORNER#	NORTHING	EASTING
9	1,990,447.22	1,320,333.60
10	1,990,502.34	1,320,309.89
11	1,992,302.21	1,319,862.36
12	1,991,832.20	1,319,860.50
13	1,991,298.31	1,320,230.66
14	1,991,127.38	1,319,984.12
15	1,991,738.91	1,319,560.13
16	1,992,303.39	1,319,562.36

SURVEY CONTROL DATA

STATION	NORTHING	EASTING	MLLW	DESCRIPTION
HERSH 2000	1,991,108.36	1,321,511.89	42.82	3.25 INCH DOMED SBC
IVO 2000	1,991,107.02	1,320,909.51	62.07	2.5 INCH FLAT SAC
LIGHT 1965	1,990,669.92	1,320,458.88	27.42	3.5 INCH USACE DOMED SBC
NFS-1442-1 1988	1,989,901.00	1,320,831.45	26.96	3.5 INCH USACE DOMED SBC
PM-2 1967	1,990,886.91	1,320,690.54	29.81	3.5 INCH USACE DOMED SBC
PM-3 1967	1,990,473.59	1,320,621.09	24.00	3.5 INCH USACE DOMED SBC
SEL-4	1,992,069.44	1,320,447.95	29.08	3.5 INCH USACE DOMED SBC
SH-1 1997	1,990,007.30	1,321,629.31	28.83	3.25 INCH DOMED SBC
SH-2 1997	1,991,667.21	1,320,124.09	29.69	3.25 INCH DOMED SBC
SH-3 2003	1,990,730.70	1,320,500.94	29.36	3 INCH DOMED SBC
SH-4 2003	1,990,453.39	1,321,371.78	29.93	3.25 INCH DOMED SBC
SH-5 2006	1,990,685.60	1,321,157.57	29.31	3 INCH DOMED SBC
WATCH 1956	1,992,238.98	1,320,070.90	45.2	3.5 INCH USCGS SBC

*Bench marks with coordinate precision of 0.1' were measured by RTK GNSS.

LEGEND

CULVERT
CATCH BASIN
VALVE OR VALVE CONNECTION
FUEL VALVE
SIGN
ELECTRICAL PEDESTAL
ELECTRICAL SWITCH
TRANSFORMER
TRANSFORMER ON PAD
LIGHT POLE
FLOOD LIGHT
GUARD POST
FIRE HYDRANT
BUILDING
ASPHALT

STATE OF ALASKA 49TH GREGORY W. GIBSON No. LS14824 REGISTERED PROFESSIONAL LAND SURVEYOR

THIS HYDROGRAPHIC SURVEY WAS COMPLETED UNDER THE OVERSIGHT OF AN NSPS/THSOA CERTIFIED HYDROGRAPHER

Gregory W. Gibson (317)

NOTES

1. PRIMARY PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 4, NAD83 2003.00, IN US SURVEY FEET BASED ON A FULLY CONSTRAINED STATIC GPS NETWORK HOLDING THE PUBLISHED NAD83 2003.00 EPOCH VALUES OF NGS CORS STATIONS: "ILLIAMNAHPAK 2006 CORS ARP" (AB22 - PID DL6678), "SLOPEMTN__AK 2007 CORS ARP" (AC47 - PID DL7668) AND "SHUYAKISSPAK 2006 CORS ARP" (AC39 - PID DL7665).

   LOCAL PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 4, NAD83, IN US SURVEY FEET HOLDING DOMED BC "SH-1 1997" AS N 1,990,007.30', E 1,321,629.31'.

2. VERTICAL CONTROL IS MEAN LOWER LOW WATER (MLLW=0.0'), BASED ON THE NOAA/NOS TIDAL BENCH MARK LIST:"945 5500 SELDOVIA, COOK INLET, ALASKA" PUBLISHED 02/16/2018. THIS TIDAL DATUM IS BASED ON THE 2012-2016 TIDAL EPOCH AND IS REFERENCED BY HOLDING NOAA/NOS TIDAL BENCH MARK "945 5500 B" (VM#1311) AS 36.95'.

3. VERTICAL TIES TO THE NATIONAL SPATIAL REFERENCE SYSTEM ARE BASED ON PUBLISHED NAVD88 (GEOID 12B) ELEVATIONS HOLDING NOAA/NOS TIDAL BENCHMARK "945 5500 G" (PID BBGM75/VM#21254) AS 25.43'.

4. SOUNDINGS ARE IN FEET AND ARE MINUS UNLESS OTHERWISE INDICTATED.

5. BATHYMETRY WAS COLLECTED JUNE 21, 2019. SOUNDINGS WERE COLLECTED USING AN R2SONIC 2024 MULTIBEAM ECHOSOUNDER OPERATING AT 200 KHZ. SOUND VELOCITY THROUGH THE WATER COLUMN WAS DETERMINED WITH AN AML BASE X SOUND VELOCITY PROBE. POSITION AND VESSEL ORIENTATION WERE MEASURED USING AN APPLANIX POSMV WAVEMASTER V5 SYSTEM RECEIVING RTK CORRECTIONS FROM A TRIMBLE R8 MODEL 2 GPS RECEIVER SET AT CONTROL STATION "SH-1 1997". DATA WAS COLLECTED AND PROCESSED USING QINSY 8.1 AND QIMERA 1.6 SOFTWARE. HORIZONTAL CONTROL WAS VERIFIED USING RTK GNSS EQUIPMENT AND TECHNIQUES. VERTICAL CONTROL WAS SURVEYED USING DIFFERENTIAL LEVELING TECHNIQUES.

6. TERRESTIAL LASER SCANNING DATA WAS COLLECTED JUNE 21, 2019. DATA WAS COLLECTED USING A RIEGL VZ400 LASER SCANNER AND PROCESSED USING QINSY 8.1 AND QIMERA 1.6 SOFTWARE. POSITION AND VESEL ORIENTATION WERE MEASURED USING AN APPLANIX POSMV WAVEMASTER V5 SYSTEM.

7. THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF THE SURVEY.

8. MAP SOUNDINGS ARE BINNED AT 24 FEET AND ARE SHOAL-BIASED. CONTOURS ARE BASED ON 12 FEET BINNED SHOAL-BIASED SOUNDINGS. VOLUME SOUNDINGS ARE BINNED AT 3 FEET AND ARE MEAN VALUE SOUNDINGS.

VOLUME COMPUTATIONS

AREA A: ENTRANCE CHANNEL (FEDERAL)	MLLW=0	CU. YD.
AVAILABLE TO PROJECT DEPTH (PD)	-12.0	0
AVAILABLE TO MAX PAY DEPTH (MP)	-13.0	0
AVAILABLE SIDE SLOPES (SS) AT 3:1 (H:V) & 25' WIDE	VARIES	0
AREA B: MOORING BASIN (FEDERAL)		
AVAILABLE TO PD	-12.0	551
AVAILABLE TO MP	-13.0	963
AVAILABLE SS AT 3:1 (H:V) & 25' WIDE	VARIES	412
AREA C: CHANNEL (FEDERAL)		
AVAILABLE TO PD	-21.0	28
AVAILABLE TO MP	-22.0	57
AVAILABLE SS AT 3:1 (H:V) & 25' WIDE	VARIES	208
TOTAL MAXIMUM VOLUME AVAILABLE (MP + SS)		1,640

US ARMY CORPS OF ENGINEERS®
ALASKA DISTRICT

REV.	DATE	BY	APPR.	DESCRIPTION

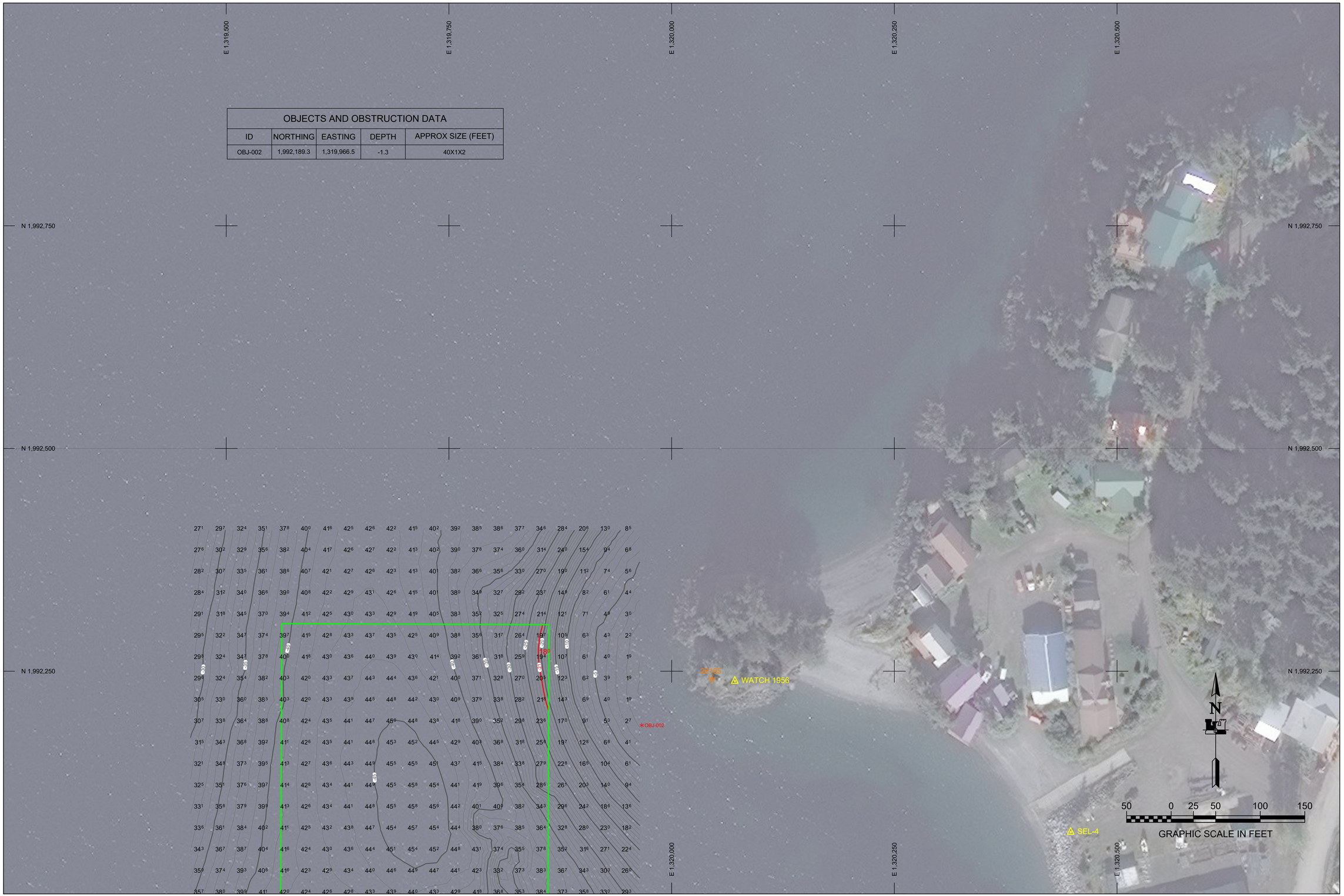
SURVEYED BY: GREGORY W. GIBSON
DRAWN BY: ROBERT GOUGHNOUR
CHECKED BY: TASJ/BG/GWG
APPROVED BY: THOMAS SLOAN, CHIEF GEOMATICS SECTION
FILE: 087348_VH02.DWG

UFC: 087348
PROJECT DATE: 08 October 2019
SCALE: 1" = 200'
SIZE: ANSI D
CONTRACT NO.: W912KB-18-D-0014
TASK ORDER NO.: 19F0065
JOB NO.: 0819
CONTRACTOR: ETRAC INC.
CITY: WASILLA
STATE: ALASKA

U.S. ARMY CORPS OF ENGINEERS
ALASKA DISTRICT
2204 3RD STREET
JBER, ALASKA 99506-0898

SELDOVIA, ALASKA
087348 - SELDOVIA HARBOR
PROJECT CONDITION SURVEY
JUNE 20-22 & JULY 14-16, 2019

REFERENCE NUMBER:
1-SEL-92-07-14



OBJECTS AND OBSTRUCTION DATA				
ID	NORTHING	EASTING	DEPTH	APPROX SIZE (FEET)
OBJ-002	1,992,189.3	1,319,966.5	-1.3	40X1X2

US ARMY CORPS OF ENGINEERS®
ALASKA DISTRICT

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U.S. ARMY CORPS OF ENGINEERS
ALASKA DISTRICT
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JBER, ALASKA 99506-0898

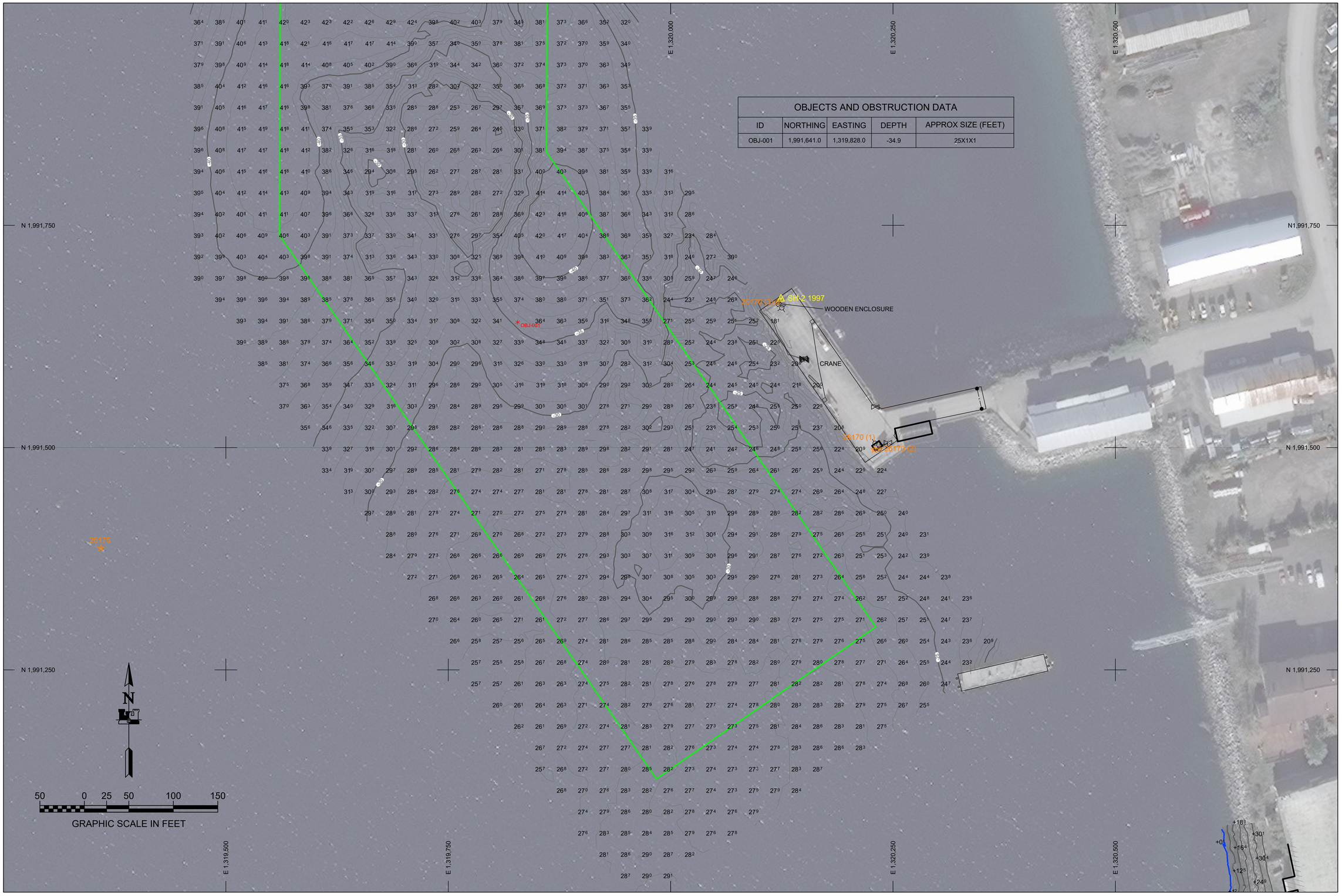
SURVEYED BY: GREGORY W. GIBSON
DRAWN BY: ROBERT GOUGHNOUR
CHECKED BY: TAS/JBG/GWG
APPROVED BY: THOMAS SLOAN, CHIEF GEOMATICS SECTION
FILE: 087348_VH02.DWG

UFC: 087348
PLOT DATE: 08 October 2019
SIZE: ANSI D
SCALE: 1" = 50'
CONTRACT NO.: W911KB-18-D-0014
TASK ORDER NO.: 19F0065
JOB NO.: 0819
CONTRACTOR: ETRAC INC.
CITY: WASILLA
STATE: ALASKA

SELDOVIA, ALASKA
087348 - SELDOVIA HARBOR
PROJECT CONDITION SURVEY
JUNE 20-22 & JULY 14-16, 2019

REFERENCE NUMBER:
1-SEL-92-07-14

SHEET 2 OF 7



OBJECTS AND OBSTRUCTION DATA				
ID	NORTHING	EASTING	DEPTH	APPROX SIZE (FEET)
OBJ-001	1,991,641.0	1,319,828.0	-34.9	25X1X1

US ARMY CORPS OF ENGINEERS®
ALASKA DISTRICT

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SURVEYED BY: GREGORY W. GIBSON
DRAWN BY: ROBERT GOUGHNOUR
CHECKED BY: TAS/JBG/GWG
APPROVED BY: THOMAS SLOAN, CHIEF GEOMATICS SECTION
FILE: 087348_VH02.DWG

UFC: 087348
PROJECT DATE: 08 October 2019
SIZE: ANSI D
SCALE: 1" = 50'
CONTRACT NO.: W912KB-18-D-20014
TASK ORDER NO.: 19F0065
JOB NO.: 0819
CONTRACTOR: ETRAC INC.
CITY: WASILLA
STATE: ALASKA

U.S. ARMY CORPS OF ENGINEERS
ALASKA DISTRICT
2204 3RD STREET
JBER, ALASKA 99506-0898

SELDOVIA, ALASKA

087348 - SELDOVIA HARBOR

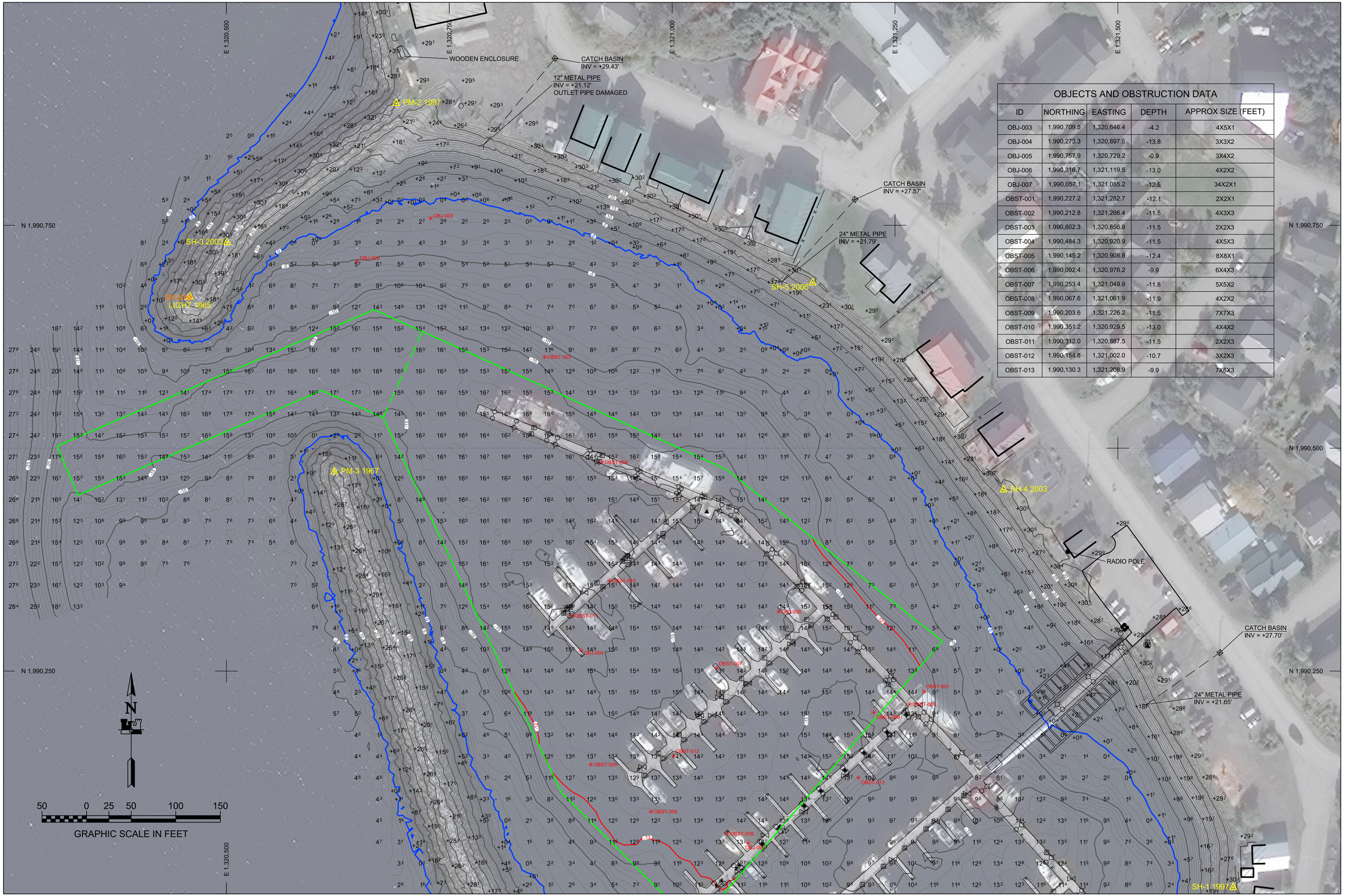
PROJECT CONDITION SURVEY

JUNE 20-22 & JULY 14-16, 2019

REFERENCE NUMBER:

1-SEL-92-07-14

SHEET 3 OF 7



OBJECTS AND OBSTRUCTION DATA

ID	NORTHING	EASTING	DEPTH	APPROX SIZE (FEET)
OBJ-003	1,990,709.5	1,320,646.4	-4.2	4X5X1
OBJ-004	1,990,273.3	1,320,897.5	-13.8	3X3X2
OBJ-005	1,990,757.9	1,320,729.2	-0.9	3X4X2
OBJ-006	1,990,316.7	1,321,119.5	-13.0	4X2X2
OBJ-007	1,990,057.1	1,321,085.2	-12.5	34X2X1
OBST-001	1,990,227.2	1,321,282.7	-12.1	2X2X1
OBST-002	1,990,212.8	1,321,266.4	-11.5	4X3X3
OBST-003	1,990,602.3	1,320,856.9	-11.5	2X2X3
OBST-004	1,990,484.3	1,320,920.9	-11.5	4X5X3
OBST-005	1,990,145.2	1,320,908.8	-12.4	8X8X1
OBST-006	1,990,092.4	1,320,976.2	-9.9	6X4X3
OBST-007	1,990,253.4	1,321,049.9	-11.8	5X5X2
OBST-008	1,990,067.6	1,321,061.9	-11.9	4X2X2
OBST-009	1,990,203.6	1,321,226.2	-11.5	7X7X3
OBST-010	1,990,351.2	1,320,929.5	-13.0	4X4X2
OBST-011	1,990,312.0	1,320,887.5	-11.5	2X2X3
OBST-012	1,990,154.8	1,321,002.0	-10.7	3X2X3
OBST-013	1,990,130.3	1,321,208.9	-9.9	7X6X3

US ARMY CORPS OF ENGINEERS®
ALASKA DISTRICT

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ALASKA DISTRICT
2204 3RD STREET
JBER, ALASKA 99506-0898

SURVEYED BY: GREGORY W. GIBSON
DRAWN BY: ROBERT GOLIGHNOUR
CHECKED BY: TAS/JBG/GWG
APPROVED BY: THOMAS SLOAN, CHIEF GEOMATICS SECTION
FILE: 087348_VH02.DWG

UFC: 087348
TASK ORDER DATE: 08 October 2019
SIZE: ANSI D
SCALE: 1" = 50'

CONTRACT NO.: W912KB-18-D-0014
TASK ORDER NO.: 19F0065
JOB NO.: 0819
CONTRACTOR: ETRAC INC.
CITY: WASILLA
STATE: ALASKA

SELDOVIA, ALASKA

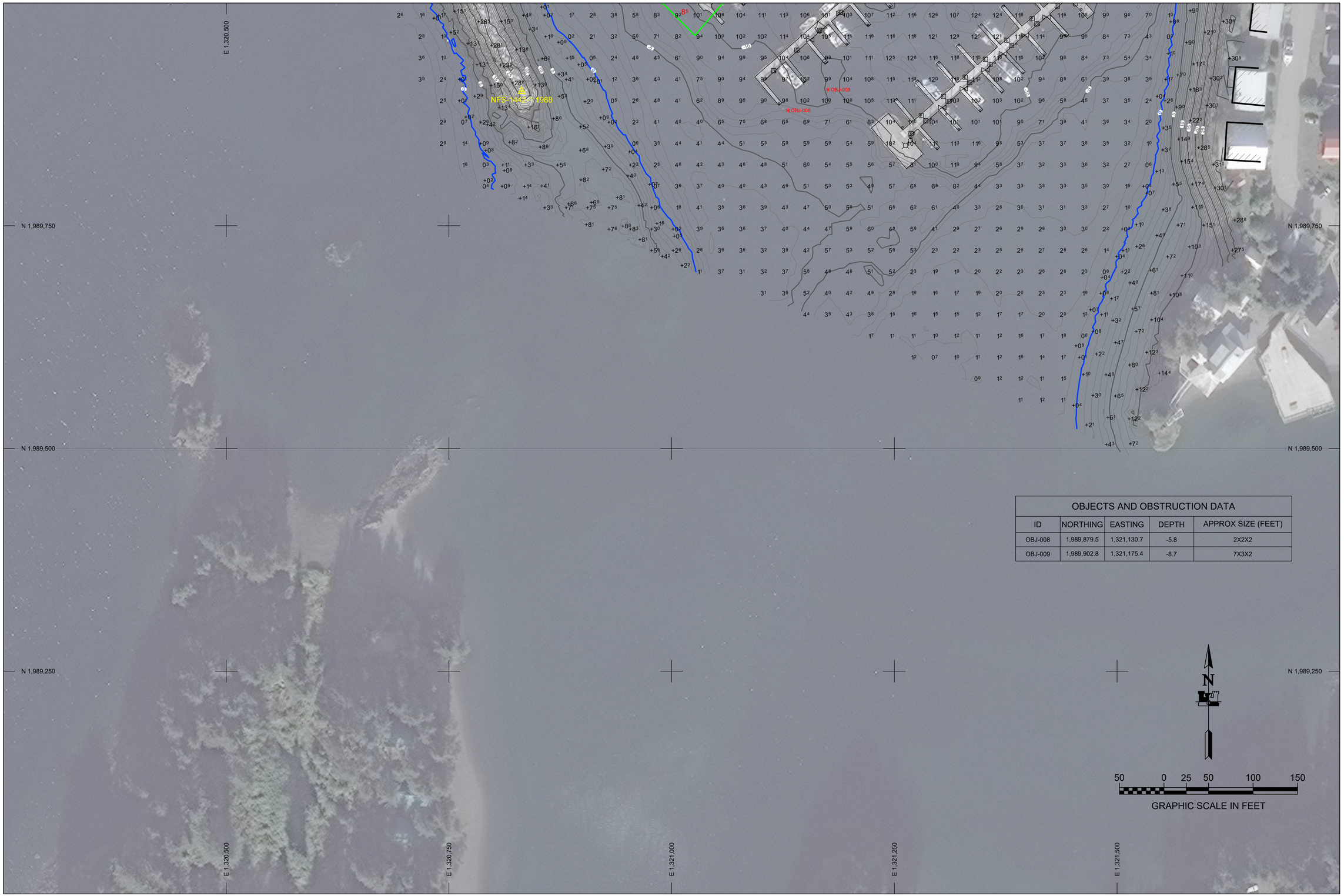
087348 - SELDOVIA HARBOR

PROJECT CONDITION SURVEY

JUNE 20-22 & JULY 14-16, 2019

REFERENCE NUMBER:

1-SEL-92-07-14



OBJECTS AND OBSTRUCTION DATA

ID	NORTHING	EASTING	DEPTH	APPROX SIZE (FEET)
OBJ-008	1,989,879.5	1,321,130.7	-5.8	2X2X2
OBJ-009	1,989,902.8	1,321,175.4	-8.7	7X3X2

US ARMY CORPS OF ENGINEERS®
ALASKA DISTRICT

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JBER, ALASKA 99506-0898

SURVEYED BY: GREGORY W. GIBSON
DRAWN BY: ROBERT GOUGHNOUR
CHECKED BY: TAS/JBG/GWG
APPROVED BY: THOMAS SLOAN, CHIEF GEOMATICS SECTION
FILE: 087348_VH02.DWG

UPC: 087348
PLOT DATE: 08 October 2019
SIZE: ANSI D
SCALE: 1" = 50'

CONTRACT NO.: W912KB-18-D-2014
TASK ORDER NO.: 19F0065
JOB NO.: 0819
CONTRACTOR: ETRAC INC.
CITY: WASILLA
STATE: ALASKA

SELDOVIA, ALASKA
087348 - SELDOVIA HARBOR
PROJECT CONDITION SURVEY
JUNE 20-22 & JULY 14-16, 2019

REFERENCE NUMBER:
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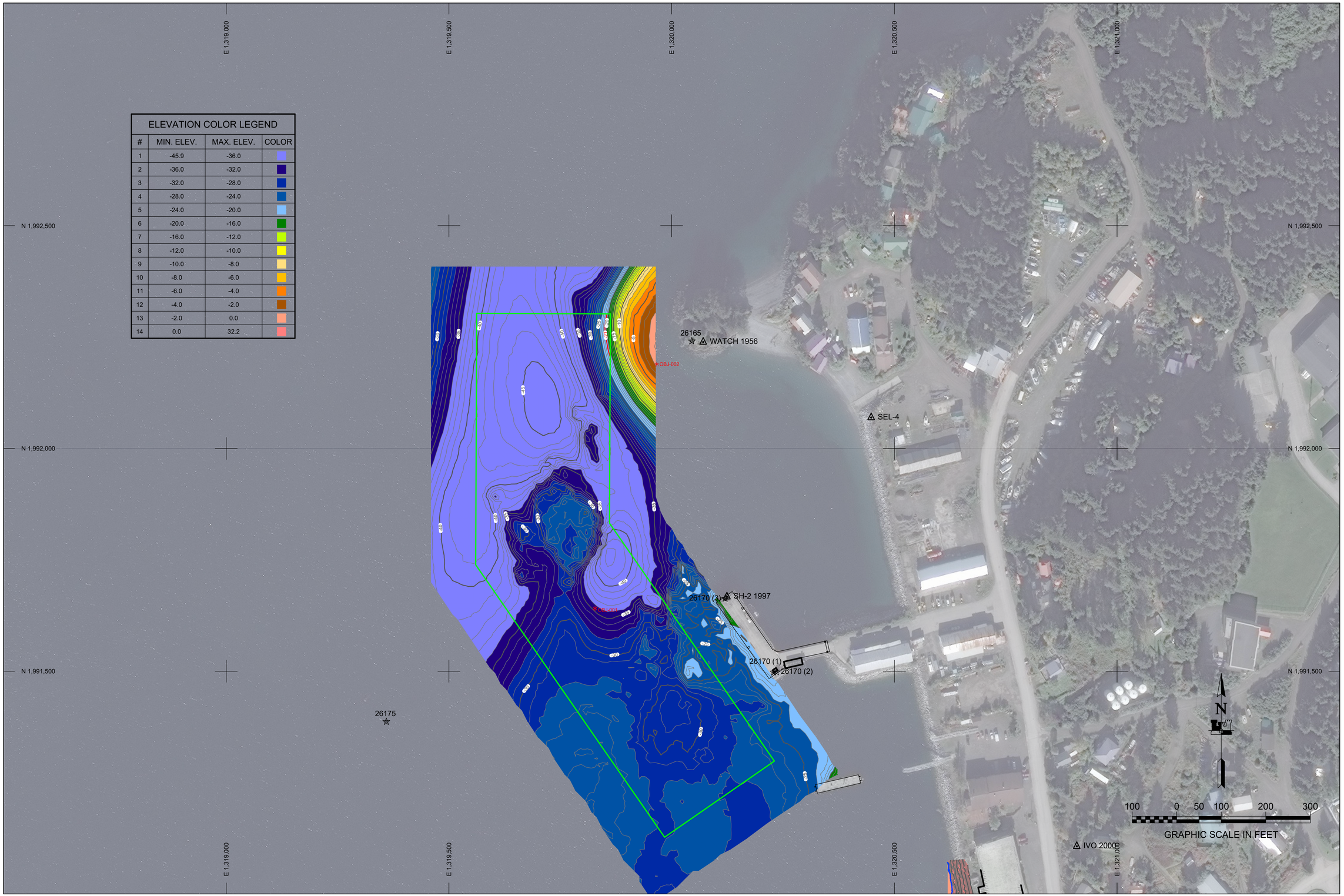

ELEVATION COLOR LEGEND			
#	MIN. ELEV.	MAX. ELEV.	COLOR
1	-45.9	-36.0	
2	-36.0	-32.0	
3	-32.0	-28.0	
4	-28.0	-24.0	
5	-24.0	-20.0	
6	-20.0	-16.0	
7	-16.0	-12.0	
8	-12.0	-10.0	
9	-10.0	-8.0	
10	-8.0	-6.0	
11	-6.0	-4.0	
12	-4.0	-2.0	
13	-2.0	0.0	
14	0.0	32.2	

US ARMY CORPS OF ENGINEERS®
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FILE: 087348_VH02.DWG

UFC: 087348
PLOT DATE: 08 October 2019
SIZE: ANSI D
SCALE: 1" = 150'
CONTRACT NO.: W911KB-18-D-0014
TASK ORDER NO.: 19F0065
JOB NO.: 0819
CONTRACTOR: ETRAC INC.
CITY: WASILLA
STATE: ALASKA

SELDOVIA, ALASKA
087348 - SELDOVIA HARBOR
PROJECT CONDITION SURVEY
JUNE 20-22 & JULY 14-16, 2019

REFERENCE NUMBER:
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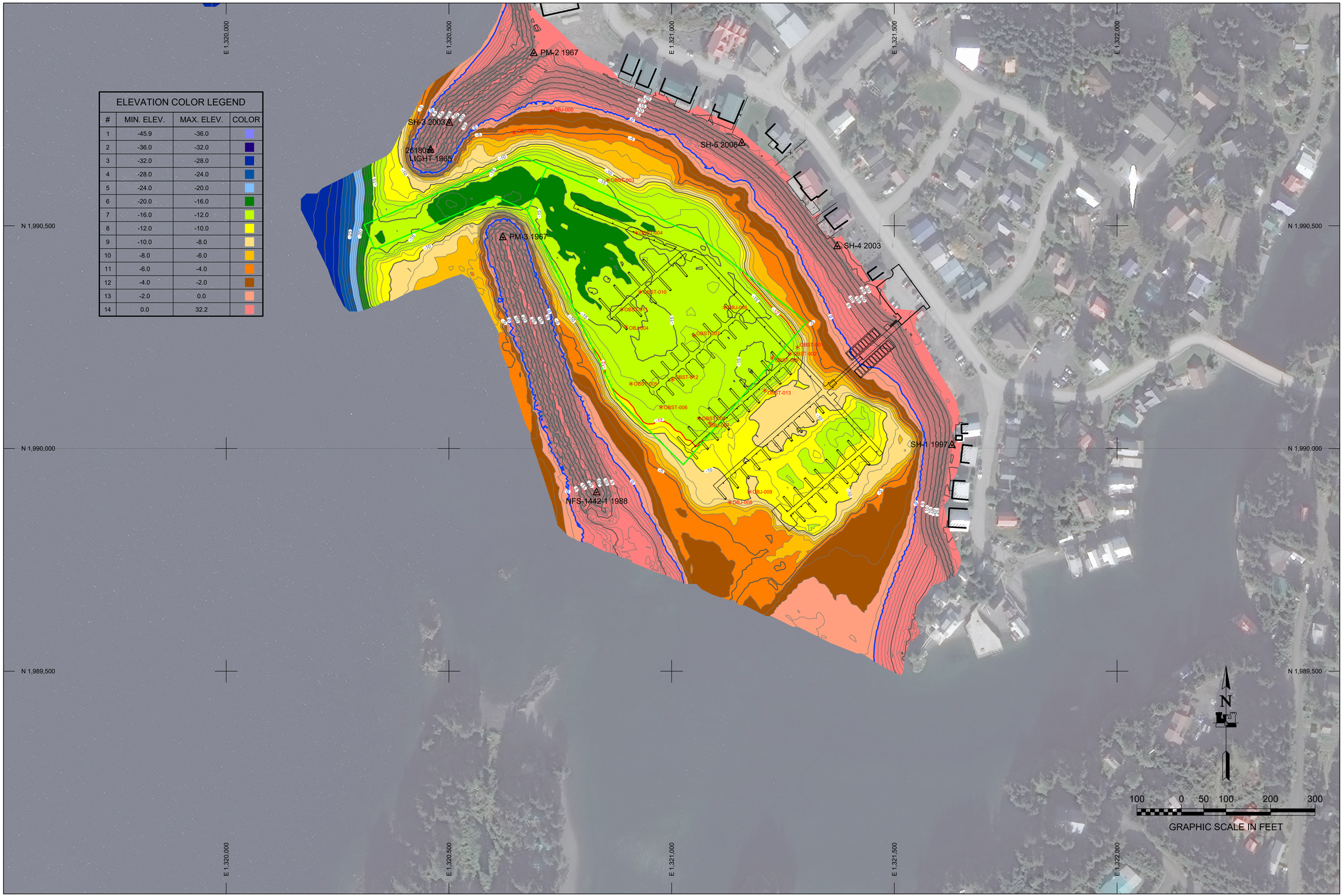
SHEET 6 OF 7



ELEVATION COLOR LEGEND			
#	MIN. ELEV.	MAX. ELEV.	COLOR
1	-45.9	-36.0	
2	-36.0	-32.0	
3	-32.0	-28.0	
4	-28.0	-24.0	
5	-24.0	-20.0	
6	-20.0	-16.0	
7	-16.0	-12.0	
8	-12.0	-10.0	
9	-10.0	-8.0	
10	-8.0	-6.0	
11	-6.0	-4.0	
12	-4.0	-2.0	
13	-2.0	0.0	
14	0.0	32.2	

US ARMY CORPS OF ENGINEERS®
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U.S. ARMY CORPS OF ENGINEERS
ALASKA DISTRICT
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SURVEYED BY: GREGORY W. GIBSON
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FILE: 087348_VH02.DWG

UFC: 087348
PROJECT DATE: 08 October 2019
SIZE: ANSI D
SCALE: 1" = 100'

CONTRACT NO.: W912KB-18-D-2014
TASK ORDER NO.: 19F0065
JOB NO.: 0819
CONTRACTOR: ETRAC INC.
CITY: WASILLA
STATE: ALASKA

SELDOVIA, ALASKA
087348 - SELDOVIA HARBOR
PROJECT CONDITION SURVEY
JUNE 20-22 & JULY 14-16, 2019

REFERENCE NUMBER:
1-SEL-92-07-14

SHEET 7 OF 7