CENWS-OD-TS-DMMO **21 March 2012**

MEMORANDUM FOR RECORD:

SUBJECT: VOLUME REVISION FOR THE FEDERAL SWINOMISH O&M NAVIGATION DREDGING PROJECT (CENWS-OD-TS-2012-41) EVALUATED UNDER SECTION 404 OF THE CLEAN WATER ACT FOR OPEN-WATER DISPOSAL AT EITHER DISPERSIVE AND/OR NON-DISPERSIVE SITES, OR AT DESIGNATED BENEFICIAL USE SITES.

1. This memorandum supplements the December 11, 2009 suitability determination (http://www.nws.usace.army.mil/PublicMenu/documents/DMMO/Swinomish-O&M-DY10-SDM.pdf), and reflects the consensus determination of the Dredged Material Management Program (DMMP) agencies (U.S. Army Corps of Engineers, Washington State Departments of Ecology and Natural Resources, and the Environmental Protection Agency) on revising the proposed maintenance dredging volume from 152,000 cubic yards (cy) up to 340,000 cy of material.

2. The 11 mile long navigation channel (100 feet wide, with authorized depth of -12 ft MLLW) is ranked "low" by the Dredged Material Management Program (DMMP) agencies for concern for potential contamination. The project was previously characterized in 2009, 2002, 1994, and 1988. Details from the three most recent characterizations can be found in the following suitability determinations:
http://www.nws.usace.army.mil/PublicMenu/documents/DMMO/Swinomish-O&M-DY10-SDM.pdf
http://www.nws.usace.army.mil/PublicMenu/documents/DMMO/Swinomish_DY03-SDM.pdf
http://www.nws.usace.army.mil/PublicMenu/documents/DMMO/USACE-Swinomish-DY95-SDM.pdf

3. For the last several dredging cycles, the Corps routinely dredged from 80,000 to 100,000 cy of material from the project. The Swinomish Channel was last dredged in 2008, when 82,420 cy of maintenance material was dredged from the Swinomish Channel and disposed at the Rosario Strait dispersive site. Up until 2008, the channel was routinely dredged every couple of years to an authorized depth of -12 feet MLLW with one foot of allowable overdepth.

4. In recent years, reduced federal funding has affected the Corps' ability to perform routine maintenance dredging. Due to funding limitations, no Swinomish Channel maintenance has been performed since 2008. Correspondingly, there has been a build up of sediments within the channel, such that the total volume available for maintenance is estimated to be up to 400,000 cy.

5. Recently regional stakeholders were successful in securing a congressional authorization, which provides funding for Swinomish Channel maintenance dredging. Therefore, maintenance dredging is anticipated for 2012/2013, over the entire authorized channel , to an authorized depth of -12 feet MLLW plus 2 ft of advanced maintenance -- removing material that has accumulated since 2008, and restoring the Swinomish Channel to authorized depths. The

volume currently proposed for 2012/2013 maintenance dredging is 340,000 cy - based on funding and timing considerations (see **Figures 1** to **12**).

6. The project was ranked low for testing purposes. Each characterized dredged material management unit (DMMU) supports dredging of up to 60,000 cy for well mixed, homogenous sediments (Table 4-4, DMMP 2009 Users Manual). The 2009 characterization (December 11, 2009 suitability determination) evaluated three DMMUs for an estimated volume of 152,000 cy. This evaluation characterized the entire navigation channel, and all the material was found to be suitable for disposal at the Rosario Strait dispersive site or at an appropriate beneficial use alternative site. The material is also suitable for disposal at the Port Gardner non-dispersive site.

7. Per recency guidelines for this low concern area, the most recent suitability determination represents not only the anticipated 152,000 cy of material from that dredging year, but also material dredged from the navigation channel through a recency date of September 2016. The recency date is only applicable following a reason to believe review that the most recent suitability determination still represents the proposed dredging prism. In this case, review has not revealed a changed condition in the channel.

8. The Corps now proposes to perform maintenance dredging of 340,000 cy of accumulated material from the navigation channel to a depth of -12 feet MLLW plus 2 feet for advanced maintenance. The documentation summarized above supports a volume increase of up to 340,000 cy of dredging from this project area in 2012/2013, based on this determination.

9. In summary, the Federal Swinomish Channel O&M Project proposes a volume revision increase from 152,000 cy to 340,000 cy within the channel. This volume change was coordinated with the DMMP agencies for consensus and approval.

SUBJECT: VOLUME REVISION FOR THE FEDERAL SWINOMISH O&M NAVIGATION DREDGING PROJECT (CENWS-OD-TS-2012-41) EVALUATED UNDER SECTION 404 OF THE CLEAN WATER ACT FOR OPEN-WATER DISPOSAL AT EITHER DISPERSIVE AND/OR NON-DISPERSIVE SITES, OR AT DESIGNATED BENEFICIAL USE SITES.

Concur: The signed SDM is on file in the DMMO Project File

_____	_____
Date	David R. Kendall, Ph.D., Seattle District Corps of Engineers
_____	_____
Date	Justine Barton, Environmental Protection Agency
_____	_____
Date	Laura Inouye, Ph.D., Washington Department of Ecology
_____	_____
Date	Celia Barton, Washington Department of Natural Resources

Copies Furnished:
John Pell, Navigation Project Manager
Justine Barton, EPA
Celia Barton, DNR
Laura Inouye, Ph.D., Ecology
DMMO File

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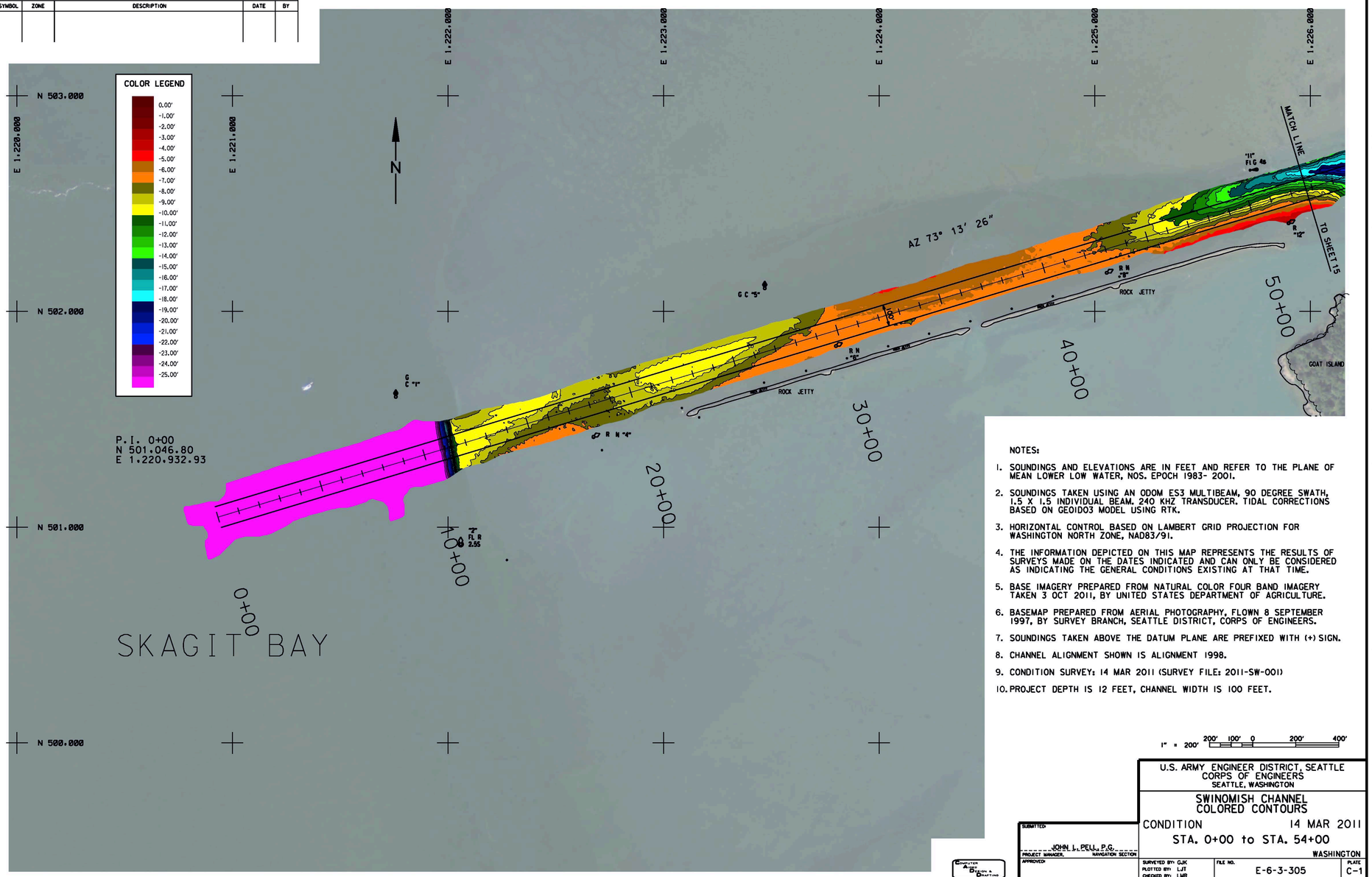
REVISIONS				
SYMBOL	ZONE	DESCRIPTION	DATE	BY



NOTES:

1. SOUNDINGS AND ELEVATIONS ARE IN FEET AND REFER TO THE PLANE OF MEAN LOWER LOW WATER, NOS. EPOCH 1983- 2001.
2. SOUNDINGS TAKEN USING AN ODOM ES3 MULTIBEAM, 90 DEGREE SWATH, 1.5 X 1.5 INDIVIDUAL BEAM. 240 KHZ TRANSDUCER. TIDAL CORRECTIONS BASED ON GEOID03 MODEL USING RTK.
3. HORIZONTAL CONTROL BASED ON LAMBERT GRID PROJECTION FOR WASHINGTON NORTH ZONE, NAD83/91.
4. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME.
5. BASE IMAGERY PREPARED FROM NATURAL COLOR FOUR BAND IMAGERY TAKEN 3 OCT 2011, BY UNITED STATES DEPARTMENT OF AGRICULTURE.
6. BASEMAP PREPARED FROM AERIAL PHOTOGRAPHY, FLOWN 8 SEPTEMBER 1997, BY SURVEY BRANCH, SEATTLE DISTRICT, CORPS OF ENGINEERS.
7. SOUNDINGS TAKEN ABOVE THE DATUM PLANE ARE PREFIXED WITH (+) SIGN.
8. CHANNEL ALIGNMENT SHOWN IS ALIGNMENT 1998.
9. CONDITION SURVEY: 14 MAR 2011 (SURVEY FILE: 2011-SW-001)
10. PROJECT DEPTH IS 12 FEET, CHANNEL WIDTH IS 100 FEET.

1" = 200' 200' 100' 0 200' 400'

U.S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON

SWINOMISH CHANNEL
COLORED CONTOURS

CONDITION 14 MAR 2011
STA. 0+00 to STA. 54+00
WASHINGTON

SUBMITTED: JOHN L. PELL, P.G.
PROJECT MANAGER, NAVIGATION SECTION

APPROVED: JOHN A. HICKS
CHIEF, NAVIGATION SECTION

SURVEYED BY: GJK
PLOTTED BY: LJT
CHECKED BY: LMR
DATE: 15 MAR 2012

FILE NO. E-6-3-305
SCALE: 1" = 200'

PLATE C-1
SHEET 14 OF 25

COMPUTER AIDED DESIGN & DRAFTING

CAUTION: NOT INTENDED FOR NAVIGATIONAL PURPOSES. The information on this map results from hydro survey performed on the dates indicated. Conditions may have changed since then, or there may be undiscovered obstructions lying between the survey lines not depicted on this map. The U.S. Army Corps of Engineers makes no warranties as to the accuracy of conditions depicted except as described above.

REVISIONS				
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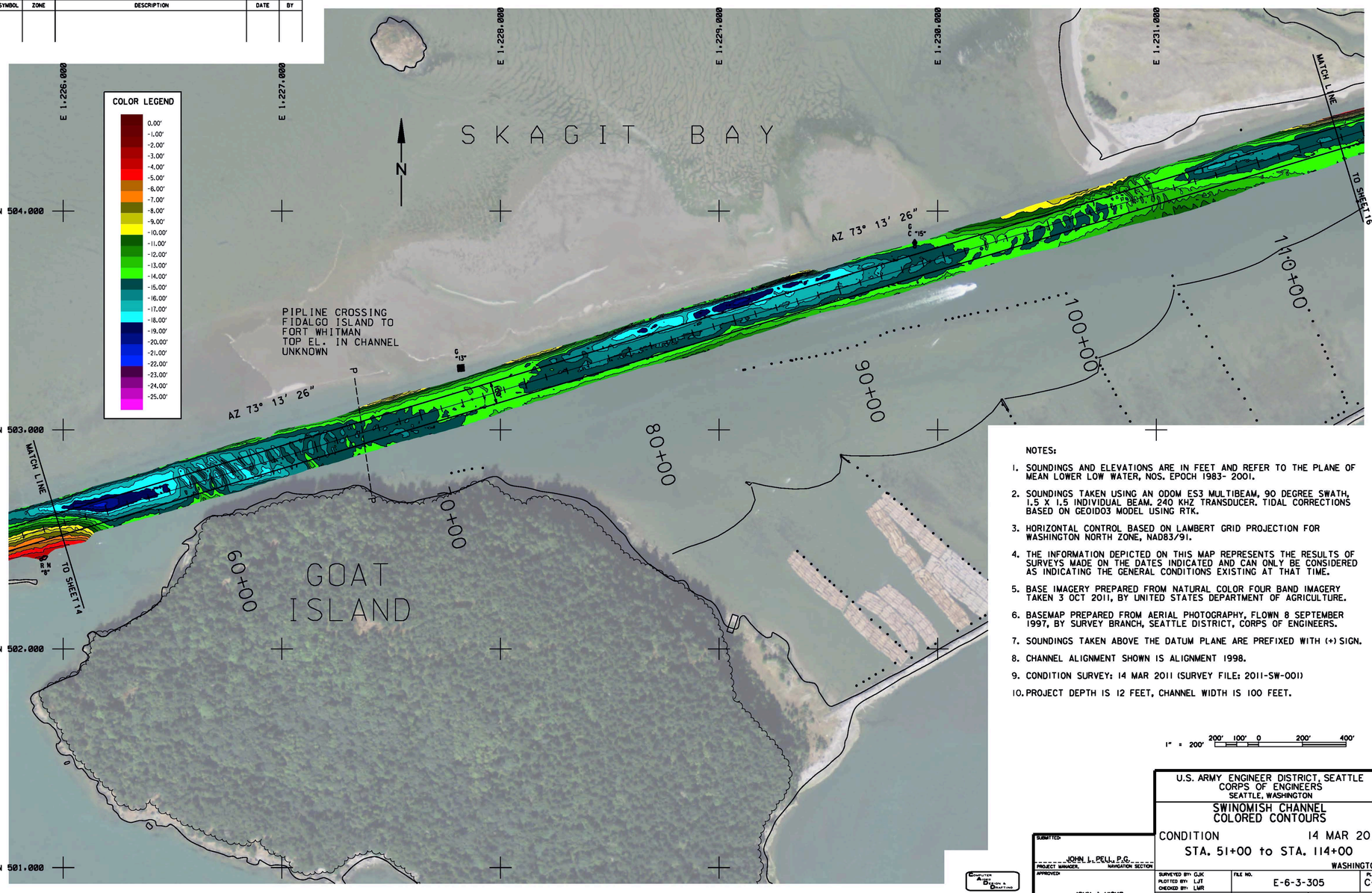

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1" = 200' 200' 100' 0 200' 400'

U.S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON

SWINOMISH CHANNEL
COLORED CONTOURS

CONDITION 14 MAR 2011
STA. 51+00 to STA. 114+00
WASHINGTON

SUBMITTED: JOHN L. PELL, P.G. PROJECT MANAGER, NAVIGATION SECTION
APPROVED: JOHN A. HICKS CHIEF, NAVIGATION SECTION
SURVEYED BY: GJK
PLOTTED BY: LJT
CHECKED BY: LMR
DATE: 16 MAR 2012
FILE NO. E-6-3-305
PLATE C-2
SCALE: 1" = 200'
SHEET 15 OF 25

CAUTION: NOT INTENDED FOR NAVIGATIONAL PURPOSES. The information on this map results from hydro surveys performed on the dates indicated. Conditions may have changed since then, or there may be undiscovered obstructions lying between the survey lines not depicted on this map. The U.S. Army Corps of Engineers makes no warranties as to the accuracy of conditions depicted except as described above.

REVISIONS				
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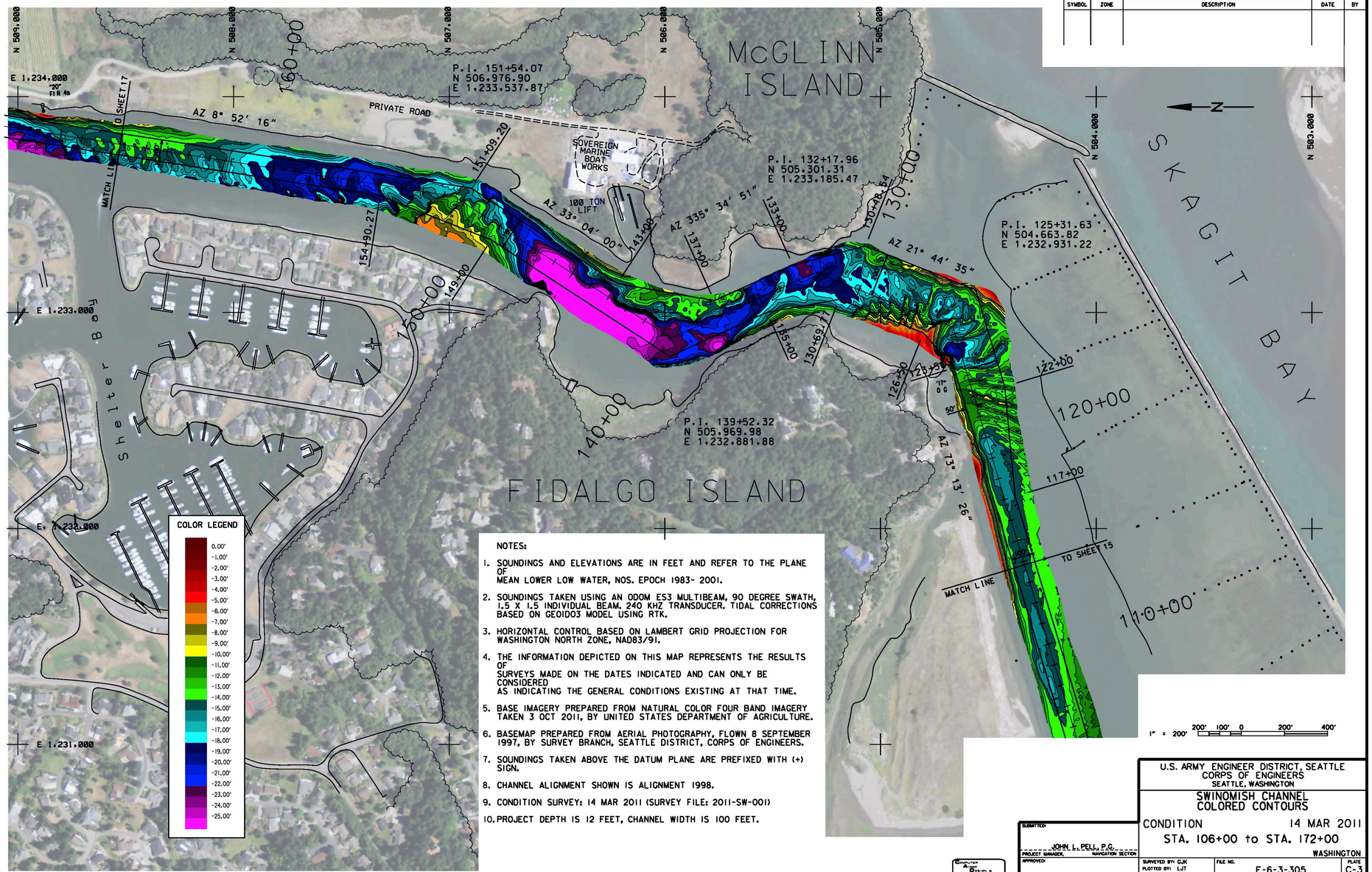

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U.S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON

SWINOMISH CHANNEL
COLORED CONTOURS

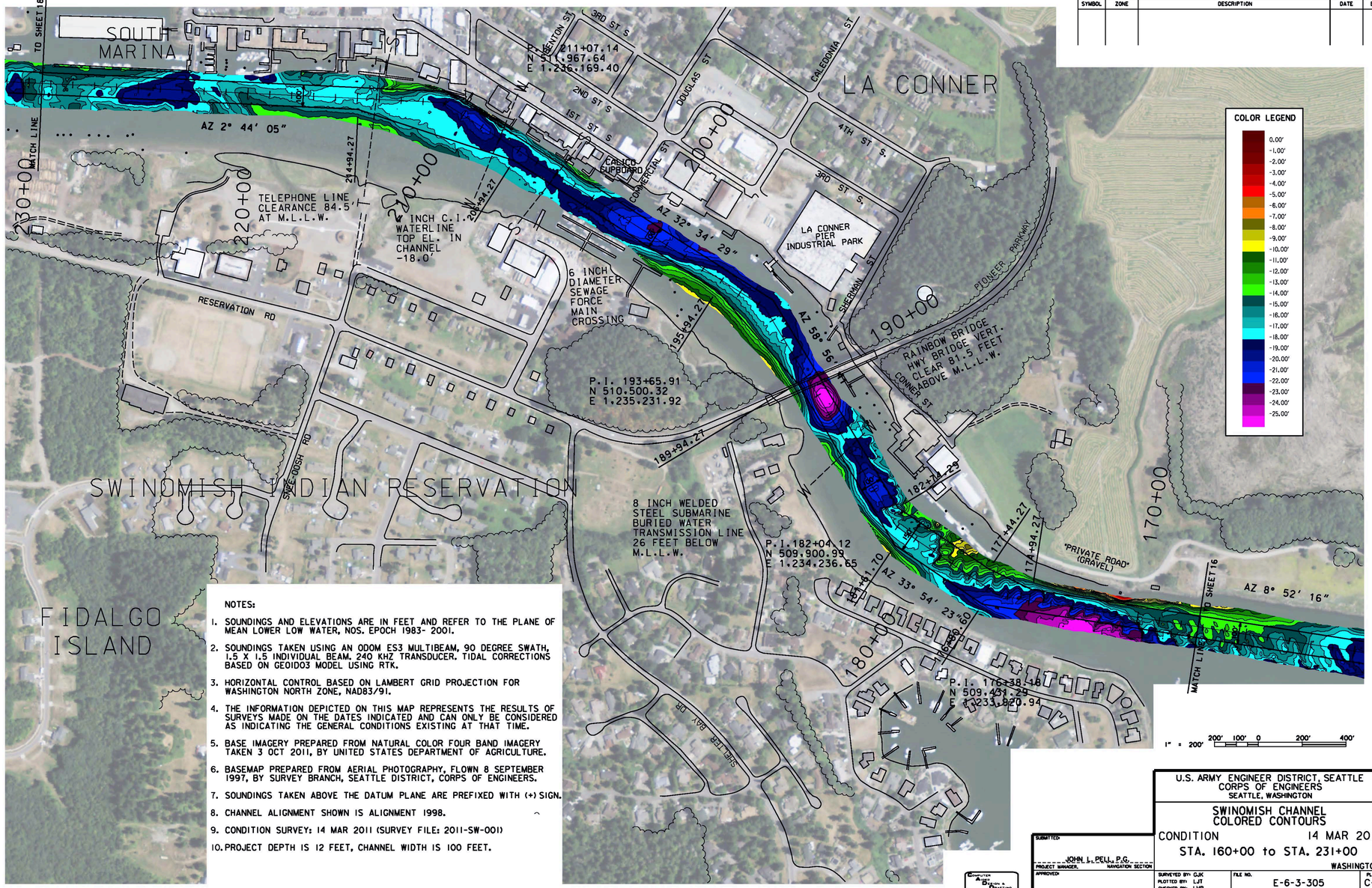
CONDITION 14 MAR 2011
STA. 106+00 to STA. 172+00
WASHINGTON

SUBMITTED: JOHN L. PELL, P.G.
PROJECT MANAGER, NAVIGATION SECTION

APPROVED: JOHN A. HICKS
CHIEF, NAVIGATION SECTION

SURVEYED BY: GJK
PLOTTED BY: LJT
CHECKED BY: LMR
DATE: 15 MAR 2012

FILE NO. E-6-3-305
SCALE: 1" = 200'
PLATE C-3
SHEET 15 OF 25



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U.S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON

SWINOMISH CHANNEL
COLORED CONTOURS

CONDITION 14 MAR 2011

STA. 160+00 to STA. 231+00

WASHINGTON

SUBMITTED: JOHN L. PELL, P.G.
PROJECT MANAGER, NAVIGATION SECTION

APPROVED: JOHN A. HICKS
CHIEF, NAVIGATION SECTION

SURVEYED BY: GJK
PLOTTED BY: LJT
CHECKED BY: LMR

DATE: 19 SEP 2011

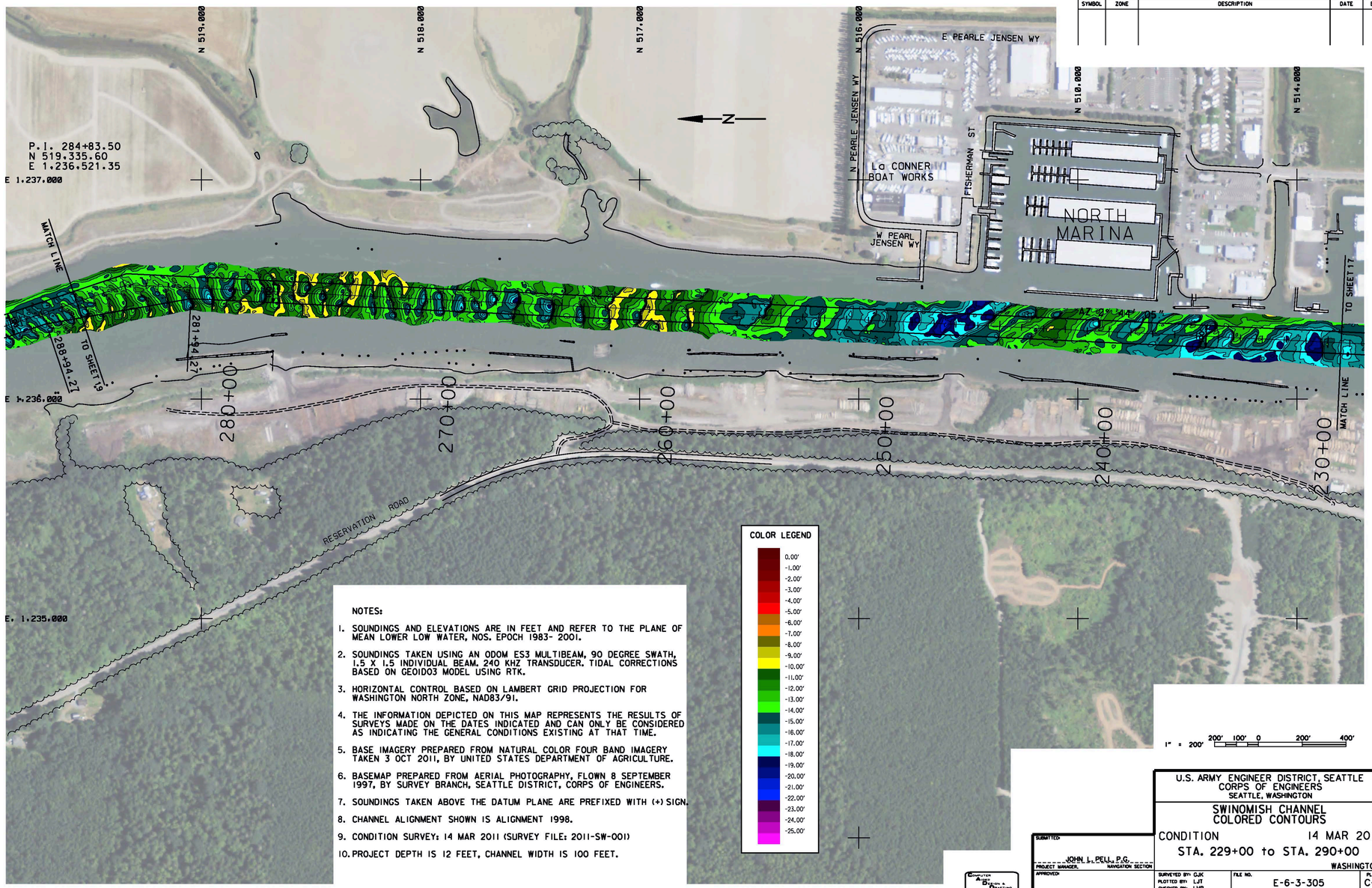
FILE NO. E-6-3-305

PLATE C-4

SCALE: 1" = 200'

SHEET 17 OF 25

REVISIONS				
SYMBOL	ZONE	DESCRIPTION	DATE	BY



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COMPUTER AIDED DESIGN & DRAFTING

SUBMITTED: JOHN L. PELL, P.G. — PROJECT MANAGER, NAVIGATION SECTION

APPROVED: JOHN A. HICKS — CHIEF, NAVIGATION SECTION

U.S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON

SWINOMISH CHANNEL COLORED CONTOURS

CONDITION 14 MAR 2011

STA. 229+00 to STA. 290+00

WASHINGTON

SURVEYED BY: CJK
PLOTTED BY: LJT
CHECKED BY: LMR
DATE: 16 MAR 2012

FILE NO. E-6-3-305

SCALE: 1" = 200'

SHEET 18 OF 25

PLATE C-5

CAUTION: NOT INTENDED FOR NAVIGATIONAL PURPOSES. The information on this map results from hydro survey performed on the dates indicated. Conditions may have changed since then, or there may be undiscovered obstructions lying between the survey lines not depicted on this map. The U.S. Army Corps of Engineers makes no warranties as to the accuracy of conditions depicted except as described above.

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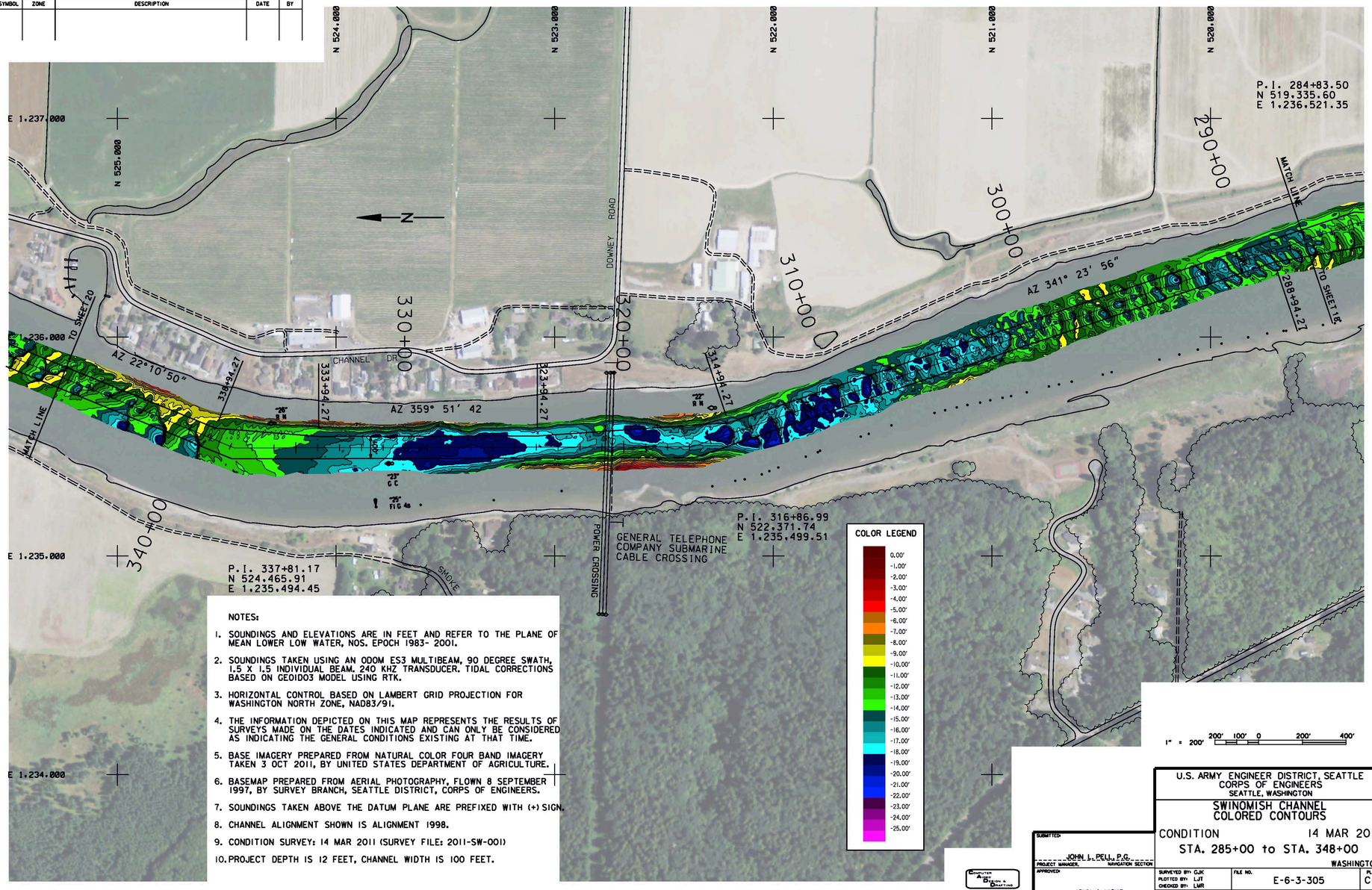

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COMPUTER AIDED DESIGN & DRAFTING

SUBMITTED: JOHN L. PELLI, P.G.
PROJECT MANAGER, NAVIGATION SECTION

APPROVED: JOHN A. HICKS
CHIEF, NAVIGATION SECTION

U.S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON

SWINOMISH CHANNEL
COLORED CONTOURS

CONDITION 14 MAR 2011
STA. 285+00 to STA. 348+00
WASHINGTON

SURVEYED BY: GJK
PLOTTED BY: LJT
CHECKED BY: LMR
DATE: 16 MAR 2012
FILE NO. E-6-3-305
SCALE: 1" = 200'
PLATE C-6
SHEET 19 OF 25

CAUTION: NOT INTENDED FOR NAVIGATIONAL PURPOSES. The information on this map results from hydro survey performed on the dates indicated. Conditions may have changed since then, or there may be undiscovered obstructions lying between the survey lines not depicted on this map. The U.S. Army Corps of Engineers makes no warranties as to the accuracy of conditions depicted except as described above.

REVISIONS				
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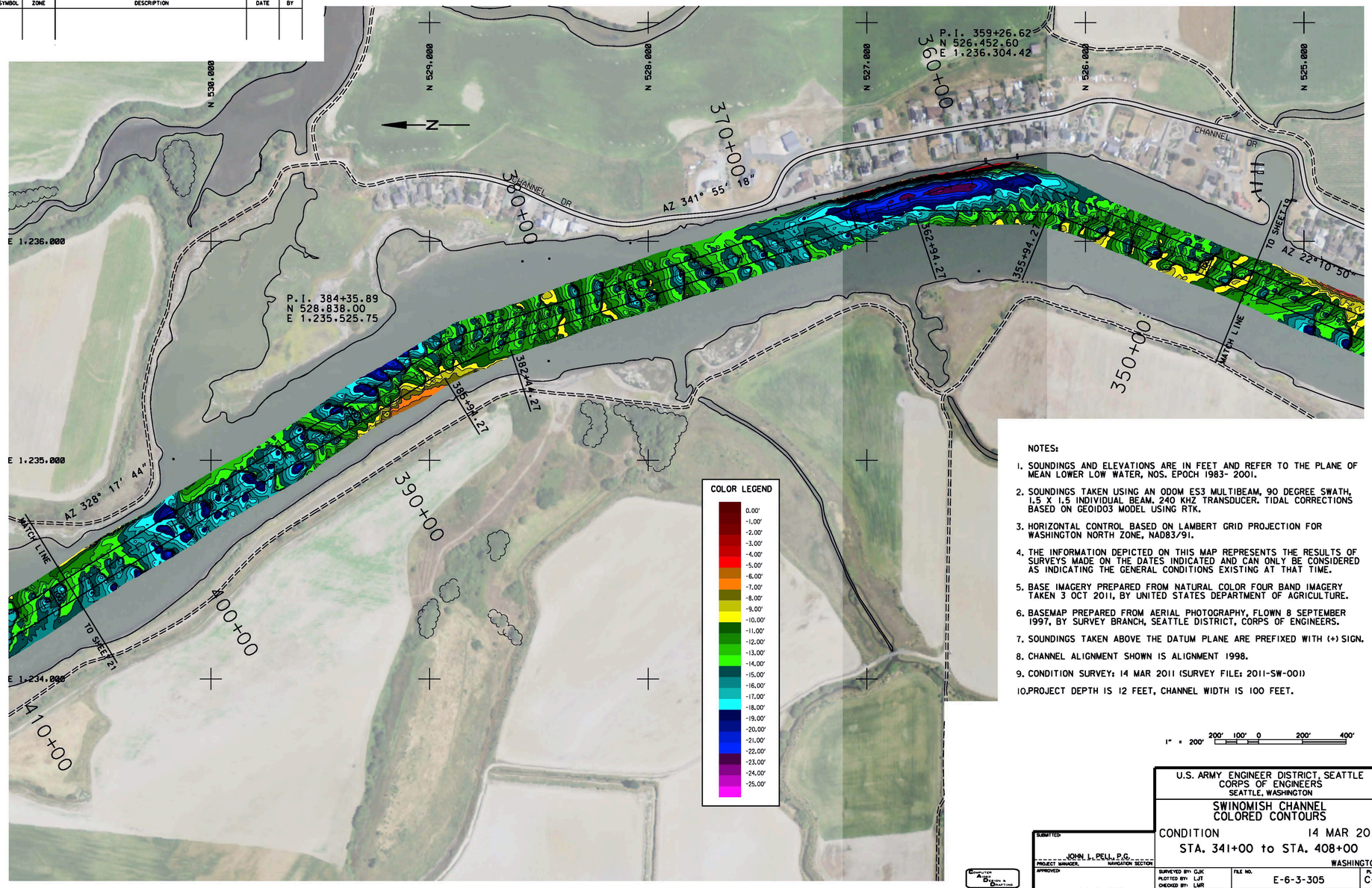

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1" = 200' 200' 100' 0 200' 400'

U.S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON

SWINOMISH CHANNEL
COLORED CONTOURS

CONDITION 14 MAR 2011

STA. 341+00 to STA. 408+00

WASHINGTON

SUBMITTED: JOHN L. PELL, P.G. PROJECT MANAGER, NAVIGATION SECTION

APPROVED: JOHN A. HICKS CHIEF, NAVIGATION SECTION

SURVEYED BY: GJK
PLOTTED BY: LJT
CHECKED BY: LMR
DATE: 16 MAR 2012

FILE NO. E-6-3-305

SCALE: 1" = 200'

SHEET 20 OF 25

PLATE C-7

COMPUTER AIDED DESIGN & DRAFTING

CAUTION: NOT INTENDED FOR NAVIGATIONAL PURPOSES. The information on this map results from hydro surveys performed on the dates indicated. Conditions may have changed since then, or there may be undiscovered obstructions lying between the survey lines not depicted on this map. The U.S. Army Corps of Engineers makes no warranties as to the accuracy of conditions depicted except as described above.

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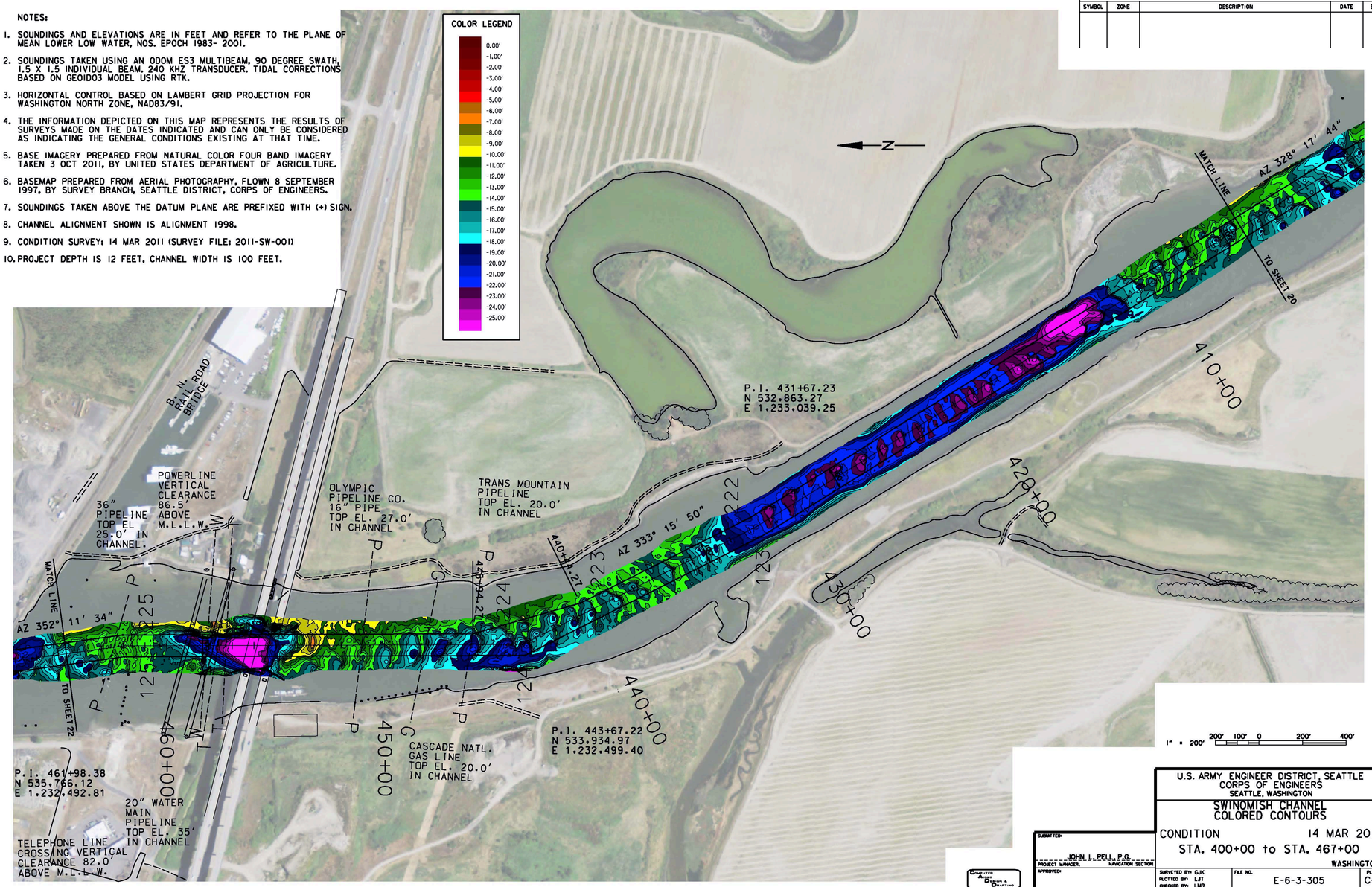

REVISIONS

SYMBOL	ZONE	DESCRIPTION	DATE	BY

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U.S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON

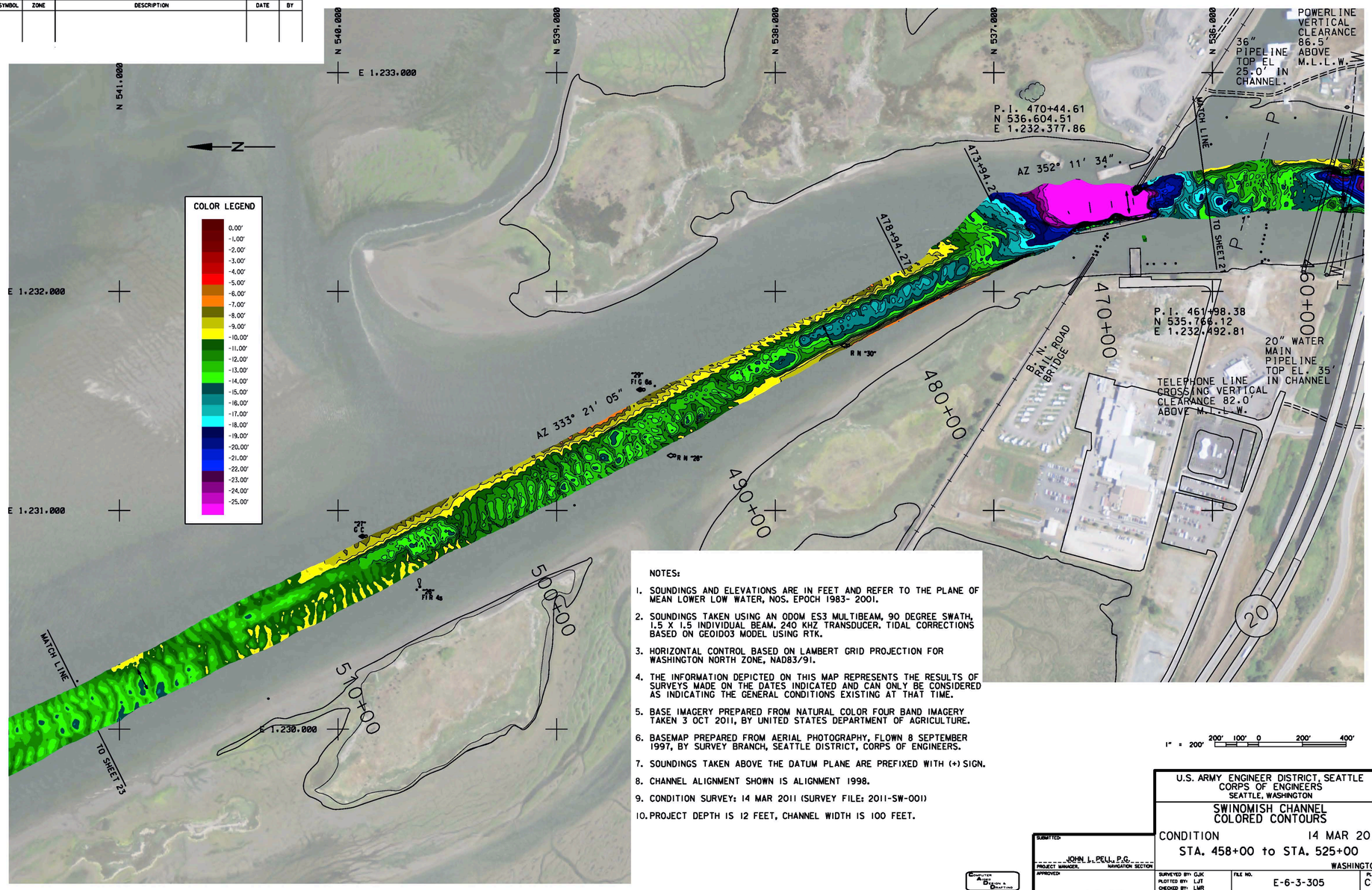
SWINOMISH CHANNEL
COLORED CONTOURS

CONDITION 14 MAR 2011
STA. 400+00 to STA. 467+00
WASHINGTON

SUBMITTED: JOHN L. PELL, P.G. PROJECT MANAGER, NAVIGATION SECTION
APPROVED: JOHN A. HICKS CHIEF, NAVIGATION SECTION

SURVEYED BY: GJK
PLOTTED BY: LJT
CHECKED BY: LMR
DATE: 16 MAR 2012
FILE NO. E-6-3-305
SCALE: 1" = 200'
PLATE C-8
SHEET 21 OF 25

REVISIONS				
SYMBOL	ZONE	DESCRIPTION	DATE	BY



NOTES:

1. SOUNDINGS AND ELEVATIONS ARE IN FEET AND REFER TO THE PLANE OF MEAN LOWER LOW WATER, NOS. EPOCH 1983- 2001.
2. SOUNDINGS TAKEN USING AN ODOM ES3 MULTIBEAM, 90 DEGREE SWATH, 1.5 X 1.5 INDIVIDUAL BEAM. 240 KHZ TRANSDUCER. TIDAL CORRECTIONS BASED ON GEOID03 MODEL USING RTK.
3. HORIZONTAL CONTROL BASED ON LAMBERT GRID PROJECTION FOR WASHINGTON NORTH ZONE, NAD83/91.
4. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME.
5. BASE IMAGERY PREPARED FROM NATURAL COLOR FOUR BAND IMAGERY TAKEN 3 OCT 2011, BY UNITED STATES DEPARTMENT OF AGRICULTURE.
6. BASEMAP PREPARED FROM AERIAL PHOTOGRAPHY, FLOWN 8 SEPTEMBER 1997, BY SURVEY BRANCH, SEATTLE DISTRICT, CORPS OF ENGINEERS.
7. SOUNDINGS TAKEN ABOVE THE DATUM PLANE ARE PREFIXED WITH (+) SIGN.
8. CHANNEL ALIGNMENT SHOWN IS ALIGNMENT 1998.
9. CONDITION SURVEY: 14 MAR 2011 (SURVEY FILE: 2011-SW-001)
10. PROJECT DEPTH IS 12 FEET, CHANNEL WIDTH IS 100 FEET.

1" = 200' 200' 100' 0 200' 400'

U.S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON

SWINOMISH CHANNEL
COLORED CONTOURS

CONDITION 14 MAR 2011
STA. 458+00 to STA. 525+00
WASHINGTON

SUBMITTED: JOHN L. PELL, P.G.
PROJECT MANAGER, NAVIGATION SECTION
APPROVED: JOHN A. HICKS
CHIEF, NAVIGATION SECTION

SURVEYED BY: GJK
PLOTTED BY: LJT
CHECKED BY: LMR
DATE: 16 MAR 2012
FILE NO. E-6-3-305
SCALE: 1" = 200'
PLATE C-9
SHEET 22 OF 25

CAUTION: NOT INTENDED FOR NAVIGATIONAL PURPOSES. The information on this map results from hydro survey performed on the dates indicated. Conditions may have changed since then, or there may be undiscovered obstructions lying between the survey lines not depicted on this map. The U.S. Army Corps of Engineers makes no warranties as to the accuracy of conditions depicted except as described above.

REVISIONS				
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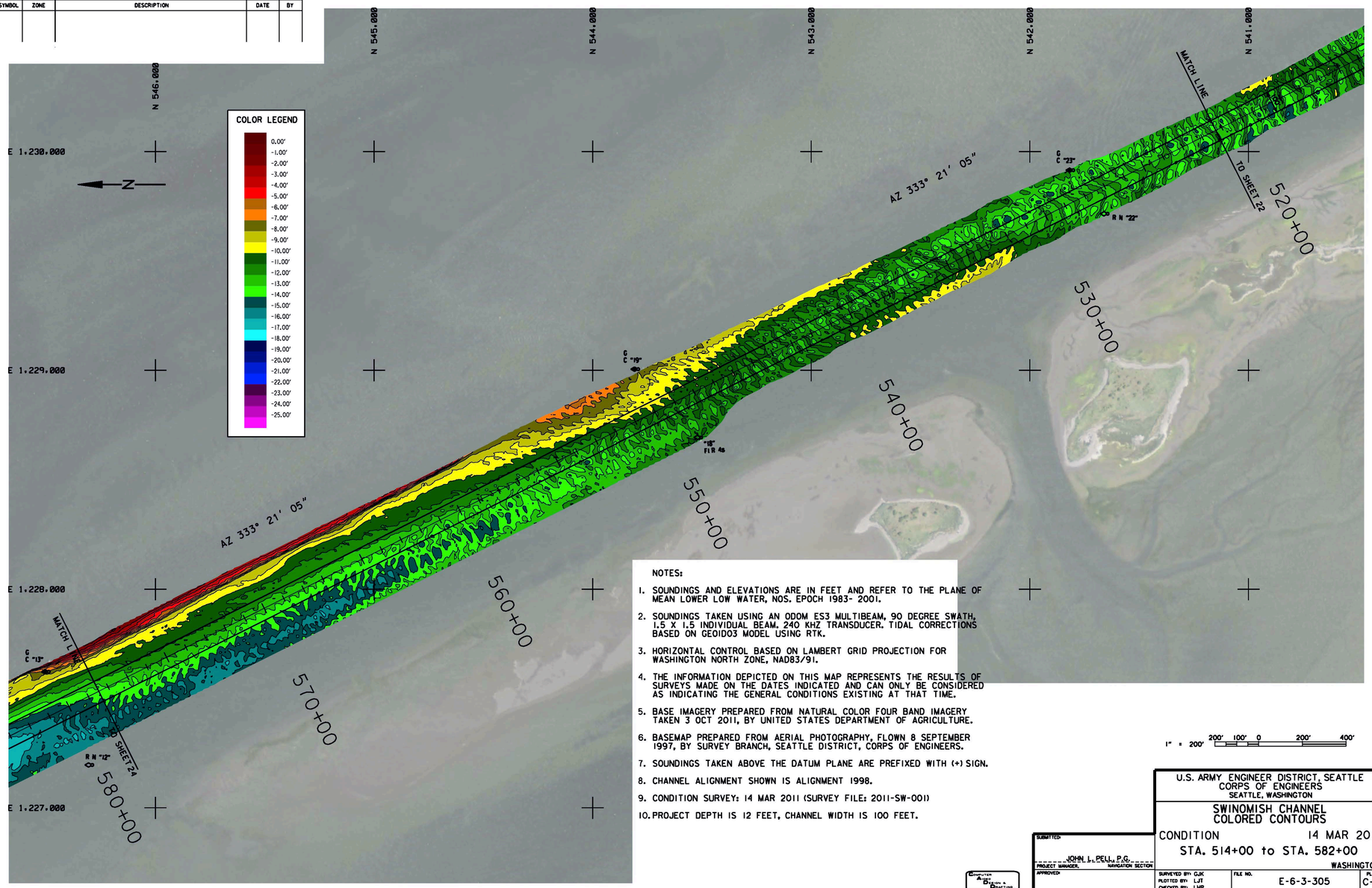

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1" = 200' 200' 100' 0 200' 400'

COMPUTER AIDED DESIGN & DRAFTING

SUBMITTED: JOHN L. PELL, P.G. PROJECT MANAGER, NAVIGATION SECTION

APPROVED: JOHN A. HICKS CHIEF, NAVIGATION SECTION

U.S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON

SWINOMISH CHANNEL
COLORED CONTOURS

CONDITION 14 MAR 2011

STA. 514+00 to STA. 582+00

WASHINGTON

SURVEYED BY: CJK
PLOTTED BY: LJT
CHECKED BY: LMR
DATE: 16 MAR 2012

FILE NO. E-6-3-305

SCALE: 1" = 200'

PLATE C-10

SHEET 23 OF 25

CAUTION: NOT INTENDED FOR NAVIGATIONAL PURPOSES. The information on this map results from hydro survey performed on the dates indicated. Conditions may have changed since then, or there may be undiscovered obstructions lying between the survey lines not depicted on this map. The U.S. Army Corps of Engineers makes no warranties as to the accuracy of conditions depicted except as described above.

REVISIONS				
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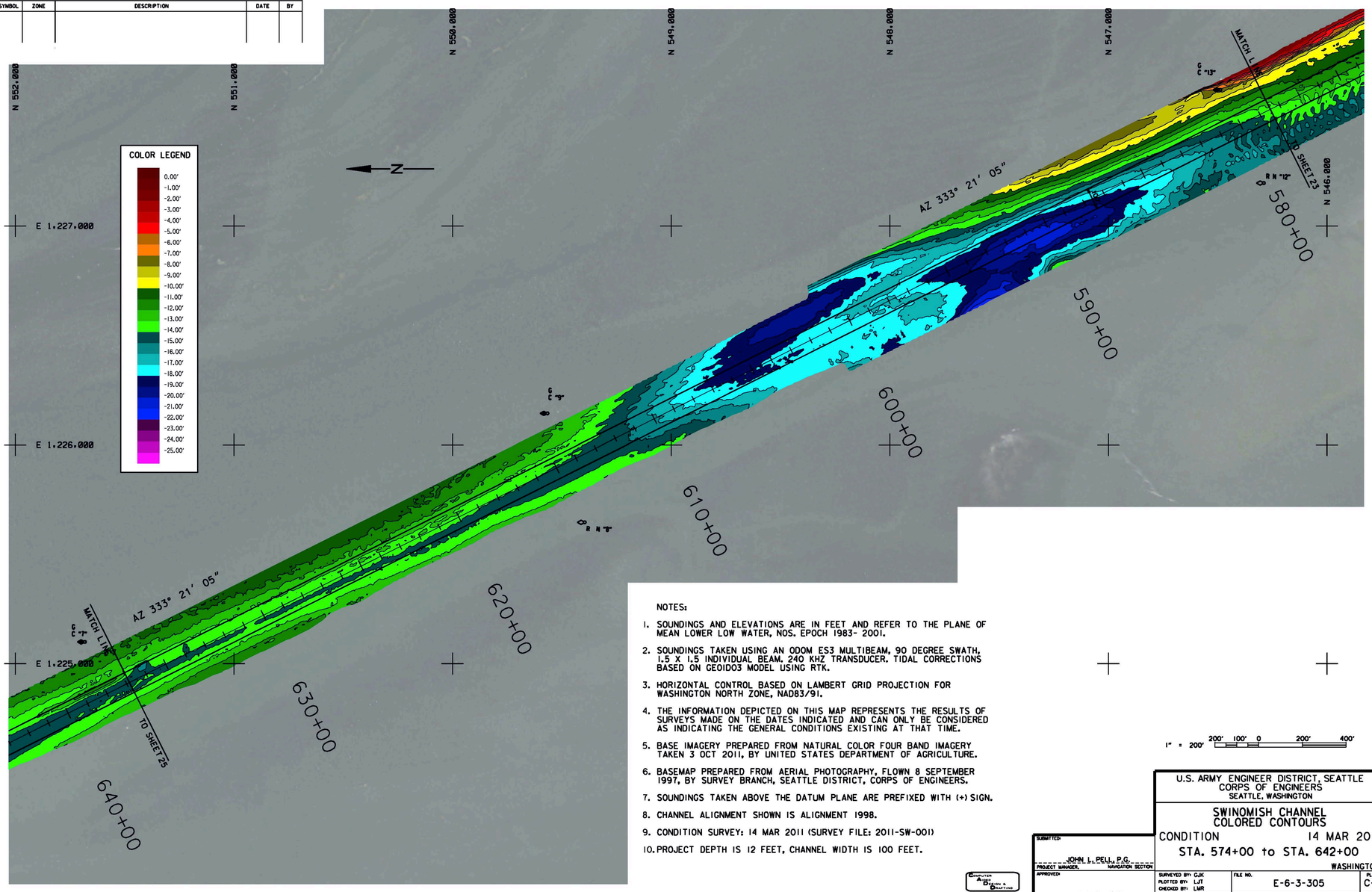

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1" = 200' 200' 100' 0 200' 400'

COMPUTER AIDED DESIGN & DRAFTING

SUBMITTED: JOHN L. PELL, P.G. PROJECT MANAGER, NAVIGATION SECTION

APPROVED: JOHN A. HICKS CHIEF, NAVIGATION SECTION

U.S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON

SWINOMISH CHANNEL
COLORED CONTOURS

CONDITION 14 MAR 2011

STA. 574+00 to STA. 642+00

WASHINGTON

SURVEYED BY: GJK
PLOTTED BY: LJT
CHECKED BY: LMR
DATE: 16 MAR 2012

FILE NO. E-6-3-305

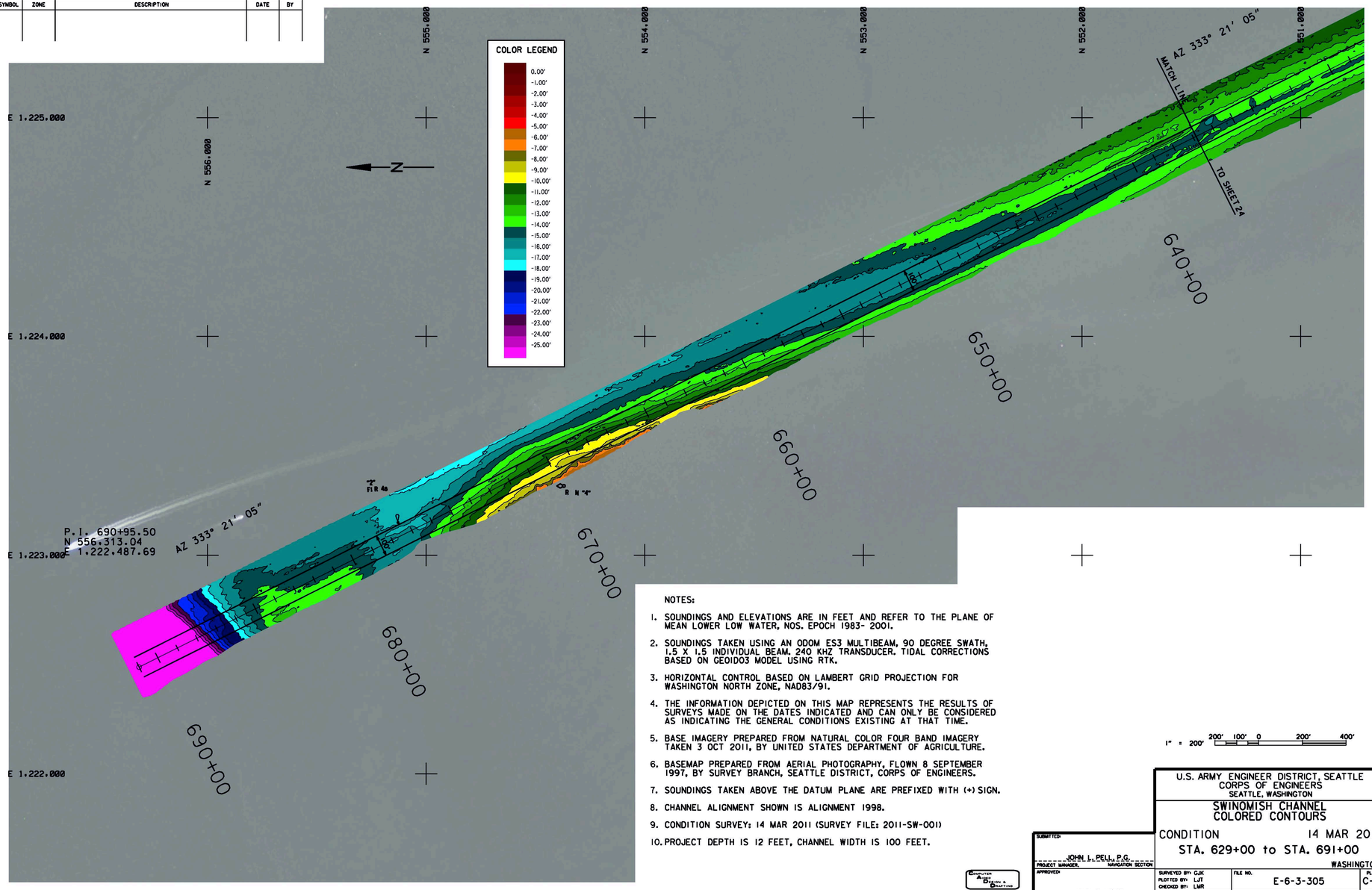
PLATE C-11

SCALE: 1" = 200'

SHEET 24 OF 25

CAUTION: NOT INTENDED FOR NAVIGATIONAL PURPOSES. The information on this map results from hydro survey performed on the dates indicated. Conditions may have changed since then, or there may be undiscovered obstructions lying between the survey lines not depicted on this map. The U.S. Army Corps of Engineers makes no warranties as to the accuracy of conditions depicted except as described above.

REVISIONS				
SYMBOL	ZONE	DESCRIPTION	DATE	BY



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1" = 200' 200' 100' 0 200' 400'

SUBMITTED:
JOHN L. PELLI, P.G.
PROJECT MANAGER, NAVIGATION SECTION

APPROVED:
JOHN A. HICKS
CHIEF, NAVIGATION SECTION

U.S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON

SWINOMISH CHANNEL COLORED CONTOURS

CONDITION 14 MAR 2011

STA. 629+00 to STA. 691+00

WASHINGTON

SURVEYED BY: GJK
PLOTTED BY: LJT
CHECKED BY: LMR
DATE: 16 MAR 2012

FILE NO. E-6-3-305

SCALE: 1" = 200'

PLATE C-12

SHEET 25 OF 25

CAUTION: NOT INTENDED FOR NAVIGATIONAL PURPOSES. The information on this map results from hydro surveys performed on the dates indicated. Conditions may have changed since then, or there may be undiscovered obstructions lying between the survey lines not depicted on this map. The U.S. Army Corps of Engineers makes no warranties as to the accuracy of conditions depicted except as described above.