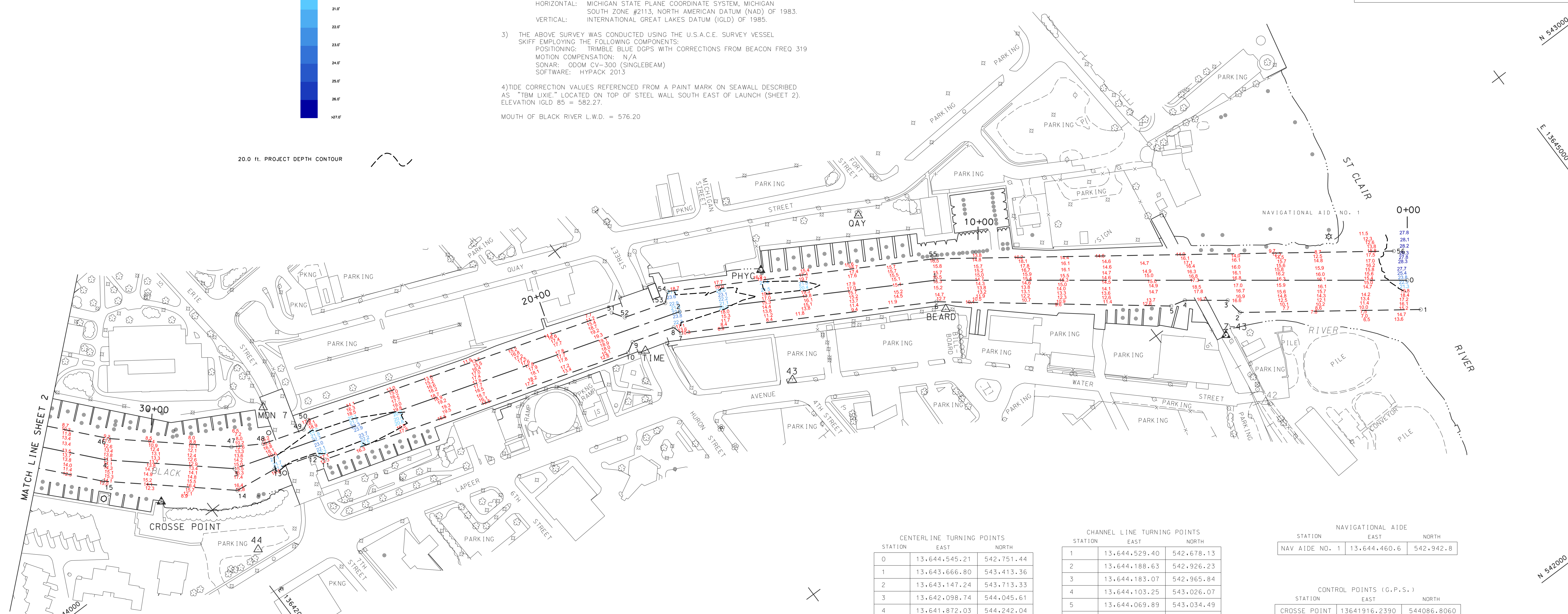


- NOTES:
- 1) THE SOUNDINGS AND ASSOCIATED INFORMATION REPRESENTED HEREIN ARE THE RESULT OF SURVEYS MADE ON THE DATE AS INDICATED AND CAN ONLY BE CONSIDERED REPRESENTATIVE OF THE GENERAL CONDITIONS EXISTING AT THE TIME OF SURVEY.
  - 2) THE SOUNDINGS DEPICTED HEREIN ARE EXPRESSED IN U.S. SURVEY FEET AND TENTHS THEREOF AND ARE REFERENCED TO THE FOLLOWING DATUMS:  
 HORIZONTAL: MICHIGAN STATE PLANE COORDINATE SYSTEM, MICHIGAN SOUTH ZONE #2113, NORTH AMERICAN DATUM (NAD) OF 1983.  
 VERTICAL: INTERNATIONAL GREAT LAKES DATUM (IGLD) OF 1985.
  - 3) THE ABOVE SURVEY WAS CONDUCTED USING THE U.S.A.C.E. SURVEY VESSEL SKIFF EMPLOYING THE FOLLOWING COMPONENTS:  
 POSITIONING: TRIMBLE BLUE DOPS WITH CORRECTIONS FROM BEACON FREQ 319  
 MOTION COMPENSATION: N/A  
 SONAR: ODOM CV-300 (SINGLEBEAM)  
 SOFTWARE: HYPACK 2013
  - 4) TIDE CORRECTION VALUES REFERENCED FROM A PAINT MARK ON SEAWALL DESCRIBED AS "TBM LIXIE," LOCATED ON TOP OF STEEL WALL SOUTH EAST OF LAUNCH (SHEET 2). ELEVATION IGLD 85 = 582.27.  
 MOUTH OF BLACK RIVER L.W.D. = 576.20



CENTERLINE TURNING POINTS

STATION	EAST	NORTH
0	13,644,545.21	542,751.44
1	13,643,666.80	543,413.36
2	13,643,147.24	543,713.33
3	13,642,098.74	544,045.61
4	13,641,872.03	544,242.04

CHANNEL LINE TURNING POINTS

STATION	EAST	NORTH
1	13,644,529.40	542,678.13
2	13,644,188.63	542,926.23
3	13,644,183.07	542,965.84
4	13,644,103.25	543,026.07
5	13,644,069.89	543,034.49
6	13,643,639.15	543,371.59
7	13,643,119.59	543,671.56
8	13,643,114.34	543,692.28
9	13,643,017.21	543,723.07
10	13,642,993.92	543,709.47
11	13,642,279.04	543,936.02
12	13,642,267.53	543,958.22
13	13,642,172.21	543,988.42
14	13,642,073.80	544,001.06
15	13,641,836.81	544,206.40
46	13,641,907.25	544,277.68
47	13,642,123.68	544,090.15
48	13,642,186.97	544,051.55
49	13,642,282.29	544,021.34
50	13,642,304.48	544,032.86
51	13,643,019.36	543,806.31
52	13,643,037.15	543,779.69
53	13,643,132.47	543,749.48
54	13,643,153.24	543,767.60
55	13,643,694.45	543,455.13
56	13,644,561.01	542,824.74

NAVIGATIONAL AIDE

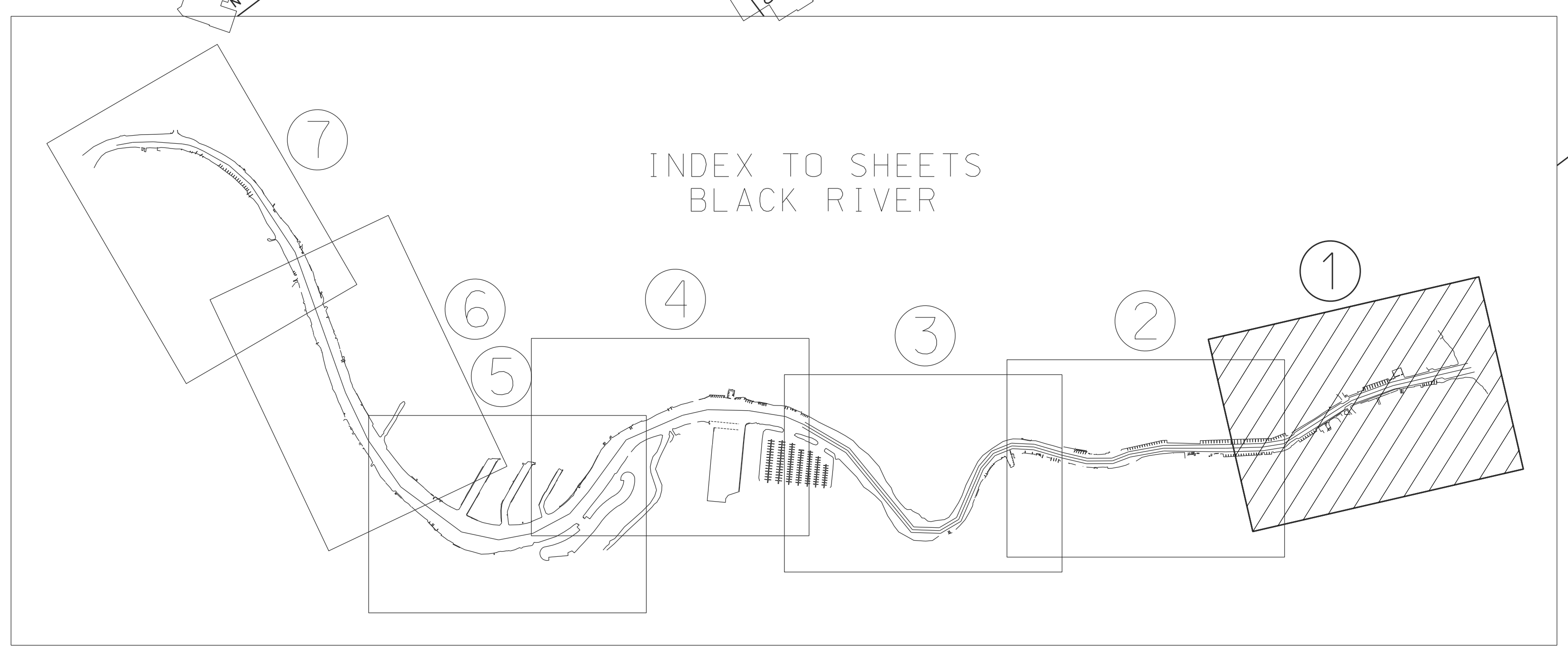
STATION	EAST	NORTH
NAV AIDE NO. 1	13,644,460.6	542,942.8

CONTROL POINTS (G.P.S.)

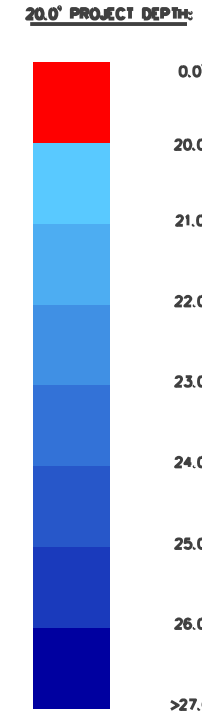
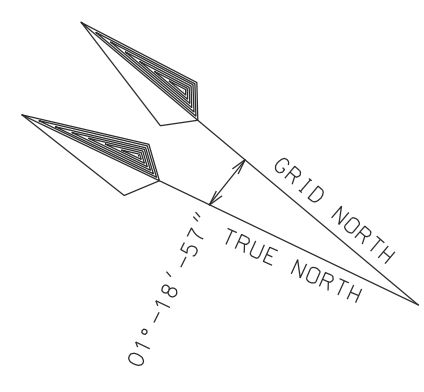
STATION	EAST	NORTH
CROSSE POINT	13641916.2390	544086.8060
PHYC	13643356.3360	543676.6500
Z-43	13644130.8570	542903.5050

CONTROL POINTS (CORPSCON)

STATION	EAST	NORTH
BEARD	13,643,646.11	543,345.26
MDN 7	13,642,238.09	544,119.44
QAY	13,643,614.68	543,641.49
TIME	13,643,028.82	543,688.85
42	13,644,110.95	542,723.78
43	13,643,261.60	543,428.31
44	13,642,029.61	543,862.39



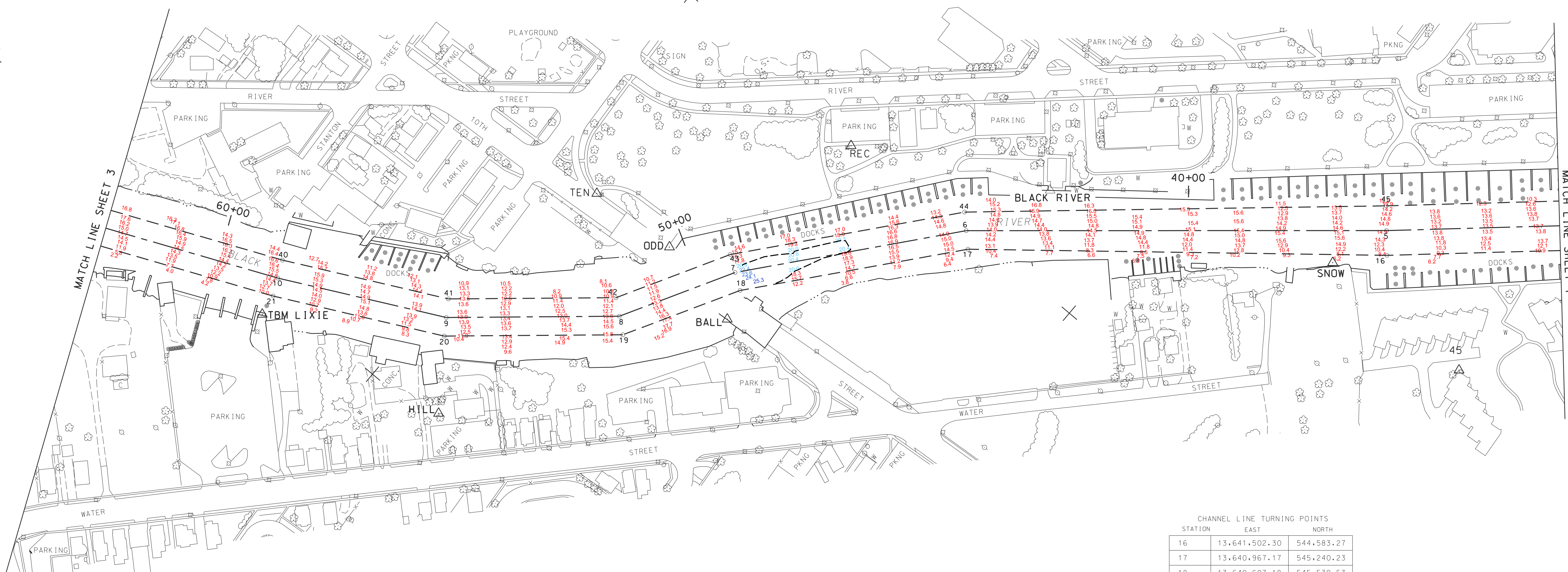
 US ARMY CORPS OF ENGINEERS DETROIT DISTRICT	UNITED STATES ARMY CORPS OF ENGINEERS DETROIT AREA OFFICE, DETROIT, MICHIGAN
	<b>CONDITION SURVEY</b> <b>BLACK RIVER, MI</b> CS 00+00 TO CS 32+00
SURVEYED BY: <b>N.J.B.</b>	DATE OF SURVEY: 08 AUGUST 2017
CHECKED BY: <b>C.V.L.</b>	SCALE 1" = 100'
SHEET 1 OF 7	



- NOTES:
- 1) THE SOUNDINGS AND ASSOCIATED INFORMATION REPRESENTED HEREIN ARE THE RESULT OF SURVEYS MADE ON THE DATE AS INDICATED AND CAN ONLY BE CONSIDERED REPRESENTATIVE OF THE GENERAL CONDITIONS EXISTING AT THE TIME OF SURVEY.
  - 2) THE SOUNDINGS DEPICTED HEREIN ARE EXPRESSED IN U.S. SURVEY FEET AND TENTHS THEREOF AND ARE REFERENCED TO THE FOLLOWING DATUMS:  
 HORIZONTAL: MICHIGAN STATE PLANE COORDINATE SYSTEM, MICHIGAN SOUTH ZONE #2113, NORTH AMERICAN DATUM (NAD) OF 1983.  
 VERTICAL: INTERNATIONAL GREAT LAKES DATUM (IGLD) OF 1985.
  - 3) THE ABOVE SURVEY WAS CONDUCTED USING THE U.S.A.C.E. SURVEY VESSEL SKIFF EMPLOYING THE FOLLOWING COMPONENTS:  
 POSITIONING: TRIMBLE BLUE DGPS WITH CORRECTIONS FROM BEACON FRED 319  
 MOTION COMPENSATION: N/A  
 SONAR: ODOM CV-300 (SINGLEBEAM)  
 SOFTWARE: HYDRACK 2013
  - 4) TIDE CORRECTION VALUES REFERENCED FROM A PAINT MARK ON SEAWALL DESCRIBED AS "TBM LIXIE" LOCATED ON TOP OF STEEL WALL SOUTH EAST OF LAUNCH (SHEET 2). ELEVATION IGLD 85 = 582.27.
- MOUTH OF BLACK RIVER L.W.D. = 576.20



20.0 ft. PROJECT DEPTH CONTOUR



CENTRAL LINE TURNING POINTS

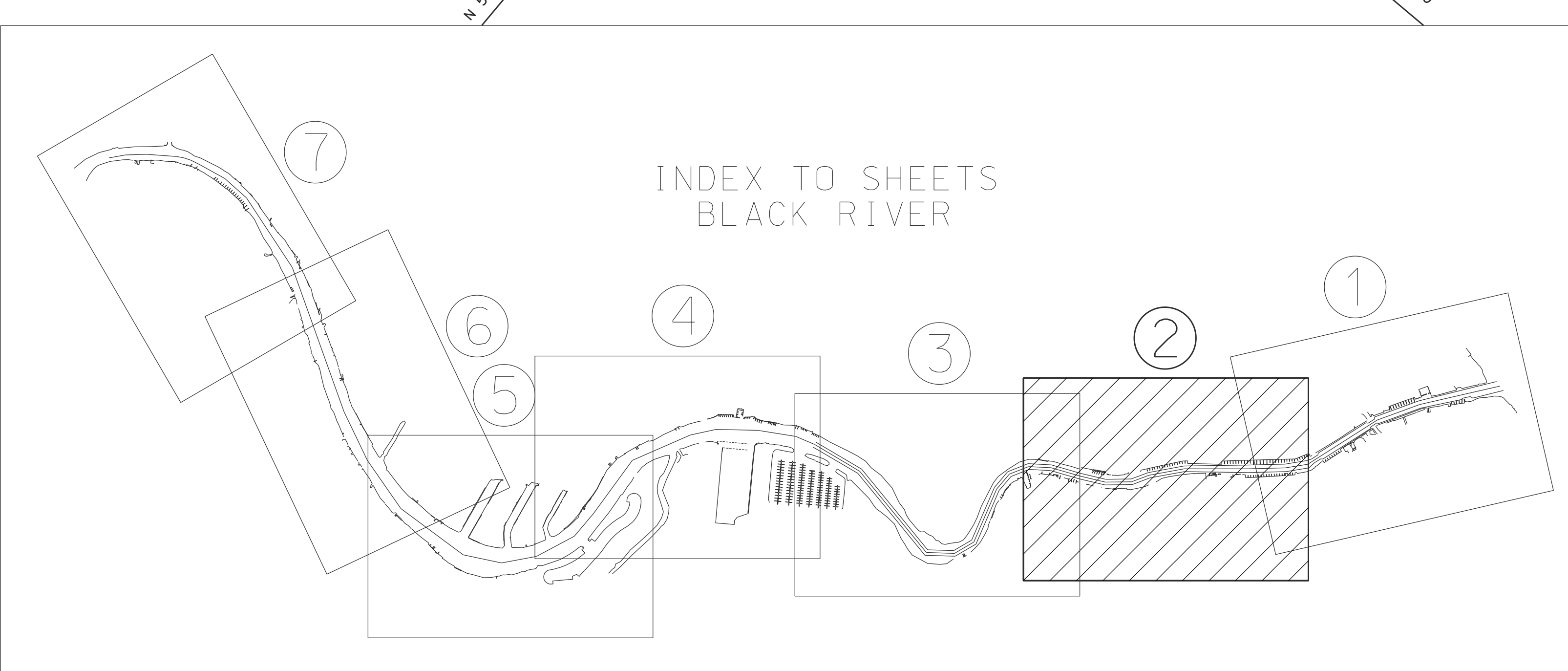
STATION	EAST	NORTH
5	13,641,540.16	544,615.94
6	13,640,993.73	545,266.91
7	13,640,628.52	545,570.56
8	13,640,410.54	545,692.92
9	13,640,183.65	545,959.37
10	13,640,025.63	546,271.62

CHANNEL LINE TURNING POINTS

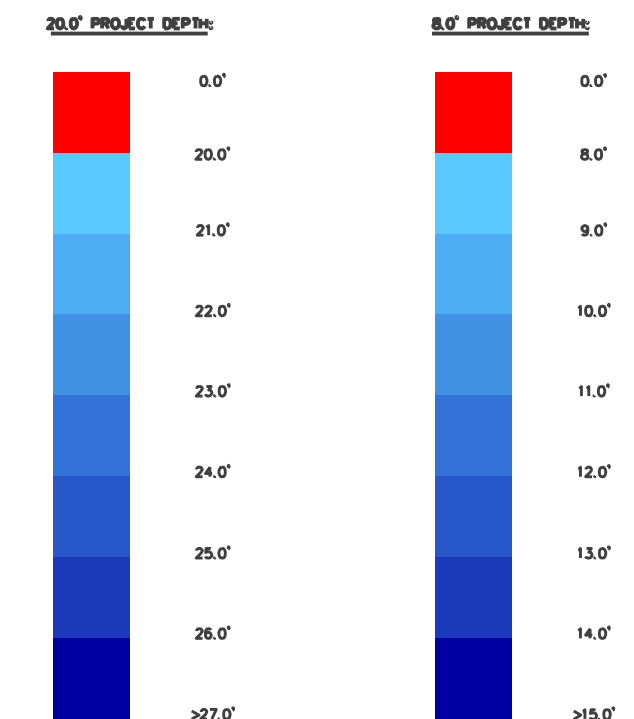
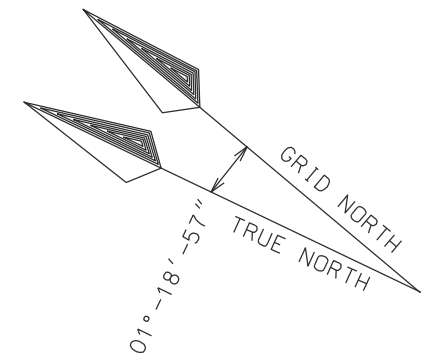
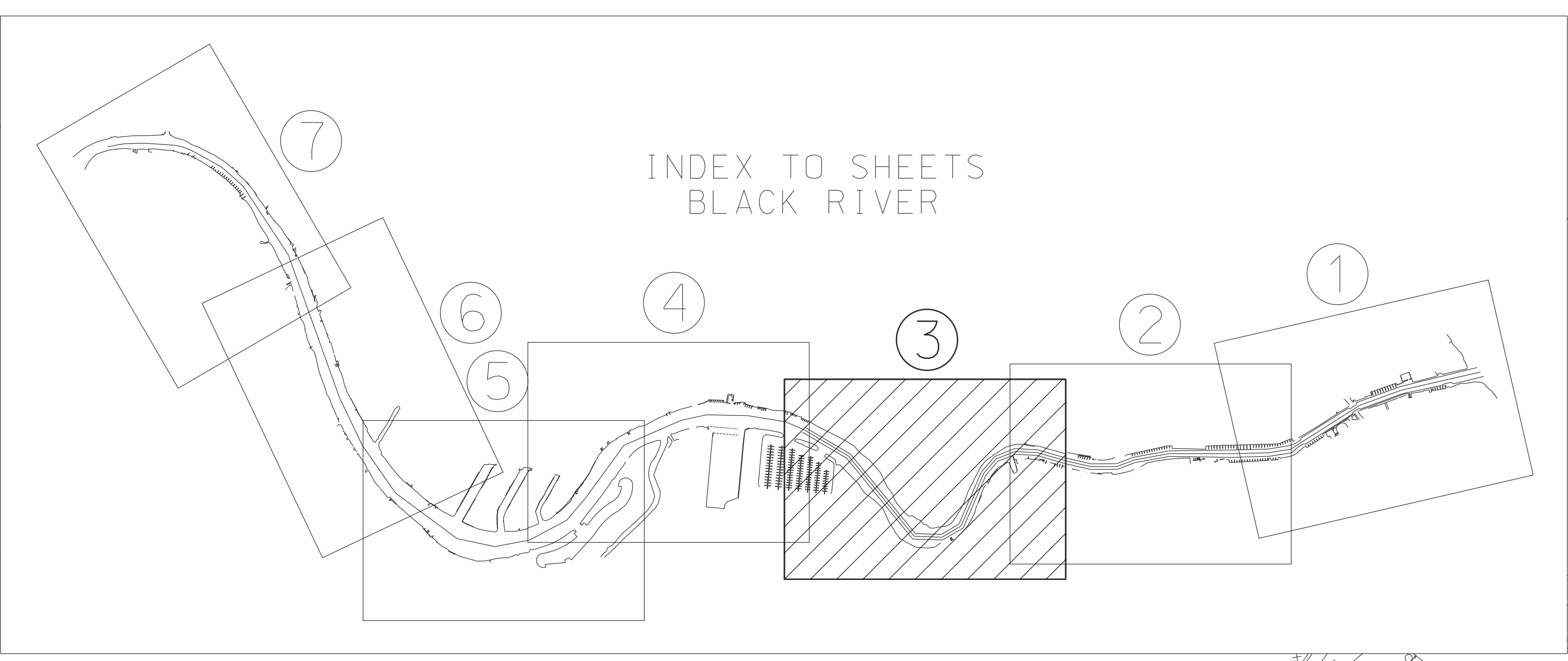
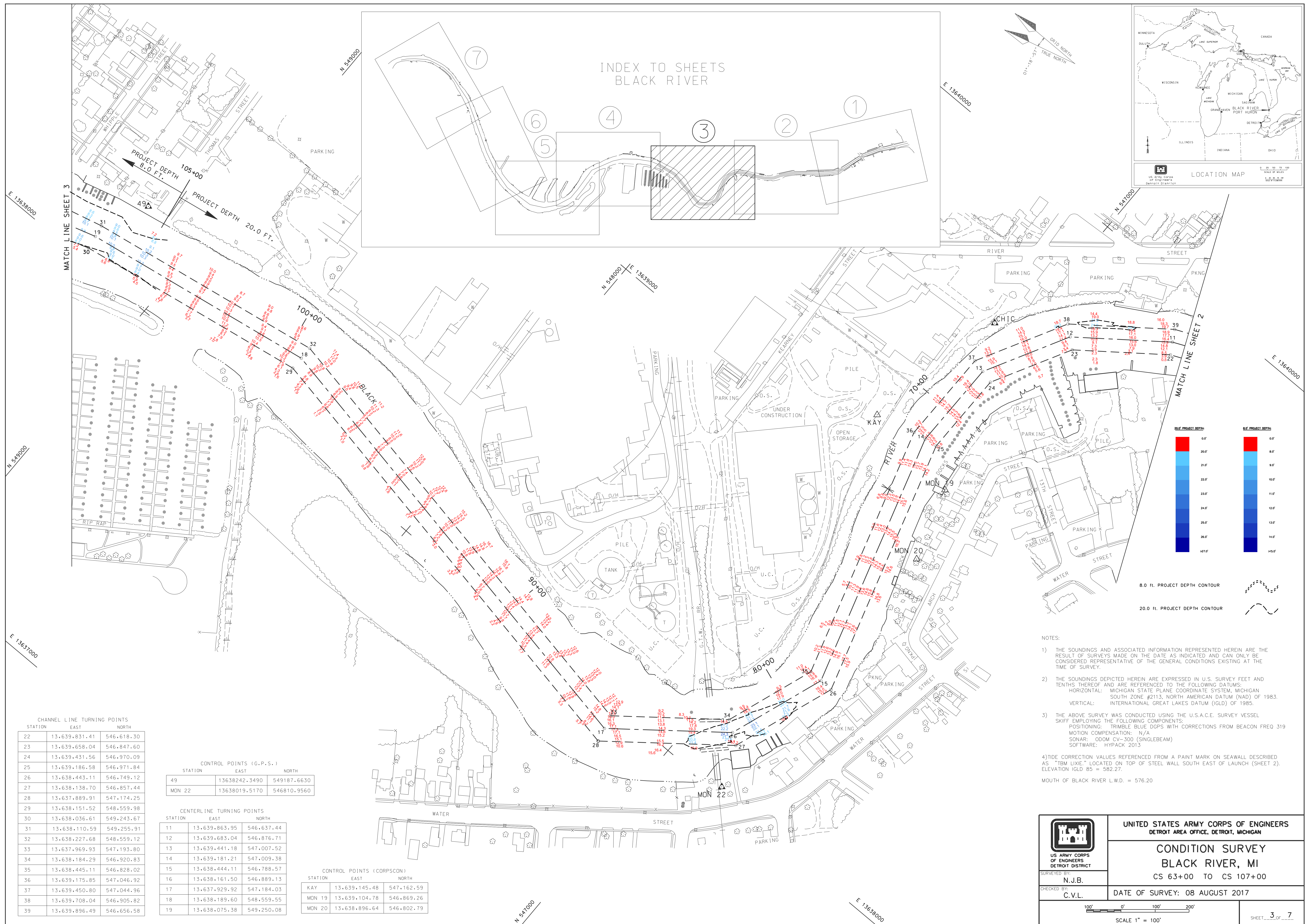
STATION	EAST	NORTH
16	13,641,502.30	544,583.27
17	13,640,967.17	545,240.23
18	13,640,607.18	545,539.53
19	13,640,386.34	545,663.50
20	13,640,152.21	545,938.45
21	13,639,991.72	546,255.56
40	13,640,059.53	546,287.67
41	13,640,215.10	545,980.28
42	13,640,434.75	545,722.34
43	13,640,649.86	545,601.58
44	13,641,020.29	545,293.60
45	13,641,578.01	544,648.62

CONTROL POINTS (CORPSCON)

STATION	EAST	NORTH
BALL	13,640,546.11	545,522.09
HILL	13,640,025.11	545,846.75
ODD	13,640,582.72	545,705.31
PEW	13,640,037.19	546,579.48
PIER	13,639,847.16	546,213.84
REC	13,640,975.53	545,555.62
SNOW	13,641,420.55	544,657.73
TEN	13,640,571.14	545,887.29
45	13,641,418.24	544,322.41
BLACK RIVER	13,641,165.27	545,189.53



	UNITED STATES ARMY CORPS OF ENGINEERS DETROIT AREA OFFICE, DETROIT, MICHIGAN	
	<b>CONDITION SURVEY</b> <b>BLACK RIVER, MI</b> CS 33+00 TO CS 62+00	
SURVEYED BY: <b>N.J.B.</b>	DATE OF SURVEY: 08 AUGUST 2017	
CHECKED BY: <b>C.V.L.</b>		
		SHEET <u>2</u> OF <u>7</u>



8.0 FT. PROJECT DEPTH CONTOUR  
 20.0 FT. PROJECT DEPTH CONTOUR

- NOTES:
- 1) THE SOUNDINGS AND ASSOCIATED INFORMATION REPRESENTED HEREIN ARE THE RESULT OF SURVEYS MADE ON THE DATE AS INDICATED AND CAN ONLY BE CONSIDERED REPRESENTATIVE OF THE GENERAL CONDITIONS EXISTING AT THE TIME OF SURVEY.
  - 2) THE SOUNDINGS DEPICTED HEREIN ARE EXPRESSED IN U.S. SURVEY FEET AND TENTHS THEREOF AND ARE REFERENCED TO THE FOLLOWING DATUMS:  
 HORIZONTAL: MICHIGAN STATE PLANE COORDINATE SYSTEM, MICHIGAN SOUTH ZONE #213, NORTH AMERICAN DATUM (NAD) OF 1983.  
 VERTICAL: INTERNATIONAL GREAT LAKES DATUM (IGLD) OF 1985.
  - 3) THE ABOVE SURVEY WAS CONDUCTED USING THE U.S.A.C.E. SURVEY VESSEL SKIFF EMPLOYING THE FOLLOWING COMPONENTS:  
 POSITIONING: TRIMBLE BLUE DGPS WITH CORRECTIONS FROM BEACON FREQ 319  
 MOTION COMPENSATION: N/A  
 SONAR: ODOM CV-300 (SINGLEBEAM)  
 SOFTWARE: HYDRUS 2013
  - 4) TIDE CORRECTION VALUES REFERENCED FROM A PAINT MARK ON SEAWALL DESCRIBED AS "TBM LINE" LOCATED ON TOP OF STEEL WALL SOUTH EAST OF LAUNCH (SHEET 2). ELEVATION IGLD 85 = 582.27.
- MOUTH OF BLACK RIVER L.W.D. = 576.20

CHANNEL LINE TURNING POINTS

STATION	EAST	NORTH
22	13.639.831.41	546.618.30
23	13.639.658.04	546.847.60
24	13.639.431.56	546.970.09
25	13.639.186.58	546.971.84
26	13.638.443.11	546.749.12
27	13.638.138.70	546.857.44
28	13.637.889.91	547.174.25
29	13.638.151.52	548.559.98
30	13.638.036.61	549.243.67
31	13.638.110.59	549.255.91
32	13.638.227.68	548.559.12
33	13.637.969.93	547.193.80
34	13.638.184.29	546.920.83
35	13.638.445.11	546.828.02
36	13.639.175.85	547.046.92
37	13.639.450.80	547.044.96
38	13.639.708.04	546.905.82
39	13.639.896.49	546.656.58

CONTROL POINTS (G.P.S.)

STATION	EAST	NORTH
49	13638242.3490	549187.6630
MON 22	13638019.5170	546810.9560

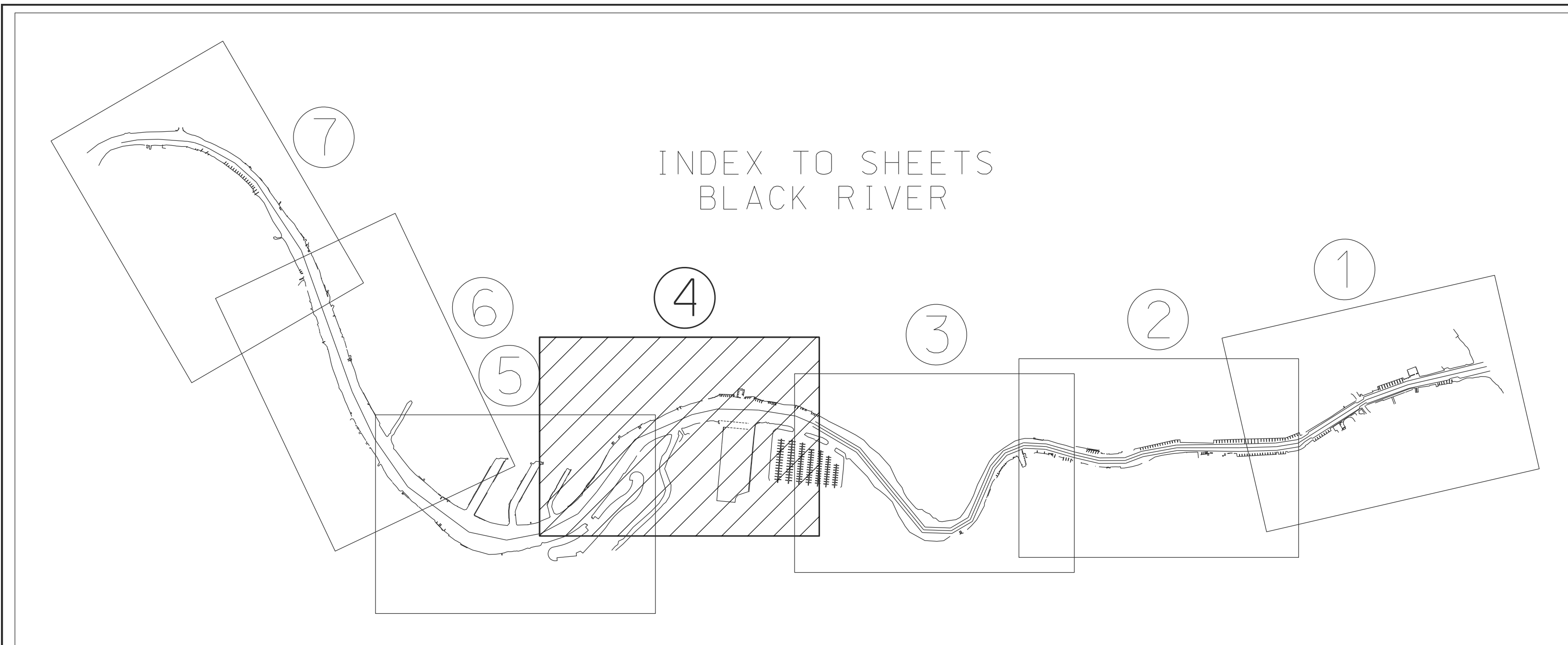
CENTERLINE TURNING POINTS

STATION	EAST	NORTH
11	13.639.863.95	546.637.44
12	13.639.683.04	546.876.71
13	13.639.441.18	547.007.52
14	13.639.181.21	547.009.38
15	13.638.444.11	546.788.57
16	13.638.161.50	546.889.13
17	13.637.929.92	547.184.03
18	13.638.189.60	548.559.55
19	13.638.075.38	549.250.08

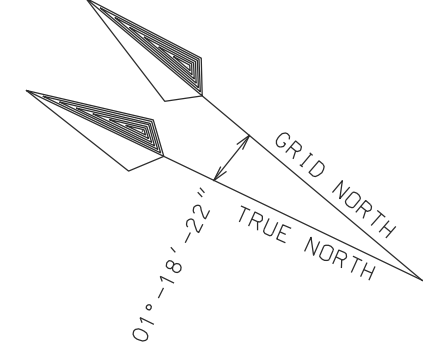
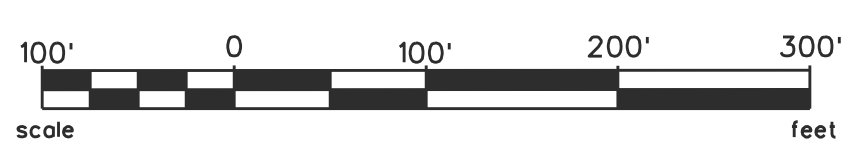
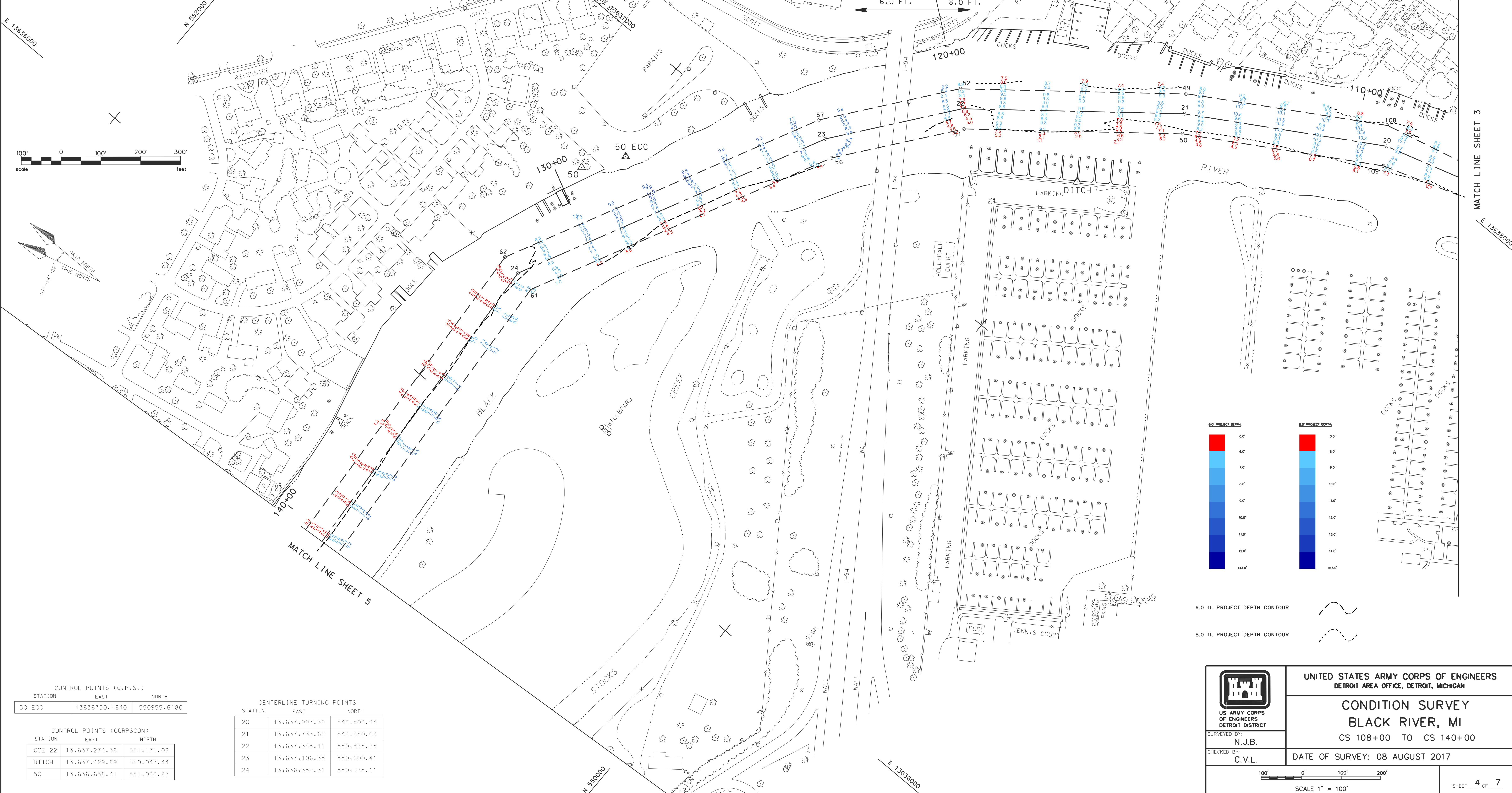
CONTROL POINTS (CORPSCON)

STATION	EAST	NORTH
KAY	13.639.145.48	547.162.59
MON 19	13.639.104.78	546.869.26
MON 20	13.638.896.64	546.802.79

	UNITED STATES ARMY CORPS OF ENGINEERS DETROIT AREA OFFICE, DETROIT, MICHIGAN	
	<b>CONDITION SURVEY</b> <b>BLACK RIVER, MI</b> CS 63+00 TO CS 107+00	
SURVEYED BY: N.J.B.	DATE OF SURVEY: 08 AUGUST 2017	
CHECKED BY: C.V.L.	SCALE 1" = 100'	
		SHEET 3 OF 7



- NOTES:
- 1) THE SOUNDINGS AND ASSOCIATED INFORMATION REPRESENTED HEREIN ARE THE RESULT OF SURVEYS MADE ON THE DATE AS INDICATED AND CAN ONLY BE CONSIDERED REPRESENTATIVE OF THE GENERAL CONDITIONS EXISTING AT THE TIME OF SURVEY.
  - 2) THE SOUNDINGS DEPICTED HEREIN ARE EXPRESSED IN U.S. SURVEY FEET AND TENTHS THEREOF AND ARE REFERENCED TO THE FOLLOWING DATUMS:  
 HORIZONTAL: MICHIGAN STATE PLANE COORDINATE SYSTEM, MICHIGAN SOUTH ZONE #2113, NORTH AMERICAN DATUM (NAD) OF 1983.  
 VERTICAL: INTERNATIONAL GREAT LAKES DATUM (IGLD) OF 1985.
  - 3) THE ABOVE SURVEY WAS CONDUCTED USING THE U.S.A.C.E. SURVEY VESSEL SKIFF EMPLOYING THE FOLLOWING COMPONENTS:  
 POSITIONING: TRIMBLE BLUE DGPS WITH CORRECTIONS FROM BEACON FRED 319  
 MOTION COMPENSATION: N/A  
 SONAR: ODOM CV-300 (SINGLEBEAM)  
 SOFTWARE: HYPACK 2013
  - 4) TIDE CORRECTION VALUES REFERENCED FROM A PAINT MARK ON SEAWALL DESCRIBED AS "TBM LIXIE," LOCATED ON TOP OF STEEL WALL SOUTH EAST OF LAUNCH (SHEET 2) ELEVATION IGLD 85 = 582.27.  
 MOUTH OF BLACK RIVER L.W.D. = 576.20



CONTROL POINTS (G.P.S.)

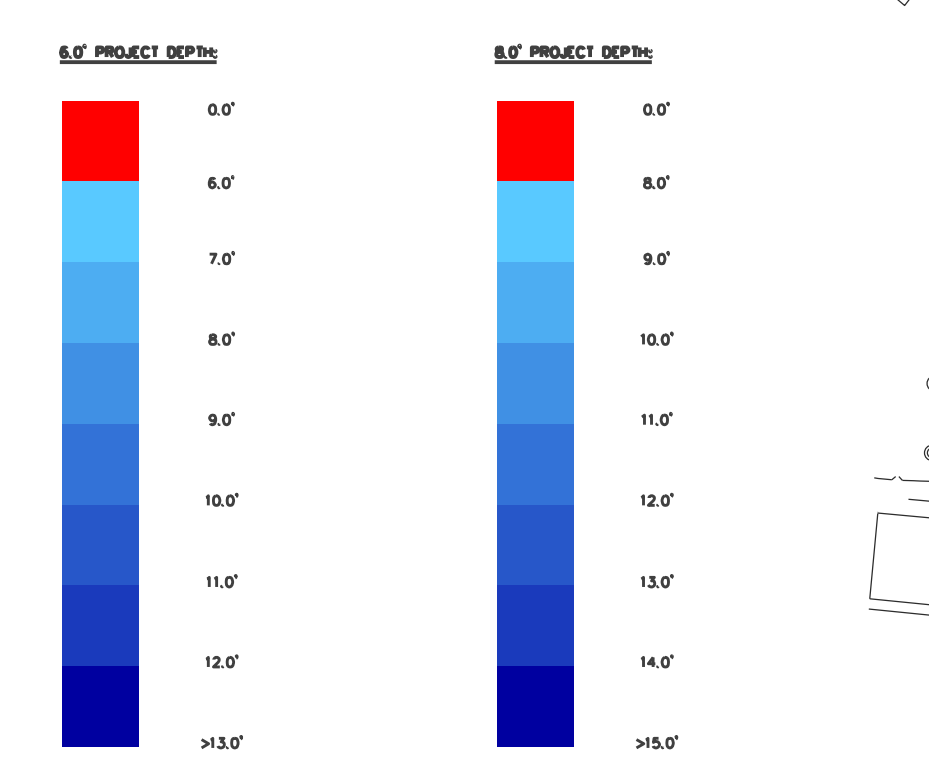
STATION	EAST	NORTH
50 ECC	13636750.1640	550955.6180

CONTROL POINTS (CORPSCON)

STATION	EAST	NORTH
COE 22	13,637,274.38	551,171.08
DITCH	13,637,429.89	550,047.44
50	13,636,658.41	551,022.97

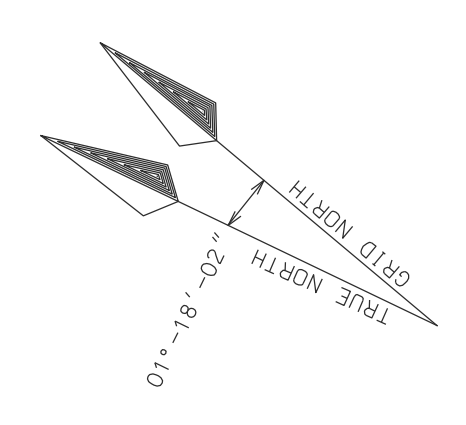
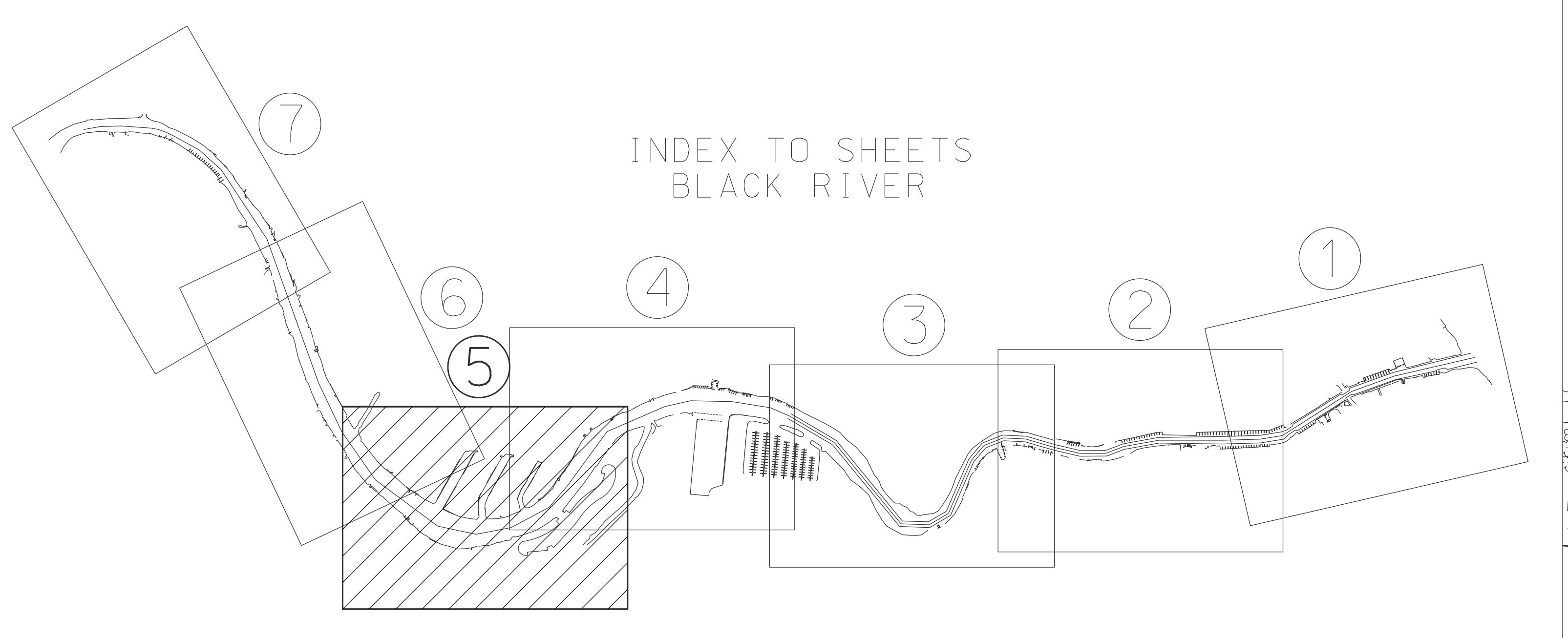
CENTERLINE TURNING POINTS

STATION	EAST	NORTH
20	13,637,997.32	549,509.93
21	13,637,733.68	549,950.69
22	13,637,385.11	550,385.75
23	13,637,106.35	550,600.41
24	13,636,352.31	550,975.11

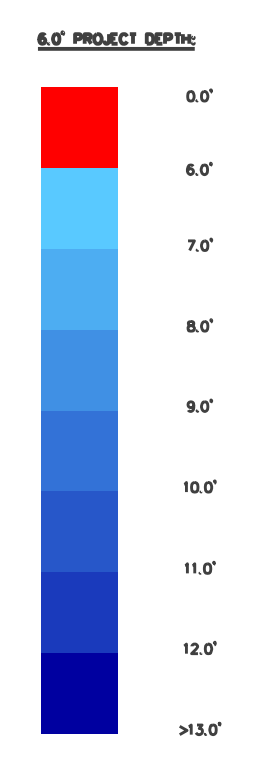


6.0 FT. PROJECT DEPTH CONTOUR  
 8.0 FT. PROJECT DEPTH CONTOUR

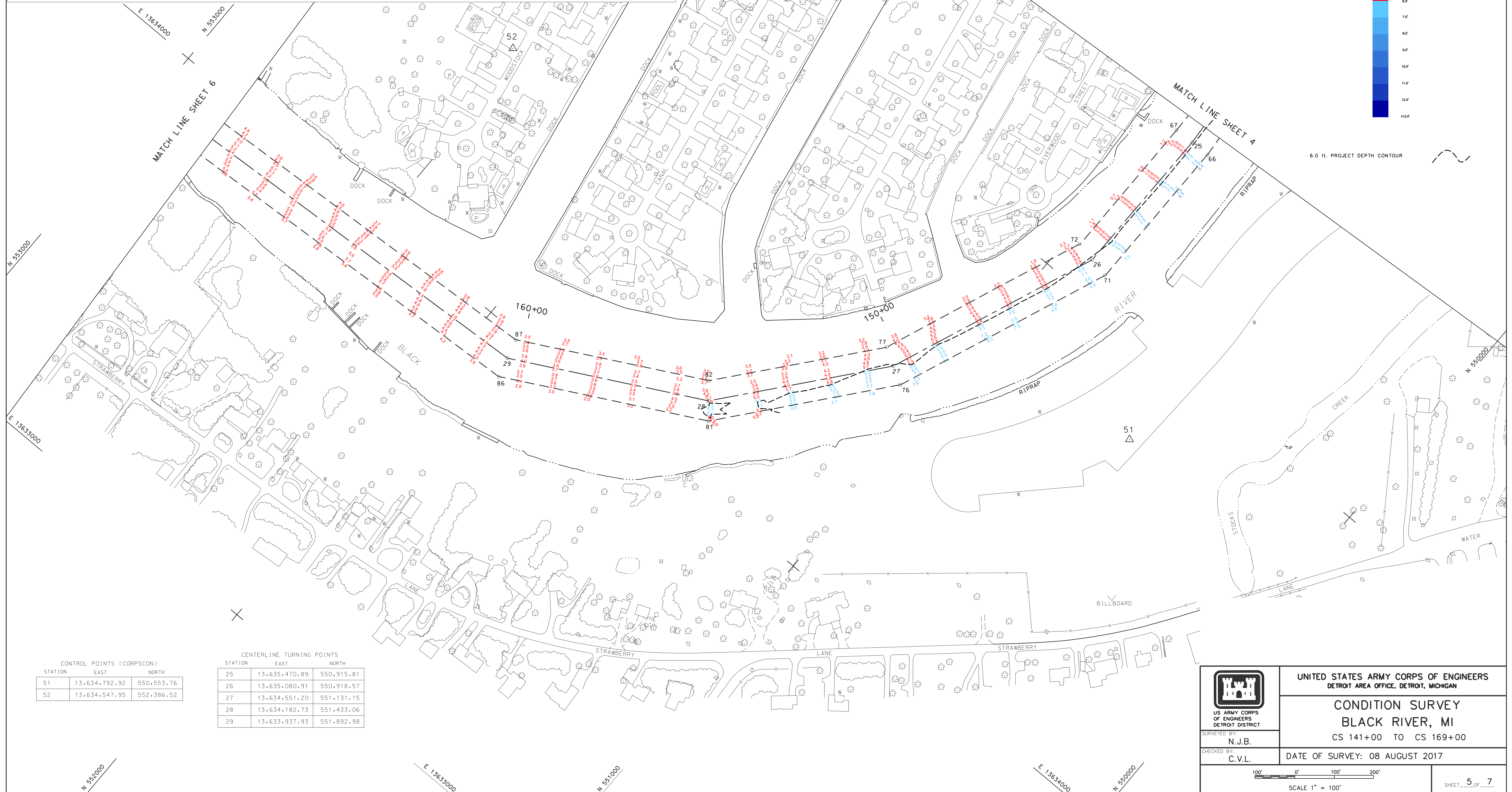
 US ARMY CORPS OF ENGINEERS DETROIT DISTRICT	UNITED STATES ARMY CORPS OF ENGINEERS DETROIT AREA OFFICE, DETROIT, MICHIGAN
	<b>CONDITION SURVEY</b> <b>BLACK RIVER, MI</b> CS 108+00 TO CS 140+00
SURVEYED BY: <b>N.J.B.</b>	DATE OF SURVEY: 08 AUGUST 2017
CHECKED BY: <b>C.V.L.</b>	SCALE 1" = 100'
SHEET <b>4</b> OF <b>7</b>	



- NOTES:
- 1) THE SOUNDINGS AND ASSOCIATED INFORMATION REPRESENTED HEREIN ARE THE RESULT OF SURVEYS MADE ON THE DATE AS INDICATED AND CAN ONLY BE CONSIDERED REPRESENTATIVE OF THE GENERAL CONDITIONS EXISTING AT THE TIME OF SURVEY.
  - 2) THE SOUNDINGS DEPICTED HEREIN ARE EXPRESSED IN U.S. SURVEY FEET AND TENTHS THEREOF AND ARE REFERENCED TO THE FOLLOWING DATUMS:  
HORIZONTAL: MICHIGAN STATE PLANE COORDINATE SYSTEM, MICHIGAN SOUTH ZONE #2113, NORTH AMERICAN DATUM (NAD) OF 1983.  
VERTICAL: INTERNATIONAL GREAT LAKES DATUM (IGLD) OF 1985.
  - 3) THE ABOVE SURVEY WAS CONDUCTED USING THE U.S.A.C.E. SURVEY VESSEL SKIFF EMPLOYING THE FOLLOWING COMPONENTS:  
POSITIONING: TRIMBLE BLUE DOPS WITH CORRECTIONS FROM BEACON FREQ 319  
MOTION COMPENSATION: N/A  
SONAR: ODOM CV-300 (SINGLEBEAM)  
SOFTWARE: HYPACK 2013
  - 4) TIDE CORRECTION VALUES REFERENCED FROM A PAINT MARK ON SEAWALL DESCRIBED AS "TBM LVK1" LOCATED ON TOP OF STEEL WALL SOUTH EAST OF LAUNCH (SHEET 2).  
ELEVATION IGLD 85 = 582.27.  
MOUTH OF BLACK RIVER L.W.D. = 576.20



6.0 ft. PROJECT DEPTH CONTOUR



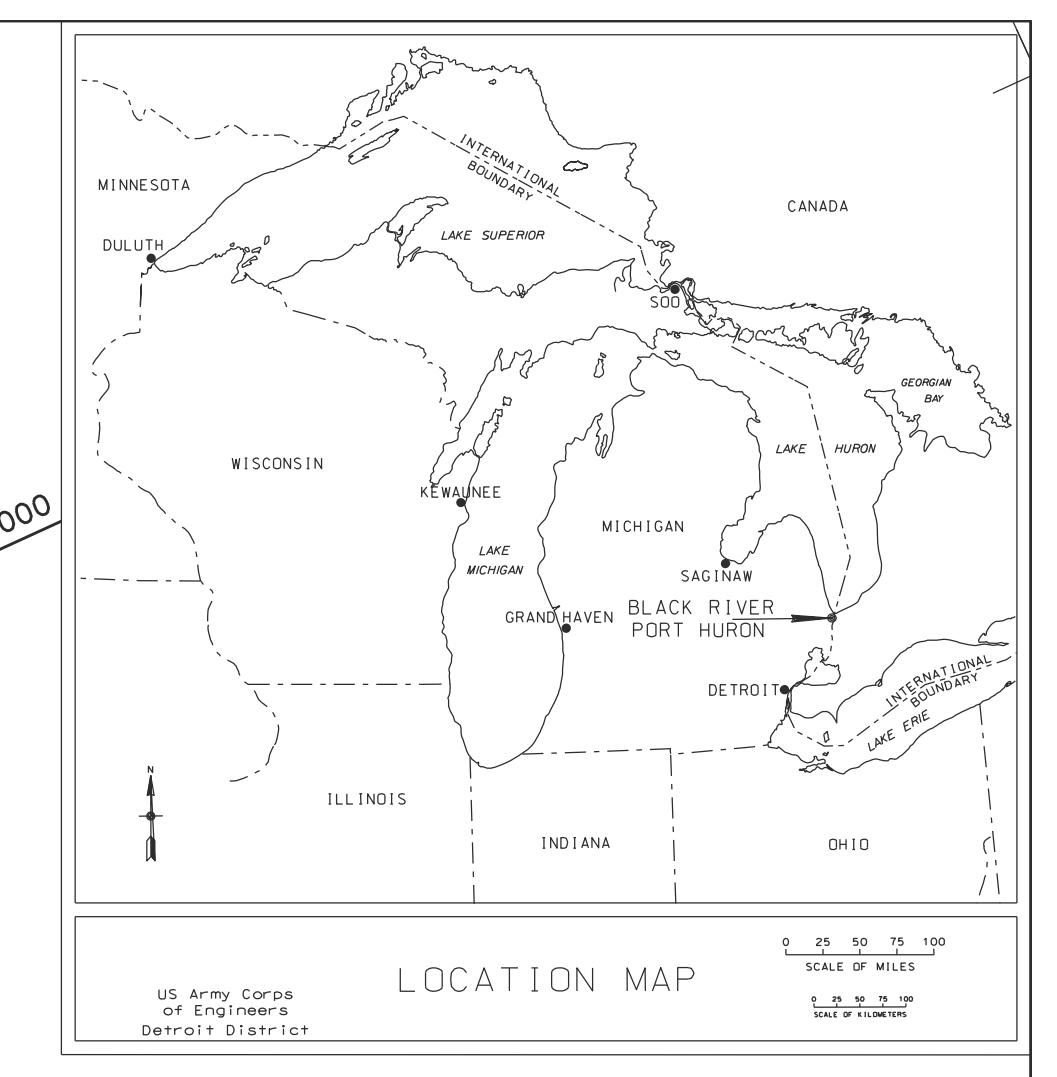
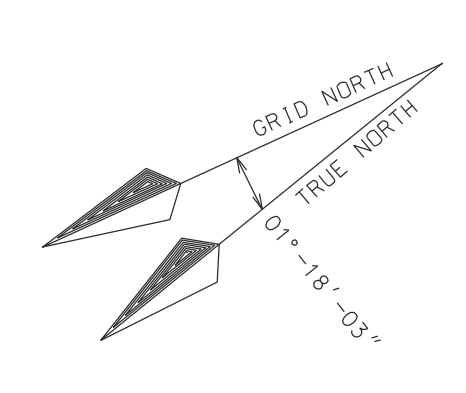
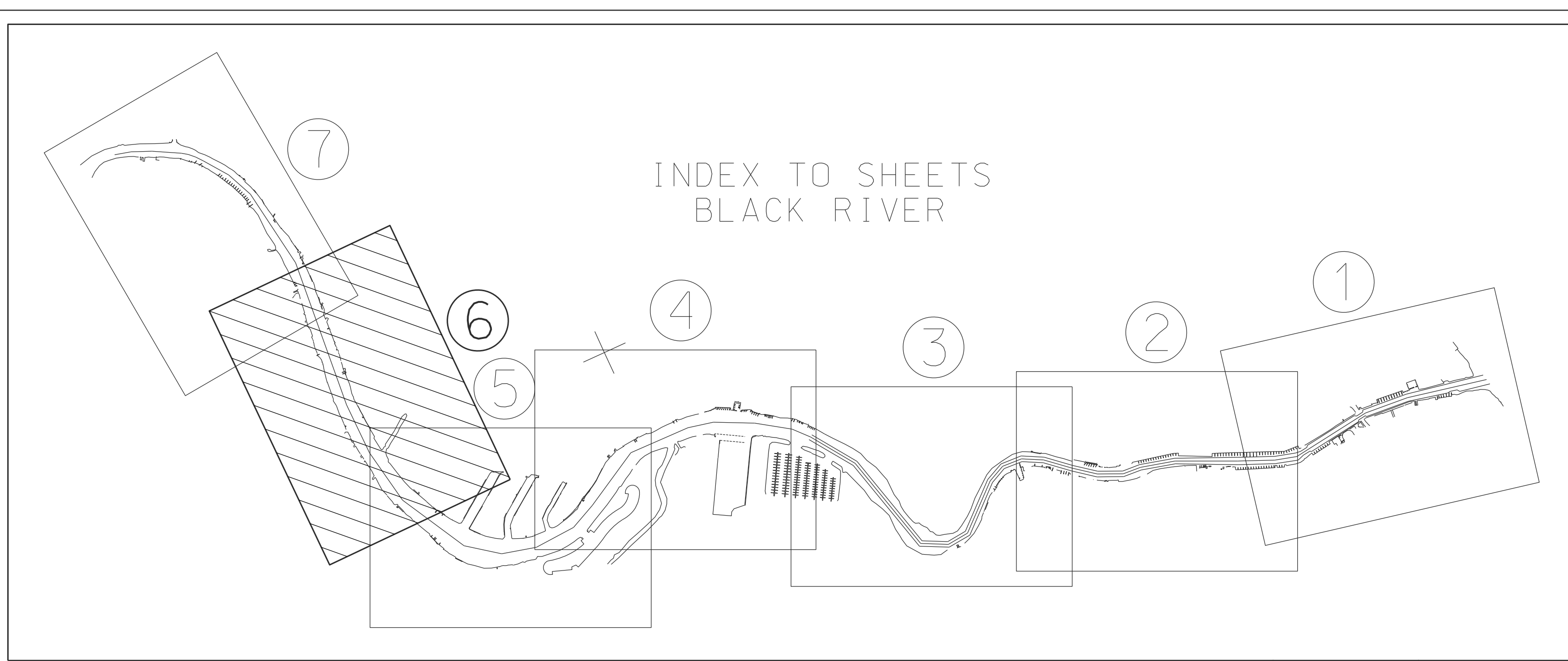
CONTROL POINTS (CORPSCON)

STATION	EAST	NORTH
51	13,634,792.92	550,553.76
52	13,634,547.95	552,386.52

CENTERLINE TURNING POINTS

STATION	EAST	NORTH
25	13,635,470.89	550,915.81
26	13,635,080.91	550,918.57
27	13,634,551.20	551,131.15
28	13,634,182.73	551,433.06
29	13,633,937.93	551,892.98

<p>US ARMY CORPS OF ENGINEERS DETROIT DISTRICT</p>	<p>UNITED STATES ARMY CORPS OF ENGINEERS DETROIT AREA OFFICE, DETROIT, MICHIGAN</p>	
	<p>CONDITION SURVEY BLACK RIVER, MI CS 141+00 TO CS 169+00</p>	
<p>SURVEYED BY: N.J.B.</p>	<p>DATE OF SURVEY: 08 AUGUST 2017</p>	
<p>CHECKED BY: C.V.L.</p>	<p>SCALE 1" = 100'</p>	
<p>SHEET 5 OF 7</p>		



CONTROL POINTS (G.P.S.)

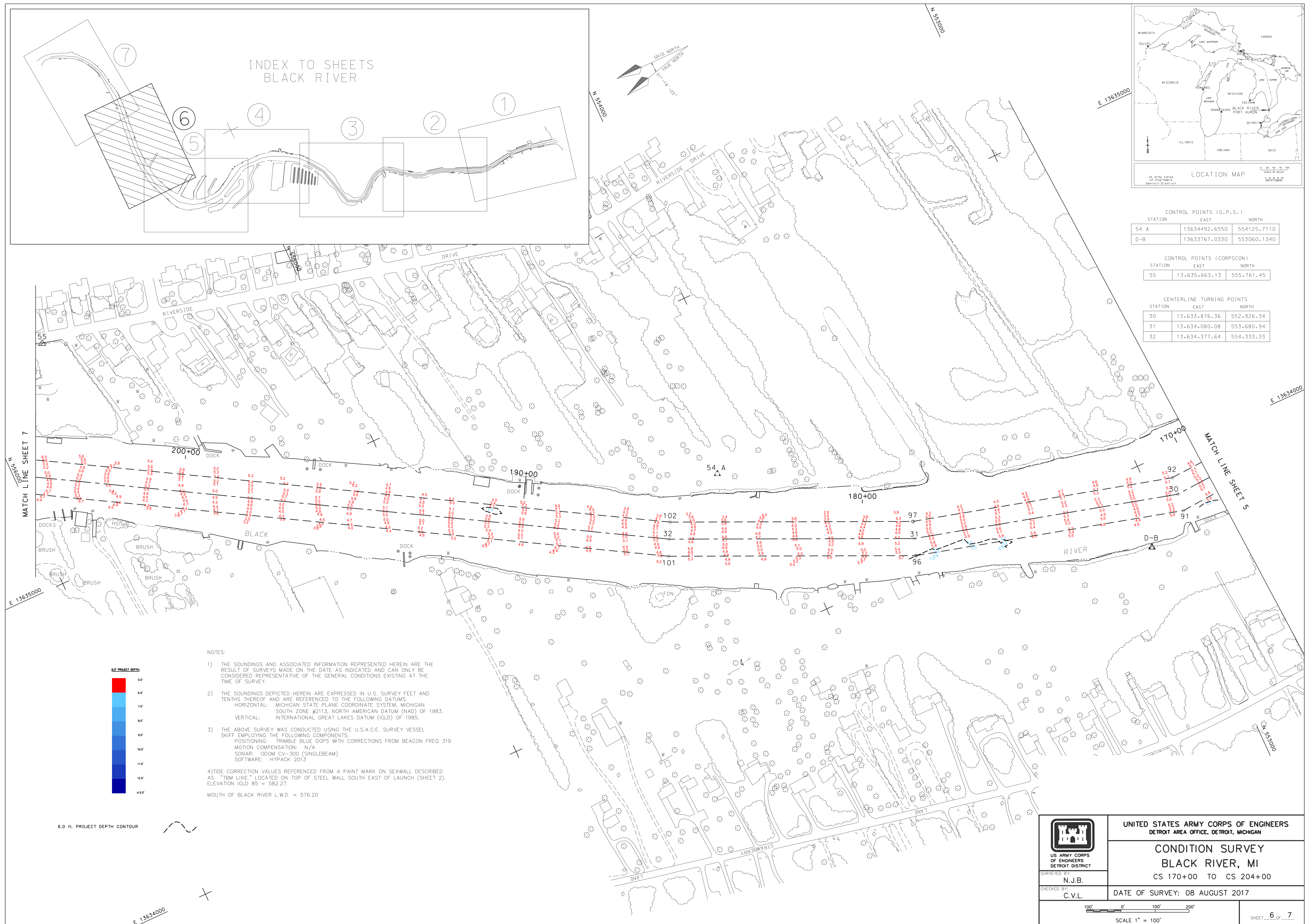
STATION	EAST	NORTH
54 A	13634492.6550	554125.7110
D-B	13633767.0330	553060.1340

CONTROL POINTS (CORPSCON)

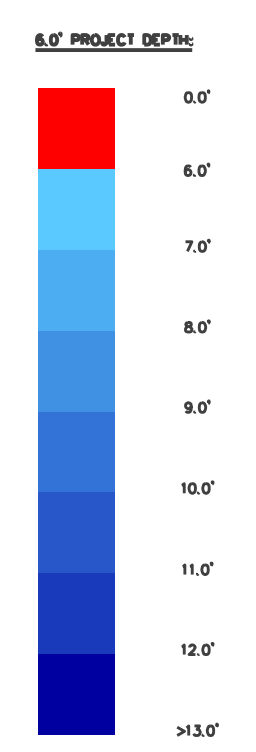
STATION	EAST	NORTH
55	13.635.663.13	555.761.45

CENTERLINE TURNING POINTS

STATION	EAST	NORTH
30	13.633.876.36	552.926.34
31	13.634.080.08	553.680.94
32	13.634.377.64	554.333.33

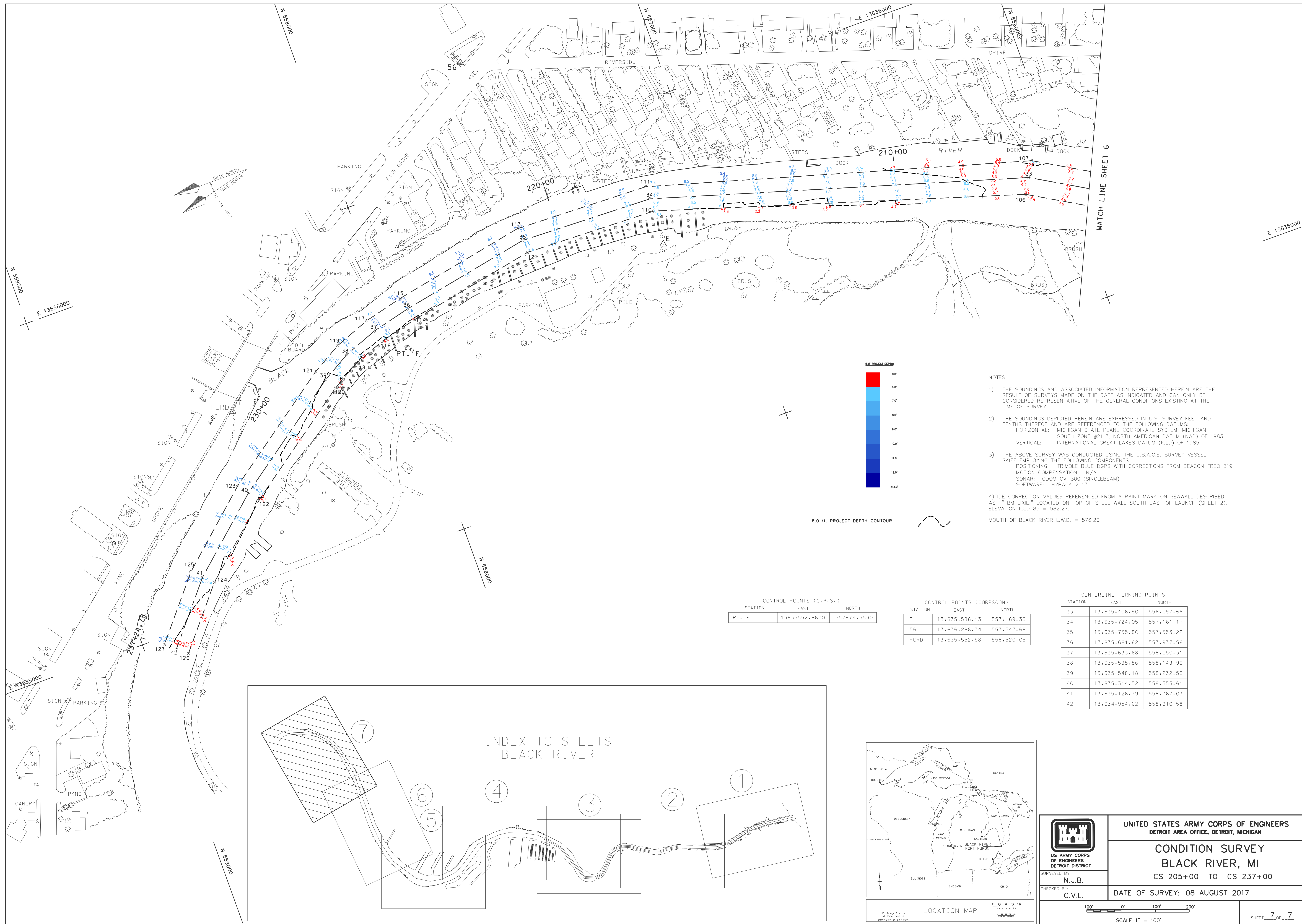


- NOTES:
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  - 2) THE SOUNDINGS DEPICTED HEREIN ARE EXPRESSED IN U.S. SURVEY FEET AND TENTHS THEREOF AND ARE REFERENCED TO THE FOLLOWING DATUMS:  
HORIZONTAL: MICHIGAN STATE PLANE COORDINATE SYSTEM, MICHIGAN SOUTH ZONE #2113, NORTH AMERICAN DATUM (NAD) OF 1983.  
VERTICAL: INTERNATIONAL GREAT LAKES DATUM (IGLD) OF 1985.
  - 3) THE ABOVE SURVEY WAS CONDUCTED USING THE U.S.A.C.E. SURVEY VESSEL SKIFF EMPLOYING THE FOLLOWING COMPONENTS:  
POSITIONING: TRIMBLE BLUE DGPS WITH CORRECTIONS FROM BEACON FREQ 319  
MOTION COMPENSATION: N/A  
SONAR: ODOM CV-300 (SINGLEBEAM)  
SOFTWARE: HYPACK 2013
  - 4) TIDE CORRECTION VALUES REFERENCED FROM A PAINT MARK ON SEAWALL DESCRIBED AS "TBM LIXIE," LOCATED ON TOP OF STEEL WALL SOUTH EAST OF LAUNCH (SHEET 2). ELEVATION IGLD 85 = 582.27.  
MOUTH OF BLACK RIVER L.W.D. = 576.20



6.0 ft. PROJECT DEPTH CONTOUR

	UNITED STATES ARMY CORPS OF ENGINEERS DETROIT AREA OFFICE, DETROIT, MICHIGAN	
	<b>CONDITION SURVEY</b> <b>BLACK RIVER, MI</b> CS 170+00 TO CS 204+00	
SURVEYED BY: N.J.B.	DATE OF SURVEY: 08 AUGUST 2017	
CHECKED BY: C.V.L.	SCALE 1" = 100'	
		SHEET 6 OF 7



- NOTES:
- 1) THE SOUNDINGS AND ASSOCIATED INFORMATION REPRESENTED HEREIN ARE THE RESULT OF SURVEYS MADE ON THE DATE AS INDICATED AND CAN ONLY BE CONSIDERED REPRESENTATIVE OF THE GENERAL CONDITIONS EXISTING AT THE TIME OF SURVEY.
  - 2) THE SOUNDINGS DEPICTED HEREIN ARE EXPRESSED IN U.S. SURVEY FEET AND TENTHS THEREOF AND ARE REFERENCED TO THE FOLLOWING DATUMS:  
 HORIZONTAL: MICHIGAN STATE PLANE COORDINATE SYSTEM, MICHIGAN SOUTH ZONE #2113, NORTH AMERICAN DATUM (NAD) OF 1983.  
 VERTICAL: INTERNATIONAL GREAT LAKES DATUM (IGLD) OF 1985.
  - 3) THE ABOVE SURVEY WAS CONDUCTED USING THE U.S.A.C.E. SURVEY VESSEL SKIFF EMPLOYING THE FOLLOWING COMPONENTS:  
 POSITIONING: TRIMBLE BLUE DOP'S WITH CORRECTIONS FROM BEACON FREQ 319  
 MOTION COMPENSATION: N/A  
 SONAR: ODOM CV-300 (SINGLEBEAM)  
 SOFTWARE: HYPACK 2013
  - 4) TIDE CORRECTION VALUES REFERENCED FROM A PAINT MARK ON SEAWALL DESCRIBED AS "TBM LIXE," LOCATED ON TOP OF STEEL WALL SOUTH EAST OF LAUNCH (SHEET 2), ELEVATION IGLD 85 = 582.27.

6.0 ft. PROJECT DEPTH CONTOUR

CONTROL POINTS (C.P.S.)

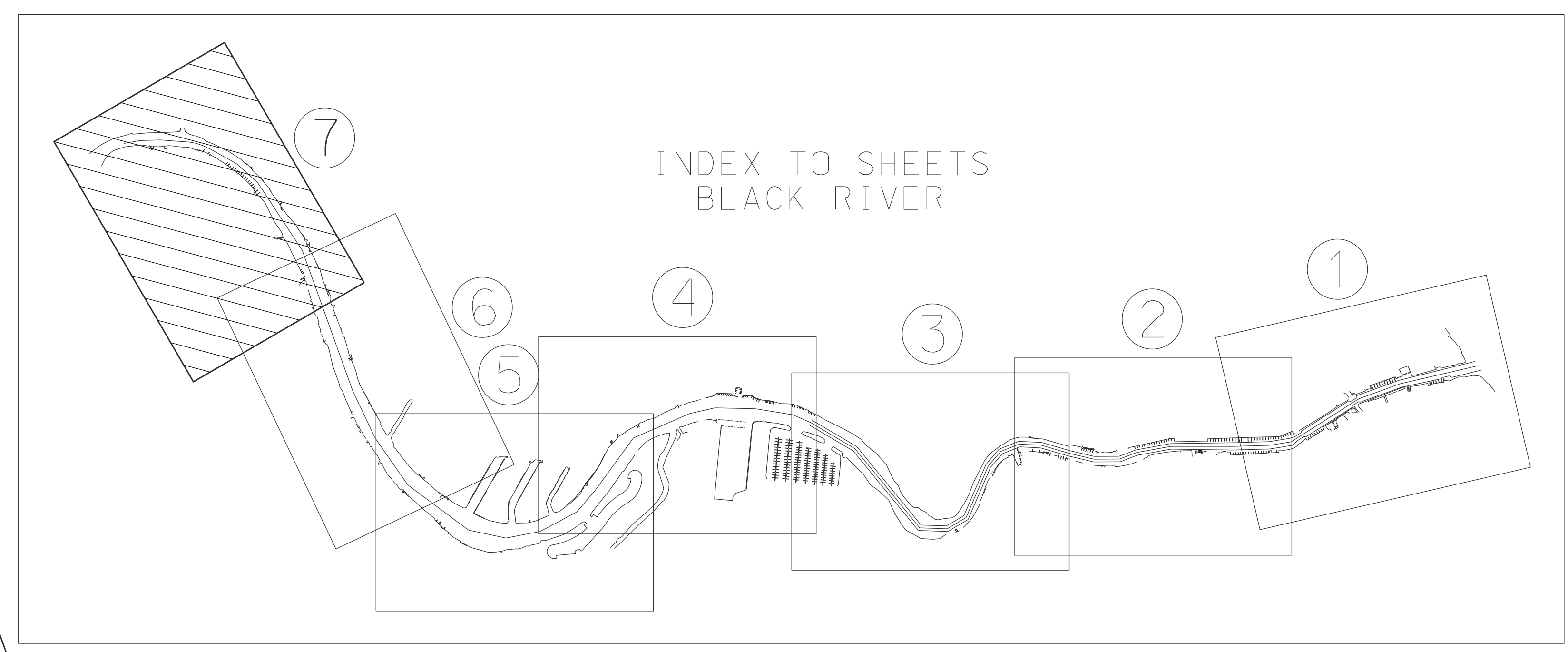
STATION	EAST	NORTH
PT. F	13635552.9600	557974.5530

CONTROL POINTS (CORPSON)

STATION	EAST	NORTH
E	13.635.586.13	557.169.39
56	13.636.286.74	557.547.68
FORD	13.635.552.98	558.520.05

CENTERLINE TURNING POINTS

STATION	EAST	NORTH
33	13.635.406.90	556.097.66
34	13.635.724.05	557.161.17
35	13.635.735.80	557.553.22
36	13.635.661.62	557.937.56
37	13.635.633.68	558.050.31
38	13.635.595.86	558.149.99
39	13.635.548.18	558.232.58
40	13.635.314.52	558.555.61
41	13.635.126.79	558.767.03
42	13.634.954.62	558.910.58



<p>US ARMY CORPS OF ENGINEERS DETROIT DISTRICT</p>	<p>UNITED STATES ARMY CORPS OF ENGINEERS DETROIT AREA OFFICE, DETROIT, MICHIGAN</p>	
	<p>CONDITION SURVEY BLACK RIVER, MI CS 205+00 TO CS 237+00</p>	
<p>SURVEYED BY: N.J.B.</p>	<p>DATE OF SURVEY: 08 AUGUST 2017</p>	
<p>CHECKED BY: C.V.L.</p>	<p>SCALE 1" = 100'</p>	
<p>SHEET 7 OF 7</p>		